

# A Comprehensive Integrative Medical approach to Mercury detoxification and functional rehabilitation

Reference Guide: Detoxification Therapeutics for Heavy Metals, Toxic Chemicals and other Neurotoxins

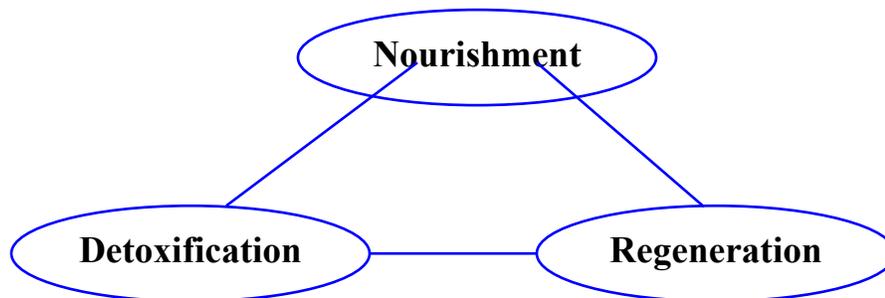
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## I. Introduction and basic principles

**Understanding principles and products** for an **intelligent at home** (Naturopathic) program; this program is integrated with an **office chelation program** for the removal of heavy metals, toxic chemicals and other neurotoxins. All the issues – 7/2008

### A. Trinity of Integrative Health



- To re-establish Health (therapeutic program)
- To maintain Health and Longevity (life time)
- All chronic diseases and their signs and symptoms (misery) are the result of toxification and the body's reaction to the toxic overload. If true healing and health are to be obtained, detoxification is critical. Whether you have pursued alternative or



condition; **your exercise**, to your non-stressed limit are just some of the critical life styles that are essential for health and healing.

An essential part of all our Integrative Medical health programs, as the diagrams above displays is “getting rid of the bad stuff” – a) detoxification (bowel, heavy metals and toxic chemicals), b) the treatment of chronic infections, and c) treatment of unresolved psycho-emotional conflicts. There are other chronic perpetuating “bad stuff” factors contributing to your internal stress and health problems or limiting your recovery, which also need to be addressed: allergies and hypersensitivities to foods, environmental substances, chemicals, even vitamins and minerals as well as yourself (autoimmune); too much exposure to noxious energies like electrosmog, microwave and geopathic stress – especially in the bedroom; major structural or physical problems can be a great stress adding to your health problems like Cranio Mandibular Dysfunction (TMJ), which causes major cranial dysfunctions and leg length problems; and toxic foci, which are (neuro)toxic and neurological disturbances from scars, dead teeth, jaw bone cavitations and chronically infected organs.

Remember since man is complex being, functioning at multiple levels (i.e. physical, energetic, mental, intuitive, and spiritual), the “bad stuff”, which becomes the root causes of disease, dysfunction and degeneration includes biochemical, physical, energetic and mental/intuitive/ spiritual. Conversely the “good stuff”, which becomes the basis of comprehensive Integrative Medical health and healing therapeutics also addresses these same multiple aspects of the human being (i.e. biochemical therapy, physical therapy, energetic therapy, and psycho-emotional (and other intuitive and spiritual) therapies).

The body innately strives to heal and function normally but needs a supporting internal environment (or milieu) to support health- “putting in the good stuff”. Like a plant, the body will grow and be healthy, the way it was intended to function, when the **environment is healthy with optimal nutrition, hydration and all the good physical and biochemical growth and healing factors**. In addition the human being to maintain health and regenerate requires a **healthy information or regulation system** that is sending the right signals to the cells and tissues through: biochemical information molecules (i.e. neurotransmitters / peptides, inflammatory complexes and other signaling biochemicals); or regulation information coming from your functional nervous system (Psycho-neuro-immunological- hormonal system); or healthy thoughts, attitudes and beliefs from the mental aspect of our being regulates our functional nervous system and thus our physical body; or healthy Karma, family systems issues or other non-genetic influences that may affect the human being.

Diet and life-style management take time and guidance if meaningful and lasting changes are to be realized. This is the foundation to all our Integrative Medical programs and the reason why all patients are referred to our nutrition and diet and life style counselors.

#### **D. Companion information and reference for Detoxification Therapeutics:**

- Basics: guide to healthy life styles
- Bowel basics;
- Integrative Medical Protocol – Toxic Inherited Brain Disorders (Autism and extensive notes on detox);
- Comprehensive Integrative Medical Program for Lyme and other (Neurotoxic) Chronic Infections;
- Patient Orientation III ( Psycho-emotional therapeutics);
- Dental Protocol for the Safe Removal of Mercury Fillings from the Teeth- Dental Detoxification Phase

## II. Detox Treatment: Principles, Products and Strategies

### Introduction:

Heavy Metal Detoxification and Functional Rehabilitation **objective- is to remove toxic heavy metals from the body and restore proper functioning of the ANS (autonomic nervous system)** and the organs/ structures affected by it. Mercury in particular (as well as other toxic heavy metals, toxic chemicals and neurotoxins from chronic infections – Lyme, candida, mold...) is neurotoxic and all have a synergistic and devastating effect on the nerves especially the functional nervous system (the ANS). Mercury and the other neurotoxins also promote excessive oxidative damage and alter enzymes and detoxification systems. This contributes to dys-regulation (improper neurological signaling), free radical damage and oxidation, and other bodily changes. We combine mercury (and other heavy metals, toxic chemicals and bio-toxins) detox with functional rehabilitation to purposely link detox with the restoration of the proper signaling of the body - its vast and complex regulation system.

The **neurological and immune system are intricately related**; therefore as neurological toxicity continues, the immune system becomes depressed which allows chronic infections to gain access and proliferate. The psycho-emotional stress system, which also is seamlessly related to the neurological and immune system, becomes overwhelmed, which often reduces the metabolic gland output. Thus as a result of chronic toxification, the entire body is affected. The **individual signs and symptoms can truly be a wide and diverse set of symptoms and diseases** from hormonal and metabolic diseases, autoimmune, energy problems, all degenerative and inflammatory disorders, neurological and mental problems including all the neurodegenerative disorders and cancer.

Detoxification is a long process. Since we live in such a toxic world and whatever is in our environment will eventually find its way inside our bodies, most feel that due to our toxic world, **detoxification is a life long process if healthy aging** is your life goal. If you are functionally rehabilitating from a dys-order, disease or strident health issue, then a more short term intense program with a “detox cognizant” health professional is strongly advised. However, you are your best doctor and the only health professional that will be dedicated to your healthy aging for the rest of your life, so you should start learning some very important principles about a life time process – heavy metal, neurotoxin and toxic chemical detoxification.

This paper is about **intelligent detoxification of heavy metals toxic chemicals and other neurotoxins**. The other neurotoxins can be **from mold and chronic infections** like Lyme, Herpes, Candida and a host of other bugs that evade the immune system). Although the detox products might change, or some might use one product or another, the principles of heavy metal detox remain more constant. This strategy is principle based.

These principles have been gathered from a wide group of sources most importantly from the work of Dietrich Klinghardt MD, PhD, the experiences of the Doctors at NIHA, Doctors of Capital University of Integrative Medicine and almost anyone that has had anything to add to this subject in the last 20 years.

### Overview of the detox system:

**I Un-binding the toxin** (heavy metal, toxic chemical or bio-toxin) from its binding site in the body: various tissues and organs; extra, peri and intracellular. Toxins are compartmentalized and bound at various depths in the body.

**II. Mobilizing the toxin out** through the body to the organs of elimination

**III. Binding the toxin in the bowel** to be removed in the feces; the bowel is the major elimination organ of neurotoxins; the skin, kidney, lungs, and other bodily fluids are more direct in their bodily removal.

Note: all strategies and products used in detox facilitate one or more of the three actions above. The following are principles that apply to detox, in which strategies and products are incorporated. The products and strategies will evolve with the interest and science; the principles should remain.

**Principle #1: Heavy Metal (neurotoxin and toxic chemical) detox is both a biochemical and a regulation process.**

Biochemical detox can be readily understood by the many products and principles to detox the heavy metals and toxic chemicals out of the body. However, most patients and many doctors do not understand that the body has an **innate information system that regulates its biochemical and physical bodily processes**. During the long term toxification of the body by heavy metals, toxic chemicals and eventually the chronic infections (as well as the unresolved psycho-emotional conflicts), the **bodily information system becomes programmed to survive** in the best way it can, with the unfavorable environment and toxic milieu that is thrust upon it.

Laws of Homotoxicology state that if the toxic load becomes too great for the body to excrete through its normal **excretion** (or detoxification organs: liver- bowel, kidney, lung, skin, sexual organs), the body will **store the toxins** in bodily compartments. To facilitate this process, the Autonomic Nervous System reacts to the frequency of mercury or the other chronic toxins (hypersensitivity), so that storage of the toxins can be effectively and efficiently facilitated, with minimal harm to the whole body or at least the body's vital bodily parts. In addition, the ANS will shut down the blood flow to the toxic bodily components (hypo-perfusion). Often the detox organs become dys-functional because of the chronic toxic load. **All patients with chronic health problems have dys-autonomia or dysfunction of the Autonomic Nervous System (the body's energetic information system), which should be addressed for efficient and effective detoxification** (if not the detox will be harder and slower). These are the Regulation Therapeutics – that addresses the energetic ANS (and is a very important part of a comprehensive Integrative Medical Protocol). Regulation therapeutics including:

1. AET (Allergy Elimination Therapeutics),
2. To increase blood flow in the bodily compartment that requires detox : Drug up-take enhancement (MFT tapping points), Neural therapy, acupuncture, reflexology, Low Level Laser Therapy (LLLT)
3. Other re-programming regulation therapeutics: microcurrent (KMT, phonon-genie); LLLT with information programming (Erchonia, Las-R-pulse, Cowden Protocol); Photon- light, frequencies

Each of these techniques and products will be reviewed later.

**Principle # 2: The most important rule in detox is to - Remove the source of toxicity- this is a process of education and action:**

The chronically ill patient or the patient that is striving to be healthier (and all in between) must understand the basic environmental law for all living things - what is on the **outside of your body – eventually will get on the inside**. We live in a very toxic world, with the indiscriminant use of toxic metals, chemicals of all types – petroleum solvents, pesticides and herbicides, chemicals used to “treat” our clothes, our homes and cars, and almost everything else we buy, our water supply, our food supply, our soaps and cosmetics. Now there is irradiation and genetic engineering, which further alters our foods.

For detoxification and functional rehabilitation to be effective you must address:

1. **Your diet and life styles:** to understand the issues and make positive steps to improve all healthy aspects of your life. We feel Diet and Life Style coaching for health is the most critical first step. Don't kid yourself; you can't get to where you need to go unless you get help, guidance and encouragement to overcome the hurdles along the way.
2. **Your home:** can be a source of health and healing or a source of toxicity. Are chemicals, noxious energies, mold and other debilitating environmental poisons can stealth fully making you toxic? Peter Steinmetz, (an environmental investigator for safe homes and one of the references that we use for this condition – see references in the appendix), can predict the health and mental condition of most patients fairly accurately by testing the chemicals and molds in the house. Noxious energies (of electromagnetic radiation, geopathic stress and microwave radiation) are a growing problem because of the uncontrolled exposure to these noxious energies. A home toxic audit and especially making your sleeping room as environmentally friendly as possible is very important to health and healing. See references.
3. **Your mouth:** If you have mercury fillings, with every chew you are releasing mercury from the fillings into your body. If you have mercury under crowns the mercury is traveling through your nervous system to your brain. If you have two different metals in your mouth, (e.g. a gold crown and mercury fillings), there is an electro galvanic current that is produced. Furthermore when there are different metals in your mouth, the mercury from your fillings is more rapidly “electroplating” off the mercury filling adding to your toxic burden. All of these common dental conditions negatively impacting your Autonomic Nervous System (ANS), adding to your toxicity and neurological stress.. A dental assessment from a **detox cognizant, Biological, dentist** is critical. The dental exam will include: your cavities and periodontal (gum) condition, mouth mapping for the mercury fillings and mercury under the crowns, evaluation of root canals and other dead teeth (sources of very potent toxins, chronic infections and dys-autonomia), evaluation for jaw bone cavitations (again sources of toxins, chronic infections and dys-autonomia), and TMJ or Cranial – Mandibular dys-function (CMD), which can contribute of head, neck and generalized pain and dys-function and dys-autonomia.

In summary, your foods, metal implants (fillings...), cosmetics and personal care products, pesticides (toxic metals and toxic chemicals)... need to be evaluated and healthy improvements and substitutes need to be developed if you want to be successful in this journey. If you don't remove the sources (especially the mercury fillings), you will move the mercury from one part of the body to another, causing more harm. Continual dosing yourself with toxic heavy metals and toxic chemicals while taxing your system to detox or expending energy to remove the toxic substances from your body simply does not make sense. “You cannot get dry until you turn off the shower- no exceptions.”

The signs and symptoms of our health issues, especially chronic diseases and dys-functions (that do not seem to resolve) are an **accumulation of toxicities from various sources**. Those patients that are unlucky enough to have multiple chemical sensitivities (MCS) will sometimes attest to a chemical exposure that trips them into their hyper-reactive state. However, with a careful history and analysis, the process to becoming an environmental cripple was slow

and accumulative. Regardless of the origin, the solution for these clients during their functional rehabilitation is a clean and pristine living environment, food sources, avoidance of allergic foods and all toxic chemicals and noxious energies. The “canaries” with MCS can teach the rest of us a lot about our environment, as well as what they need to do to regain their health and function.

Action steps:

1. Diet and Life Style group classes or individual counseling sessions
2. A dental exam and treatment strategy
3. A environmental home audit
4. Examine the list of potential exposures for mercury and other toxic metals (in the assessment part of this paper)

### **Principle # 3: Treat GI toxicity and create a healthy bowel:**

“The Bowel- Liver- Blood ecosystem is critically important in regaining and maintaining health” Dr. Majid Ali

“Bowel – Immune- Brain” Dr. James LaValle

The problems of the bowel are mal-absorption, dysbiosis, allergic foods, oxidative stress, acidosis, body inflammation, immune system dys-regulation, leaky gut and bowel biofilm (which reduce nutrient absorption and maintain a home for chronic infections). One cannot detox heavy metals and toxic chemicals with a toxic bowel, for the bowel is one of the most important organs for detoxification (as well as immune modulation). In addition, you cannot afford to add GI toxicity to your toxic burden during metal, chemical and other neurotoxins detox. Without controlling chronic bowel inflammation, the detoxification system in general and the liver specifically cannot detoxify the toxic chemicals, bio-toxins from chronic infections and remove the heavy metals.

To understand the problems of bowel toxicity (and inflammation) and neurotoxin detox the relationship of the liver and bowel needs to be understood. The liver detoxification system consists of 3 phases: phase I is where the toxins are activated by changing the toxic chemical or bio-toxin to a very reactive compound (by oxidation, hydroxylation, reduction, or dehydrogenation). This is done in the liver cell (by the Cytochrome p-450 enzyme system) and the first step actually makes the toxic chemical temporarily more reactive or toxic. Phase II is conjugation, where the oxidized toxin is bound to a molecule to neutralize its highly reactive oxidative state and make it like a detergent (water and fat soluble) to be transported out of the liver. The conjugation biochemicals are: sulfate, glutathione, amino acids like Glycine and taurine, glucose and methyl and acetyl groups. Note this process not needed for heavy metals. The Phase II conjugated – toxin is now recognizable by the transporters or Phase III, whose function is to transport the conjugated toxin out through the bile, intestine wall or the kidney. There are several phase III transport proteins (cMOAT, OAT, MRP1, MRP2, GS-X) all interchangeable for different conjugated pathways (sulfate, methyl, Glycine, glutathione, glucose). These Phase III transport systems are in the liver cells, intestines and kidneys (all excretory cells).

An inflamed small intestine is the hallmark of Autism Spectrum Disorder (ASD) and most chronic diseases, and is easily caused by heavy metal induced oxidative damage. The bowel inflammation causes phase III dysfunction and thus inhabits the Phase II conjugation step. This effectively stops the neurotoxin detox process by not allowing the liver to get rid of the highly toxic Phase I altered toxins including neurotoxins. This consequentially has serious consequences for the liver and all the cells of the body. Liver cells can not get rid of their activated toxins. Therefore, the liver cells become very toxic themselves with massive oxidative stress (because Phase I creates oxidation and is not turned off), and eventually die off. When the liver can no longer do its job of removing the toxins from the body the

neurotoxic buildup spills in the blood, brain and the entire body. This brings on increased bodily inflammation, acidosis and Oxidosis, the immune system is disabled and chronic infections are more aggressive in the changed environment (milieu).

The bowel-liver are the organs involved in retention toxicity, which is a Phase II and Phase III detoxification problem. When mercury is involved, (which it usually is), the mercury is continually reabsorbed by the bowel and re-cycled into liver, blood and rest of the body. In addition, when candida and other dys-biotic (bad) bugs are present, the inorganic mercury from the fillings and environment is converted to methyl-mercury and becomes highly mobile and more toxic (especially to the brain and nerves).

Action: see Bowel Basics and Bowel Restoration for more details to understanding, assessment and treatment

Evaluation:

- History: (systems) digestive, allergy (all but especially food), general immune, hormonal disorders including insulin resistance, joint pain, headaches, cancer (especially breast and colon), skin problems, weight gain
- Chronic inflammation: Blood labs: CBC differential – monocytes, basophils and eosinophils = 7; C- reactive protein;
- Functional tests: Peripheral Blood Analysis – microscopic evaluation of peripheral blood
- Functional tests: biofeedback testing: Electrodermal testing, ART
- With all chronic disease, immune conditions including allergy, asthma and autoimmune diseases, degenerative diseases, chronic neurological and mental conditions, Autism Spectrum disorders... the bowel is highly suspected until proven otherwise.

Treatment:

- A **neurotoxin bowel binding protocol** must be employed to prevent the re-cycling and re-uptake of the neurotoxins detoxed in the liver and delivered to the bowel through the bile. This is very common and important to the reducing the neurotoxic load.

Action items:

1. Neurotoxin bowel binding program to remove the neurotoxins into the feces (out), reduce oxidation and inflammation of the bowel: chlorella, red/ green clay, charcoal, IMD...
2. An active bowel program as outlined in more detail in Bowel Basics includes:
  - a. Digestive enzymes: especially hydrochloric acid and digestive enzymes. HCl is always reduced in heavy metal toxicity, chronic condition where energy production is reduced, and naturally with age (over 30 the HCl production is reduced).
  - b. Probiotics to restore good bacteria: supplemental foods and lacto-fermented foods
  - c. Eliminate the allergic foods: Allergy Elimination Therapeutics, identify and withdraw from the foods, and other methods of reducing the hyper-reaction of the patient to foods eaten. Allergic foods cause inflammation of the bowel.
  - d. Whole foods, organic foods and foods rich in phyto nutrients, minerals, anti-oxidants, lacto-fermented foods... (information in Basics; Guide to healthy life-styles, and the Diet and Life-style coaching program.
  - e. Bowel rehabilitation often is greatly aided by colon hydrotherapy, which washes the many years of toxic debris from the walls of the colon. We highly recommend it.

## **Principle # 4: Systematic detoxification is a process of diffusion and dilution while maintaining bodily barriers.**

Important concepts:

- Detox takes time,
- **Multiple detox agents** are required in your arsenal, but there is an intelligent strategy required as to when to employ each
- Don't make things worse: Detox out, not driving the toxins to other parts of your body or deeper into your bodily tissues or cells.
- Utilize all and multiple routes of detoxification

Detoxification is not a magical pill that one takes for a short time and presto you are clean! The process takes time and intelligent strategies. The physical process of detoxification of the bodily burden of heavy metals and/or toxic chemicals from biological tissues involves using the **appropriate detox agent and a strategy for the compartment** in question with an understanding that detox involves the physical chemistry principles of **diffusing and diluting the mercury and other heavy metals (and chemicals) from the bodily stores or compartments.**

No one detoxification agent can enter into every bodily compartment that may be storing mercury (other heavy metals and toxic chemicals) and “chelate” the toxins out completely. The process involves dilution and diffusion. As mercury is incompletely actively detoxed or removed (**diluted**) from one part of a bodily store (i.e. extra cellular spaces), the mercury from adjacent parts of the extra-cellular space will passively **diffuse** into the spaces vacated by the detox. This is a biological application of the physical chemistry principle of equal distribution of biochemical substances (i.e. solutions).

We divide the detoxification process into **Phases** to simplify and accommodate these very important principles of detoxification. So the first phase of detox is cleaning up the most readily accessible bodily compartments (bowel, detox organs, and extra cellular connective tissues), and removing the toxic substances that are physically implanted (your mercury fillings, toxic teeth...) or you are ingesting in your food or applying on your skin (personal care products). We will be discussing these principles later.

**Biological systems are not solutions** but have semi-permeable membranes, fibrosis and calcification systems capable of walling off (or storing) toxins and chronic infections. In addition the cells and other structures of the body have multiple binding sites both on the cellular membranes, inside the cells and in the cells and structures of the extra-cellular spaces where mercury, other toxic metals and chemicals can bind. Therefore the **healthy body has barriers and detoxification systems that will try to keep the toxic substances from penetrating deeper into the critical organs and intracellular and ultimately intra nuclear.** However everyone has different efficiencies in their detoxification systems and total loads of toxic exposures. Ultimately all succumb to a certain level of toxic exposure, especially over time (which is the case with our current modern life). Remember all toxic metals and chemicals are logarithmically synergistic, (e.g.  $1+1+1=10$ ), which greatly enhances the biological damage of the toxins.

In addition, Total Toxic Load = total toxic exposure – ability to detoxify and excrete toxins.

Furthermore, there are **multiple detoxification routes** for elimination of mercury, other heavy metals and toxic chemicals from the bodily stores. This follows a very simple principle: **however toxic substances can come in and “toxify” the body, is a way for them to go out.** For example, if toxic chemicals are rubbed on and penetrate the skin, they can be removed from the skin through sauna and other sweating therapies.

In intelligent detoxification, we use **every detox organ possible**. Therefore every organ (and bodily barrier) that can be penetrated by mercury (and other heavy metals and chemicals) to “toxify” the body can (in reverse) be a detox organ for removing mercury and other heavy metals from the body. The following can be detoxification organs for mercury and other heavy metals: the skin; the gastrointestinal tract; the lungs; the upper respiratory structures of the nose and sinus; the lymphoid tissue surrounding the bodily cavities exposed to the outside environment – mucosal associated lymphoid tissue (MALT) surrounding the lungs or the GALT (gastro associated lymphoid tissue) surrounding the GI tract; the tonsils; the cranial nerves; the mouth and the mucous membranes of the oral cavity; the female uterus and the male prostate secretions.

**Membranes and other biological barriers** are important to maintain, strengthen and certainly not **violate the biological barriers during heavy metal detox**. Without intelligent understanding of the penetrating ability of the detox agent that is being used, it is very possible during detoxification of mercury that the toxic substances (heavy metals and toxic chemicals) can be displaced (diffused and diluted) **deeper** into the body. Thus toxic substances that were being contained in the extra-cellular tissues could be displaced into the cells if cellular penetrating “chelating agents” are used before the extra-cellular connective tissues are adequately detoxed. The same principle applies to the brain barrier and all the other barriers. If the **biological barriers are violated it makes it both harder to eventually detox and potentially more dangerous to the biological system**.

In Integrative Medicine there is a principle of homotoxicology or “toxification of man” that is very relevant to understand. Simply stated - toxins travel from the extra-cellular compartments→ to the intracellular spaces→ to the nuclear compartments. In each bodily compartment the toxins engage the extra cellular tissues of the organs or tissues, their cells and eventually the cells nucleus creating dys-function and disease. Each bodily compartment renders a certain constellations of symptoms. I.E. if the nucleus is toxic then cancer changes are likely, if the intracellular organelles are toxic, then degenerative changes, or metabolic and energy changes are likely, if the extra cellular spaces are toxic, there are signs and symptoms of inflammation, pain and generalized dys-function are likely.

### **The body has various depths of barriers for binding and storage of toxins - (compartment sites).**

Going from most superficial to the deepest:

1. On the external surface: skin and GI tract ( note: the mucous membranes of the GI tract is a two- way hollow tube in which food breakdown and absorption takes place and the body can excrete toxins into it. The GI tract is very interactive with the extra cellular spaces, and lymphoid tissues.
2. The connective tissues or extra-cellular spaces
3. The structures on the cellular membranes
4. The intracellular and organelle membranes
5. Nuclear membranes and chromosomes.

Within the above bodily barriers are **other barriers systems** the body uses to protect itself from the toxic world, and to differentiate what is beneficial from harmful:

The tubes of the body are barriers

1. The **GI barrier system**: composed of:

- the enterocytes, a single cell gut epithelium, which contain a toxic metal binding protein - metallothionine; metallothionine binds mercury and other heavy metals and then sheds itself into the gut to be removed in the feces.
- the Enteric nervous system, the largest part of the Autonomic Nervous System – highly involved in neuro-immunology and general regulation;

- the GALT- (gut associated lymphoid tissue) or Peyer's Patches system of lymphoid tissue lining the gut; the largest immune cell collection of the body and critical for the modulation of your immune system.
  - the liver, which filters the toxins from the gut;
  - and the beneficial or pathologic microbes that inhabit the bowel, which are a big part of the complex eco-system and barrier system of the bowel. Note: Candida and other harmful microbes bind the mercury in the bowel, thus preventing mercury toxicity in the body. Unfortunately these microbes also become a problem with their own neurotoxins (although not as potent as mercury).
2. The **respiratory barrier system**: the mucous membranes of the respiratory system are particularly vulnerable to elemental mercury. 80% of the mercury vapor inhaled passes through the membranous barriers. In the sinus and upper respiratory tract the extra cellular spaces tend to be able to store the mercury, however in the lung portion, the mercury is more easily transported into the blood
  3. The **endothelium barriers of the blood vessels**: Plaque formation or atherosclerosis in the vessels are intricately related to heavy metals and chronic infections. The blood vessels can become a barrier but often at a price. As mercury and chronic infections circulate, the endothelium cells become exposed and contaminated. The macrophage – the specialized immune cell charged with cleaning up toxins, infections and other debris, invade the vessels to gobble up the irritants already present. As macrophages gobble-up and die, the vessel produces a fibrous wall and then calcifies the wall to isolate and compartmentalize the toxins.

There are other barriers:

1. The **cellular membrane barrier** system is a complex system capable of binding mercury and other heavy metals in a number of places:
  - the bi-lipid cell membrane and the cellular receptor binding sites which contain sulfur bearing proteins – at the membrane channels (remember mercury binds very effectively to sulfur) and mineral co-factors (mercury will bind to the mineral binding sites);
  - glycosaminoglycans (GAGS) – long unbranched polysaccharides which are highly negative charged molecules located on the surface of cells and in the extra cellular matrix (90% of the mercury is bound on the GAGS in the ground system – extra cellular spaces).
  - Since mercury binds to the mineral receptor sites on the cell and inactivates especially the metabolic function, detoxing the mercury can be very beneficial for diabetes, thyroid, adrenal and other metabolic disorders.
2. The **extra-cellular spaces** can be considered a very important barrier system, which is located behind all other gross barriers – skin, bowel, respiratory system, blood vessels, and every organ of the body. When mercury and other heavy metals penetrate the first line of surface cells barriers, they enter the extra-cellular spaces where the Autonomic Nervous System must ultimately deal with the invading toxicity. In the extra-cellular spaces the structures that bind the mercury are:
  - the GAGS;
  - Heines bodies, (which are dense bodies of mercury and other heavy metals often fibrosed);
  - fibrosis is a process of walling off toxins by the fibroblasts by laying down connective tissue fibers around it (collagen);
3. The **brain- blood and the blood- cerebral spinal fluid** barrier is a tight junction of specialized cells surrounding the blood vessels of the brain except the hypothalamus (ANS) and pineal gland. This is a highly intelligent system designed to protect the

brain from toxins and other “bad stuff” that does not belong in the brain. The blood brain barrier is an very intelligent system of specialized cells that surround the brain blood vessels allowing the beneficial food and other substances required for brain health to penetrate and keeping the toxins and substances that the brain does not need out. This results in the brain being highly permeable to oxygen, water, carbon dioxide and lipid soluble substances, slightly permeable to electrolytes and non permeable to plasma proteins and non-lipid soluble large organic molecules. **Unfortunately, mercury paralyzes the brain barrier system and makes it stupid, so that now it cannot differentiate between toxins and keep them out.**

4. The **intracellular spaces are a barrier**, which when breached cause cellular function problems of energy production, enzymatic and cellular degradation and degeneration.
5. The last is the nuclear membrane barrier which protects the genetic information of the cell.

The application of these principles will be evident later when we develop the products and principles to the various Phases of detoxification. The purpose of understanding the natural barriers of the body is to understand that mercury and other toxins accumulate at various depths in the body over time. **The chelating agents will either be contained by or penetrate the various bodily compartments or barriers.** Physical chemical laws of diffusion and dilution very much apply to chelating heavy metals like mercury out of the body. If we use a **penetrating chelating agent too early, before the more external barriers are cleaned up, the likelihood of mercury being carried deeper into the body is increased.** Understand that chelating agents will equalize the mercury concentration on both sides of the barrier that they penetrate.

### **Principle # 5: Mobilization vs. chelation:**

“There is a difference between mobilizing and detoxing out. Mobilizing heavy metals is the process of stirring mercury up in its hiding place. Mobilization may lead to **excretion**. It also may lead to **redistribution and re-uptake and re-storage**. The body had done the best it could by storing mercury wherever it stored it. By mobilizing, we tell the body that we know better where to put it. We don’t. Detoxifying means mobilizing and moving it out of the body. **There are no true detoxing agents. All we have is mobilizing agents.** The body has to do the excreting with the help of the proper agents. The body is not always able to do this. Often perpetuating factors are present that disable the body’s mechanism to detox” Klinghardt.

Important concepts:

- There are mobilizing doses of chelating agents and chelating doses, which often are 2-3 times the mobilizing dose.
- Chelating phases can be taken At Home or often be centered around In-Office chelation and intense spa detoxification
- One can’t efficiently and effectively chelate continuously, the body often overreacts and is more likely to shut down - it is too hard. Pushing the body to chelate and eliminate too quickly reduces the natural cycles of dilution and passive diffusion of the toxins (see above). Going slower and reducing the body’s potential for overreacting and becoming allergic to the toxic metal or chemical is the goal. If allergy reoccurs, it is often accompanied by a return of your previous toxic signs and symptoms.
- Re-building mineral and anti-oxidant stores, reducing inflammation, restoring immune modulation and “drainage organ” support, is the goal for the mobilization

phases, which is often compromised during intense chelation (i.e. moving very toxic heavy metals through the body).

- During mobilization phases, heavy metals and toxic chemicals are being pulled and pushed out of the body, it is only slower.

### **Mobilize and chelate out, not around:**

Mobilization or redistribution of mercury leading to excretion is the goal. Mobilization leading to storage or recycling the mercury in other parts of the body is a problem. **Since the (allergy/ hypersensitivity) stress response is the primary ANS mechanism for storing toxins, it can be used as a monitoring tool for detox mobilization or redistribution/storage.** That is if the allergy to mercury is present, the ANS is in a storage and not receptive to detoxification and excretion.

There is another very real problem in heavy metal detox that you need to know about and take strategies to prevent. **The mercury (and other neurotoxins) once excreted needs to be prevented from being reabsorbed.** Re-absorption of the mercury can happen in two ways.

- **The Bowel** is an important and effective detox organ for removing mercury from the body. Mercury and other heavy metals can be excreted from the gastrointestinal mucosa, a vast interface surface area, and from the liver and through the bile, the primary detox organ of the body. However, the GI system is a very inefficient detox organ for completely excreting the mercury (and other neurotoxins) out of the body because the excreted heavy metals will often be reabsorbed.
  - a. The first to reabsorb the mercury is the “bad” microbes of the gut – Candida and other pathogenic microbes, which have a high affinity to the heavy metals on their cell walls.
  - b. The second is the gastro intestinal mucosa, or the enteric nervous system, which reabsorbs the mercury and other neurotoxins and thus they are recycled.

Therefore for the gut to be the primary detox organ for heavy metal detox, which it must-

1. the health of the gut is critical and
  2. strong heavy metal binding agents must be used to effectively bind the heavy metals from the liver and when they are excreted through the gut cells into the in the feces to prevent its re-absorption and to selectively bind the heavy metals from the microbes in the gut.
2. Another effective detox route is **the skin**, which has advantages because it has a relatively large surface area and the heavy metals are expelled immediately to the outside of the body. The objective is to prevent re-uptake of the neurotoxins and heavy metals. However, the mercury is released through the skin as vapor and re-breathing the mercury vapor needs to be prevented or at least minimized. An (infra-red) sauna can be very effective for skin detox of mercury and toxic chemicals. However the sauna should provide fresh air to breath or at least a venting fan to draw the toxic vapors away from the patient to prevent re-breathing.

### **Principle # 6: Heavy metals are compartmentalized and no one detox agent can be used for everything.**

Important concepts:

- Chose the proper detox agent for the compartment to be detoxed,
- Be aware that proper detox of mercury especially if there has been any neurological intoxicification (brain and nerves) can take many years.
- Therefore detox in Phases over time with the proper chelating agent.

Heavy metals like mercury will accumulate or be deposited in various bodily compartments over time. Upon entering the body they will first attach to the more superficial areas like extra-cellular spaces or the connective tissues; next they contaminate the deeper structures like cellular walls and eventually get access to inside the cells or even inside the nuclear membranes.

In addition heavy metals are not universally distributed throughout the body, but selectively accumulate in various tissues and organs. Detoxification organs like the bowel, kidney and liver will accumulate heavy metals, as well as the brain and other nervous tissues. Some of the more common sites for heavy metal deposition or compartmentalization are the jaw bone (cavitations), fat, bone, eyes, ears, and cranial nerves; ganglia of the parasympathetic and sympathetic nervous system, hormone producing glands, endothelium of blood vessels, connective tissues of muscles and organs. However, no organ or tissue is immune to heavy metal accumulation and by general rule - any area of the body which is displaying signs and symptoms of disease or dys-function can be considered an area of heavy metal accumulation (and therefore a compartment (organ) to detox).

We previously reviewed body barriers in principle # 4. The body has barriers which attempt to contain toxins (the bad stuff) but also contain some of the detoxification agents (the good stuff). **The art and science of intelligent detoxification is to choose the appropriate detox agent for the compartment to be detoxed.** Remember, heavy metals and toxic chemicals are removed in **stages over time, use multiple chelation methods and multiple routes of excretion.**

This principle incorporates the other previous principles of maintaining bodily compartments and mobilizing and chelating.

- For most, chelation will usually take 2-3 years. In fact because we live in such a toxic world for those who want to be healthy, detoxification - removing toxic metal and chemicals from our bodies and maintaining healthy bowels is a life-time process. Others that claim short detox programs are all that is necessary, are just kidding themselves, it takes many years to get toxic and the reverse, detoxification takes years. This is a **long term project**.
- Detox sequentially in Phases over time to protect the integrity of the biological barriers (cellular and brain) during detox, so to **detox out, not deeper** and avoid making matters worse.
- Mercury and other heavy metals are in bodily compartments, contained by biological barriers. These toxins accumulate in various tissues/components and create **different biological consequences**.
  1. Extra-cellular or connective tissues including the GI system, respiratory system, and vascular tree. These are the tissues that produce the multiple signs and symptoms of toxicity in any organ or system. (See the Symptom Form – in the Assessment section). Metals and chemicals that first accumulate in the extra-cellular spaces create **chronic inflammation and reduce immune competence** – thus adversely affecting the Neurological system (the Autonomic Nervous System) and its partner the Immunological system. This sets the stage for the invasion and rooting of chronic infections into these metal toxic tissues.
  2. Some of the heavy metals in the connective tissues over time can be **fibroses or walled** off by the fibroblasts and with minerals (plaques). This is the body's way to cope with a very serious toxin to its cellular health.
  3. The mercury will also migrate and attach to the cellular membrane, destroying cellular membranes and receptor sites. Mercury binds to mineral sites and sulfur amino acids and when it does the structure is

destroyed and no longer biochemically functional. This is now affecting **cell performance**. I.E. (Many detox cognizant physicians feel that Type II Diabetes or the reduction in the activity of the Insulin receptor is largely the result of Mercury destroying the receptor site.)

- In treating Metabolic syndrome of blood sugars, fats and usually weight, the heavy metal detox component is often ignored.
4. Eventually the mercury invades the intracellular spaces and now the damage becomes **cell degeneration**. Mercury's destructive activity manifests in multiple ways intracellular:
- Mercury is detoxed inside the cell by intracellular glutathione, which carries the mercury to the cell wall to be transported to the outside of the cell. This effective mechanism will eventually reduce the intracellular glutathione, a very important intracellular anti-oxidant critical to mitochondrial free radical quenching. Without adequate stores of glutathione, the mitochondria, (the organelle that burns the fuel) will be destroyed (burn up) and oxidize its membranes, thus reducing the cellular **energy capacity**. This is the adverse mechanism behind chronic fatigue syndrome, when the cellular energy and the intracellular mitochondria are drastically reduced.
  - All intracellular reactions occur on membranes and mercury destroys membranes directly, thus destroying the specific activity of the cell, whether it be detoxing or making an enzyme, hormone, immune peptide or other protein.
5. Ultimately the mercury invades the cell nucleus and alters the chromosomes. The result of this is cancer.
- The work of the German Toxicologist, Daunderer, has shown that all tumors contain an unusually large amount of mercury and other toxic metals.
  - Another researcher Dr. Omoura, uses mercury as one of his cancer markers, indicating that the amount of mercury accumulation is proportional to the aggressiveness of the cancer.

Choose the appropriate detox agent for the compartment to be detoxed. The phases are:

**Phase I- gross deposits:** dental removed; start bowel binding, organ drainage and support therapy;

**Phase II- extra cellular (more assessable):** detox the extra cellular spaces, bowel, connective tissues and drainage organs;

**Phase III- extra cellular (less assessable):** detox extra cellular spaces that are fibrosed, plaques and inaccessible due to hyper-coagulation; start brain detox and cellular membrane detox.

**Phase IV- cell membranes and intracellular**

**Phase V- maintenance**

The detox agents that we use for the various phases will be presented in the treatment section. However there is a very important principle about any therapeutic /detox agents and the bodily compartments that it is targeted to treat.

There are **three embryonic germ layers**:

- The ectoderm, the outside - which develops into the skin and the brain (which is an embryological invagination of the ectodermal layer).
- The endoderm, the inside - which develops into the gut and organs that directly service the bowel (i.e. liver, pancreas).

- The mesoderm, the in between layer, which develops into the blood vessels and its organs (i.e. heart and spleen), the bones, muscles and all the connective tissues

There are three routes of application of any type of therapeutic remedy:

If you want to **effectively have the therapeutic agent reach the organ or tissue (bodily compartment), give the remedy or drug into the proper germ layer.** In other words, if you want to remedy the bowel and the organs connected to the bowel – the liver and pancreas, the remedies should be swallowed. If you wish to detox the mesodermal tissues, then the proper route of administration is IV or IM. If you wish to access the brain, use transdermal remedies. Or put another way – if you are detoxing the brain, the most ineffective route of administration is to swallow the remedies, because the remedies to access the brain must travel through the endoderm, through the mesoderm to enter the ectoderm (e.g. the brain). This principle, although simple to understand is often forgotten in detox and conventional medicine.

This principle applies to using all types of remedies. There are **three types of remedies and all are required for successful detox.**

- Supplemental and detox remedies that supplement or supply therapeutic effects
- Suppression remedies that suppress biological activity or symptoms or kill microbes (i.e. antibiotics, steroids...)
- Regulation remedies that regulate the body's function, like homeopathic remedies.

Therefore in summary, when applying any therapeutic agent (supplemental, suppressive or regulation), **consider the best route of administration to target the organ to be detoxed, regulated or suppressed.**

- The most effective way to detox the connective tissues, the blood vessels and other mesodermal connective tissues is placing the detox agents in the veins (IV) or into the connective tissues by intramuscular injections (IM).
- The most effective method to detox the gut is to swallow the remedies
- The most effective method to deliver remedies to the brain is to use transdermal application.

For a comprehensive and intelligent detox strategy, the detox cognizant physician will be able to employ multiple detox agents into multiple germ layers, that are phased to deliver the detox remedy to the bodily compartment that is being detoxed, (without violating or penetrating the bodily barrier and thus carrying the toxic metal deeper into the body).

Note that all of these principles are sorted out into specific Therapeutic Strategies in the treatment part of this paper. (pg. 65-80).

### **Principle # 7: Detox in cycles (vs. continuously) with time on and time off**

Important concepts:

- Give time to re-establish bodily equilibrium,
- to dissolve and dilute the toxins and to allow the toxins to passively diffuse
- re-mineralize to tissues and not continually chelate minerals out; remember chelation removes the good minerals and the toxic heavy minerals.
- and not overload your detox capacity (energy).

Note that nature **never does things continuously but in conserves energy by functioning in natural rhythms or cycles.**

Detoxification is a long process, a marathon not a sprint, and some feel that detoxification needs to be practiced throughout ones life to remain your healthiest. We live in a toxic world, breathing, bathing and eating heavy metals and toxic chemicals all the time. Even if we eat organically, live “green’ and are careful about everything we put on and into our body, the air our homes and the unavoidable metals and chemicals are contaminating our bodies and those of

our family and things are getting worse. So create detox habits and patterns that can be successful and sustained for a long time.

The use of detoxifying agents is what dictates the cycles. The cycles that we suggest are to:

- a) **Mobilize the toxins**, with mobilizing doses of chelators, rebuilding mineral stores, anti-oxidants, some detox modalities and strengthening drainage organs;
- b) **Chelate the toxins**, with larger amounts of detox agents and other oral or IV chelators; at this time it is best to intensify the detox modalities and minerals cannot be used when using some strong chelating agents.
- c) **Post chelate** the toxins where the emphasis is to move the displaced toxins out through the liver and gastro intestinal tract, binding the neurotoxins in the feces;
- d) **Rest** or do not actively detox.

If you are in an active detox program (under a professional care or not) a **monthly cycle** can work well. Some like to reduce the rest period and detox on a 3 week cycle. There are many strategies regarding the use and timing of detox agents. In truth, most are learning experientially. Throughout this paper other detox schedules using other detox agents are suggested which may not fall neatly into the monthly mobilization and chelation cycle.

Cycles of detox are **centered about the use of Chlorella or “chlorella like products”**. Whether you are using a single detox agent (i.e. chlorella) or multiple synergistic agents, which is ultimately the best, adjusting your detox agents and their dosages to the cycle of mobilization, chelation, post-chelation and rest, is often preferred. This cycle of detox agents can be incorporated into an office chelation program (using IV or IM chelating agents) or used entirely at home using only oral products.

**In summary the purpose for utilizing cycles to detox is to mobilize the heavy metals from deeper compartments, then chelate/ detox out; with rest period to recover, re-mineralize, and diffuse/ dilute the heavy metals from deeper stores.**

If nature produces heavy metals to poison us, it also produces natural remedies to treat the condition. Chlorella is one of the best of those remedies known to date. In the Treatment Strategies this principle is applied with “Detox strategies: overview of the cycles of detox using chlorella” - (Page 75) and appendix contains more on the advantages of Chlorella, the doses and strategies of Chlorella.

## **Principle # 8: Detox is an anti-oxidative process:**

There are multiple reasons for anti-oxidant treatment and protection during detoxification:

1. To **facilitate the mobilization of heavy metals** during detoxification. Anti-oxidants supply electrons to the tissue bound heavy metals (and toxic chemicals). Anti-oxidants in general and high doses of Vitamin C in particular will supply electrons to mercury and other toxin, thus tendering the toxic metals and chemicals mobile and able to bind more readily to chelating agents to be mobilized out. There are three parts to removing heavy metals and toxic chemicals from the body. The first step in which we are referring here is:

- a. **I. Un-binding the toxin** (heavy metal, toxic chemical or bio-toxin) from its binding site in the body: various tissues and organs of the body in the extra-cellular and intracellular spaces; toxins are compartmentalized and bound at various depths in the body.

The other steps are:

- II. Mobilizing the toxin out** through the body to the organs of elimination, processing the toxin to be excreted (liver detoxification phases I, II, III)

**III. Binding the toxin in the bowel** to be removed in the feces; the bowel is the major elimination organ of neurotoxins; the skin, kidney, lungs, and other bodily fluids are more direct in their bodily removal of neurotoxins.

2. Toxic patients, especially those with chronic health problems usually suffer from **chronic inflammation or an up-regulated inflammatory response**. This results in acidosis or too much bodily acid and Oxidosis or tissue destruction due to enhanced free radical oxidative reaction. Anti-oxidants are required to **quench the free radical oxidation**, which results in reduced energy and function, aging, degeneration and neoplasm. Anti-oxidants from food and other external sources are essential to bring the internal milieu into a healthy balance
3. Detox or moving toxic metals and chemicals is a highly oxidative process. Chelating mercury and other heavy metals, causes much potential damage to other parts of the body on the way out. Therefore, **anti-oxidant protection is essential to minimize collateral tissue damage** and prevent further free radical damage. Free radical damage of the blood cells is readily visible (through peripheral blood analysis) during chelation without inadequate anti-oxidant (and garlic) protection. The direct analysis of the blood cells under the high resolution microscope looks totally different (damaged and malformed) if adequate anti-oxidants and garlic are not used.

Restoring a healthy internal milieu is about re-supplying the body with electrons with electron rich anti-oxidants and minerals. Multiple anti-oxidant nutrients over time are used to rehabilitate this needed healthful function. Furthermore, the single Vitamins of ascorbate (or Vitamin C) and tocopherol (vitamin E) are never supplied alone in nature but always with a complex of synergistic anti-oxidants. It is always better to look to nature, which has developed the relationship between our bodily needs and our foods over millions of years, and duplicate this in our foods and supplements.

- **Vitamin C complex** contains ascorbic acid, a small molecule with 2 extra electrons, and other larger molecules with many electrons, which refurbish ascorbate (quercetin, bioflavonoids, plant polyphenols, sea polyphenols, pigmented proanthocyanidins from berries...)
- Vitamin E in nature is a mixture of tocopherols (alpha, beta, delta...) and trienes
- Carotenes are mixed in nature – beta, alpha, delta...

It is always preferable to obtain your antioxidants in your foods first and supplements second. Anti-oxidants are produced by fruits to protect the fruit or seeds from oxidative destruction. The largest concentration of anti-oxidants in fruits is in the skin and seeds.

Eating the whole fruit skin and seeds- in- all, not only supplies the maximum amount of anti-oxidants the plant provides for its own survival, but it also supplies the plant stem cell phyto-chemicals, which are in the seeds. These phyto-chemicals are only recently being discovered for their nutritional value and their ability to turn on healthy anti-inflammatory genes. Other places there plant stem cells can be harvested or eaten are sprouts and eating from the buds of plants. Buds of plants usually need to be harvested and made into teas or tinctures. Most are not in the habit of eating the seeds, so the easiest way to prepare the whole fruit, seeds and skin in all, is to blend (not juice) the fruit. Our health coaches are very aggressive in teaching these healthy living life-styles.

Healthy plants eaten whole have a profound impact in turning-on the genes responsible for anti-oxidation, detoxification and anti-inflammation and other health promoting functions. The gene food connection of phyto-genomics is an exciting new frontier in health science and it involves whole foods.

Furthermore, if the fruit is grown in an environment of higher stress (i.e. more sun, weather extremes and less water, less fertile soil), the plant will produce more anti-oxidants to give the seeds (fruit) a better chance to survive. Super foods have a high concentration of these electron rich, anti-oxidants. The orac value of anti-oxidants refers to the amount of electrons the food has to offer, super foods have high orac values.

Action steps for enhancing anti-oxidants:

- Foods: organic, picked later, whole foods – include the skins and seeds, because this is usually the place of the greatest concentration of anti-oxidants, raw if possible, blending the whole food (fruit) with the seed increases the orac value and plant stem cells
- Super foods in your food and supplements: resveritol, golgi, ascia, mangostene, pomagranin, Muca root, blue berry...
- Supplements:
  - Vitamin C complex 1g – bowel tolerance,
  - Vitamin E complex – 400- 800 IU,
  - Super-foods: Ecklonia Cava, Reserutin, wild blue berry

### **However, the immune system requires oxidation to fight infections – therefore an intelligent balance of when to use anti-oxidants needs to be reached:**

There must be a balance and timeliness between anti-oxidants for detox as mentioned above and oxidation (or reducing anti-oxidants) for enhanced immune support. Where as anti-oxidants are required to mobilize and prevent free radical damage during detox, the over supply of anti-oxidants may be counter-productive when fighting chronic infections. We must be aware that we are working with two issues: a) detox of heavy metals and toxic chemicals, and b) treating the Lyme or other chronic infections. Supplementing with massive amounts of anti-oxidants, while utilized at times in mercury detox, will favor a reduction in the immune systems ability to fight the chronic infections. The immune cells use oxidation to destroy the pathogens. The pathogens will actually be protected with excessive anti-oxidants. The Lyme's spirochete has been shown to accumulate glutathione around its body to insulate it from the immune system.

Therefore the detox - cognizant physician must also be cognizant in the treatment of chronic infections and be able to vary the strategies especially in relationship to anti-oxidants to detox toxic metals or chronic infections. This is a further reason to consider detoxing in cycles to allow the body time to recover and to evaluate the current condition. For example, after a detox cycle when a substantial amount of mercury and/or other heavy metals were chelated out, the Lyme, Herpes, Candida or any other chronic infection can now become more active in the various bodily components that the mercury and the chronic infections were co-inhabiting. This would show up as an increase in the Lyme's symptoms.

The mercury- Lyme relationship is a two edge sword. Mercury is a remedy to treat Lyme and acts as a partial anti-Lyme's drug. (Note that mercury was the treatment of choice before antibiotics for syphilis, another spirochete) However, mercury enables the co-infections to survive by creating a safe bodily component place where the matrix (extra-cellular connective tissues) is able to live away from the immune system, which otherwise would destroy it. So when the mercury is detoxed from the bodily component, the Lyme may become more active before the immune system is able to awaken to handle the job. This may take 2-4 weeks, and the patient and doctor need to be able to read the patients symptoms to treat accordingly.

## **Principle # 9: Detox is a re-mineralization process, in chronic health conditions cellular loss of minerals is always a problem.**

Heavy metals displace the good minerals at their binding sites. The heavy metal detox strategy is to **mineralize with good minerals to displace the toxic heavy metals from binding sites**. In addition, if the healthy mineral is occupying the binding sites, the **toxic heavy metal cannot initially attach during toxification nor reattach during mobilization or chelation**. Heavy metals like mercury are more likely to bind to mineral binding sites when the mineral binding site is not occupied by a mineral, so mineral deficiency exacerbates heavy metal toxicity. Some detox strategies have been primarily mineralization therapeutics, giving enhanced minerals to displace the toxic metals from their binding sites.

In chronic health conditions cellular loss of minerals is always a problem. Minerals like anti-oxidants supply electrons and electrons are the essence of life. Without electrons we die. In health we strive for a health milieu, which is alkaline (more electrons) with ample minerals. Minerals are responsible for most functions in the body as co-factors in all enzyme reactions, active sites on membranes for all reactions and anti-oxidant enzyme systems to name a few. When the cellular minerals are lost, which readily occurs in most chronic conditions, it takes a long time to re-build the cellular reserves. Lack of minerals results in cellular changes that result in reduction of energy and function, placing the individual in a more vulnerable position for cellular degeneration and cancer.

Chelation is a process of losing minerals both good and “bad” heavy metals. So chelation can aggravate a mineral poor condition, possibly making the health condition worse. We advocate testing for intracellular RBC minerals to evaluate the mineral status throughout the detox process. An oversupply of the RBC minerals is the goal during detox. This is the reason we advocate time-on and time-off cycles of chelation times (when minerals and metals are removed) and mobilizing and rest times when mineralization is enhanced.

During chelation, when strong chelating agents are being used to detox the heavy metals, suspend the supplementation of minerals while the chelating agents are active. If minerals are taken with chelation agents, the agents will more readily bind to the supplemented minerals and not the mercury and other “bad” heavy metals. In summary, mineralize before chelation and after chelation but not during. The action of DMPS and DMSA is short- about 6-8 hours. The rule of thumb is, if using these agents in IV or IM form, don’t supplement with minerals that day. If using these agents in oral or suppository form, which is usually taken on multiple consecutive days, then supplement with minerals at least 8 hours later.

Action steps: magnesium, potassium, zinc, manganese, chromium, selenium, calcium, copper and the trace micro minerals

1. Evaluate the mineral status: RBC toxic and mineral analysis. This invaluable test will give the intracellular mineral status of all minerals.
2. Eat mineral rich foods: organic, juiced and blended whole foods, raw or minimally processed
3. Supplement with general minerals to elevate the base supply during active detox
4. Identify the specific minerals that need replacing – and supplement
5. Enhanced antagonist minerals for the toxic metals being detoxed.
  - a. Selenium – mercury
  - b. Calcium – lead
  - c. Zinc – cadmium
  - d. Calcium, magnesium – aluminum

## **In summary: Heavy metal detox is an intelligent strategy of pushing and pulling the heavy metals out.**

The Pushing phase is mineralization and adding back electrons to displace the heavy metals from their binding sites (anti-oxidants), and prevent them from re-binding to other open mineral binding sites on cellular membranes.

The Pulling phase is chelating the heavy metals out with appropriate chelating agents for the compartment that is being detoxed. These need to be phased so that the flow of heavy metals is out and not deeper.

**Passive diffusion or redistribution of heavy metals during rest phases** is an important part of the detox process. The process is, diluting the heavy metals through mobilization and chelation or actively pulling them out of the more accessible areas (i.e. extra cellular spaces [chlorella] or cellular membranes [cilantro]), then allowing them to passively diffuse and create a biological equilibrium from the deeper stores (i.e. inside the cell, or from other more inaccessible areas of the connective tissues).

Remember the generalized path for effective elimination of the heavy metals is: If the heavy metals are intracellular they must be moved→ through the cellular membrane→ into the extra cellular spaces or the connective tissues→ then transported in the blood or lymph fluids→ winding up in an excretory organs (kidney, bowel, skin, lung, sex organs - uterus during period, fetus during pregnancy or milk during lactation, prostate during ejaculation, or the mucous membrane secretions of the mouth and upper respiratory) → then carried out of the body. As you can imagine this is a tricky process to keep the toxins moving out and not moving around or worse deeper. That is why this principle based, disciplined strategy of detox is so effective and why we are going to such great lengths to help anyone going through heavy metal, toxic chemical and other neurotoxin detox to get it!

## **Principle #10: Electrolyte and water support is very important.**

Water is the #1 detox agent and electrolytes are critical for neurological function. All symptoms of neurological diseases are minimized if electrolytes are added to the water in copious amounts. Adding electrolytes or minerals to your water is very important and the highest quality water and plenty of it is also critical. See Basics, Guide to Healthier Life Styles for more on water and how you can build a good water drinking source for yourself at home.

**It cannot be overemphasized about the importance of the macro minerals or electrolytes (i.e. Calcium, potassium, magnesium, sodium, and phosphorus) during detox for:**

- Mobilizing Mercury,
- Reducing excessive acidosis,
- Nerve and muscular dynamics,
- Electrolytes facilitate the voltage to make transport of nutrients and amino acids work
- Reducing the symptoms during detox.

Mineralizing the tissues promotes tissue repair, cellular enzymatic function and detoxification, while correcting the accompanying acidosis. Mineralization is the only acceptable method to alkaline the body during detox. If bicarbonate is used, the detox will stop. Bicarbonate is often used to stop allergic reactions and is used in cancer care to alkalinize the body. It is true that we are trying to create a healthier milieu, which is more alkaline, because metals dissolve in acid not in alkaline milieu.

Action steps for Water: for a more in depth discussion see “Basics”

- Commit to drinking the best water you can:
  - Made in your home, stored in glass containers, (not in plastic bottles that contain toxic chemicals - phthalates and bis-phenols)
  - Quality: as pure as possible (free of chemicals and contaminants): structured (hexagonal),
  - Additions:
    - Electrolytes
    - selected minerals as needed
    - other additions: zeta potential crystals
- Quantity: try to drink at least 2 liters/ day
- Don't forget water filters for the shower or bath. In a bath or shower we absorb large amounts of water through the skin.

Note: there are many Home systems for water, and these are reviewed in general in Basics, Water;

### **Principle # 11: Treat the hormonal and metabolic dysfunction:**

Without adequate metabolism, detoxification is slow and very difficult. The adrenal and thyroid gland are the metabolic glands that react to toxic overload, chronic inflammation, chronic infection, chronic stress and other factors that create dys-regulation. It is the **body's defense system to metabolically slow down when things are out of control and the body cannot be pushed any more**. Low body temperature, sluggish metabolism, fatigue, poor healing and immune issues are some of the signs. Again, the art and science of detox is to strategically (at the right time) help the metabolic glands with supplemental and regulation therapeutics.

The first problem is to **correctly identify the metabolic gland that is the problem**. Too many doctors and patients treat the thyroid gland because of low body temperature when the adrenal gland is the problem. (Note this is often the case). Treating the wrong condition, artificially stimulating the wrong gland can further exacerbate the condition.

Action steps:

1. Assessment: These assessment tools are reviewed and downloadable at [www.drrind.com](http://www.drrind.com). A full work up includes
  - a. history;
  - b. lab tests: thyroid – specific thyroid profile with thyroid antibodies (which is common in mercury toxicity to have Hashimoto's thyroidtoxicosis), adrenal is best tested with saliva testing over one day;
  - c. the temperature chart- temperature chart averaged three times during the mid day, then the graph is plotted:
    - i. Thyroid patients will have a consistent low bodily temperature
    - ii. Adrenal patients will have a low bodily temperature, but the graph line connecting the average readings will be jagged.
  - d. Physical signs: body types, personalities, facial and morphology around the mouth.
  - e. Reflexes: pupil constriction, Achilles tendon
2. Adrenal and/ or Thyroid support with nutrition, sometimes hormone replacement, herbs, glandulars, regulation homeopathics
3. reduce all the stress factors including - pain, chronic infections and neurotoxicity
4. If the hormonal glands are not properly addressed, detox and rehabilitation will be very slow if at all.

## **Principle #12: Rebuild the cellular membranes (i.e. good fat program)**

There are many reasons why a good fat program is essential to a detox program. All **metabolic processes occur on the membranes, and in toxic metal and chemical conditions, the membranes are always damaged** until proven otherwise.

- **All detoxification occurs on healthy membranes.** The liver, your primary detox organ, is dependent on fatty acid and cellular membrane dynamics.
- In addition, the liver utilizes short chain fatty acids (SCFA) to fuel its detox activity. These SCFA are produced in a healthy bowel by the good bacteria. SCFA are also the preferred food for the bowel lining cells, the enterocytes, through which all digestion passes). If the bowel has an overgrowth of “bad” bugs and not enough “good” bacteria to produce the liver cells and bowel cells food – the SCFA, the bowel and liver become further compromised. The bowel remains chronically inflamed and the liver’s ability to remove toxins and other chemicals from the blood is greatly compromised. If the bowel and liver are toxic and not able to supply the SCFA, then supplementation (Calcium Butyrate) for a short time is helpful.
- Cellular membranes control function of all cells and Essential Fatty Acids (EFA) are critical for proper function.
- EFA and quality fats are a forgotten part of the heavy metal detox and need to be a major factor in detox strategy. Nerve and brain tissues are especially high in EFA, which is one of the primary targets of mercury. Therefore **EFA supplementation is critical for rehabilitating the brain and nerves. Fish oils are considered essential even for vegetarians.**
- You must incorporate into your diet good healthy essential fatty acids – the omega 3 fatty acids and also the omega 6 FA. You must eliminate from your diet unhealthy, non-food trans-fatty acids. Saturated fats like butter, coconut oil, ghee and organic eggs, meat and poultry are your good foods. Over time these very important fats will incorporate into the cellular membranes enhancing function and self-regulation. Our diets are devoid of these healthy fats, and to make matters worse, we eat too many bad fats which clogging up our system. This is so important that most feel that without supplementing with Omega 3 fatty acids and eating healthy fats and oils your detox and more important your rehabilitation will be greatly impaired. See Basics – Guide to Healthier Life Choices for more on fats;
- Rebuilding your membranes will take time - expect about 3-6 months.
- Toxic chemicals especially petroleum solvents, will dissolve membranes, further adding to the damage because now the cellular membrane has less integrity as a barrier. Therefore, an integral part of rehabilitation from a chemical detox is to restore the membranes.
- Action steps:
- Eat good fats: See Basics; Diet and Life-styles coaches are important to help substitute healthy food choices, and have one understand the use and abuse of these sensitive oils. Handling fats and oils is tricky and you need a good foundation to understand the healthiest way to incorporate eating healthy fats into your diet. Fats and oils that are good for you go rancid easily when removed from their fruit or seed. Grinding seeds, blending whole foods, storing oils is just some of the information that the Life-styles coaches can help you with to develop healthier choices for your family.
- Eliminate all “bad” fats
- Evaluate for Ca Butyrate in the beginning of bowel rehabilitation – to feed the liver and bowel cells until the good bacteria are established

- Eat a variety of grain, seed and other omega 6 fatty acid oils, all organic and cold pressed
- Incorporate coconut oil into your food and cooking
- Supplement with fish oils:
- 500-2000 mg/ day
- Or 1 capsule Omega 3 taken 4 times/day during the active phase of treatment, 1 caps. twice/day for maintenance. Best if taken together with chlorella.
- When Krill oil is used, only 1 cap bid is recommended. In Krill oil EPA and DHA are bound to phospholipids, which give it special properties. May be superior to fish oil
- The VegiPearls contain half the amount of EPA/DHA. The vegetarian capsules eliminate even the most remote possibility of containing prions and make the idea of taking fish oil more easily acceptable for vegetarians. Recently a fatty acid receptor has been discovered on the tongue, joining the other more known taste receptors. If the capsules are chewed, the stomach and pancreas start to prepare the digestive tract in exactly the right way to prepare for maximum absorption. Children love chewing the VegiPearls
- To treat bipolar depression, post partum depression and other forms of mental disease, 2000 mg of EPA are needed/day (David Horrobin). For the modulation of malignancies, 120 mg of EPA 4 times/day are needed. The calculations can easily be done with the information given on the label
- “Other researchers have focused (in heavy metal detox) on the mitochondria and other cell organelles (all membranes), which in our experience are damaged much later. The cell is constantly trying to make new **peroxisomes** to replace the damaged ones– for that task it needs an abundance of fatty acids, especially EPA and DHA. Until recently it was believed, that the body can manufacture its own EPA/DHA from other Omega 3 fatty acids such as flax seeds. Today we know that this process is slow and cannot keep up with the enormous demand for EPA/DHA our systems have in today’s toxic environment. Fish oil is now considered an essential nutrient, even for vegetarians. Recent research also revealed that the transformation humans underwent when apes became intelligent and turned into humans happened only in coastal regions, where the apes started to consume large amounts of fish.
- The fatty acids in fish oil are very sensitive to exposure to **electromagnetic fields**, temperature, light and various aspects of handling and processing. Trans- fatty acids, long chain fatty acids, renegade fats and other oxidation products and contaminants are frequently found in most commercial products. Ideally, fish oil should be kept in an un-interrupted cooling chain until it ends up in the patient’s fridge. The fish-source should be mercury and contaminant free, which is becoming harder and harder. Fish oil should taste slightly fishy but not too much. If there is no fish taste, too much processing and manipulation has destroyed the vitality of the oil. If it tastes too fishy, oxidation products are present“. Klinghardt

**Principle #13: Immune modulation is important. Chronic infections are always involved in heavy metal detox.**

- There is an interwoven synergistic relationship between heavy metal toxicity and multiple types of chronic infections in multiple places - in the bowel, connective

tissue matrix or any bodily compartment. As was discussed in the introduction of this paper, your signs and symptoms of disease or dys-function in any particular organ or structure are due to three components that lead to a toxic bodily compartment with reduced blood flow and function. The first is un-resolved psycho-emotional issues, which we will address later. This usually begins a compromise of the blood flow and cellular activity to the organ, structure or regional compartment. This activity is facilitated by the Autonomic Nervous System. Secondly, mercury or other heavy metals are stored in this area of compromised blood flow and cellular activity, which now eliminates a vigorous immune response. The body in general and the Autonomic Nervous System in particular will direct the storage of toxic materials and wastes into any area it can to keep it away from more vital centers. Note that mercury and other toxins are not equally distributed through out your body but concentrated into organs or structures (bodily compartments). Finally the chronic infections (Lyme's, Candida, co-infections...) move into a toxic area in which the immune system has been inactivated by the mercury contaminated milieu with its reduced blood flow.

- In summary, a toxic milieu or bodily compartment (of an organ or structure like muscles, joints, jaw bones or other connective tissues) is first altered by a retained psycho-emotional event that initially changes the blood flow and cellular dynamics to the area. This better facilitates the tissue to become a storage area for heavy metals like mercury. Finally the chronic infections will move into the toxic bodily compartment. Understand that the resulting actions of the reduced blood flow and mercury storage of the toxic bodily compartment is reduced function capacity. If this happens in an organ there is reduced function then eventually disease. If this happens in a joint or other structure there is reduced stress resistance to normal wear and tear and therefore increased likelihood of injury with reduced healing capacity. The above scenario explains the common story of a minor injury with low impact resulting in a chronic unhealed injury - (i.e. "all I did originally was step off a curb and my hip has hurt ever since"). **Put another way- all chronic problems (that by definition are unhealed) have at their root cause a) unresolved psycho-emotional issue, b) toxic heavy metals, c) chronic infections.** If treatment is to be successful to promote the body to heal then treating the three components listed above is critical. In addition manipulating the ANS to increase the blood flow to the chronically contaminated area is equally important.
- However, mercury has another interesting **relationship with the pathogenic bugs.** Mercury is also an anti-bacterial, viral and fungal. Mercury was the treatment of choice for syphilis and other bugs. Lyme is a spirochete like syphilis therefore **Lyme is somewhat subdued by the presence of mercury.** Mercury will totally **inhibit the good bacteria** in the gut. So it is almost impossible to have good bacteria in the bowel with mercury fillings that are continually poisoning the good bacteria. Other pathogenic bacteria of the bowel have adapted to mercury and in fact have **multiple binding sites on their cell wall for mercury (i.e. Candida, Strep and most bowel pathogens).** The presence of mercury on their cell wall gives these "bad" bugs a selective advantage in the bowel for survival and proliferation against the competing "good" bugs – thus perpetuating bowel dys-biosis. In addition, these "bad" bugs will convert the **inorganic mercury from the fillings and other environmental sources (i.e. food – many pesticides contain mercury) to methyl-mercury.** Methyl mercury is very toxic to the brain and nervous system and very mobile through the system, it is much worse than the inorganic mercury from the fillings. Thus your own bugs in your bowel are converting the mercury from your fillings and food to methyl mercury enhancing your mercury intoxication.

- Let's return to the information that mercury is accumulated on the cell walls of the Candida and other pathogenic bacteria in the gut. We mentioned that one of the results is the proliferation of the candida in the gut at the expense of the good bacteria. But there is another vital function this relationship provides and that is the candida holds the mercury away from the host. The result is the toxins produced by the candida and the proliferation of the fungus throughout the system. This is why our strategy is to detox the bowel of mercury first then reduce the candida after the bowel has been cleansed of the mercury (from chlorella). In summary, there are multiple relationships between mercury and chronic infections.
- When the mercury and other heavy metals are detoxed, the chronic infections, who have been living in a symbiotic relationship with mercury and the other heavy metals will be disturbed and eventually react and when they do your Lyme or Candida or Herpes symptoms may occur so be aware and be prepared! **The immune system does not recover as quickly as the “bad” bugs from the mercury detox, so treating the chronic infections and immune system support** is important to apply when needed.
- How to assess the pathogenic symbiotic chronic infections.
- Rarely is there an appropriate Lab diagnosis that can be reliably employed to monitor the chronic infections;
- History and clinical presentation is always the gold standard in medicine.
- Functional testing or energetic testing can be very helpful in the beginning and can be successfully used to monitor the progression. Use functional testing, history and clinical presentation to start treating and later confirm by lab tests to find out what you have.
- There are newer lab tests that test for the presence of DNA and other indications of the presence of chronic infections that show promise.
- For many of these chronic “stealth-like” infections they must be provoked or treated first to have a typical immune reaction and be able to “proved” by conventional medical lab tests, which measure the immune’s system reaction to the bug (immunoglobulins). However if the immune system is not currently reacting, which is so often the case in these types of infections, standard blood tests will not be a value.
- Many of the chronic infections that we reference are ubiquitous to most people like Candida and herpes. There are others that are more stealth – like, for example Lyme and the co-infections. The assessments and strategies to fight the chronic infections is the topic of another Program; Comprehensive Integrative Medical Program for Lyme and other Chronic Infections.
- The following are some points to consider in treating the chronic infections that accompany the toxic metals and chemicals. The important thing to remember is that everything has a purpose and a natural sequence, even the chronic infections.
- The pattern is an initial improvement in symptoms with heavy metal detox, and then chronic infections start to come to surface. This is the time to switch gears and concentrate on treating the chronic infections.
- As organs/ tissues become damaged with specific conflicts, which could be physical (surgery injury) or psycho-emotional, the heavy metals and chronic infections move in; **detoxification is the reversal of this process.** Permanent trauma results in an up-regulated sympathetic nervous system and a down regulated parasympathetic nervous system. This can be monitored with a Heart Rate Variability monitoring. If resolved the reverse occurs- PNS↑ and SNS↓ (HRV)
- For 2 years, after a significant trauma is resolved, the body uses the chronic infections to clean up the damaged tissues. This is the teachings of Dr. Hammer that the body

grows or cultures infections to digest the necrotic tissues. Ectodermal tissues (skin, brain and nerves) have a propensity for virus; mesodermal tissues (connective tissues, muscles and related organs/ structures) and endodermal (bowel and related organs) have a propensity for bacteria and fungi.

- Therefore, chronic infections **not the enemy but function in healing and the therapy should be supportive and not strongly suppressive**. Patient needs to be prepared and supported for two years of chronic infection symptoms.
  - I.E.: Sanum remedies, Homotoxicology products (Heel, BHI), specific foods are better for suppressing different chronic infections, specific colors delivered through the eyes can be very helpful with specific microbes, herbs that modulate the immune system can be very helpful, Fish oils are toxic to virus.
  - The most important herb/ food is **garlic** to reduce the chronic infection load in the bowel, blood and elsewhere. Garlic also supplies sulfur, critical for detox.
- To treat the chronic infections one must treat the sources and **enablers of the chronic infections that allow them to evade an otherwise healthy immune system**. The most important chronic infection enabler, which reduces drastically the immune competence, is mercury. There are other areas in the body where chronic infections hide to evade the immune system and must be treated:
  - Dental – cavitations, dead teeth, root canal teeth
  - Bowel: biofilm and generalized toxic bowel
- When treating the chronic infection, it is best to test and treat for the **allergy or hypersensitivity to the particular bug**. For more in the specific treatment of chronic infections please refer to. Comprehensive Integrative Medical Program for Lyme and other (Neurotoxic) Chronic Infections
- The Cowden Protocol, (a Low Level Laser Treatment of specific acupuncture points using specific homeopathic homochords of toxins and microbes to give specific regulatory information to the Neuro-immune system) can be very helpful.

Action steps:

- Treat the bowel and bowel biofilm first
- Detox the mercury and other heavy metals
- Treat the chronic infections as they come up using remedies that control the bugs, while supporting the immune system and using energetic medicine to identify the contaminated sites and “open up” or drug-up-take techniques to get the remedies to the needed areas.

## Treating the chronic infections

The immune system is inactivated by mercury, which allows virus, bacteria, fungus and worms much easier access. In this phase, we focus on the chronic infections that may be aggravated and create more symptoms. The fact that we have started to repair the gut – the body’s largest immune organ, and started removing the mercury from the body, helps to awaken the immune system. A functional immune system is critical for successfully fighting the chronic infections, and until an initial load of mercury is removed and minerals, proteins and anti-oxidants are replenished, it is futile to treat chronic infections.

Symptoms are often the body’s detoxification mechanism working, creating inflammation, fever, sweats, runny noses and increased mucus, skin eczema, rashes and other eruptions, bowel disturbances and many other symptoms. These purging symptoms need to

be supported not stopped. The really “sick” person/ child is not able to react to infections in a healthy way because the immune and metabolic systems cannot mount a proper defense. This is the natural way of healing, and unfortunately, not well understood and practiced today by many traditional doctors and their patients, who use suppressive drugs to stop the detox symptoms.

It will often take about 4 -6 months after mercury detox, for the immune system to wake up. At this time, you can expect detox symptoms and seemingly adverse reactions. If Herxheimer reaction occurs, slow down the therapy and support the symptoms.

### **Relationship between mercury and microbes:**

**“There is no cure for Autism or any other degenerative disease caused by mercury toxicity without eliminating the different forms of mercury from most bodily compartments; even if we only eliminate 10% it will make a difference between a sick and healthy person/ child.” Klinghardt**

- Mercury is compartmentalized in its extra cellular storage; mercury inactivates the immune system, which allows an ideal breeding ground for microbes to flourish away from the immune surveillance.
  - i. I.E. Herpes virus in the brain (compartmentalized) is responsible for seizure disorder in Autism Spectrum Disorder kids.
  - ii. Mercury in the gut is responsible for fungal overgrowth (Candida).
- Trying to eliminate the opportunistic microbes before reaching a reasonable degree of toxic elimination in the involved area is not possible; the immune system is required to be activated to eliminate chronic infections.
- Antibiotic, herbal and nutritional up-take in toxin contaminated areas is only minimal because the blood flow and extra cellular dynamics has been reduced to the toxic component by the Autonomic Nervous System doing its job of “storing” the toxic and infection materials in bodily compartments. Therefore any remedy if taken orally (or even IV) will have reduced effectiveness to do the job (of detoxing or controlling the chronic infections) and will not ultimately succeed because the remedies cannot be delivered to the needed site or contaminated compartment. Energy medicine must be employed to “open up” the contaminated bodily compartments to detox first the metals and toxic chemicals and then to get the suppressive remedies (and the immune system) into the areas of toxin contamination.
  - i. I.E. drug-up- take procedures: MFT tapping points or Omura’s hand reflex points.
  - ii. Energy devises: microcurrent, Photon-genie, Lasers

### **The most common opportunistic infections are:**

- Measles virus, persistent in the intestinal tract
- Giardia and amoebas
- Roundworms, threadworms and tapeworms
- Herpes virus
- Strep infections and their neurotoxins
- Lyme and co-infections Babesia, Bartonella, Ehrlichia...
- Molds and fungi
- Mycoplasma

**Principle #14: Sulfur supplementation and foods** high in sulfur are critical for all detox. You can't detox mercury and other heavy metals without adequate sulfur stores (optimal is better) and the **proper regulation** for sulfur metabolism.

Oxidation is the chemical conversion of energy food to energy + waste. There are two primary biologic elements required for the oxidation-reduction (chemical conversion) of food, which is stored energy or the controlled burning of energy, which is called metabolism:

- A. **oxygen** –the universal electron receiver/ donator, critical for energy transfers and
- B. **sulfur** - the universal toxin receiver.

Oxygen is the element responsible for efficient energy metabolism: and sulfur is the element for carrying the wastes out from all the metabolic reactions.

For example, you need the element sulfur and the sulfur amino acids (cysteine, methionine, taurine) to detox and for many other critical biochemical reactions. **If sulfur metabolism is compromised, because of lack of: 1) adequate sulfur stores, 2) allergy to sulfur, 3) problems metabolizing sulfur, 4) or genetic or acquired blocks in synthesizing sulfur compounds used in detox (like glutathione and SAME) or other regulation (biological information) issues, then adequate detox is near impossible.**

All chelating agents are sulfur compounds. All naturally occurring detox and antioxidant systems contain sulfur amino acids as their active (and therefore critical) components. The active sites of a) most enzymes and b) the protein - membrane receptor sites is sulfur or sulfur amino acids. **Mercury readily binds to the sulfur, which deactivates every enzyme or cellular membrane structure and thus does its biological damage.**

It is widely known that mercury is the only toxic element that is capable of inactivating all known biochemical reactions in the human body. No other toxic metal comes close to this distinction. It is also known that mercury is exponentially synergistic in its toxic effects with other toxic metals, namely lead, cadmium, arsenic, tin, nickel and toxic chemicals. For example, in mice the LD (lethal dose)-1 dose of mercury (LD= lethal dose injected into mice where 1% of the mice died), was injected along with a LD-1 dose of lead. The result was a LD - 100 or 100% of the mice died. (To contrast the synergy between two other toxic metals: if the LD – 1 lethal dose of lead was injected with the LD-1 dose of cadmium, the synergistic dose was LD- 6, or 6% or the mice died.) **Mercury is unique in how it potentates the damaging effects of the other toxic metals.**

The synergy of heavy metals, especially the potentiating synergy of mercury, is an important concept to understand. We live in a toxic world with multiple toxic metals and chemicals and all metals and chemicals are synergistic exponentially in their toxic effects. **To summarize this point, mercury is the most toxic metal known to man, affecting every human biochemical reaction, and the addition of mercury to any other toxic metal or chemical exponentially elevates the sum toxic effects more than any other toxic metal or chemical.**

Sulfur is critical in all phases of mercury and other heavy metal detox. Sulfur amino acids have a biological active thiolic (SH-) affinity or binding site, which is the active site for many biological activities. It is intricately involved in the **body's antioxidant capacity – in that most enzymatic anti-oxidant systems require sulfur and the sulfur amino acids** (i.e. SOD, catalase, and glutathione production along with the replenishing enzymes - glutathione reductase and peroxidase). These anti-oxidant systems are turned on by certain foods (phyto- nutrients) and bodily demand for enhanced need for anti-oxidant protection due to increased activity, infection or toxicity. These sulfur amino acid anti-oxidant systems are the most powerful free radical quenching systems our body has in its arsenal. In addition to directly adding electrons back to

biochemical molecules and restoring their biological activity, which is the function of anti-oxidants, these systems restore the nutrient anti-oxidant systems of Vitamin C and E to be bioactive again.

Sulfur as mentioned above is critical in all detoxification enzymes in the cells and especially the liver and kidney. It is required in the **production of glutathione the body's #1 detox and anti oxidant, and SAMe**, which is required in so many detox, neurological, neurotransmitter, methylation and other critical biochemical reactions of the body. In addition sulfur and the sulfur amino acids cysteine are **required in liver detoxification**. There are multiple phases of the liver cleaning the blood of toxins and used up- biochemicals, like hormones and other bioactive products. The first phase occurs inside the liver cell, in which the toxin (or other substance) is oxidized and rendered into a highly reactive and toxic chemical. The second phase is to conjugate the highly reactive chemical with a binding agent to make it water soluble and more easily transported out through the bile (liver) or blood (kidney). If the phase I enzymes are genetically turned on by the presence of the toxins but the phase II genes and their enzymes cannot deliver enough glutathione or sulfur, then these more dangerously reactive toxins are released to the liver and body to enhance toxicity and carcinogenesis.

Mercury, therefore, over time, inactivates and depletes the sulfur stores: **mercury toxicity creates sulfur deficiency**. Once the sulfur stores are depleted, the body's very important enzymatic anti-oxidant and detoxification systems are crippled and enhanced free radical damage and other deleterious biological problems proceeds rapidly.

Some patients **cannot eat sulfur foods nor efficiently metabolize sulfur** for it makes them sick. They report adverse reactions to sulfur foods and supplements. This becomes a huge obstacle for a detox program but one that can be overcome. Usually glutathione stores, which require cysteine, are depleted, and liver sulfur detox is minimal. In section IV the therapeutic strategies, we will outline the steps to regain your ability to efficiently metabolize sulfur.

Action steps:

- Treat sulfur metabolism problems if present: Re-build Sulfur Metabolism Protocol -Molybdenum, N acetyl glucosamine, allergy, regulation remedies (i.e. Schweif-Heel); they sulfur supplementation and foods
- Eat sulfur foods: cruciferous vegetables, garlic, chlorella
- Supplements:
  - a. MSM: 1-10 g / day
    - i. cheapest and effective, oral DMSO without the odor
  - b. Sulforaphane – in cruciferous vegetables – watercress, broccoli, cauliflower, cabbage, Brussels sprouts, arugula, kale
    - i. Potent inducer of (phase II) detox and anti-oxidant enzymes
    - ii. Induces cancer cells to destroy themselves (apoptosis)
    - iii. Protects against cancer
    - iv. Lowers blood pressure, LDL cholesterol
    - v. Anti-inflammatory
  - c. N- acetyl cysteine (NAC)
    - i. Use in low doses (100-250mg 1 time/day) in the early phases of detox, higher doses (500-2000mg) later in detox, because this may enhance brain penetration of the mercury if used too early.
  - d. S adenosyl methionine (SAMe):100-400 mg 1-3 times a day.
    - i. Use if methylation problem and therefore problems detoxing and controlling chronic infections, cognitive or brain symptoms, joint problems, or an up-regulated nervous system.
  - e. Max GSL: to increase glutathione (GSH)

- i. Combination of Vitamin C, Alpha Lipoic acid, L Glutamine, NAC and proprietary GSH absorption and recycling blend: Cordyceps, N-acetyl-D-Glucosamine, Quercetin, Milk Thistle extract

### **Principle # 15: Proteins and their Amino Acids are important for detoxification, functional rehabilitation and immune competence.**

We have discussed the importance of sulfur and the sulfur amino acids, cysteine, methionine and taurine, in Principle # 14. The other amino acids, especially the essential amino acids that the body cannot make are critical for making **detoxification enzymes** and peptides like glutathione. All immuno globulins are comprised of amino acids and if single amino acids are not present, which is often the case, the **immune molecule** is not effective. In addition, specific amino acids are required to make **neurotransmitters and neuro-peptides** and most other cellular communicators. In short, proteins are required for health and well being: enzymes, cellular receptors, and hormones, detox enzyme systems, immunoglobulin and other immune components, albumin, hemoglobin and other transfer molecules, structural components in all cells... Each protein has a particular requirement of specific amino acids, which if absent during its synthesis, creates inadequate or non-functioning proteins.

Adequate dietary protein **intake requires daily consumption of the 8 essential amino acids, which the body cannot manufacture and absolutely must rely on the diet to supply.** The other amino acids are not essential and the body can manufacture. However some should be supplied in the diet because they are rate limited and the body is unable to keep up the demand. Inadequate protein intake is a well documented condition in the general population and especially in the infirmed or chronic dys-function groups. So why do we have a problem with quality amino acids with our patients?

- First problem: lack of eating the proper proteins:
  - Processing foods removes some proteins
  - Commercial growing and raising animals, reduces nutrition and amino acid balance in the plants and animals (we are eating basically un-nutritious foods)
  - Vegetarianism – it is hard to obtain a complete balance of amino acids eating only plant proteins.

Protein studies revile that proteins are utilized in the body in two ways. The first is as amino acids, which are used for all the functions mentioned above. The second is a source of energy. The body will only utilize the amino acids that it needs at the time, the rest of the unneeded amino acids are de-aminated (the nitrogen group is cleaved off the molecule) and used to metabolize for energy like sugars. Proteins require 8 essential amino acids that can only be supplied in the diet; the rest can be made in the liver according to the demand. What is the best protein source and is there a problem if we eat too much protein?

Studies on protein utilization have been done by measuring the amount of protein eaten and then measuring the amount of urine, which is the de-aminated protein waste. The best source of natural protein is whole eggs, utilizes 48% of the amino acids as structural or retained proteins. The next is meat, poultry and fish, which utilizes 32%, with 68% as nitrogen waste; other amino acid formulas including soy, whey, egg white, hemp were 17-18% utilizable amino acids with 83% toxic nitrogen waste.

We advocate **Master Amino Acid Pattern (MAP) as a supplement for most detox patients and all patients with any degree of chronic problems.** This product is highly recommended for athletes, building muscle mass, and weight reduction without losing lean body mass, as well as patients on kidney dialysis.

Second problem: **lack of digestion of the proteins:**

- Many people have bowel issues, often unbeknown, to them. Most patients with any chronic health problem have one of their root causes health issues a

problem in the bowel. The bowel is the organ responsible for digestion but also the largest immune organ, and because it has the largest accumulation of nerve cells outside the brain (there are more nerve cells in the bowel than the spinal column), the bowel is responsible for the manufacture of many neurotransmitters. Therefore patients with neuro-immune problems, neurological overload or autonomic dys-autonomia, chronic inflammation, allergy and digestive problems must look to rehabilitate the bowel. This was emphasized in Principle # 3.

- Lack of digestive enzymes, especially hydrochloric acid, which is essential for breaking down proteins to digestible amino acid units. Hydrochloric Acid (HCl) requires much energy to be produced in the stomach, which is not often available to the chronically infirmed patient. In addition, most people over 30 have a naturally reduced capacity to manufacture HCl and this condition will increase as we age.
- If the bowel is inflamed, or overrun with pathogenic microbes the bowel has reduced capacity to absorb the digested amino acids or the “bad bugs” eat the proteins and amino acids before you have a chance.
- The neurological and immunological system can overreact to a bad situation and develop an “allergy” or hypersensitivity to the protein or amino acids, which will further reduce its capacity to digest.

If you have brain dysfunction and suspect neurotransmitter problems, persistent immune problems, or generally not progressing as expected, then lab tests for your bodily supply and metabolism of amino acids could be appropriate. Assessment lab test are:

- Plasma amino acid analysis
- Urine amino acid analysis
- Organic urine analysis

Action steps to ensure proper protein utilization during detox:

- Treat the bowel: Principle # 3; supplement with digestive enzymes especially hydrochloric acid
- Eat a quality diet of protein
  - Organic if possible, minimally processed foods
- Supplement with MAP
  - For full compliment of AA
- Supplement with whatever amino acid is low to rebuild the bodily stores
- SAME, NAC has been discussed in the sulfur section
- Neurotransmitters:
  - Glutamine GABA -
  - Tyrosine – Dopamine
  - Tryptophen - serotonin
- Metabolic syndrome and bowel repair:
  - Glucosamine
- Whey protein has been used for increasing glutathione levels, because it contains a large supply of cysteine which are needed for glutathione synthesis (in the liver for extra-cellular biosynthesis) and branched chain amino acids (leucine and iso-leucine), which is needed for carrying cysteine into the cell for intracellular glutathione synthesis. We use goat whey, which is cheaper, but also cow whey, which is easier to obtain.

## **Principle #16 Detox organ drainage support:**

Always remember getting the toxins out and the need for good **drainage (detox) organ therapy**: the liver, lymph and kidney are the most important to consider for these detox systems do the most work. Organ drainage refers to herbal, nutritional and homeopathic (biochemical supplementation and regulation information) support to aid the specific organ in its function. There are multiple companies that provide a good line of drainage remedies.

Detox organ strategy is important. The detoxification or drainage organs have various **capacities for removing heavy metals from the body**. Mercury and other heavy metals are toxic and moving heavy metals through these drainage organs cause oxidative damage and toxicity to the detox organs themselves. The smaller the surface area available to excrete the heavy metals the more likely the drainage organ can be impaired from the heavy metals.

### ***The surfaces available to detoxification are:***

Kidney – the surface of a ping-pong table

Skin – 2 square meters

Gut – 200—400 square meters

The conclusion is that the **bowel should be used as much as possible because it is the largest detox organ** for moving heavy metals out and because of its relative size, the gut would be the least likely to be damaged during the process. The kidney is the organ with the least surface and the most potential for detox damage. The skin is a good organ to detox because it is the only organ that will place the toxins on the outside of the body immediately, preventing re-absorption (except re-breathing).

Action steps:

- a. Always use a drainage remedy during active detox: choose between lymph, kidney and /or liver
  - a. Use history, clinical presentation, or functional tests to determine.
- b. Regulation therapies for drainage support
  - a. Acupuncture, energetic foot baths, KMT, laser therapies – Erchonia laser, laser- pulse, photon-lite...

## **Principle # 17: For each unresolved Psycho-emotional conflict there is an aliquot of toxic material stored in the body.**

“Whenever a conflict is successfully resolved, an even amount of toxic material can be easily released from the body. Visa versa, for each amount of mercury (or other toxins) released from the body, psycho-emotional material surfaces that has to be acknowledged, understood and processed! Failure to be aware of and help to resolve these issues is the most common reason for difficulties, side effects and crises during a detox program. Each toxin stored has a specific set of unresolved emotional and spiritual issues that were responsible in trapping the toxin in the first place. Advanced spiritual masters have been able to drink poison and not be affected by it. The most profound mercurial issue is a lack of connection to God. In Greek mythology Mercury was the messenger who communicated between humans and god.

The forces that would like you to keep the mercury in your mouth or in your body are the same forces that benefit from you feeling disconnected from God (and therefore craving god-substitutes like money, cars, entertainment, excitement etc.)” Klinghardt

This principle is further explained in the appendix: “The Klinghardt Axiom: New theory of chronic illness and the Triad of Detoxification.” We find this very profound and important to understand.

If you really serious about reclaiming your health, vigor and vitality, detoxification of heavy metals and toxic chemicals (chronic infections, allergies...) are critical but “detoxification” at the psycho-emotional, mental, family systems and spiritual level is just as

important to obtain the best results. The interrelationship between these higher forces of regulation on our physical bodies is not understood but their influence and presence is continually and empirically evidenced.

For some, treating miasma, family system dysfunctions, unresolved psycho-emotional conflicts, belief system issues and other mental patterning, re-connecting your brain to organs and other bodily organelles, releasing emotional blocks and other therapeutics of higher regulation may seem far away from heavy metal detoxification. However, man is not just a physical body governed by laws of mechanics and biochemistry, but is also composed of a mind and spirit, which helps regulate ultimately our physical expression (our body). A comprehensive Integrative Medical program understands the interrelationship of the spirit, mind and body and has the ability to assess and treat at all levels of human existence.

**Principle # 18: Mercury deposits in the body act as a micro-antenna, which concentrates electromagnetic phenomena. Electromog, microwave and geopathic stress need to be addressed.**

In mercury toxicity and other neuro-toxic chemical and metal poisons, the Autonomic Nervous System (ANS) is the primary organ-system that is injured, but the brain and the other nervous systems of the body are secondarily injured. Understand that the ANS is the ‘neuro part of the psycho-neuro-immuno-hormonal system, a totally integrative and interrelated system which regulates, defends, coordinates and literally performs all non-conscious functions of the physical body. The ANS is the **energetic system, which functions using electromagnetic energy and governed by energetic or electromagnetic principles.**

The ANS, in other health systems could be referred to as the “meridians” or the “chakras”, and therefore be treated by the techniques of these Indigenous Health Systems (e.g. acupuncture, chakra balancing). In addition, the ANS can be treated by energetic information modalities (or regulation therapy): therapeutics like special electromagnetic devices, low level laser therapy of multiple kinds (LLLT); Neural Therapy (the injection of Novocain – which treats ANS nerves); homeopathy; tapping on master acupuncture meridian points (i.e. EFT, MFT, Quantum Techniques...); allergy elimination therapeutics, which neurologically eliminates the hyper-sensitivity of the allergy response and others. This paper outlines many of the regulation therapeutics, for it is a very important part of your rehabilitation

In summary, mercury is devastating to the ANS. It slowly accumulates, while all the time reducing the function. The previous health, age, nutrition, environment and genetic disposition of the patient will determine how well your body will detox the mercury and other neurotoxins out or more likely sequester and store the neurotoxins. All patients have their thresholds of neurotoxicity, where the accumulation of toxins is too much for the body to handle or regulate. This is when overt signs and symptoms of disease and dysfunction occur. Because of the importance of the ANS to regulate health, it is the observation of all professionals that are mercury cognizant that **all chronic diseases have at their core “dys-autonomia” or a dys-regulation or basic dys-function of the ANS.**

Therefore, mercury, because it poisons the energetic ANS system, is **strongly synergistic** with other noxious energetic influences, which also injure the ANS. These must be addressed if the dys-autonomia of the ANS and its dys-regulation effects are to be treated and the body is again able to heal itself. These are the other noxious energetic influences on the ANS:

- **Scars: toxic foci** which act as magnet to accumulate mercury and other toxic debris and generate electro-pollution, which place a constant stress on the ANS and can greatly contribute to the perpetuation of the dys-autonomia. Neural therapy traditionally treated scars but there are other energetic therapies that can treat these

conditions. See the paper on “Neural Therapy” for more details on this very important concept.

- **Other common toxic foci** which place **excessive electrical stress on the ANS are root canal and other dead teeth as well as harbor very toxic substances** from the chronic infections that grow into the dead teeth. Toxic tonsils and other infected organs can also be toxic foci.
- **Electro galvanism** in teeth from two dys-similar metals. This is a common practice in Dentistry to use multiple metals in the mouth, (i.e. mercury amalgam and a gold crown, or chrome cobalt of a partial denture, or the multiple different metal alloys used under porcelain crowns). The problem is the currents that are generated by the dys-similar metals in the mouth, which is an electrolyte solution. (This is a familiar physics experiment that most performed in high school – two different metals in a salt solution will generate a current that is measured in millivolts.) The ANS operates in micro-volts, so one can see how this continuous electro galvanism from the metals in the mouth can overwhelm the ANS.
  - There is another problem with mercury amalgam fillings in the presence of other metals in the mouth. The mercury will be drawn out of the filling and into solution or into the bodily issues more easily.
- **Noxious energies and electrosmog:** are energetic forces that are noxious to the body. These noxious energies primary effect is to exacerbate the dys-autonomia, thus contributing to the Autonomic Nervous System dys-function.
  - Your body needs restful sleep to heal and recover. To accomplish your needed rest your sleeping environment must be free of stimulating noxious energies. Your immune system is very active at night. In addition, during restful sleep your body is restoring and repairing both on the physical level (anabolic activity) and psychological refurbishing. Your system is by a factor of hundreds of times more sensitive during sleep, especially to noxious energies. These are the things that need to be evaluated in your bedroom and home.
    - **Electro-smog** – from cell phones, cordless phones, wi-fi computer networks, cell phone towers beaming, electrical wires and power lines, **microwave radiation** (which is what cell phones are) and other electro-magnetic devises.
    - **Geopathic stress** is underground water and other geological stress points that create noxious energies and need to be evaluated for their presence in your sleep area.
- Excessive electro smog exposure over time causes DNA damage and reduces the patients ability to detox
- Electrosmog is one of the most important de-stabilizers of the neuro-immune system and must be corrected if chronic infections and heavy metal detox is to be effective. The **chronic infections are induced to grow in electrosmog fields**, so they must be controlled
- Microwave technology is expanding in application and the band - with of frequencies currently being licensed. This new form of neurological pollution is very troubling because no research is being seriously considered by the industry or the government regulators for its adverse effects to the humans and animals. Some of the human and animal intracellular communication system has been shown to operate in the similar band-with of some of the new microwave frequencies licensed for commercial use. This is being shown to have an additive adverse effect on the ANS and other biological systems. Be aware, educate and protect yourself from this “new” technology.

To evaluate the biological effects of geopathic stress and electro-smog on you, a biofeedback assessment technique that evaluates for Autonomic Nervous System stress is essential, (i.e. ART, MST, thermography, NES). In addition, an expert in safe home, equipped with electronic instruments that can measure the noxious energies and suggest neutralizing devices is very helpful. Measuring the skin voltage in your bed is very important to insure that your body is free of electrosmog contamination. The resting skin voltage should be 0, registering no skin charge when no noxious energies are present.

### **Principle # 19: Be aware and treat the (epi)-genetic and synergistic factors that impede detox**

Generations of children are being born to mothers with health issues of mercury toxicity (and other heavy metals), toxic chemical issues, chronic infections, noxious energies and others chronic health problems. These toxicities cross the placenta and are imparted to the developing baby at multiple levels.

- The toxic exposure is obvious and is detrimental (as we have discussed) to adults and developing babies but when the embryo or fetus is developing the toxic effects of brain, neurological and immunological development can be multiplied.
- Toxicity and the other health issues mentioned above create a considerable amount of stress for the psycho-neuro-immunological system, which affects the developing brain and often sensitizes the infant to hyper-reaction syndromes like allergies, asthma, chronic ear infections, ADD, ADHD, ASD and others.
- In addition, the DNA and other epi-genetic regulation organelles can be damaged, which can reduce the detoxification capacity of the infant, resulting in:
  - Low glutathione levels and reduced ability to detox,
  - Methylation problems and reduced ability to detox, mental development and so many other functions
  - Lack of other detox enzymes

While the impact of toxic exposure is happening in epidemic numbers to our children, (1 in 150 kids have Autistic Spectrum Disorder), the impact of the same toxic exposures have consequences for the adolescent and adult populations. Note the rapid increase of the brain degenerative conditions like Parkinson's, ALS, MS, Alzheimer's, and the brain disorders like anxiety, depression, compulsive disorders, addiction, and serious disorders like schizophrenia, bi-polar and psychosis.

The field of epi-genetics holds as explanation as to the exponential rise of mental and degenerative disease of people of all ages living in our toxic world. The old model of genetic determinism (control by genes), which states that our genes (DNA) are self-regulating blueprints and influence our health and determine the outcome of our physical existence, is being replaced by the new model of epi-genetics or "control above the genes". Epi-genetics exposes the fact that genes are turned on and off by external, and environmental stimuli. So rather than genes controlling our lives and thus creating if we "get" cancer, ASD, ALS or any other disease and therefore creating us as victims of our genetic code, understanding epi-genetics places the patient in control of our genetic expression. In the old genetic model we are victims of our genetic make-up, therefore we more likely need a rescuer like pharmaceuticals or the medical profession to save us from ourselves.

However, to understand the field of determinism or self expression through epi-genetics - toxicity, nutrition and our environment becomes critically important because these are the elements that turn our genes on or off. In other words, epi-genetic control reveals that

environmental information alters the read-out of the genes without changing the underlying DNA sequenced code.

Since we are reactive to our environment in the most fundamental way (i.e. our genetic expression), when chronically assaulted by adverse and unhealthy factors like heavy metal and chemical toxicity, chronic infections, noxious energies, unresolved psycho-emotional conflicts (and the other factors that negatively impact our neuro-immunological system), the field of epigenetics shows us that **these factors can negatively influence our gene expression**. Our bodily **regulation systems**, which include our psycho-neuro-immunological and hormonal systems at the whole body level and the **genes at the cellular level**, become **programmed to deal with the chronic adversities that we give it**.

The **field of Regulation Therapeutics** (or information therapy) becomes very important because when detoxification patterns are performing sub-par, homeopathy, and other energetic information health systems can re-establish the correct signal for the body to detox and rehabilitate or heal.

## **Detoxification and Genetic rehabilitation**

There are acquired and inherited defects in detoxing mercury, and other heavy metal and chemical toxins, which need to be both **compensated for the problem during initial detox** and **eventually corrected through regulation therapy**.

Genetic testing is available, which can be very valuable in determining detoxification genetic problems. Genova Labs

**Methylation** – needs to be addressed early. In patients with brain, mental and neurological symptoms, consider methylation problems. We start and addressed the methylation treatment strategies in Phase II – Extra-cellular detoxification, right after the Dental Phase.

Methylation and related enzymes are responsible for many functions: MTHFR or methyl tetrahydrofolate reductase, or methionine synthase reductase)

- Genetic methylation problems (which severely affect the brain and detox functions) are in 15% of the population and after mercury exposure the figure jumps to 55%.
- Reduced methylation capacity affects:
  - Reduced DNA and RNA activity
  - Altered function, synthesis and activity of proteins, enzymes and altered neurotransmitter function
  - Reduced activity and function on all bioactive structures on membranes. Remember all detox and brain functions occur in membranes
  - And reduced synthesis of phosphatidylcholine, critical for brain and nerve function, rehabilitation and development
- Methylation problems are healed by mercury detox, however it **takes a long time** to correct the methylation defect – often 8 years.
- The strategy to compensate for the methylation problem and correct it is:
  - Mercury detox
  - B-12 and folate supplementation
    - Chlorella – has the highest amount of B-12 found in nature
  - Methylated B-12 or hydroxyl – B-12, and Methylated Folic (Folinic acid)
    - Oral, IM, nasal inhalation, and transdermal - methyl and hydroxyl B-12, folinate
  - Support for the MTHFR pathway: SAME, magnesium, zinc, B-6
  - Supplement methyl groups with Betaine HCl, which supplies hydrochloric acid for digestion and many methyl groups; others di-methyl Glycine (DMG) and tri-methyl Glycine (TMG)

- Membrane rehabilitation: for the complete list of MR factors consult Phase II, but the phosphatidylcholine supplement choices are:
  - Biopure – Phospholipid Exchange, NT factors in supplementation, PhosphaLine, lecithin
  - IV phosphatidyl choline infusions
- Genetic control of cellular expression is far from understood and certainly not the only factor. The genes contain information for cellular regulation but there are **epigenetic factors** that modify that expression, which can be inherited or acquired and seem to be a factor in most of these toxic issues but can be modulated after detox.
  - Because the toxins can turn on the inflammatory genes and turn off the anti-oxidant and detox genes, epigenetic factors can be employed to counter the epigenetic toxic reactions. Phyto-nutrients, herbs and foods, are potent epigenetic factors to turn on the healing genes.
- B-12 and Folate supplementation in its various forms (as described in the treatment strategy portion) are required until the (epi) genetic problem is corrected with mercury detox. We use multiple forms of supplementation, to get the B-12 and others into the brain and other bodily compartments where it is needed.

**Glutathione metabolism** – we start addressing glutathione supplementation/ synthesis in Phase I (with chlorella), add more in the other phases (with NAC, Glycine and DMG, and IVs); but the brain enhanced glutathione is added in Phase IV of our detox strategies.

- It is not glutathione that is the ubiquitous chelating agent that we wish to enhance but its reduced form (GSH), which has its full supply of electrons. Too often detox patients are suffering at the cellular level from acidosis and oxidosis (not enough electrons); Therefore, concurrent therapy must include:
  - An anti-oxidant rich and mineral rich food and supplementation program, to correct the acidosis and excessive oxidation
- Glutathione S transferase (type M-1, T-1) can be (epi) genetically altered, which reduces the bio-synthesis of glutathione. M1 is responsible for detoxifying many environmental toxins.
- Reduction in glutathione stores can be due to:
  - Genetic and epigenetic factors that make it harder for the patient/ child to make glutathione.
  - Nutritional factors that don't allow enough production of glutathione – either extra cellular or intra cellular
  - Too much toxins that overwhelm the available glutathione stores
- The nutritional factors that increase glutathione are
  - Chlorella – abundant in the right amino acids – Cystiene, Glycine, and the branched amino acids (for the intracellular transport of the above), and B-12. Chlorella is the most abundant food in our detox arsenal.
  - B-12 is critical for construction of glutathione; therefore if methylation problems are present, glutathione is reduced.
  - Oral NAC (N- Acetyl- Cystiene) the primary rate limiting precursor for glutathione is a supplement that we use in lower doses in the early phases (due to its ability to bring toxins into the brain (or cells) – if the diffusion gradient is greater outside the brain (or cells) than inside).
  - Oral Glycine and Di-Methyl-Glycine (DMG) are supplemented for glutathione synthesis, liver conjugation and toxic chemical detox.

- Glutathione strategies are employed to raise the blood levels during detox and raise the brain glutathione; note that IV glutathione does not raise the brain glutathione levels, unless the brain-barrier is leaky.
  - IV glutathione is added separately to the Vitamin and Mineral IV after the administration of DMPS; this is usually the second day of the chelation phase cycle.
  - IV glutathione, IV NAC are protocols for ASD patients, and others in the later phases of detox
  - IM glutathione strategies 200mg 3 times /week
- Oral supplementation of glutathione does not work, so bypass the gut by:
  - Liposomal skin formulas of glutathione
  - Sub-lingual drops (100mg/cc) or tabs (100mg)
  - Transdermal (TD- glutathione)- 4mg/ drop
  - Transdermal Glutathione Precursor – 30mg- 60 mg/ml
  - Inhale glutathione products, which directly place the glutathione into the brain.
- A coffee enema is a very effective way of raising the extra cellular glutathione levels (estimated~ 200 times normal levels). This treatment is one of the foundations for the Gershon Cancer protocol, used very successfully in all detox strategies. We recommend the coffee enema during the chelation detox cycle; it is in essence a cheap IV glutathione infusion.
  - The Kelly, Gershon, Gonzolas cancer protocol calls for 1-2 coffee enemas a day
- Intracellular glutathione is the only naturally produced intracellular detoxifying agent to remove heavy metals from inside the cell. It acts as an intracellular shuttle system, however, **intracellular glutathione once spent in removing heavy metals from inside the cell is not easily manufactured, and it can not diffuse back into the cell from the extra cellular stores.** This leaves the cell mitochondria at risk to oxidative damage, which leads to lipid membrane per oxidation and ultimate destruction of the mitochondria. When the mitochondria is destroyed the cellular energy is reduced along with all its function (reducing energy and other cellular functions) leading to dys-oxygenosis or the inability of the cell to adequately use oxygen in its metabolism.
  - Intracellular glutathione levels are important to re-build in detox.
    - Whey protein: has an ample supply of all the amino acid precursors for glutathione – glutamine, cysteine, and Glycine, plus the branched chained amino acids to get the amino acids through the cellular membranes.

For more on glutathione refer to the appendix.

**Sulfation** genes and detox pathways are often depressed in mercury toxic patients. As discussed in Principle #14, sulfur is very important in detoxification. All detox is sulfur dependent, which means:

1. The patient must have **enough sulfur** in its various forms to carry the toxic substances out of the body
  - a. Amino acids – cysteine, methionine, Taurine, milk whey protein powders, proteins in the diet
  - b. Chlorella, MSM, freeze-dried garlic, sulfur foods,
  - c. Glutathione supplementation
  - d. All chelating agents are sulfur (sulfhydryl): DMPS, DMSA

2. The patient must be **regulating sulfur** metabolism, or giving the proper signaling to for the sulfur detox biochemical reactions to proceed effectively and efficiently. The regulation therapy we employ is:
  - a. Allergy Elimination Therapeutics for sulfur, glutathione, the sulfation pathways, the sulfur foods, autoimmune...; Phase I
  - b. LED - Cowden's laser energetic detox neutralizes sulfur metabolism as the first step
  - c. Schwef-Heel (Sulfur 4x, 6x, 12x, 30x, 200x (homochord); mobilizes mercury and all other toxins from their protein binding sites. Must be used in Phase III and slowly, to prevent detox symptoms.
  - d. Since most of the trans-sulfuration pathways occur in the liver, liver support is critical: See below Hepar Compositum: liver drainage
  - e. In some heavy metal toxic patients, sulfur foods and/or supplements makes them sick. These patients have sulfur metabolism problems, which makes and detox program impossible. Usually glutathione stores are depleted, and liver sulfur detox is minimal.
    - Low uric acid (xanthine to uric acid is blocked); and low Chlorine in their blood chemistries.
    - Don't use sulfur in any form – MSM, DMPS, DMSA, alpha Lipoic acid, garlic – causes moderate to severe symptoms
    - Must increase the ability to sulfinate first:
    - Treatment:
      1. **Molybdenum** essential for sulfite to sulfate
      2. **N acetyl glucosamine**
      3. **Allergy/ hypersensitivity elimination** to sulfur, Mo and check all minerals.
      4. Once sulfur metabolism is re-established then sulfur supplementation is needed to replenish deficiency

### **Acetylation –**

1. Use Ubichinon Compositum (Heel)
  - 1 amp per mo for 6 months; best to inject

### **Liver detoxification** (Cytochrome p-450 enzymes)

The liver is the primary detox organ and mercury toxification and detoxification can place it under considerable stress; the liver needs to be supported throughout detox

1. Hepar compositium
2. Hepeel

### **Apo-Protein E**

Apo-Protein E is a natural housekeeping biochemical synthesized in the liver with a very special heavy metal detox function. If the patient has the inefficient type of Apo- protein- E, it can help explain the difficulty, but the mercury detoxification can proceed efficiently and effectively with the other detox pathways taking up the slack.

Apo- protein E is a genetic determined protein that in addition to removing oxidized cholesterol, also removes mercury and other heavy metals from the brain. Once the mercury is through the brain blood barrier and or into the neurons, the Apo-protein E removes the toxic heavy metal, before it can destroy the beta tubulin and other parts of the brain cell. The autistic child often has the same genetic profile as the Alzheimer's, Parkinson's and other adult neurodegenerative diseases, that is little or no protection from this natural detox biochemical.

Apo-protein E can range from very efficient having two sulfhydryl cysteine amino acids in its protein composition at specific sites, to having none, which imparts no detox capacity to the apo-protein E. If you have the latter genetic expression of the apo-protein E your risks of getting Alzheimer's is greatly enhanced and the onset is often under 50. Conversely if you have the efficient type of apo-protein E, your risk of getting Alzheimer's is over 100.

### **Metallothionine-**

The metallothionine system is a natural excretory phase system that binds the mercury and other heavy metals in the lining cells of the GI and lung, and the blood vessel endothelium and then excretes the dead cells into the lumen for excretion. It is a large intracellular molecule with multiple binding sites of cysteine, which bind zinc, iron and toxic metals. Mercury and other heavy metals will replace Zn and Cu in metallothionine.

- Note: an increase in hair Zn and Cu indicates an increase in zinc excretion, which is indicative of a HM burden displacing the Zn in the metallothionine.
- Metallothionine can also be affected adversely by stress
- Metallothionine is present in most cells but abundant in barrier, lining cells-enterocytes (GI), endothelial (blood vessel), alveolar (lung), and nerve cells. The lining cells of the GI are shed off into the lumen and excreted in the feces.
- Metallothionine requires adequate proper Zn and Cu nurturer. Too little Zn/ Cu will minimize the production of intracellular metallothionine, too much Zn/ Cu will displace the mercury and other sequestered heavy metals.
- Metallothionine production also has a genetic component
- We give zinc supplementation very cautiously, especially in the early phases of Mercury detox, for zinc will displace mercury and worsen the symptoms
  - Use ART for guidance
  - Zinc taste test: if the child cannot taste the zinc solution, this indicates a need for zinc
  - Be aware of copper, which is often depleted in detox with DMPS
  - Hair and red blood cell analysis can be helpful

### **PPAR repair**

- PPAR - Cell wall receptor – determines the number and type of peroxisomes inside the cell
- Peroxisomes are the manufacturing units of the cell (produces all the enzymes, hormones and cellular products)
- and detoxification units of the cell (like the cellular liver and kidney)
- the health and regulation of the cell and organism is due to the genes but also the peroxisomes; in fact the peroxisomes can compensate for defective genes
- Chlorella is very potent PPAR stimulator (10 times more potent than the drug Actose, which is the current medical treatment)

### **Principle # 20: Detox is a journey - follow the 7 steps to wellness during your detox and through life**

How long is active detox? The answer is - what are your health problems? and how healthy do you want to be? We live in a toxic world where heavy metals, toxic chemicals, drugs,

and environmental pollutants, electrosmog and other noxious energies are all out of control. Recognizing that we are not safe from these ills of our modern living because whatever is on the outside of our bodies will eventually make its way to the inside, detoxification for life is the only answer to maintaining optimal health. To illustrate the point of the toxic world, polar bears in the arctic have accumulated alarming concentrations of mercury in their bodies, from the air they breathe and the fish they eat.

Of course no one is actively detoxing through their life, once their immediate health objectives are met, but these principles applied in maintenance form can be incorporated periodically to remain healthy. Our objective is to teach you to detox yourself and use our office and expertise when needed and as check-ups or progress reports.

The following are our 7 steps to health: How healthy are you in these seven categories?

Step 1: **Healthy life styles and Diet**

You are what you eat. The Back to the Basics teaches - your food is your Medicine.

BASICS healthier life choices are:

- Eat whole foods whenever possible
- Eat the diet that is right for you
- Eat raw food whenever possible
- Include lacto-fermented foods
- Eat organic foods whenever possible
- Balance every meal with protein, carbohydrates and fat
- Be aware of food allergies or intolerances
- Eat good fats
- Eat as many colored foods as possible
- Avoid refined sugar and white flour

For the detox patient, the foods and diet that is most often the best is one high in minerals, moderate protein, good quality fats, foods high in sulfur, foods high in anti-oxidants and eggs. Basics also includes: Water and Air.

See: Back to Basics

Step 2: **Healthy bowel**

Step 3: **Healthy home and environment:** noxious energies, be aware of your allergies in food, environment, chemicals... and treat them (desensitize)

Step 4: **Healthy mind** – in your thoughts, attitudes and beliefs through the development of mindfulness

Step 5: **Detox for life:** heavy metals, chemicals and chronic infections

Step 6: **Healthy mouth:** you can't heal or have optimal wellness without cleaning up your mouth

Step 7: **Healthy physical** structure and fitness

As you will note, this Comprehensive Integrative Medical protocol contains all these elements to a healthy life.

### **III. Assessments of Patients with Chronic Heavy Metal Toxicity**

Assessing patients for heavy metal toxicity is not easy when using only conventional standards. This is because heavy metals are tenaciously bound to the tissues, in compartments unevenly distributed throughout the body, in tissues and organs where a finite amount of mercury can create much more biological damage (i.e. brain and nerve) than a gross amount of mercury in another tissue (i.e. muscle).

The following are **issues to consider in assessing** for mercury and other heavy metals:

- There are **no universally accepted methods** of assessment of mercury and other heavy metals.
- The conventional medical gold standard for assessing any toxic element in the body is **biochemical evidence** of mercury body burden, through biopsy of tissues or analysis of bodily fluids – urine, feces, blood and sweat.

- In order to obtain a fluid sample, mercury toxic bodily compartments need to be identified and chelating agents (or detoxification) need to be initiated. The fluid sample needs to be properly processed.
- There are **Pseudo problems of mercury collection and sampling** that need to be understood and overcome, which will decrease the lab reported yield. These pseudo problems are reviewed in the 8-24 hour urine challenge later in this section.
  - There are other problems with making the initial assessment of mercury toxicity with a urine lab analysis problematic.
    - **Gross bodily burden vs. finite bodily burden** The amount of mercury in the body may be small but in the wrong places (i.e. the brain) and causing devastating symptoms.
      - Traditional toxicology equates the gross bodily burden with the degree of the dysfunction or the signs and symptoms. Neurotoxic conditions do not follow this rule because a small amount of mercury bound at the right sites in the brain can cause major symptoms (i.e. MS), as where a large amount of mercury bound in the connective tissues can be relatively inactive.
    - Mercury is often released through detoxification – chelation **over time and unpredictably**. Therefore, mercury may not be released in the initial chelation collections even though the burden may be substantial. It may require the principled detoxification strategies outlined in this protocol (or others like it) to release the mercury from the bodily compartments to be accessible to the “challenge sampling”.
      - Mercury is not normally present in blood, urine or feces, unless there is a toxic exposure. And then the majority of the mercury over time will be absorbed into the tissues. Therefore routine **fluid tests will not show the presence of mercury**. Understand that mercury is tenaciously bound to the tissues and therefore needs to be **provoked by treatment** with chelating agents for any mercury to be collected in any bodily fluid analysis. Mercury is stored in multiple bodily compartments, some deeper and less accessible to the excretory organs (i.e. walled off in the connective tissues, cellular or intracellular bound).
      - **You must treat for mercury toxicity in order to confirm the assessment; there are no exceptions.** It is not good medicine to chelate for a highly toxic metal when the patient is not adequately prepared. The reasons are multiple: a) the mercury will likely not be excreted in the amount that it could; b) the toxic mercury is mobilized and redistributed in other places-exacerbating the symptoms; c) the mercury is rapidly dissolved from the mercury fillings, which increased the available toxic mercury to the body; d) neuro-immunological system may hyper-react (allergy) triggering a multitude of potentially devastating results. Some patients want to have a urine chelation challenge lab test without undergoing the treatment protocols – dental removal, regulation treatment (allergy elimination), detoxification foods (chlorella), drainage

remedies and treating the detoxification pathways...; we have witnessed major patient problems and inaccurate results.

- If the detoxification pathways are not working efficiently, the mercury and other heavy metals will only be redistributed during chelation (or moved around) and not chelated out (into the urine sample). This causes the patient more symptoms and harm, while providing no benefit.
- In heavy metal detoxification all divalent heavy metals are detoxed by the techniques of this program. All are toxic and a problem. There is no universal pattern of heavy metal removal: all toxic divalent heavy metals will come out at different rates and at different times depending upon the multiple variables we have discussed. E.g. it may take 8 chelation cycles to have a substantial dump of mercury, before which cadmium and arsenic may be high.
- An autistic child may have a relatively low level of mercury in the brain that is deeply imbedded in the tissues, and therefore relatively inaccessible to chelation and collection. In addition, the autistic child usually has detoxification pathways, which are compromised due to the mercury toxicity and other neuro- immunological injury from the vaccines. These conditions may show small yields of mercury in the urine challenge, until well into the detox protocol.

### **Because of these inherent problems in the lab assessment of mercury:**

- Doubt a low mercury reading, when history and symptoms suggest otherwise.
- In biochemical testing trust positives but not negatives (many false negatives):

### ***Principles in mercury assessment:***

- A strong argument is for initially considering chronic mercury toxicity as a **clinical diagnosis from history, signs and symptoms and exposure**, and then later after treatment is initiated and the mercury is provoked to be detoxed, the biochemical lab evidence and symptom relief confirms the clinical diagnosis.
- Since mercury and other toxic metals and chemicals strongly affect the neurological system, **assessment through neurological biofeedback assessments is a very accurate**, inexpensive and a reliable tool: Autonomic Response Testing and Meridian Stress testing are the most useful.
- All biochemical lab tests can only indicate indirectly that mercury and other toxic metals and chemicals are present: There is **no conventional medical lab or imaging tests that can assess the total bodily burden of mercury** and the compartments in which it is located.
- Treatment and assessment are intricately related. Mercury is stored in bodily compartments; therefore, one must **look and provoke in the right storage areas**, using the principles in this protocol.

Mercury (and other heavy metals) toxicity **diagnosis needs to be a multi-factorial process**. Good medicine involves an understanding of the issues and a judicious use of the all the available tools, finding the common threads where they exist. The following are the tools used in traditional medicine and the newly emerging Integrative Medicine with its functional assessment component to diagnose mercury and other heavy metal toxicity.

1. **Symptoms:** Mercury is the great imposter; refer to the previous discussion and the NeuroToxin symptom form.
2. **History:** your exposure and that of your parents, especially your mother's exposure.
3. **Biochemical tests:** demonstrate mercury toxicity directly and show relationships with the effects of mercury toxicity; lab tests are necessary to understand the multiple other factors in heavy metal and chemical detox.
4. **Functional assessment** tests
5. **Therapeutic trial** and outcome measurement

***Goals in assessing for heavy metals:***

1. Assess the toxic metal overload.
2. Assess the minerals, vitamins and other nutritional factors.
3. Assess the detoxification pathways.
4. Assess detox organs status.
5. Assess the chronic infections.

In summary: a comprehensive Integrative Medical assessment includes all the potential stressors; in mercury toxicity it is the total load of stressors that creates the functional breakdown first, followed by the signs and symptoms of the certain pathological disease or dysfunction. Since functional rehabilitation is our ultimate objective, it is important to understand in the assessment phase the issues that may need to be addressed. A brief summary of the stressors can be overviewed in the following components:

**I. Structural issues:**

- cranial distortions in the head bones due to injury, birth and the most common a cranio-mandibular dysfunction perpetuating the condition due to dental over closure and other malocclusion issues
- leg length discrepancy can impart a large structural strain on the entire body, with many adverse consequences.

**II. Biochemical and immunological issues:**

- Toxins: too much of the “bad” stuff – heavy metal toxins, chemical toxins, toxins from chronic infections, and bowel toxic overload
- Supplementation therapeutics or not enough of the “good stuff” to adequately function, detoxify, rebuild- vitamins, minerals, amino acids, good fats, nutritional factors; and the products of metabolism - digestive enzymes, hormones, neurotransmitters and neuro-peptides, immune immunoglobulins, and the multitude of biochemicals that keep our body functioning
- Immune system regulation therapeutics: may be hyper-reacting, therefore causing allergy and autoimmune conditions, or under-performing causing chronic infection; the allergy and immune system can and always needs to be reprogrammed to one of self regulation.
- Other biochemical supplementation and suppression therapeutics: drugs, herbs (nature's drugs), nutritional factors, supplements, foods, water and other life-style factors to chelate the toxic metals and other toxins out, repair and heal the damaged organs (drainage remedies), restore the damaged detox pathways, change the internal milieu from one of excessive oxidation and acidosis (conducive to biologic aging) to one of adequate (optimal) antioxidant status and alkalinity, which is much more conducive to health and healing.

### **III. Psycho-emotional, mental, intuitive and spiritual issues**

#### **IV. Energetic or regulation issues**

The autonomic nervous system (ANS) regulates the physical and biochemical functions mentioned in I and II. The ANS gathers information from the body's internal tissues, the external senses, the foods we eat, the air we breathe, the psycho-emotional system and other mental functions and tries to create the best internal environment for our cells to prosper and grow.

The ANS proportions life giving blood to the tissues of our body, turns on cells when needed and shutting down cellular activity when not needed; this neurological and our immunological systems are so intertwined that most consider them as one; the ANS is largely responsible for all the activities in the connective tissues, which involves cellular nutrition – getting the nutrients to the cells and carrying away their wastes, cellular membrane dynamics or what gets into the cells are also partially under the ANS control; the ANS directs the fibroblasts, the captain of the connective tissues, which repairs and maintains the connective tissue environment. The ANS produces most of the neurotransmitters and neuro peptides of the body, which regulates cellular function and inflammation.

In summary, the ANS is the primary regulator. All chronic conditions have some degree of dys-autonomia (or the inability of the ANS to properly regulate the bodily systems and function). The ANS responds to the total load of all stressors, and physiologically reacts accordingly in the best manner possible to defend and preserve the life of the individual. The ANS is part of our primitive brain, automatically responding, without our conscious thought to bodily functions it feels necessary. Like all brain functions, the ANS becomes programmed to respond to function and crisis. When the total load of stressors become overwhelming, the actions of the ANS can dys-regulate and perpetuate chronic conditions like chronic inflammation, allergies and shutting down blood flow to tissues and organs that have become toxic. Understand that all these seemingly bad symptoms of disease and dysfunction are the ANS responding in the best manner possible to stress and toxic overloads and trying to maintain and defend our life.

The **list and short explanation of ANS stressors that cause Dys-autonomia** and therefore must be addressed if functional rehabilitation and a healthy recovery is to be possible is listed in the Appendix under “Functional Health Problems – the 7 sins.” They are:

- I. Toxic overload:** dysfunctional Bowel: bowel/ liver/ blood ecology system; Heavy metals (mercury and other toxic metals), toxic chemicals and chronic infections
- II. Biochemical and Metabolic imbalances:**
  - a) Hormonal/ metabolic dys-regulation: adrenal, thyroid, pancreas
  - b) Nutritional metabolic imbalance and life style factors:
  - c) Dys-oxygenosis: lymph and blood congestion, tissue acidity, hyper-coagulation and blood vessel disease, results in reduction of Oxygen to the tissues and the change of the local environment to an anaerobic condition
  - d) Cell Communication dys-function:
- III. Allergies/ hypersensitivities/ Autoimmune/ Environmental disturbances**
- IV. Dys- regulation/ autonomia) on the Psycho-emotional, Mental, Family Systems, and Spiritual Levels**

- V. **Toxic foci:** Jaw bone cavitations, dead teeth, scars, chronic infected organs
- VI. **Structural dysfunctions:** leg length, cranial dys-function, cranio-mandibular dysfunction
- VII. **Noxious Energies:** can be a major problem for biological systems because they affect the Autonomic Nervous System causing/ perpetuating dys-autonomia

## A. Symptoms of Mercury and other Heavy Metals:

### Symptoms can predict the bodily compartment contamination of the mercury.

Mercury seriously impacts the psycho- neuro-immuno- endocrine system resulting in dys-autonomia. This becomes one of the **root causes of most chronic disturbances**, coupled with the fact that mercury greatly synergizes with other toxic metals and chemicals, drastically magnifying their adverse effects.

Mercury has been called the “great imitator.” There is virtually **no medical condition that has not been caused by mercury or is not aggravated** by it. There is not a biochemical reaction in our body that is not seriously impacted or stopped by the presence of mercury; no other metal or chemical can make this claim.

Mercury is a potent neurotoxin and should be suspected as the underlying cause of every **chronic neurological illness unless proven otherwise**. The type of neurological deficit allows one to conclude, where the mercury is. The peripheral characteristics of mercury toxicity is burning pain, numbness and sometimes a squeezing pain, as opposed to a sharp, short, lancing, electrical pain from nerve impingement ( i.e. sciatica).

Mercury seriously impacts the psycho-emotional centers of the brain, therefore **emotional and mental disorders have a toxic component** that needs to be addressed if resolutions of these ever increasing disorders are ever going to be resolved. The most frequent and earliest brain symptoms are short term memory loss, insomnia, low grade depression and “brain fog”.

If any other illness is suspected to be caused by mercury, the **location of the symptom suggests the location of the mercury**. (E.g. arthritis of the small joints of the hand is often caused by mercury, where the joint space is used as excess storage site). The location of the mercury storage and the location of the symptom are often identical.

Mercury poisons the metabolic brain centers and the metabolic glands themselves (i.e. the adrenal, thyroid, pancreas, pineal, sex glands), and therefore is often a **root cause of metabolic or endocrine issues**.

Mercury is a major problem for the **immunological system**, dramatically reducing its ability to do its job, or contribution to the immune system overreacting. The presence of chronic infections (e.g. Lyme, parasites, Candida...) is the result of an immune system not up to the task and is precipitated by the presence of mercury. Auto immune disease, allergies, asthma and other immune hyper-reactive conditions have mercury toxicity as one of the underlying stressors that precipitate the immunological dys-function.

Mercury is one of the most potent stressors for the psycho-neuro-immuno-endocrine system, adding to the other chronic stressors, maintaining the chronic state of dys-autonomia, chronic inflammation and the other chronic conditions that prevent healing and functional rehabilitation.

### Sources of Toxic Metals: **Aluminum**

- Small amounts in food, food additive, processed cheese

- Breathing aluminum dust in air
- Drinking contaminated water near:
  - Areas naturally high in aluminum, Waste sites, plants
- Anti acids
- Cooking utensils: Teflon
- Household drinking water – aluminum chloride, “softened” water
- Aluminum foil, baking powder, canned acidic foods
- In medicine and vaccines: buffered aspirin, anti diarrhea agents, hemorrhoid medication, vaginal douches,
- Cosmetics: lipstick

Health conditions associated with aluminum

- Aluminum is # 194 on the ATSDR list of most hazardous substances (Agency for Toxic Substances and Disease Registry - USDHHS)
- Respiratory problems: coughing, asthma
- Alzheimer’s disease
- Bone disease and skeletal problems
- Skin rashes
- Neurological development in children

Sources of Toxic Metals: **Arsenic**

- Eating food, drinking water, or breathing air containing arsenic: air pollution, certain marine plants, chemical processing, coal fired power plants,
  - Seafood: fish, mussels, oysters
  - Non-organic chicken (extremely high): in the feed to burn out the thyroid and bring the chicken to market faster
  - Antibiotics given to commercial livestock: beef
- Drying agents for cotton
- Herbicides, insecticides, pesticides
- Treated wood
  - Wood used in children’s playgrounds
- Breathing sawdust, burning smoke
- Living near hazardous waste site, manufacturing plant – metal ore smelting
- Living near high levels of arsenic in rock
- Treated specialty glass

Health conditions associated with arsenic:

- Arsenic is #1 on the ATSDR list
- Now classified as a Class 1 human carcinogen, with increased risk of lung, skin, bladder, liver kidney and prostate cancer
- Sore throats, lung irritation, nausea and vomiting, low red and white blood cell count, abnormal heart rhythm, damage to blood vessels, darkening of skin, appearance of small corns or warts

Sources of Toxic Metals: **Cadmium**

- Breathing contaminated air: air pollution
  - Car exhaust (especially in inner city)
  - Cigarette smoke (from treated paper)
  - Metal smoldering or welding
  - Burning of fossil fuels – power plants, municipal wastes – incinerators
  - Highway dust

- 
- Eating contaminated food
  - Seafood: Shellfish – crab, oyster, mussels; flounder, scallops
  - Liver, kidney meats, poultry, processed meats
- Battery manufacturing: nickel - cadmium
- Water softening
- Breathing cigarette smoke
- Art supplies, paints
- Fungicides, phosphate fertilizers, bone meal, sewage sludge
- Food: grown in cadmium contaminated soil: coffee, fruits, vegetables, grains

#### Health conditions associated with Cadmium

- Cadmium is # 7 on the ATSDR list of most toxic substances
- Vomiting, diarrhea, kidney disease, fragile bones
- Cancer: prostate

#### Sources of Toxic Metals: **Mercury**

- Dental amalgams, medical treatment
  - diuretics
- Eating fish or shell fish
  - Fresh water fish: (large) large bass, pike and trout
  - Salt water fish: (especially large) halibut, shrimp, snapper, tuna, swordfish, shellfish
- Breathing contaminated air: air pollution
- Cosmetics
- Industrial and household
  - Electrical devices and relay switches
  - Florescent lights
  - Paints
  - Petroleum products
  - Tap water
- Explosives, mining
- Fungicides, insecticides, pesticides

#### Health conditions associated with mercury

- Mercury is # 3 on the ATSDR list of most hazardous substances

All

#### Sources of toxic metals: **Lead**

- Eating food , drinking water that contains lead
  - Canned foods
  - Tap water
  - Eating foods grown around industrial or contaminated areas
    - Pesticides, Fertilizer – dolomite
- Air pollution
- Industrial:
  - Lead based paints
  - Batteries
  - Gas
  - News print and colored advertisements
- Working where lead is used
  - Ammunition (shot and bullets)

- Health care products containing lead  
Cosmetics, Hair dyes and rinses
- Hobbies where lead is used
  - Glass staining
  - sautering

Health conditions associated with lead toxicity

- Lead is # 2 on the ATSDR list of most hazardous substances (USDHHS)
- central nervous system
- kidneys
- reproductive system
- decreased reaction time
- weakness in fingers, wrists, ankles
- memory, anemia
- cancer: multiple
- children are most vulnerable: blood anemia, severe stomach ache, muscle weakness, brain damage, mental and physical growth
- younger of unborn children: premature births, smaller babies, decreased mental ability in infants, learning difficulties, reduced growth

Global chronic low level metal toxicity recognized by:

- US environmental Protection agency (EPA)
  - Food & Drug administration (FDA)
  - Centers for Disease Control (CDC)
  - State Health Departments
- But no treatment standards

### **Metal toxicity mechanisms**

- Denaturing enzymes
- Displace minerals in cells and tissues
- Interfere with cell membranes function (i.e. transport, uptake, and release)
- Create free radicals/ oxidative stress
- Induction of inflammatory cytokines
- Mitochondrial damage
- DNA damage

With the following biologic effects:

- Neurotoxic damage to brain structures: lower IQ, down regulates dopamine activity
- Nephrotoxic (kidney)
- Immune dys-regulation
- Cardiovascular
- Blood / circulatory: anemia, Reynaud's
- Bone and tissue deposits
- Dys-biosis: fungal mycotoxins
- Endocrine disruptions: thyroid, adrenal, sex hormones
- Cognitive problems: ADHS, Alzheimer's
- Mood disorders: anxiety, depression, OCD
- Metabolic dys-regulation: energy decline, weight gain, type II diabetes, hypertension, elevated serum lipids etc.

## 1. Neurotoxic (Autonomic Nervous System) dys-function questionnaire

The following is a dys-autonomia questionnaire approved for use in an FDA study on mercury toxicity, developed by Dr. Dietrich Klinghardt and Dr. Paula Bickel. You will notice the wide range of symptoms and organs that can be affected by heavy metal toxicity, toxic chemicals, chronic infections and anything else that affects the functional nervous system (ANS).

Rate each on the following symptoms based upon your health profile for the past 30 days.

### Point scale

- 0 = nerve or almost never have the symptom
- 1 = occasionally have it, effect is not severe
- 2 = occasionally have it, effect is severe
- 3 = frequently have it, effect is not severe
- 4 = frequently have it , effect is severe.

### *Digestive tract:*

- |                        |                    |                           |
|------------------------|--------------------|---------------------------|
| ___ nausea or vomiting | ___ heartburn      | ___ diarrhea              |
| ___ colitis            | ___ constipation   | ___ abdominal pain        |
| ___ bloated feeling    | ___ blood in stool | ___ belching, passing gas |
| ___ ulcer              | ___ Crohns disease | ___ poor appetite         |
| ___ Graves disease     |                    |                           |

### *Ears:*

- |                      |                         |                             |
|----------------------|-------------------------|-----------------------------|
| ___ itchy ears       | ___ hissing in ears     | ___ earaches, ear infection |
| ___ hearing problems | ___ drain age from ears | ___ ringing in ears         |
| ___ noise in ears    |                         |                             |

### *Emotions:*

- |                                  |                         |                                  |
|----------------------------------|-------------------------|----------------------------------|
| ___ mood swings                  | ___ anger               | ___ depression                   |
| ___ divorced                     | ___ suicidal tendencies | ___ irritability, aggressiveness |
| ___ anxiety, fear or nervousness |                         |                                  |

### *Energy, Activity:*

- |                           |                      |                             |
|---------------------------|----------------------|-----------------------------|
| ___ fatigue, sluggishness | ___ apathy, lethargy | ___ hyperactivity           |
| ___ restlessness          | ___ tire easily      | ___ tired when awoken in AM |

### *Eyes:*

- |   |                            |                                |
|---|----------------------------|--------------------------------|
| ___ watery or itchy   | ___ swollen, red or sticky | ___ bags or dark circles under |
| ___ blurred or tunnel vision (does not include near or far sightedness) | eyes                       |                                |

### *Head:*

- |               |               |               |
|---------------|---------------|---------------|
| ___ headaches | ___ faintness | ___ dizziness |
| ___ insomnia  |               |               |

### *Heart:*

- |                         |                        |                  |
|-------------------------|------------------------|------------------|
| ___ heart attack        | ___ heart, chest pain  | ___ heart murmur |
| ___ partial heart block | ___ endocarditis       | ___ angina       |
| ___ high blood pressure | ___ low blood pressure | ___ abnormal EKG |

\_\_\_ tachycardia (racing heart)

**Joints/ Muscles:**

\_\_\_ pain or aches in joint    \_\_\_ arthritis    \_\_\_ pain or aches in muscles  
\_\_\_ feeling of weakness/ tiredness    \_\_\_ osteoporosis  
\_\_\_ cramp in legs    \_\_\_ stiffness, limitation of movement

**Lungs:**

\_\_\_ chest congestion    \_\_\_ shortness of breath    \_\_\_ asthma  
\_\_\_ difficulty breathing    \_\_\_ laryngitis 1 or more times per year  
\_\_\_ Pneumonia 1 or more times per year    \_\_\_ bronchitis 1 or more times per year

**Mind:**

\_\_\_ Poor memory    \_\_\_ Poor concentration    \_\_\_ learning disabilities  
\_\_\_ stuttering or stammering    \_\_\_ slurred speech    \_\_\_ difficulty making decisions  
\_\_\_ confusion, poor comprehension    \_\_\_ poor physical coordination  
\_\_\_ brain fog, hard to mentally function

**Mouth/ throat:**

\_\_\_ metal taste in mouth    \_\_\_ increased saliva    \_\_\_ decreased saliva  
\_\_\_ sore throat    \_\_\_ chronic coughing    \_\_\_ loss of voice  
\_\_\_ canker sores    \_\_\_ hoarseness    \_\_\_ bleeding gums  
\_\_\_ gagging, frequent need to clear throat    \_\_\_ loosening of teeth, periodontal disease  
\_\_\_ swollen or discolored tongue, gums of lips

**Nose:**

\_\_\_ stuffy nose    \_\_\_ bloody nose    \_\_\_ sinus problems  
\_\_\_ hay fever    \_\_\_ sneezing attacks    \_\_\_ loss of smell  
\_\_\_ excessive mucus formation    \_\_\_ dry, crusty membranes

**Skin:**

\_\_\_ unexplained rashes    \_\_\_ excessive itching    \_\_\_ red flushed of color  
\_\_\_ rough skin    \_\_\_ acne, pimples    \_\_\_ hives  
\_\_\_ hair loss

**Weight:**

\_\_\_ binge eating, drinking    \_\_\_ craving certain foods    \_\_\_ excessive weight  
\_\_\_ compulsive eating    \_\_\_ water retention    \_\_\_ underweight

**Endocrine:**

\_\_\_ thyroid, under or over active    \_\_\_ cold hands or feet    \_\_\_ diabetes  
\_\_\_ low female hormones    \_\_\_ estrogen dominant    \_\_\_ prostate problems  
\_\_\_ chronically sub-normal temperatures    \_\_\_ pancreas, blood sugar low or pancreatitis  
\_\_\_ menstruation, painful, too often, too seldom

**Immune System:**

\_\_\_ autoimmune                      \_\_\_ allergies                      \_\_\_ low immune system  
\_\_\_ chronic infections (Lyme, Bartonella, Ehrlichia, Chlamydia, Candida, Babesia, Rickettsia, Mycoplasma, Staph, Strept, Mycobacterium... )                      \_\_\_ chronic parasites                      \_\_\_ chronic virus (Herpes I, II, VI, VII, Cytomegalio, Epstein Barr)  
\_\_\_ shingles (herpes zoster)

***Nervous and neurodegenerative disorders:***

\_\_\_ multiple sclerosis                      \_\_\_ Bells palsy                      \_\_\_ Alzheimer's  
\_\_\_ Parkinson's                      \_\_\_ knees or leg jerk                      \_\_\_ epilepsy or convulsions  
\_\_\_ numbness in any part of body                      \_\_\_ tingling in any part of body  
\_\_\_ burning pain                      \_\_\_ tremor of hands, feet of head  
\_\_\_ twitching of face or other muscles

***Cancer:***

\_\_\_ leukemia                      \_\_\_ Hodgkin's  
\_\_\_ any other (name) \_\_\_\_\_

**2. History of exposure**

If you or your mother has been exposed to mercury, you have a certain level of mercury toxicity. Whatever toxic metal or chemical is on the outside of your body, will eventually find its way to the inside. Therefore history can reasonably predict mercury toxicity and which bodily compartments are involve in mercury toxicity.

The most common form of mercury exposure is your dental mercury fillings, past or present. Even though the total number of fillings is a good predictor of total mercury bodily burden, it is not a good predictor for severity of symptoms or where the mercury might be. The vapor of mercury, continually out gassed from the mercury filling, readily passes through the mucous membranes of the mouth and respiratory structures. From there the elemental mercury oxidizes and binds to any tissue in the body, often depositing in tissues with greater blood supply or use (i.e. surgery or injury site, joints and muscles in athletes, brain...).

If your mother had mercury fillings, was in a profession with enhanced mercury exposure, or other potential mercury exposure risk, you have been exposed to mercury in utero. The consequences of mercury exposure to developing brains and bodies are worse than if exposed as a developed adult. And the consequences appear to worsen as subsequent generations become exposed in utero. The reason, it has been conclusively shown through placenta and fetal studies that mothers will off-load a portion of their bodily burden of mercury to their off-spring. Therefore, the first baby is often the most seriously impacted.

Mercury, other heavy metals and toxic chemicals have so contaminated our environment, placed in the air we breathe, the water we drink, the fabrics and furniture we touch and live with and the food we eat. All are synergistic exponentially additive regarding their harm. So our contamination and toxicity levels are rapidly increasing even if we try to live clean.

The air is contaminated with mercury (which is volatile) when burned in coal and other fossil fuel, industrial wastes into the air, cremation of humans with mercury fillings, and discarding of fluorescent bulbs and batteries. The pollution enters the atmosphere and is carried around the world. The polar bears have been reported as having high levels of mercury, from the air they breathe and fish they eat. It makes no sense to increase the use of fluorescent bulbs in the home or work for energy purposes, if when the bulb breaks, (which it inevitably will), the mercury vapor released will contaminate the home so much that the EPA (if properly monitored

according to their standards for minimal safety standards), would mandate evacuation and hazard clean up.

The water is polluted with mercury by rain falling from polluted air and industrial wastes containing mercury. Another very significant source of water mercury contamination is the dumping into the sewer system and eventually the rivers the mercury from the mercury fillings removed by dentists (without separating units). Once in the water, the fish eventually become contaminated as the mercury is absorbed by the plants and eaten by the small fish, which are then eaten by the larger fish and concentrated up the food chain. There is so much mercury in one moderate sized filling that if that filling was placed into a lake of over 20 acres, and the mercury dissolves into the water, the fish of the lake would be so contaminated that humans could not eat them according to the EPA/ FDA standards.

Mercury is a very unusual heavy metal in that it is liquid at room temperature. The energy in mercury, which keeps this metal liquid at such low temperature, is useful in so many medical and industrial uses: thus its widespread use in industry. Mercury can enter the body in different ways:

- Through the bowel by eating mercury contaminated food. Humans have some mercury detoxification capacity in the bowel
- Inhaled into the lungs and bronchial tissues through elemental mercury vapor. Mercury vapor enters the body very efficiently (80% of the mercury vapor passes through the mucous membranes of the mouth, lungs and respiratory tissues). There is no detoxification capacity in these tissues. Once the mercury is into the lungs then blood stream, it can distribute just about anywhere in the body.
- Mercury is injected into the body as ethyl-mercury, a preservative in vaccines. Some of the vaccines are mercury (Thimerosal) free but currently still present in multi dose vials of killed bacterial vaccines (DPT, DTaP, hepatitis B, HIB and flu vaccines). There is no detoxification protection for injected mercury. The mercury poisons the glial cells of the brain barrier, which when mercury poisoned cannot protect the very sensitive brain from chemical and heavy metal toxins, further exacerbating the brain toxic condition.
- Mercury can be readily taken up through the skin. Thus the cosmetics and other products that contain mercury enter the body. The skin has no detoxification barriers, but has a rich bed of sympathetic nerves, which readily uptake the neurotoxic mercury, transporting it ultimately to the brain.
- Mercury is also present in male ejaculation fluid, which can be readily absorbed in the female mucous membranes of the vagina. The female releases mercury in their periods, and dumps mercury (toxic metals and chemicals) into their developing fetus.

### 3. Mercury exposure questionnaire

- A. Dental: \_\_\_ Mercury (amalgam) fillings past or present \_\_\_ presence of gold or other crowns, which increase the galvanic voltage stressing the ANS and dissolution of the mercury from the fillings; \_\_\_ Braces (source of nickel – another neurotoxin)
- B. Vaccines:
- C. Foods: \_\_\_ Tuna – canned or fresh \_\_\_ shellfish-shrimp, lobster, crab, oyster...) \_\_\_ large saltwater fish – swordfish, salmon, cod, etc. \_\_\_ Kelp and other seaweeds \_\_\_ grains (treated with methyl mercury fungicides –especially wheat \_\_\_ non-organic lettuce and carrots
- D. Cosmetics: \_\_\_ hair dye \_\_\_ mascara – water proof type especially \_\_\_ skin lightening creams

- E. Medications: \_\_\_ Preparation H \_\_\_ toilet paper from recycled paper \_\_\_ calomel-  
 powders and talcs \_\_\_ Laxatives containing calomel \_\_\_ calamine lotion  
 \_\_\_ mercurochrome \_\_\_ psoriasis ointments \_\_\_ vaginal gels- especially contraceptive  
 \_\_\_ contact lens solution
- F. Miscellaneous: \_\_\_ latex and solvent thinned paints \_\_\_ fabric softeners \_\_\_ floor waxes  
 and polishes \_\_\_ air conditioner filters \_\_\_ wood preservatives \_\_\_ cinnabar- used in  
 jewelry \_\_\_ felts \_\_\_ adhesives \_\_\_ tatoeing \_\_\_ batteries with mercury cells \_\_\_ sewage  
 disposal \_\_\_ fungicides for lawns, shrubs and trees
- G. Professional:
- |                                 |                                   |                               |
|---------------------------------|-----------------------------------|-------------------------------|
| ___ bactericide makers          | ___ gold extractor                | ___ barometer makers          |
| ___ histology technicians       | ___ battery makers                | ___ ink makers                |
| ___ bronzers                    | ___ insecticide makers            | ___ jewelers                  |
| ___ investment casing worker    | ___ calibration instrument makers |                               |
| ___ cap loaders, percussion     | ___ laboratory workers, chemical  |                               |
| ___ carbon brush makers         | ___ lamp makers, fluorescent      | ___ caustic soda makers       |
| ___ manometer makers            | ___ chlorine makers               | ___ mercury workers           |
| ___ dentist                     | ___ dental assistant              | ___ dental lab technician     |
| ___ direct current meter worker | ___ disinfectant maker            |                               |
| ___ disinfectors                | ___ drug makers                   | ___ electric apparatus makers |
| ___ electroplaters              | ___ embalmers                     | ___ explosive makers          |
| ___ farmers                     | ___ fingerprint detectors         | ___ firework makers           |
| ___ fish cannery workers        | ___ fungicide makers              | ___ fur processors            |
| ___ Mercury workers             | ___ miners, mercury               | ___ miners, gold              |
| ___ mirror makers               | ___ neon light makers             | ___ paint makers              |
| ___ paper makers                | ___ pesticide workers             | ___ photographers             |
| ___ pressure gauge makers       | ___ refiners, mercury             | ___ deed handlers             |
| ___ silver extractors           | ___ switch extractors             | ___ switch makers             |
| ___ tannery workers             | ___ taxidermists                  | ___ textile printers          |
| ___ thermometer makers          | ___ vinyl chloride manufactures   |                               |

Note: if your mother or father engaged in these professions prior to your conception, or your mother while you were in utero; your parents dental mercury fillings for the same time.

## **B. Lab and imaging testing for the presence of mercury toxicity**

**Imaging:** Where is the mercury, how is it bound and how much mercury is present. Wouldn't it be wonderful to have an imaging device that illuminates the toxins. At this time there is no conventional imaging tests that can detect mercury. The MRI in the future can be adapted to magnetically amplify the frequency of mercury and take a picture of the frequency amplification. The MRI currently amplifies the frequency of hydrogen and takes a picture of the energized water – H<sub>2</sub>O and this technology is adaptable to other elements.

Until then the only imaging that is available is to measure the frequency of mercury with direct resonance ART muscle testing biofeedback, which will be reviewed later.

### **Appropriate Lab tests for chronic heavy metal analysis: Heavy Metals, GI health, nutritional analysis**

As previously stated, conventional medicine (and therefore insurance companies, government and regulation boards) currently will recognize toxicity only when measuring the toxins presence in tissues or bodily fluids. The only tissue that is practical is hair mineral analysis. All lab tests have their usefulness, but only tell a part of the story and all have their problems. Of course the other problem is that the tests are nice to analyze, but with a limited budget the multiple tests can become expensive. It is tragic to spend more money on assessment testing and not have funds available for therapy, which is the most important.

#### ***Basic Toxicology: Exposure -> assimilation -> retention-> toxicity***

Chronic toxicity is accumulation/ retention over time, and the bodily reaction to man's toxins; made better or worse by the ability to detox, nutritional factors (the good stuff), accumulation of other toxins and stressors (i.e. psycho-emotional, noxious energies, structural, allergies, toxic foci).

Traditional medicine and toxicology recognize acute toxicity for treatment but not chronic toxicity or sub clinical heavy metal toxicity, which is below a threshold of blood or hair analysis and recognized symptoms. Net retention of toxic metals over time is the difference between assimilation minus the excretion (detoxification).

### **1. Hair Analysis**

**SUMMARY:** Hair is an excretory tissue that irreversibly binds circulation metals. Hair will concentrate metals cumulatively. Hair is a good indicator of methyl- mercury (Me-Hg) in that hair will accumulate Me-Hg 200-300 times more than blood. Hair is endorsed by CDC for Me-Hg and it is useful for ongoing or recent exposure.

Hair analysis can be an indicator of mineral status and toxic metals, mentioned above. However hair analysis requires interpretation and an understanding of the test because the values do not tell the entire story. Minerals get into the hair follicle via the blood stream then bind to the keratin protein. In order for the mercury and other heavy metals to bind in the hair, they must be bound to cysteine, an important sulfur containing detox amino acid. Many toxic patients are chronically low in this critical amino acid and therefore unable to detox. If this is the case, the hair will reflect little to no mercury, because it cannot be bound in the hair by cysteine. Therefore no mercury in the hair analysis can indicate the inability of the patient to detox the mercury out.

The patient can have a large burden of mercury but it is bound tightly in the tissues and not being detoxed through the blood. Therefore, there is no mercury in the hair.

Methyl mercury becomes up to 250 times more concentrated in the hair than in the blood where it came from. Hair analysis is therefore a great test for acute mercury toxicity, which is

by definition the stage in which mercury is present in the blood stream. The hair will also show mercury if there is effective detoxification when mercury is being actively pulled from the tissues.

After an acute exposure like when a mercury amalgam filling is placed, the blood will register mercury for about 3 weeks. After 3 months the mercury has been oxidized and now firmly bound to proteins and mineral binding sites – inactivating enzymes, receptor sites, and active cellular biochemical processes; or bound to matrix structures in the connective tissues (proteoglycans); or stores as metallic mercury in the fatty tissue.

Chronic mercury toxicity is not kept in the blood but stored in the tissues and therefore will not show in the hair unless active stored tissue detoxification is present. Hair analysis will give a 2-4 month history of mineral/ toxic metal status or the effectiveness of the detox.

**The real value of hair mineral analysis is to determine the detoxification capacity of the patient with a known past exposure or to monitor the detox program: if levels are high- doing a good job; if low- bad job.**

It is a known fact from placenta and fetal studies that mothers will “dump” a portion of their mercury burden into their offspring. It is also understood that autistic kids often have previous mercury exposure from mom and that the amount of exposure can be directly correlated with the number of mercury fillings in mom’s mouth (as well as environmental exposure too). Autistic kids are unable to detox mercury and other toxins very well, due to genetic and acquired defects (exacerbated by the mercury poisoning). In an experiment, two groups of 2 year olds were hair tested from mothers with the similar amounts of mercury fillings, one group was normal and other group was autistic. The results were: the autistic group had no mercury in their hair, the normal kids had mercury in their hair, indicating mercury was present in the blood and their detoxification mechanisms were adequately working. It was only until after the detoxification mechanisms were repaired and detox procedures were in place for a while that the mercury started to appear in the hair of the autistic group. (See: Integrative Medical Protocol: Toxic – Inherited Brain Disorders, Mental Health and Brain Healing; For Delayed Development Disordered (Autistic Spectrum disorder) and Book: “Envisioning a Bright Future” by Patricia Lemer for protocols and a more in depth understanding of Autism).

Note that mercury and other metals and minerals bind to the cysteine of the keratin protein in the hair. Cysteine is a very critical amino acid for detox, responsible for most detox reactions. In chronic toxicity cysteine is often depleted, which not only compromises the detox mechanisms but reduces the mercury binding in the hair.

There are other indirect values in hair analysis that can indicate mercury toxicity:

- Increased Selenium in hair is a biomarker for mercury (Bickel)
- Increases Zinc in hair indicates zinc dumping, which is due to toxic metal exposure, often mercury. The toxic metals are displacing zinc in the metallothioneine molecule, which is one of the body’s innate detox mechanisms to bind the mercury.
- In summary:
- Hair analysis is a cheap test and practical to have in the arsenal of lab tests.
- If mercury is present in hair it has been in your blood in the last 3 months – either as an acute exposure or as active detoxification
- It may be most useful to monitor the detoxification with hair analysis every 3-6 months than to rely on hair analysis to determine mercury presence in the beginning of detoxification.
- Understand that the most sick mercury toxic patients can have low or no mercury in their hair.

- Hair analysis is only effective for monitoring other minerals in relationship to their ratios to each other, not the amount present in the body; Sodium to potassium, zinc to copper, calcium to magnesium...

## 2. Red Blood Cell Mineral and Toxic Metal Analysis

Intracellular analysis of minerals is the most accurate method to determine the **mineral status of the patient**. Replacing minerals and knowing the right minerals to replace is very important. As discussed above in hair, toxic minerals are not stored in the blood, therefore RBC analysis will only determine if there has been an **acute exposure or if detoxification process is adequate**. The Red Blood Cell has a 90 days life, therefore, this test is a shorter time frame than hair, and like hair is not indicative of body burden.

The following are indirect values that can give an indication of mercury toxicity.

- Since mercury competes with magnesium, potassium, selenium, zinc, manganese, and chromium- these may be low, or low normal
- According to researcher Paula Bickel PhD – 100% of Hg toxic patients are magnesium deficient.
- Zinc may be elevated in the blood, because it is being displaced in the metallothionein
- Selenium is the most important mineral for mercury detox. Selenium levels need to be maintained at high normal for best mercury detox and reduction of symptoms. RBC analysis is the only effective biochemical tool to effectively monitor selenium levels.
- In summary;
- Important lab test, mostly for mineral status
- If showing mercury or other heavy metals, then acute exposure or detox in the last 90 days is adequate
- Should repeat every 6 months during active detox
- Would like all antagonist minerals (to the toxic metals being detoxed) above normal; best to have all minerals above normal

## 3. Blood Chemistry Panels: the executive blood chemistry profile consists of the SMAC-24, CBC w Diff, Thyroid, lipid profiles

A blood chemistry profile is **necessary to screen for the common health issues and it is just plain good medicine**. A functional blood evaluation can be employed, which does not use the standard pathologic values of the particular lab test but the more optimal functional values. The functional values are a tighter range of lab values. There are no clear tests for heavy metal toxicity (mercury), but patterns can emerge. The following are patterns indicating HM toxicity in a blood chemistry panel.

- Elevation of RBC, Hemoglobin, Iron, and Ferritin: the patient may present with **porphyria**, which is an increase in hemoglobin and the red blood cells that contain the hemoglobin. Hemoglobin is a porphyrin, which also carries heavy metals. An increase in hemoglobin could indicate that the heavy metals are bound to the hemoglobin reducing their oxygen carrying capacity; the body increases production of RBC to carry more oxygen. The lab patterns seen in blood chemistry is:
  - Serum ferritin- normal
  - Serum Fe- normal
  - MCV↑ (mean corpuscular volume- volume of hemoglobin in RBC- usually indicates B-12, folate, B-6, iron anemia); suspect any value over 92.
  - MCH ↑ (mean corpuscular hemoglobin-weight)

- Note a urine porphyrin test can be very diagnostic for mercury. This will be discussed later.
- Electrolyte and mineral imbalance: values of the electrolytes are instable, reflected in elevation or depression. (i.e. chloride, sodium, potassium calcium, magnesium, and phosphorous) Most heavy metal toxic patients have an imbalance in electrolytes: Low Na; low Ca
- Elevation of the liver enzymes: GGT, LDH, SGOT, SGPT, Alkaline Phosphatase, Bilirubin; Heavy metals **and neurotoxins can place the liver and biliary tree under severe stress.**
- An increase in LDH indicates damage to heart, kidney, liver muscle and RBC; a depression of the 5 iso-enzyme of LDH, indicates heavy metal toxicity
- **Cholesterol** elevation or suppression: Cholesterol is an anti-oxidant, heavy metals are oxidizing agents. Cholesterol is increased in most endocrine or organ hypo-function and decreased in most endocrine and organ hyper-function, liver/ biliary dysfunction, vegetarians and low fat diets. Depressed Cholesterol reduces the ability to create bile (stasis – bile to thick), which reduces excretion of toxins from the liver. Cholesterol is critical for many bodily functions, lipid membrane health, detoxification and almost every function of the body. Cholesterol also shuttles mercury away from the cells. Most mercury toxic patient will present with elevated cholesterol, (normal is up to 240), don't lower with drugs this is an oxidative protection mechanism and the body compensating for the metal toxicity.
- **White Blood Cells** – elevation or suppression: the immune system is always affected by heavy metals, the response may be (chronic) inflammatory, suppressive or autoimmune
- **Uric Acid** suppressed: mercury may affect sulfation and sulfur metabolism, an important detox pathway. Poor sulfation processes hinders the conversion of xanthine to uric acid, thus lowering the uric acid. Note: in any sulfur metabolism problem the mineral molybdenum needs to be ruled out for deficiency.
- **Albumin** elevated: albumin is the carrier protein, which transports calcium and fatty acids but may also transport heavy metals to kidney.
- In the CBC differential, if the total count of the basophils, eosinophils, and monocytes add to 7 or greater, there is a high likelihood of chronic bowel inflammation. This can be confirmed with an C-reactive protein test. Mercury toxic overload in the bowel is a very common cause of bowel inflammation, which must be resolved for adequate detoxification.

#### **4. 8-24 Hour Urine for Trace Minerals and Toxic Metals- provoked urine challenge test**

The urine test is a urine collection analysis for at least 8 hours and up to 24 hours for a panel of minerals and toxic heavy metals. The provoked urine challenge test is a collection after the administration of a detox chelator – usually DMPS, DMSA or EDTA, which uses the kidney to excrete the metals. This “urine challenge” test is one of the most important tests for determining and verifying the presence of mercury and other heavy metals in the body. It is a test that satisfies the insurance companies that may be responsible for paying for the detox; the patient that wants to know if mercury or other heavy metals are really present; and the doctor to be guided in the detox strategies. This test does not show the bodily burden of mercury or any other heavy metal. Because of its importance, and the fact that one or more provoked urine challenge test may not demonstrate the bodily toxic metal burden, we will

discuss in length the issues surrounding this test and how to overcome some of the inherent problems.

If insurance or other legal/ medical board verification is critical to your case, then **perform an unprovoked urine test, to rule out acute environmental exposure**. Be sure to abstain from fish, shell fish, dental work and other mercury contamination prior to the test. The unprovoked challenge can illuminate any acute toxic metal exposures, which may be mistaken for detox after provocation.

The provoked urine challenge is routinely used in the beginning of mercury detox, to confirm the presence of mercury. As we will discuss in more detail later, the initial challenge tests may not net the results expected (or desired) – that is a sizable “dump” of mercury or other heavy metals. The initial challenge tests will chelate only the metals that the chelating agent used has a strong affinity to. It will chelate first the metals in the stored in the kidney’s extra cellular matrix and depending upon the route of administration of the chelating agent (i.e. IV, IM, suppository, or oral) secondly the extra cellular matrix of the tissues in which it was administered (i.e. IV – blood vessels, suppositories and oral – bowel and liver) and thirdly other connective tissues.

This test should be employed periodically throughout detox to evaluate the effectiveness of detoxification. Recommended - at least every 6 months. The following are some things to understand about the provocation chelation test.

- Mercury will only show in urine when the chelating agent excretes through the kidney. The kidneys should be healthy for maximum safety, if not – many times it is the accumulation of heavy metals in the connective tissues that is the problem. See below for strategy for compromised kidneys.
- The urine provoking chelating agents that mobilize toxic metals are determined by
- relative affinities, mass competition and competition with endogenous ligands. (mercury binds to the SH group of cysteine very tightly ( $\log K - 10^{40}$ ); therefore to mobilize mercury from the bound tissues you need strong chelating agents and other mobilizing strategies. The chelating agents are:
- DMPS is the strongest chelating agent we currently have and DMPS excretes mostly through the kidney, which makes it the best “challenge agent”. Only effectively IV, possibly suppository. Most effective for mercury, arsenic, tin, antimony, palladium, titanium, and second most effective for lead.
- DMSA is another chelating agent that is approved for lead in 1990. It can be used oral and suppository. Less effective than DMPS for most toxic metals, Most effective for lead, second most effective for mercury, arsenic, antimony, tin.
- EDTA is approved for lead in 1950’s. IV in slow drip ( $Mg - Na_2 - EDTA$ ) or fast push ( $Ca - Na_2 - EDTA$ ). Best for lead, arsenic, cadmium, and arsenic, second best for antimony and tin. Not effective for mercury.
- Mercury should never show without a chelation provocation, therefore a pre-challenge urine collection should show little to no mercury. The pre- challenge urine indicates what is present in the blood now, which is either acute toxicity or detoxification - the patient’s capacity to remove the mercury.
- An 8 hour sample will yield more mercury, and is easier to collect. The action of the DMPS or DMSA is quick lasting only 6-8 hours.
- The mineral analysis portion of the urine challenge is helpful for mineral evaluation and supplementation strategy however it is only accurate if a 24 hour sample is taken.
- The 24 hour collection’s disadvantage is that it is harder to collect and more of the mercury will evaporate
- If the patient has low sulfur bodily levels, which many heavy metal toxic patients have, the DMPS or DMSA used in the chelation challenge will be readily cleaved off

and used as a sulfur supplement, rendering the chelation ineffective. This is why we always recommend supplementing sulfur as soon as possible – e.g. MSM and freeze-dried garlic and eating cruciferous vegetables, which contain lots of cysteine, the important sulfur-containing amino acid.

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- There are problems with urine collection called “**Pseudo problem**”, that is the mercury that comes out in the urine will be lower than the true amount. This needs to be understood and overcome if the sampling is to become accurate and not under-report the lab yield.
  - Mercury will evaporate at room temperature becoming a gas and slipping through any crack in any container.
  - Mercury is chemically reactive with most plastic containers, absorbing into the plastic and detectable on the outside of the container.
  - Mercury is a heavy metal, and will sink to the bottom in solution; shake the container well and vigorously before filling aliquot in transport tube.
  - Unreliable lab methods are used to assess mercury, because not every method can detect mercury in every possible mercury compound. Usually mercury has to be knocked off its tight chemical bond, before it can be detected via the different methods. People can have high levels of mercury bonded firmly to some substance in the urine or feces, which escapes detection.

Suggestions to overcome the “pseudo problems” for urine challenge:

- Keep container in refrigerator
- Keep the container closed tightly during the collection process
- Don't store the urine sample, but process it as soon as possible.
- Keep the container away from sunlight (prevents activation of mercury compounds)

Analyzing the results of the DMPS urine challenge:

- Must collect the first void of urine, it contains the most chelated mercury
- If Hg is in the urine positive, positive test, If not still could be positive; **TRUST THE POSITIVES NOT THE NEGATIVES**
- The first mercury challenge will reflect the load in the kidney, and the mercury of the cell walls of the red and white blood cells and other structures in the blood.
- The next challenges will go deeper reflecting the load in the blood vessel wall and the connective tissues, especially if the DMPS IV is injected more rapidly to increase the osmotic gradient.
- Following challenges will go deeper into the bodily compartments of the connective tissues mobilizing the mercury on the outside of cell walls of various organs.
- Different toxic metals will come out at **different times and rates**. Excess copper, zinc and arsenic will often mobilize before mercury.
- The patient may have very little dump of mercury or other toxic metals then real high level comes out; the typical pattern is a small dump then larger dump tapering to small.
- The highest yield of mercury in the urine challenge is when the most concentrated depot of mercury is reached. This can be treatment #1 or #30. High yields after multiple treatments reflect deeper bodily stores of mercury.
- Even though there may be a small sample of mercury in the urine challenge, if you are using multiple chelators including chlorella (as we advocate) the German studies reveal 40 times more mercury in the feces than in the urine.

- Note if you want to enhance your mercury in the urine (for insurance or medical documentation purposes), do not do a chlorella chelation at the time of the DMPS urine challenge. Chlorella will chelate more mercury out of the body and direct more mercury into the liver and out through the bowel. This is healthier for the person, to spare the kidney of toxic metals excreted through a relatively small organ (i.e. the kidney), in favor of a larger organ the bowel, but the use of chlorella will reduce the mercury in the urine.
- Strategy for compromised kidneys
- The kidney can be highly compromised due to an accumulation of mercury or other heavy metals in its extracellular matrix. The problem with most urine challenges outlined above is that the injected chelator will bring more toxic metals to the kidney from the rest of the body. The solution is to reduce the stress on the kidney by drainage remedies, water with electrolytes and when ready for the 1<sup>st</sup> DMPS chelation, inject DMPS into the skin over the kidneys (neural therapy quaddles) and a little into the IV. This lightened dose will focus only on detoxing the kidneys with DMPS, thus not pushing through more mercury from the blood and vessels to a weakened kidney.

## **5. Fecal analysis for heavy metals**

The feces is a method of collection that is accepted for determining the mercury and other heavy metals toxic burden. It involves a stool sample sent for analysis. The fecal analysis will be a good test for body burden of mercury excreted through the liver and bowel. Chlorella, Zeolites and glutathione excrete the toxic metals into the feces. A common problem with fecal analysis is that the heavy metals must be broken off their tight bonds to be analyzed and if not a significant amount of mercury in the feces goes undetected.

The fecal analysis for heavy metals can be used as a challenge test (along with urine) after a chelating agent (Chlorella, glutathione, Zeolite) has been used. If one wants a complete picture of the mercury detoxed out during a typical DMPS, chlorella and other detox agents over 2-3 days, then a 24 urine challenge and a total fecal analysis over 3-5 days is required. This unfortunately is impractical so we do the best we can.

## **6. Mercury vapor test challenge**

If mercury is removed or chelated through the kidney, a urine challenge is appropriate. If mercury is excreted through the bowel and liver, a fecal challenge or fecal analysis for heavy metals is needed to document. However if mercury is removed through the skin, as in a sauna, or excreted through the lungs, which appears to be the case when cilantro is used, then the only method to detect the positive results of mercury excretion is a mercury vapor test, sampling the breath or the air after the sauna.

The Jerome Mercury vapor tester is the instrument used by EPA haz-mat units to detect mercury vapor levels in the air. It can be directed to the mouth for exhaled air, or in the sauna for air levels or adjacent to the towels full of sweat.

## **7. Urine Porphorins**

Heme (of hemoglobin) is a porphorin containing iron in the middle of a protein complex. Chlorophyll is another porphorin with magnesium in the middle. Porphorins are complex molecules that can carry metals and of course have other advanced biological functions. Hemoglobin becomes damaged in the presence of mercury, other heavy metals and toxic chemicals. Some feel that hemoglobin is used to transport mercury through the blood.

Porphorins are excreted in the urine and the damaged porphorin that has contacted mercury is characteristically changed. Other heavy metals and some toxic chemicals will give a different damaged porphorin pattern. Therefore by analyzing the specifically changed porphorin the indirect amount of mercury and other heavy metals and chemicals specific to the changed porphorin can be indirectly analyzed. This can become a useful mercury screening test, prior to a mercury challenge.

Like the other tests already reviewed, there can be false negatives, in so much as the mercury needs to be in contact with the blood or the hemoglobin to change the porphorin that is analyzed in the urine. Typically mercury is not in the blood, unless there is recent toxification exposure, or detoxification. Most chronic mercury toxic patients are not detoxifying mercury without detoxification therapeutics.

There are special labs that are consistently accurate with the urine porphorin test, the best at this time is in France.

## **8. Other lab testing used for support of Heavy Metal detoxification**

The following are the most useful lab tests that can be used during heavy metal detoxification to determine many of the other biochemical factors that affect detoxification and functional rehabilitation.

- A. **Allergy testing:** testing the blood for reactions (for foods and other environmental allergens) can screen many potential allergy problems. Toxicity causes inflammation but another cause of inflammation is allergy, which often triggers the multiple signs and symptoms of any chronic condition. The more toxic the patient the more like that allergies to foods and a multiple other substances including self is present.
- Conventional allergy tests that test for antibodies in the blood (i.e. RAST – for IgG, E and M) have their limitations in the broad ranges of allergies that most chronically challenged patients have.
  - We like to rely on a Mediated Response Test known as ALCAT or LEAP , which looks for the release of pro-inflammatory prostaglandins, leukotrienes and cytokines in response to the ingestion of 150 foods and food additives.
  - Note that since mercury toxicity affects the immune system, the typical IgE and IgG immune responses in standard allergy tests rarely indicate the offending foods.
  - Another method of determining food allergies is the Provocation test, where the patient eats a diet free of any suspicious allergy foods and after 7-10 days eats suspected allergy foods and observes the symptoms. This is always a good test to do because the patient can see first hand the results of what happens if they eat the allergic food, however sometimes the food allergy symptom may be delayed 16-20 hours.
  - Since allergy is also a neurological problem (the neurological and immunological system are intricately connected), allergy testing the neurological system is also very effective. Many allergies can be treated by deprogramming the neurological response. More on this later.
  - Melissa testing is the most sensitive cell induced allergy testing. In the Melissa test the patient's lymphocytes are cultured and challenged to the allergens.

If you have toxicity to any neurotoxin like heavy metals, toxic chemicals or chronic infections, there is usually an allergy present. This is the body's efficient mechanism to store the toxic waste when the body cannot remove or detox it naturally.

- B. Spectracell – functional intracellular analysis, measures levels of selected vitamins, minerals, antioxidants and other essential micronutrients within your white blood cells:
- C. Toxic environmental pollutants panel: chemicals are detoxed with the metals in this protocol; whatever is on the outside of your body will work its way to the inside, so the chemicals in your environment – your home and work, your air, food and water, the plastic and Styrofoam that you eat from or store your food or water in etc. can be determined by a blood test. This test will determine the chemical toxic presence and load of some of the 200 more common chemical toxins.
- D. Urine organic acids: this test measures the organic acids in the urine, which
  - are the waste products from incomplete metabolism of many important biochemical processes;
  - and the organic acids from pathological bacteria, fungi parasites and other unwanted microbes.

By assessing for the wastes (organic acids), the problems and blocks in metabolism can be determined and food and supplementation strategies can be employed. In addition the bowel can be assessed for pathogenic microbes that give off their organic acids specific to the dysbiosis.

- E. Amino acid tests: Amino acids are critical for the formation of all neuro-peptides, detoxification enzymes and peptides, neuro-transmitters and immune proteins. Essential amino acids need to be supplied in your diet and many are destroyed by cooking. If there are any brain symptoms like depression, anxiety, brain fog, mood swings (see symptoms above), an amino acid blood test might be important, so that the correct supplementation of amino acids can be employed.
  - Plasma amino acids
  - Blood spot amino acids
- F. Comprehensive Stool Analysis and Parasite panel: this test has been greatly improved and can detect most abnormalities of the Bowel, including the particular parasites, Candida load, and pathologic bacteria.
- G. Adrenal/ Sexual hormone – Saliva tests: (i.e. ASI, Saber Science, Metamatrix, Genova)
  - The metabolic glands and their hormone are often always affected in chronic heavy metal toxicity. It is often very helpful to understand the status of the adrenal and sex hormones so the properly targeted foods, herbs, glandulars and sometimes bio-identical hormones can be supplemented. Without the proper metabolic hormone support, detox of any kind is very difficult.
  - Saliva is an effective and convenient fluid to measure the hormones, with a 97% correlation with blood. The samples of cortisol/ DHEA/ progesterone/ testosterone/ estrogen, can be taken over time: 8am- 12pm-4pm-8pm-12am-4am looking at patterns, ratios and absolute values to determine effects of stress like – toxicity, hyper-vigilance, hypoglycemia, chronic pain, chronic infections...
- H. Thyroid Profile with TSH and Autoimmune Antibodies – this test is included in our executive profile.
  - Many mercury toxic patients have low body temperatures, which may be either thyroid or adrenal disorders; the history, signs and lab tests will differentiate the cause so that an effective therapeutic strategy can be instituted.
  - Mercury attacks the enzyme that converts the hormone thyroxin (T4) to the active T3 hormone that acts in the cells; therefore the profile may show low T3 values; selenium, zinc and copper are also required.

- If anti thyroid antibodies are present, this is highly suggestive of mercury in the thyroid. I.e. Hashimoto's Thyroiditis
  - Immune system recognizes the thyroid as a poisoned gland and responds accordingly.

## C. Functional assessment tests

Functional tests measure bodily function and not specific disease. Attempting to define root cause of the signs and symptoms of the diseases and dysfunctions, they require more interpretation of the results and should never be used as a single assessment only. Functional assessment tests need to be included with history, the appropriate medical lab tests and common medical sense.

There are four types of medical tests that are functionally based are: (see Functional Assessment handout). Functional assessment overview.

1. A **functional history** grades and organizes the patient's various signs and symptoms, these results in elucidating their functional stresses and weaknesses in various organs and systems. Examples of the functional histories that we use are the Heavy Metal and Autonomic System dysfunction questionnaire displayed in the beginning of this section; in addition our NIHA health history is functional based. There are other functional based histories that we use to group and quantify signs and symptoms that the patient is having to determine specific health issues: **Chronic Infection History** – Lyme, Babesia, Bartonella, Ehrlichia; **Metabolic history** – to help determine if thyroid or adrenal metabolic deficiency; **Stress overload** – to group all the potential stresses contributing to your health condition and dys-functional life; **Environmental history** – to determine the likely source of environmental allergens (mold, dust, mites, pollen, chemicals...); **Metabolic typing** to discover the likely foods and diet that benefit you the most. Visit our web site for these self-discovery functional health histories and take these simple and inexpensive (free) tests to help determine your health issues.
2. The **biochemical lab** tests previously mentioned (see above), measure bodily fluids and tissues (blood, saliva, urine, hair, stool...) and give pathological and functional information.
  - Standard blood tests can be developed into functional assessment by analyzing small deviations from the normal and correlation different patterns.
3. Functional analysis of **bodily tissues and structures** and the interpretation of the morphological changes into functional assessment; examples of this type of anatomical functional assessment are iridology, peripheral blood assessment and the Traditional Chinese Medical (TCM) analysis of the face, tongue and skin.
  - **Peripheral Blood Analysis (PBA)** analyzes a drop of peripheral blood from a finger stick. There are two portions to this test:
    - the live blood smear, looking at the structures and the activity of the cells in the blood, especially as it ages with reduced oxygen; and a series of coagulation blood samples, observing the patterns of coagulation. This simple and inexpensive test will indirectly assess heavy metal status but its real value is broad range of functional information that can be gleaned from the blood and the patterns in which it coagulates.

- the live smear will indicate the immune system status - the amount of cells, their activity, their proportion of representation or overrepresentation of various types of immune cells; the bowel, the liver and the entire digestion system – the nutritional status of the cells, their cell wall fragility, their ability to hold a healthy shape – especially as they age, the fibrin, crystal formation coagulation and other “junk” in the blood, indicative of a stressed liver; the presence and growing out of fungal, parasites and bacterial life forms in the blood (especially as the blood ages); the acidity and oxygen carrying capacity of the blood; by examining the live blood smear one can assess functionally the risk of cardiovascular disease and other degenerative health conditions. There is no indication of heavy metal toxicity directly.
- Coagulation study will give an indication of the heavy metal burden in the blood by observing the heavy metal ring around the first couple samples. In addition the coagulation study will indicate the oxidative stress or need for antioxidants, bowel and liver stress, allergies, metabolic gland stress – adrenal and thyroid, the presence of parasites, and the status of the lymph system.
- **Iridology** is the study of the patterning and structures of the iris of the eye, which appears to have a holographic relationship to the functional status of the organs and systems of the body. Iridology is best practiced by those who specialize in this healing art, but some simple patterns can be useful in our functional assessment. The most useful information is the general body constitution, which is represented by the tight or loose striated patterns of the iris. If the iris has tight and many striated (like a piece of dense wood), the body constitution is good and detoxification can proceed at a more aggressive pace, conversely if the striated patterns of the iris are loose (like a piece of soft wood), detox may need to be slower for the body cannot withstand much stress. In addition to body constitution type the structures of the iris may revile toxicity in the autonomic nervous system and the status of the ANS, the status of the lymph and skin, bowel function and stomach acidity to name a few.

4. **Biofeedback assessments** that engage the Autonomic Nervous System with various stresses and the ANS reaction with its functional interpretation that each test can elucidate. Very valuable functional health information can be gained by employing these simple, accurate and inexpensive biofeedback tests to determine what the body is stressing to, and then employ more expensive and limited in scope lab tests to confirm and refine the findings. Examples of these ANS biofeedback assessments are:

- Autonomic Response Testing (ART) – a precise form of muscle testing. The ANS innervates the ability of the muscles to increase or decrease their tonus and thus if there is an applied stress the body the mechanism to hold a muscle tight will be interfered with and thus can be measured.
- Electro-dermal testing (EAV) or Meridian Stress Testing – measuring micro-voltage responses from various acupuncture sites and applying various stresses to balance the energetic imbalance. The meridians and thus all acupuncture points of TCM are actually constellations and organizations of dense Autonomic nerves that can be measured on the skin.
- Thermography – measures the thermo-graphic or heat image on the skin and by applying a stress of chilling the body, a specific reaction can be measures. The skin through its vast complex of ANS nerves reflects the functional activity of

the organs below, thus the visceral-cutaneous reflex. Skin changes in heat (blood flow), anatomy and electrical charge will reflect the functional health of the structures and organs and becomes the physiological basis behind the functional tests of ART, MST and Thermography.

- Orian, NES and other assessments that assess bio-fields.
- Heart Rate Variability (HRV) is a very useful test to determine the overall tonus of the two branches of the ANS – the sympathetic nervous system and the parasympathetic nervous system.
- Other forms of biofeedback assessment that can be employed are:
  - Pulse diagnosis – usually used in traditional Chinese medicine;
  - Sound (voice diagnosis) – a sophisticated assessment and therapy that detects the missing sounds in your voice print. This sound print can detect accurately metabolic and biochemical issues as well as emotional issue. There is an entire therapeutic arm to this modality that uses sounds to feed information to the body to correct the physical or emotional problems., then gives the patient;
  - Reflex testing - the reflexes will react to stress challenges like muscle testing.

The biofeedback tests that assess the ANS component are a very important and reliable in the assessment of mercury and other heavy metals because heavy metal toxicity is primarily affects the Autonomic Nervous System. Therefore unlike the biochemical tests and functional structural assessments for mercury mentioned above, which measure indirectly the effects of mercury toxicity, the biofeedback tests are able to directly measure the mercury impact on the autonomic nervous system.

These biofeedback tests are not like biochemical tests that are black and white (where you either have the numbers or not), ANS biofeedback tests require interpretation of the (ANS) response, and often skill and practice.

The summary value of functional assessment testing (biofeedback, anatomical and lab testing) is:

- 1. Early assessment and finding the root causes
- 2. Monitoring condition or the progress of treatment; tells the team if you are on the right tract, treatment direction?
- 3. Gives you information inexpensively that you would never get otherwise

If one is medically responsible in using functional assessments, the history and physical assessment of the signs and symptoms are most important initially, but sometimes the medically confirmatory lab tests may not be accurate or possible until the toxicity or infection is provoked. Note that biofeedback tests are not 100% reliable. The information obtained can be profound and very useful, but needs to be only one part of the assessment. The entire assessment involves history, biochemical testing, morphological testing if available and biofeedback with good medical judgment. Often therapeutic trial is required to confirm the diagnosis. Ultimately it is whether the patient gets better with the therapy that is performed that is the final and ultimate test.

Functional assessments can be very helpful to initially determine the health issues and the initial therapeutic directions. Multiple functional assessments testing systems should be used and need to correlate, so to observe patterns:

- 1. Value in employing multiple systems
- 2. Different info from different systems-all has their own strengths and weaknesses

- 3. Use the biofeedback testing to determine the root causes (i.e. mercury toxic load) and later confirm it with traditional lab tests.

## **D. Assessment summaries to consider in detoxification: putting it all together.**

### **A. The chronic stressors (which affect dys-autonomia):**

#### **I. Toxic overloads**

Detox components to consider and the most useful assessment tests. Note that the art is to utilize the assessments that give the most information for the least cost – most effective and efficient. If one wishes to have more biochemical evidence of the pathology, the proper confirmatory blood tests can be employed.

##### **A. Heavy metals**

- History – if they have exposure to heavy metals, there is a level of mercury toxicity present; mercury fillings, consume fish, a mother with mercury fillings...
- ART testing – to determine mercury and other heavy metals that are affecting the ANS, also the allergy to the heavy metals needs to be cleared in the beginning of any detox program (to increase the effectiveness and reduce the side effects of the detox program).
- Other less accurate and reliable tests are EAV, NES, PBA
- Heavy metals may or may not be present in the hair or blood cells, so the RBC mineral and hair analysis are not reliable for early heavy metal toxicity evaluation. The porphorin test appears to have some early value in determine mercury toxicity.
- The test to confirm mercury toxicity is the urine challenge – giving a chelator and measuring the mercury in the urine. However this test should only be safely used after detox has begun, and should never be used while mercury fillings are present. Sometimes it may take a number of chelations for substantial mercury to appear in the urine.

##### **B. Toxic Chemicals**

- We live in a chemical toxic world and whatever is on the outside will eventually make its way to the inside. Chemical detox can be the primary problem, but it usually is part of the heavy metal detox program because similar agents to detox heavy metals are also effective for detoxing chemicals. Therefore history and environment are most important to determining the toxic chemical load.
- Toxic environmental pollutants panel is the most specific lab test for toxic chemicals
- ART and EAV will show chemical toxicity readily, as well as show the specific chemicals involved.
- Allergy testing for toxic chemicals is a reliable test for toxicity. If you understand allergy it is neuro-immunological reaction to the body protecting itself from a toxic substance that it cannot adequately excrete, and therefore is forced to store. Therefore if you are allergic to the chemical toxins, you are also toxic.

##### **C. Chronic infections and their neurotoxins**

Chronic bacterial infections like Lyme, and the co-infections Babesia, Bartonella, Ehrlichia, Rickettsia, virus, mold, fungus like Candida, and parasites and especially the neurotoxins that they produce are a very important part of this complete protocol. Because they reside within especially when the neuro-immune system has been compromised (due

to heavy metal poisoning), they are often harder to detect using conventional infectious disease tools. Therefore many in medicine tend to discount their presence and their contribution to the patients misery. It is not the infections that cause the misery but the neurotoxins that they produce. And neurotoxins, of which mercury is one, are not easily excreted. This mercury detox protocol is really a neurotoxin detox protocol.

There is an entire program on Chronic Infections that should be for most a companion to this Mercury detox program. Please refer to it for more details. In general chronic stealth infections that habitually reside in our bodies under the detection of the immune system are best determined by:

- History and the particular signs, symptoms and patterns the stealth infections represent
- Neurological biofeedback tests like ART, EAV that elicit a neurological stress response to the specific frequency or biophysics signature of the particular infectious microbe
- Confirmed later by specific blood tests. Understand for a conventional blood test to detect the antibodies of the particular infectious agent, the immune system needs to be activated to fight the infection to make the antibodies required for a positive test result. To fight stealth and chronic infections, the immune system is not often engaged to build up the antibody blood titers. The chronic infections need to be treated first, to bring the microbes out of their hiding places. Likewise the immune system cannot be depressed because of mercury and other toxicities.
- Because of these reasons (and more), our detox protocol emphasizes treating the enablers – the heavy metals, toxic chemicals and neurotoxins in general, building up the mineral reserves, , the immune system and other organs, and changing the milieu to health before attacking the chronic infections. It is much easier, with less side effects this way.

#### D. The bowel

The bowel is the largest detox organ and some would say the most important and neglected. The status of the bowel: the ability to digest the foods with enough of the proper enzymes and transit time; the ability to absorb the nutrients; the ability to produce needed nutrients in the bowel by the “good” bacteria; the modulation of the immune and neurological systems because the bowel is the largest immune organ and nervous system outside the brain and spinal cord; the amount of bowel toxins that are produced by the “bad” bugs – the bacteria, virus, parasites and fungi; the perpetuation of chronic inflammation and neurological up-regulation by chronic exposure to food allergies and the wrong diet; the function of the liver the bowels (and bodies) primary detox organ; are some of the bowel issues that need to be explored and remedied in this protocol.

The Bowel function is not easily assessed by traditional assessment. The assessment strategies to determine bowel function are:

- 1. History:
- The NIHA health history will assess multiple signs and symptoms
- 2. Lab tests:
  - Comprehensive Stool Analysis and Parasite panel
  - Urine Organic Acids
  - The Blood Chemistry panel - executive profile: liver function/ pathology screen
  - Liver detoxification tests

- Indirectly: Spectracell for digestion of particular nutrients, LEAP for food allergies,
- Other functional assessments:
- Peripheral blood microcopy
- Heart rate variability

## II. Biochemical and metabolic inadequacy

Vitamin, mineral, amino acids, essential fats, antioxidant status and other needed foods of the healthy body should be supplied in your food and if in short supply, temporarily supplemented. To determine these deficiencies the following tests could be used:

- Lab tests are the most reliable for testing the biochemical component of the body:
  - Blood Chemistry panel: electrolytes, iron status, cholesterol and lipids
  - Spectracell: many vitamins and minerals
  - Red Blood Cell analysis: the minerals
  - Urine Organic Acids: many functional pathways that are vitamin and mineral dependent
  - Plasma Amino acids

Metabolic dysfunction is common and should be evaluated. The most useful tests are:

- History: the metabolic history will help differentiate adrenal and thyroid problems
- Body temperature is the cardinal sign of metabolic disorder, however if the bodily temperature is constantly low with little fluctuations – suspect thyroid, if the low bodily temperature fluctuates low – suspect adrenal. See programs on metabolic dysfunction for more details.
- Physical exam: the bodily build and facial features will differ thyroid of adrenal types;
- Signs - the reflexes: careful examination of the Achilles and triceps reflexes, and how long the pupil can retain constriction when a light is shined into it, will help differentiate the adrenal of thyroid problem
- Lab tests:
  - Blood chemistry panel: the thyroid panel, indirectly the adrenal function
  - Salivary hormone panel – taken multiple times throughout the day, is the most effective and efficient for adrenal and sex hormones.
- Functional tests:
  - Peripheral blood analysis – indicated adrenal dys-function
  - NES
  - ART – through yin state testing

Antioxidant status is always suspected in any chronic condition. Oxidation and tissue acidity lead to coagulopathy or congestion in the blood and lymph. These are conditions that favor chronic inflammation, immune suppression and the overgrowth of chronic bugs.

- Lab tests:
  - Urine organic acids
  - Salivary and urine pH tests
  - Spectra cell – antioxidant potential.
- Functional tests:
  - Peripheral blood analysis shows the congestion readily
  - ART – through yin state testing

## III. Allergy, hypersensitivities and environmental toxic conditions

Allergy needs to be evaluated and treated for successful detoxification, reduction of the misery of signs and symptoms and functional bodily rehabilitation. The following are the assessment we find most useful for determining the multiple types of allergens often affecting a patient with toxic metals and chronic health problems.

- History:
- Signs and symptoms
- Withdraw and provocation testing
- Lab tests
  - LEAP or ALCOT
- Functional tests:
  - ART
  - EAV
  - Orian, NES
  - Peripheral blood analysis

#### **IV. Dys stress and dys-regulation at the psycho-emotional, mental level or intuitive level (family systems, karma, miasmas or other (dys)-regulation at the quantum level)**

Operating at this level of regulation, one cannot utilize biochemical, examination or other physical body testing. Only history and biofeedback techniques that register stress in the Autonomic Nervous system can be helpful. All patients with any chronic health issue have problems at this level.

- History:
  - Psychological
  - Homeopathic
- Functional tests:
  - ART – PK (psycho-kinesiology)
  - EAV
  - NES

#### **V. Noxious energies – geopathic stress, electromagnetic radiation, microwave**

This is a very common problem in our modern world due to the explosion of electricity and the electronic devices, microwave to cook and communicate and the other “wonder and conveniences” of our modern live. The biologic effect can be devastating affecting each differently but nevertheless affecting us all. The toxic energetic effects need to be evaluated and often remedied if detox and healing can proceed. The assessments that elucidate the biologic effects of noxious energies are energetic testing systems like:

- Functional tests
  - ART
  - EAV

#### **VI. Toxic foci**

Toxic foci are electrical pathological disturbances, which overwhelm the Autonomic Nervous System; they usually have a chronic toxic component which the body cannot eliminate. These can be toxic dead and root canal teeth, jaw bone cavitation, chronically infected organs like tonsils, appendix and even the bowel, and scars. These can be a devastating overwhelm of the ANS perpetuating dys-autonomia and adding to the bodily

toxic load. Again energetic testing is the only reliable method of finding the toxic foci, which need to be remedied for faster recovery.

- History: often the history will revile a health issue starting after a root canal, or wisdom teeth removed (cavitation), or injury or scar
- Functional tests:
  - ART
  - EAV

## VII. Major structural dys-regulators

Cranio Mandibular dys-function leading to major Cranio-sacral issues; and leg length problems.

- Physical exam and history
- Functional tests:
  - ART
  - Reflexes

## B. Other major considerations in detox

### 1. Drainage Organ Support-

Toxins like heavy metals need to be moved through your system and out through excretory organs. Therefore excretory or drainage organ support is important to always consider in any Integrative Medical detox program. There are three major drainage systems that need to be evaluated in heavy metal detox- the lymph, kidney and liver. The lymph is often sluggish or as Dr. Ali refers lymph coagulopathy. When in doubt - supporting the lymph system with drainage herbs and foods is always a safe place to start. The lymph system is the extra-cellular fluids. Others organs/tissues that can be evaluated for drainage support are: the lung, sinus, spleen, and blood. The bowel is a separate drainage organ and always in need of support in detox.

To determine which drainage organ to support one can use:

- History and signs or symptoms,
- Biochemical lab tests can determine liver or kidney function
- Biofeedback tests (ART, EAV).

### 2. Bodily Constitution:

How strong is the patient's constitution will determine how aggressive the detox. The constitution is the functional capacity of the patient to withstand stress, or in this case-detox. How strong can detox proceed before the patient adversely reacts? Bodily constitution is a naturopathic concept that can be determined with history, iridology, and HRV. Some people with strong constitutions appear to be able to function with more toxins and do better with aggressive detox procedures without adversely reacting (the body saying too much too fast). Understand that detox is an active process that stresses the bodily functions and some more fragile patients with weak constitutions need to take things slower. In iridology:

- Strong constitution = tight striated patterns in eye and appropriate history
- Weak constitution = loose striated patterns in eye, history

### 3. Phases of Homotoxicology:

Homotoxicology is the study of "man's toxins" and how a person defends him/herself (or functions) against toxic overdose. This German study has evolved a complex set of therapeutic remedies that re-regulate and guide the body to effectively detox. We use extensively the remedies of homotoxicology in our detox protocols.

Principles of Homotoxicology state that symptoms and signs of disease is in fact the body reacting normally to poisons and toxins: heavy metals, bowel toxins, acidosis from food and incomplete metabolism, chronic inflammation, toxic chemicals and (neuro) toxins from chronic infections. By understanding the health condition that the patient presents with, the degree of toxic penetration can be determined and then an effective therapeutic strategy employed.

All diseases characterized by 3 Processes, each with two expressions:

A. Excretion of toxins:

- a. **Physiologic**- through the excretory organs
- b. **Pathologic reaction** - when the neuro - immune system creates inflammation to rid the body of various toxic exposures, a reaction to a toxic load (e.g. infection). Unfortunately chronic heavy metal and toxic chemical exposure and toxification does not evoke an inflammatory response to detox or remove the toxic metals and chemicals immediately.

B. Deposition of toxins:

- a. **Extra-cellular deposition** or the toxics accumulating in the connective tissues under the areas of entry: the lungs and mucous membranes of the mouth and bronchial tree – mercury vapor, toxic chemicals; the GI tract if swallowed in food or contaminated from the mouth; the skin if contact.
  - i. The toxic metals and chemicals are then distributed throughout the body by the blood vessels, lymphatic system and the autonomic nerves, depositing themselves in the connective tissues of the organs, muscles, joints, brain, nerves, immune system and any other tissue.
  - ii. Often the metals will deposit in tissues of high metabolic activity, areas of previous functional disturbance due to physical or psycho-emotional trauma.
  - iii. The blood vessels of these organs will be the first area to deposit the toxic overload that the body cannot remove through the normal excretory process.
  - iv. The Autonomic Nervous System (ANS) is the primary modulator of the connective tissues, and therefore is placed under great stress when the toxic amount of heavy metals and chemicals accumulate. The ANS's primary response is chronic inflammation and over time shutting down the blood flow to the toxic connective tissues and the organs or structures served by these tissues. Note that heavy metals especially mercury are very poorly removed (normally detox), so the deposition and accumulation of mercury in the extra-cellular spaces is ongoing with continued chronic exposure.

The diseases now present as sub-clinical and latent or the initial stages of chronic dysfunction.

This is the cellular divide, which means that the toxic exposure and the reaction (the signs and symptoms of disease and dysfunction) have different biological consequences.

Cellular Divide (Biological)

|                     |  |                            |
|---------------------|--|----------------------------|
| Enzymes intact ←    |  | → Constitutional diseases  |
| Excretion principle |  | Damage to cellular enzymes |

Trend towards self - healing | | Trend to deterioration

- b. **Intracellular deposition** or cellular impregnation is when the heavy metals (or other toxins) penetrate the cellular membrane and enter the cell. In this stage of toxification, cellular output is affected – damage to the cellular enzymes, the cell’s protein production and detoxification capacity is reduced, and all the functions of the cell are affected. The organ (through the toxification of its cells is losing its functional capacity. Depending upon the organ affected, the symptoms will vary. If brain, brain fog, mind and mood, depression and similar symptoms; if metabolic glands (adrenal, thyroid) reduced bodily temperature, and fatigue and so on.

The clinical manifestation is now chronic latent disease.

- C. **Cellular change** in reaction to the toxic load is the consequence of the chronic toxic exposure. Remember the principle of Homotoxicology is that the body undergoes a consistent reaction to chronic toxic load in order to survive. Signs and symptoms of disease are the outward manifestation of the predictable struggle of the body’s defense mechanisms.
- a. **Degeneration** of the cell; now the chronic degenerative conditions prevail because of the destruction of the intracellular structures and accumulation of the degeneration products.
- b. Neoplasm in terms of homotoxicology is the structured reorganization of the genetic material in response to nuclear membrane invasion of the toxins resulting in uncontrolled growth. A final stage in the struggle of the body to survive the chronic exposure to “man’s toxins”.

In summary the cellular divide is important because depending upon the side the bodily response is: Recovery ←—————or—————→ Degeneration

Humeral Phases

- Natural Healing Tendency
- No Enzymatic Damage
- Excretion Principle
- Better Prognosis

Cellular Phases

- Deterioration
- Enzymatic Damage
- Condensation Principle
- Lesser Prognosis

Note that if the toxic load is across the cellular divide and you are incorporating biologic principles to heal, the detoxification process is longer, and regulation therapy is critical to re-regulate the bodily information system at a cellular and tissue/ organ level. Remember biologically that the body’s energetic and information system is now in a cellular protective or degenerative mode and that information system must be biologically supported to one of healing.

For more on Homotoxicology, an example of homotoxicology and mercury, and tables of diseases refer to the Appendix.

**In summary:**

- A. Chronic heavy metals and toxic chemicals impact the whole body at various levels. To employ a **comprehensive Integrative Treatment strategy** for Heavy Metal Detox and Functional Rehabilitation one must evaluate and be able to employ all four components of Integrative therapeutics:
- a. Biochemical - chelating drugs (and other medicines), herbs, foods, supplements, anti-oxidants, minerals, amino acids, fats, hormones, enzymes, drainage remedies...; Supplying the critical

building blocks and biochemical substances to detoxify and give the best (biochemical) supports for functional rehabilitation and healing.

- b. Regulation therapies - allergy elimination, acupuncture, neural therapy, homotoxicology (homeopathic) remedies, low level laser therapy with information (Cowden protocol, Erchonia laser...), removing toxic foci (neurological pathology), noxious energies (geopathic stress and electromagnetic radiation) and other toxic energetic influences to healing...; Re-programming the psycho-neuro-immunological system (ANS) to enhance healing.
- c. Structural therapies – Cranio-sacral disturbances, Cranio Mandibular dysfunction (TMJ), leg length problems create excessive stress to an already over stressed organism, which if not addressed will affect bodily function and impede recovery.
- d. Psycho-emotional, Mental and Intuitive level (the higher bio-energetic) therapies: unresolved psycho-emotional issues, belief systems, constitutional homeopathy and miasmas, family systems and karmic issues.

**RULE: If problems with detox→ need to address problem at a different and often higher level of therapies - (regulation or higher bio-energetic therapies).**

## IV. Therapeutic Strategies

Heavy metal and toxic chemical detox is a very young science. There is much confusion among professionals and therefore the patients too. **The products to detox will evolve and therefore continually change as with the techniques.** However, the principles that we discussed may be modified as more is learned but in general principles provide a degree of stability and consistency to the strategy. The reasons why have been discussed, the products and strategies will be listed, followed by the dosages and strategies. More about the individual products are listed in the appendix. We organize this **comprehensive protocol into therapeutic groupings: Biochemical, Regulation, Physical medicine and Psycho-emotional therapies.** This section on therapeutic strategies is organized into:

Section I - The phases of detox and the specific choices of products and strategies

Section II - The specific products, dosages and specific instructions

Section III - The notes on the primary products and more in depth understanding of why we use them.

These strategies follow the principles discussed earlier. This is the current state of information, products and strategies that is currently available. This is a very dynamic field and new products are being introduced all the time. The principles should remain fairly constant but the products will continually need to be up-graded as more information is learned and products available

### A. Section I: Phases of heavy metal detoxification, the strategies and product choices

#### I. **The Dental Extra cellular Phase**– remove the gross deposits and sources (clean up your toxic environment)

Strategies of The Dental Phase: remove the sources safely

- Mouth: mercury fillings, amalgam tattoos, jaw bone cavitations
- Toxic chemicals and metals from foods, environmental sources, cosmetics, personal care products, medicines
- Start detox support (prior to dental mercury removal). If there is no mercury amalgams this phase is skipped:

#### A. **Biochemical therapeutic** strategies that can be considered:

A. Diet and life style – healthy food and life styles

B. Supplementation recommendations always include:

**4 Pillar of supplementations:** These are the categories of supplements that all healthy people should consider in order to remain healthy because our need for these nutrients is so great in our modern toxic world and our supply of these nutrients is too low from our food sources. A general supplemental program for detox should be built around these categories:

- I. A general vitamin and mineral supplement – to supply what you don't get from your food
- II. Antioxidant supplementation
- III. Probiotics to build a healthy bowel
- IV. Essential Fatty Acids – to build healthy membranes

- C. The following strategies **can be considered** according to the individual needs prior to the Dental Phase. Most Dental Phase patients don't start many of these therapies until the next Medical Detox Phase. All of these therapeutic strategies are evaluated for implementation after the Dental Phase, often it is just a matter of timing and convenience.
- a. Water and electrolytes added to the water therapy.
  - b. Anti-oxidant protection (part of the 4 pillars)
  - c. Initiate EFA and membrane rehabilitation (part of the 4 pillars)
  - d. Re- build minerals
  - e. Re-build sulfur
  - f. Drainage organ support: lymph, liver and/or kidney
  - g. Initiate metabolic gland support
  - h. GI therapy: remove allergies, mal-absorption, dysbiosis, repair endothelium
  - i. Immune modulation if needed
- D. **The oral chelators:** use one during this phase. Our Dental Detox protocol calls for having one of these oral chelators on board during the dental mercury removal. These products will not chelate the mercury out of the fillings, so they are safe to use prior to dental mercury removal.
- **Chlorella** – the most often used because it starts to detoxify the bowel and the connective tissues
  - Chloralytes – electrolytes and chlorella, more potent
  - Porpha-zyme – a product from Biotics, used as a Chlorella substitute when chlorella cannot be taken for whatever reason
  - peptide clatherating agents: Metal Matrix, NDF, Metal free, PCA
  - Zeolites:

#### **B. Structural therapies (optional)**

- Structural mal-alignment: osteopathic, chiropractic, leg length depending upon the severity.
- Cranio-mandibular therapy (TMJ), appliance therapy depending upon the severity of the problem.

#### **C. Regulation (ANS therapeutics)**

- **Allergy elimination: heavy metals**, minerals, supplements, foods and detox remedies
- Scar therapy, autoimmune therapy: this is usually performed in Phase II, but if severe, Neural Therapy can be performed in the Dental detox phase.
- Noxious energies hygiene, removal from the sources in bedroom; (usually Phase II).

#### Strategies during Phase I:

- Start detox support prior to the Dental phase (1 week to 2 months); variables due to bodily constitution, fragility of the patient, severity of the problems and medical judgment.
- Not all the above therapeutics needs to be initiated prior to the dental phase.

## Phase II: Extra cellular mercury detox phase (detoxing the more accessible heavy metal deposits)

The first thing that must be detoxed is **the (detox) organs, the connective tissues and blood vessels (areas more easily assessable)**. This is where the majority of the mercury and other toxins are stored. See the detox principles to understand why this strategy is so important – we detox from the **outside (most accessible) to the inside (intracellular)**. In addition the **detox organs need to be rehabilitated** so that the mercury and other toxins can be moved out not around. This is accomplished through foods, biochemical chelators and supplementation, and regulation therapy and detox modalities. As you recall, regulation therapies give detox and reprogramming information along with other corrective signaling (information) to the cells and organs to function appropriately.

In summary, the strategies of Phase II are:

- 1. Keep **cellular and brain barriers closed**; we detox from outside -> in.
- 2. Start **bowel detox** and rehabilitation; it is critical to treating the chronic bowel inflammation because if that is not addressed all liver detox of neurotoxins is severely compromised.
- 3. Remove heavy metals from the connective tissues and blood vessels
- 4. Support and detox the **drainage organs**: lymph, liver, kidney
- 5. Support therapeutics of **chronic infections** that may occur detox support:
- 6. Start detoxing from and through the **skin**
- Note: In phase II detoxing from the outside - in, the detox compartments of concentration are the most accessible - the ectoderm or the skin; the endoderm – the gut and the gut organs, and the accessible mesodermal tissues – the blood vessels and the connective tissues. The support strategies, remedies and chelating agents will reflect this detox strategy to remove the heavy metals from these areas. In addition, we are preparing the internal milieu, detox organs and regulation systems of the body to become more capable of detoxing the toxic metals and chemicals that reside deeper.
- 
- **A. Biochemical support therapies** – from the Principles discussed in section II;
  - 1. **Water and electrolytes** added to the water therapy
  - 2. Anti-oxidant protection
  - 3. Essential fatty acids and **membrane rehabilitation**
  - 4. Re-build **minerals**.
  - 5. Re-build **sulfur** stores
  - 6. Initiate metabolic gland support if needed: adrenal, thyroid, blood sugar problems (insulin and pancreas)
  - 7. Bowel therapy: This includes:
    - Restoring the digestive enzymes until the body can produce enough to properly digest the foods.
    - Removing the overgrowth of dys-biosis and replacing the beneficial bacteria,
    - Eliminating all allergic foods, and treating the allergies (hypersensitivities) so that most foods can be eaten without creating gut inflammation
    - Healing the leaky gut and restoring the enterocytes (bowel cells) to their normal health and architecture (villi)
  - 8. Immune modulation if needed
  - 9. Rebuild **Amino acids** with protein diet and supplements if needed:
  - Protein in diet – with proper protein digestion (enzymes):

- eggs the best 48% utilizable amino acids;
- meat, fowl and fish the second best – 37% utilizable amino acids
- MAP – essential amino acids supplement – 99 % utilizable protein
- IgG 2000 – serum derived immunoglobulin proteins, reduces bowel inflammation
- Whey protein for glutathione (intracellular) stores,
- Mix protein powders: hemp, rice, soy, whey have 18% utilizable protein
- 10. Identify and treat problems to detox:
- Methylation
- Glutathione production
- KPU
- Detox miasmas
- Other detox problems:
- Sulfur metabolism
- Liver phase II and III detox problems
- 
- The strategy to compensate for the methylation problem and correct it is:
- Mercury detox
- Betaine HCl, SAmE, KPU protocol,
- B-12 and folate supplementation
  - Chlorella – has the highest amount of B-12 found in nature
  - Methylated B-12 or Hydroxy- B-12, and Methylated Folic (Folinic acid) oral supplementation or IM if needed;
- 

## **B. Physical or Structural therapies**

- Initiate exercise program: see exercise P 130
- Refer to Physical medical professional if needed: pain, functional physical or other medical problems, lymphatic massage

## **C. Regulation therapy:**

- Allergy Elimination Therapeutics (AET): foods, environmental substances, toxic metals, chemicals; your own biochemical processes - hormones, neurotransmitters; organs, autoimmune, vitamins and minerals...
  - We find it very helpful to place a professional that is familiar with AET and other regulation therapies (and potentially psycho-emotional therapies) on your detox team.
- Drainage organ support (herbal and homeopathic): lymph, liver and/or kidney
  - Multiple choices, see Detox Support – regulation therapies for listing
- Direct treatment of the autonomic nervous system, to increase blood flow and rehabilitate the structures and organs; this is very helpful to detox the areas of contamination and rehabilitate the bodily function:
  - Neural therapy (with or without needles): this is performed by the office during detox chelation appointments to maximize the net amount of heavy metals removed during chelation..
  - Acupuncture: a relationship with a TCM professional can be very helpful, for it provides another component of therapeutics to treat the ANS.
- Drug Up-take enhancement: We employ Master Field Therapy tapping points, which is a technique that taps specific acupuncture points that are specifically biofeedback

tailored for the individual to regulate the nervous system and drug uptake enhancement.

Drug up-take enhancement:

- To open the toxic connective tissues to the detox remedies
  - To reduce allergies and hypersensitivities to other foods and nutrients
  - To reprogram the ANS to minimize symptom logy, and maximize remedy effectiveness.
  - Drug up take enhancement techniques: Master Field Therapy (MFT-tapping points), S pole of the magnet against the brain stem for 5 minutes, hand reflex
- Other detox regulation modalities can be incorporated in office or at home- these will be reviewed later:
    - Energetic foot baths, micro current, Laser Enhanced Detox (LED) – Cowden protocol, Low Level Laser Therapy (LLLT), Erchonia laser, Electroblok, Quantum Techniques

#### **D. Psycho-emotional, mental, intuitive and other higher Regulation therapies:**

- Psycho- neurobiology
- Family systems therapeutics
- Meditation and stress reduction program, Qi gong...

**Detox chelators:** Oral phase of detox (Naturopathic) – one or more:

- Note: more in-depth explanation of all these products, dosages and strategies on how to use them, are in Section II of Therapeutic Strategies and The Appendix.
- **1. Chlorella** is the primary oral chelating product used in this phase;
- The others are mentioned if chlorella cannot be used because intolerance ,
- Chloralytes – chlorella in selectrolytes,
- Porpha-zyme
- Quicksilver IMD- bowel detox only
- 
- These chelator products can be used in this early phase but are more often used in Phase III
- **2. Clatherating agents** are the nano peptides or the effective binding proteins in chlorella, therefore processed: can be started in phase II
- Clatherating agents can be used if chlorella cannot be tolerated
- Because clatherating agents are nano particles they are absorbed and more deeply penetrate into the connective. Examples are:
  - Metal Matrix ,NDF, PCA, Metal Free
- **3. OSR** – oxidative stress relief; usually started in phase III
- This very effective oral chelating agent is both fat and water soluble, which gives it enhanced advantage to penetrate into lesser accessible areas of the connective tissues and the brain. We often use this agent later in detox.
- **4. Phospho lipids plus EDTA:** can be started in phase II but usually started in phase III; this is often used with OSR – dissolving the OSR in phospho- lipids enhances the uptake of OSR.
- Phospho-lipids are the building blocks of all membranes including nerves and brain. When eaten in liquid form, phospho-lipids will enhance all absorption through the gut, therefore vitamins and detox agents can be included with phosphor-lipids for maximum absorption. In addition, phospho-lipids can encapsulated the remedies and

deliver to the blood stream the vitamin, hormone, detox agent or any other remedy through the gut or even through the skin. This is called liposomal delivery.

- These remedies deliver the benefit of phospho-lipids plus EDTA, a chelating agent, and alpha lipoic acid.
- Phospho lipid exchange (PLE), Detox max, Lipoflow
- **5. Zeolites** are volcanic ash, which is a crystalline mineral matrix that have been processed creating a cage-like, honeycomb negatively charged cavity that attracts and binds positively charged heavy metals and other toxins.
- This can be started in phase II.
- HP Zeolite, ACZnano (advanced cellular Zeolite), Natural Cellular Defense,
- 
- **Combination products**, that contain multiple chelating agents in packets or one pill:
  - These products we find are convenient, but often do not have the amount of chlorella or cilantro to be as effective.
  - EDTA based supplements detox combinations (Beyond Chelation, Oral Chelation, Longevity Plus, Pleo-chelate)
  - Chlorella, cilantro and multiple other detox and anti-oxidant factors supplement combination formulas: Chelex, Chelorex
  -
- **GI binders** must be present when pulling heavy metals and all neurotoxins from the gut (to prevent their re absorption):
  - Chlorella is the only GI binder usually needed, but if one is not taking chlorella then –
  - Quicksilver IMD: a new product that is very effective in removing mercury and other heavy metals from the bowel and thus reducing chronic inflammation.
  - Others: Proalgen – sea weed; Pro-chitosan – the exo-skeletons of beetles will bind heavy metals, toxic chemicals and neurotoxins effectively to remove them through the feces; cholestyramin is a drug neurotoxin binder; red and green clay; charcoal capsules; Beta Sitosterol
  -
- **Pharmaceutical inject-ables** used during the chelation cycle; in-office chelators used during Phase II:
  - **1. DMPS** with or without Neural Therapy; DMPS is the chelator most often used in this Phase II but also III and IV.
  - DMPS is the most effective chelator of mercury and most other heavy metals. It does not cross a healthy brain-barrier. It is out of the system in 6-8 hours and it very effective in detoxing the blood vessels and connective tissues. If the strategy for initial detox is one month cycles of mobilization, chelation etc. with multiple chelating agents, then DMPS is the most effective agent to use.
  - **2. Di-sodium EDTA** slow infusion: often started in Phase II
  - Slow infusions of EDTA can be used if a patient's health is more critical and needs a slower, gentler strategy. EDTA will remove lead and cadmium effectively but not mercury. This strategy can be effective in the beginning for some, for the detoxing of these less harmful heavy metals first, can create less synergistic toxic effects with mercury and lead mobilization.
  - Combining - DMSA while using EDTA slow infusion: 500mg of DMSA with standard 45 min-1 ½ hour infusion
  - **3. Vitamin C high dose** – 25 to 50 grams. Phase II- IV
  - This is very effective in mobilizing toxic chemicals and heavy metals

- This can be followed by DMPS, which is very effective in chelating the mobilized heavy metals
- 4. Glutathione IV or push- 500-2000mg:
- Glutathione is the body's best natural chelator and delivers the toxins to the liver. It is not as strong as DMPS or DMSA but it is omni-present and can go everywhere. It becomes a very good second day chelator following DMPS.
- 5. IV vitamin and mineral, followed by a glutathione drip
- This infusion is often performed the second day of chelation following DMPS. It contains high dose Vitamin C, which gives the advantage listed above with pharmacological dosages of vitamin and minerals, which replenished the minerals lost in chelation. It is very much recommended the second day of chelation.
- 6. The **DANS protocol** is 4 IV's pushes stacked on top of each other: IV - Ca EDTA push, glutathione push, NAC and phosphotidyl choline.
- This can be used with ASD kids in the early stages, because their brain barriers are usually leaky, due to the mercury- vaccine damage and the fact that they have not had mercury fillings to toxify their other tissues. The NAC and phosphotidyl choline are penetrate the brain barrier and would not normally be used in this phase. Therefore the risk of damage from carrying mercury into their brain from the extra cellular spaced is reduced in ASD kids due to their exposures. It appears that the benefit for starting this aggressive chelation into the brain out-weighs the risks.
- This IV protocol in not recommended until the Phase IV (or brain detox stage) for adults. It is due to the fear of carrying more mercury into the brain, because the areas outside the brain have not been detoxed yet.
- 
- Drug Oral Chelators: DMSA
- DMSA is highly recommended by some for early detoxification (Dr. Culter, DANS). These professionals like using DMSA in the beginning (Phase II) and throughout chelation because it is less aggressive with less obvious side-effects than the stronger chelator DMPS. (DMPS is stronger by an order of 2x magnitude). DMSA can be taken orally as well as rectally and it is a strong chelator of mercury and most other heavy metals. DMSA is FDA approved for lead. We do not like to use oral DMSA until the bowel has been detoxed for a while (1-2 months). The 4<sup>th</sup> principle states that "systemic detoxification is a process of diffusion and dilution while maintaining bodily barriers." DMSA can easily mobilize mercury and other heavy metals from the bowel, where it in greater concentration to the body where it would be in lesser concentration.
- For these reasons, we prefer to use DMSA, which is an important chelator in the arsenal, later in the detox phases. There are multiple strategies when using DMSA that are reviewed in more detail.
- 
- DMSA can be used for an urine challenge: see protocol in Assessment section
  1. Recommended by the Manufacturer: 10mg/kg per day, taken in three divided doses with meals.
  2. Strategies for DMSA are 3 days on and 11 days off in the early phases before the body has been re- mineralization
  3. DMSA can be used as the chelator during the chelation cycle for 2-3 days in a monthly mobilization – chelation – post chelation – rest cycle; DMSA can be dosed 3 times a day or AM only with PM mineralization
  4. Later in detox phases (and after the body has been properly mineralized), DMSA is can be used for longer cycles. When using DMSA for more extended periods of

times (i.e. 1-4 months), strategies are to take DMSA in AM or PM, once a day and mineralize opposite (Phase III-IV).

5. Note: do not supplement with minerals and sulfur prior to using any drug chelator. DMPS is not effective orally and should not be taken in our view.

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- Other chelators – **suppositories**
- Suppositories offer a **good alternative to in-office IV treatments**. Suppositories can by-pass the bowel and liver, which **enhances their effective systemic absorption**. Suppositories also create a longer more sustained release of the chelating agent, thus enhancing the penetration and exposure to the connective tissues. Suppositories also give another advantage in that they can concentrate the chelating agent in the pelvic region, which are often an area of heavy metal concentration and an area of enhanced cancer. Removing the heavy metals from the prostate, uterus and other uro- genital- and lower bowel regions can only enhance function and reduce risk of cancer.
- All mineral supplementation is taken at least 8 hours away from the suppository, so that the supplemented minerals are not chelated. Before mineral supplies are re-built, suppository strategies should be short – 2-5 days, followed by intense mineralization. After mineral supplies are rebuilt, suppository strategies can be for a month – usually every other day and mineralization 8 hours later.
- Suppositories are compounded by pharmacies: see resources in Appendix
- 1. **Detoxamine – EDTA suppositories**: 1500mg, 750mg, 350mg
- This is an effective chelating agent with good studies. Detoxamine can be used in Phase II in the beginning of detox, if the patient has good mineral reserves. After mineral reserves have been rebuilt, prolonged use of Detoxamine (for one month) can be used safely at any time in Phase III-IV.
- Detoxamine strategy is every other night
- 2. **DMPS suppositories**: 100-250 mg; IV dose is 3mg/ kg body weight – which can be modified upward because of the slower release
- Strategies range from 1-3 days in a chelation cycle in phase II to longer chelation times in Phase III-IV after mineralization has been established.
- Always mineralize 8 hours later
- 3. **DMSA suppositories**: 250-500 mg
- DMSA suppositories strategies can be used like the oral mentioned above. We find that suppositories are superior to oral because suppositories enter the blood stream and by-pass the liver more readily, and they don't displace mercury from the bowel like oral DMSA is likely to do in the early phases of detox.
- 
- Note: Sometimes it is better to start with an EDTA chelation, especially if lead and other heavy metals are an issue. EDTA is not a very good chelator of mercury, but the bodily burden of these other less toxic heavy metals can be lessened prior to aggressively chelating the mercury with a strong chelating agent like DMPS.
- 

### **Detox support (in office and at home):**

- Detoxification's objective is to efficiently remove as many toxins as possible, with little negative reaction. To accomplish this, detox support modalities and strategies during the mobilization, chelation and post-chelation cycles are important. The following are most important to consider:

- **1. IV vitamin and mineral infusion (with glutathione), usually the day after the IV chelation;** this is very important to continue the detox and remove more metals and other toxins out through the liver, but also to replace the minerals lost during chelation. If this is skipped, the chelation cycle is only half as effective in removing toxins and the likelihood of post-chelation complications is increased.
- **2. Aggressive bowel spa therapeutics** is advised during mobilization, the second day following IV chelation and during the post chelation cycles. Remember the objective in Phase II is to detox and rehabilitate the bowel. In addition, the bowel and feces is the major route for detox and needs all the help it can. The liver, the major detox organ, can benefit from these therapeutics.
- Colon hydrotherapy:
- Liver/ gall bladder flush
- A **coffee enema** is a very effective natural method to boost the glutathione liver production (100 times the normal amount) and for this reason it is always suggested the day after chelation whether you have a glutathione IV or not.
- **3. Drug up-take enhancement** – we strongly suggest that you utilize the personal Master Field Therapy (MFT) tapping points that have been given to you by our chelation Team, your Allergy Elimination Therapist. These tapping points and the organs that you lock in are designed to place your nervous system (ANS) into an improved regulation state. The advantage of this state of normal regulation is that the foods and supplements that you eat will be directed to the places that are in need of them the most, and the hyper-reaction and adverse symptoms to foods and supplements will be drastically reduced. We suggest doing the MFT tapping 3-4 times a day before taking supplements or meals.
- **4. In addition, we use drug uptake enhancement in every office chelation to direct the chelating agent into the toxic bodily compartment** with the most mercury or symptoms: neural therapy, electrobloc, anodyne, Laser therapy,
- 
- Regulation Therapeutics:
- Maintain Allergy Elimination Therapeutics to monitor allergies for foods, supplements, organs, the return of toxic metal and chemical allergies, autoimmune, chronic infections, hormones, neurotransmitters and other potential problems. In addition, the AET therapist can review for drug up-take of the chelating products through the effectiveness of the Master tapping points that have been given to you. The AET therapist can evaluate the synergy of the multitude of chelating products and support supplements for maximum effect and minimum adverse symptoms.
- 
- Regulation therapies: organ drainage
- Note: there are multiple other drainage remedies and companies, these are the ones that we are currently using; These remedies are detailed later.

#### **Lymph system remedies**

- Lymphomyostat (HEEL) lymphatic (matrix), immune support, kidney, thyroid and many other **drainage functions**
- Lymphonest, Echinacea (Marco Pharmo)
- 4+1Forticel
- Parsley (Naturex)
- Detox III (DesBio)

#### **Kidney remedies:**

- Berberis homacord (HEEL), Solidago (HEEL):

- Bucco, Solidago, (Marco Pharmo)
- Detox II (DesBio)
- Berber (Naturex)

**Liver remedies:**

- Hepar Compositum, Hepeel (HEEL):
- Hepatica, Cholenest (Marco Pharmo)
- Detox I (DesBio)

Other support remedies:

- Histamin: this remedy is for food sensitivities and any allergic condition
  - Psorinoheel: this remedy has 3 miasmas (not TB), and Thuja the vaccine antidote
  - Cerebromax – to regulate the brain functions
  - Spinomax – to regulate the spinal functions
  - Matrix support – general matrix remedy
  - Allergy antidotes: after AET sessions or from DesBio...
  - There are many other remedies like these to support all types of bodily function; these are the primary Regulation remedies that are used in Phase II.

**Energetic support therapies:**

These energetic regulation therapeutic systems **combine regulation information with laser energy, micro-current**. When used with any biochemical therapy (like detox or rehabilitation – Relox (IV push of vitamins and minerals with oxygen)), the therapeutic effect is synergized and thus exponentially enhanced.

- Erchonia laser, Lazer-pulse: many programs to address detox support, immune and lymph function, neurological reprogramming and healing, metabolic and other bodily and cellular functions. This is a laser light loaded with frequencies which can be programmed with the regulation information needed.
- Electro-bloc: is an electrical Neural Therapy instrument that can detox the ganglia, organs and any other area where mercury has compartmentalized. This instrument normalizes the autonomic nerves and supplies electrons to the mercury for better mobilization. It is most effectively used when DMPS has been administered.
- Lymphatic massage with KML – micro-current; this a very effective matrix detox therapy that combines lymphatic massage with the most advanced micro-current regulation machine specifically designed for mercury detox.
- Cowden protocol (LED – Laser Energetic Detox) to enhance the bodies releasing of toxins and regulation information,
- Laser light: There are multiple strong lasers that enhance blood flow to the tissue treated; these are remedy up-take and tissue rehabilitation therapies when detox agents are taken
- Health - lite (BioTools)
- Scenar therapy: is a contact micro-current therapeutic tool that re-polarizes the tissues and structures under the skin to which it is applied, thus normalizing blood flow and cellular dynamics. When used during any biochemical (detox or rehabilitation) therapy, it multiplies the effect.
- 
- Detox enhancers:
- **Energetic foot baths** that don't detox through the feet but place the body in an enhanced detox energetic mode: Detoxaway, Aqua-chi, BEFE,
- The energetic foot bath should be used every time an injectable chelator is used to increase the yield and reduce the side-effects.

- **Mercury vapor lamp** – supplies the energetic frequency of Mercury to help release the mercury from its binding sites (very effective)
- Mozart’s Requiem Playing the music of Mozart’s last composition is a powerful mercury detox enhancer because Mozart died of Syphilis but was mercury toxic due to the mercury used as medicine.
- 
- **Skin detoxification** – critical to detox through the skin during mobilization and especially chelation phases:
- **Detox baths** – should be used “At Home” often to remove the mercury and other toxins through the skin and sweat gland mechanism. The skin functions as our third kidney, removing toxins from the blood. In addition to detoxification, nutrition can be delivered through the skin like magnesium in the Epsom Salt bath, or electrolytes in a Sea Salt bath. EDTA detox baths See next section for more details.
- Magnetic clay baths (or just foot baths) – the specialized magnetic clay is very good at pulling toxins out of the body. Full body emersion in a bath is the best but can get hard to clean up. A foot bath with the Magnetic clay is effective and easier to clean.
- Spa services of infra-red sauna or ozone steam cocoon (or purchase for home):
- **Lymph drainage** – moving the toxins through and out of the body always involves a lymph system that is often stagnant with lymph coagulopathy:
- drainage remedies and /or Enderlin remedies strategy,
- lymphatic massage, trampoline jumping, light beam generator, chi machine, photon-genie, movement – light exercise, swimming pool exercise

### **Phase III – Detox the cellular membranes and extra cellular spaces less that are less accessible, starting cellular rehabilitation**

- Summary of strategies:
- Detox deposits in extra cellular connective tissues that are more tightly bound to proteins and binding sites on the cells
- Detox heavy metal deposits in extra cellular connective tissues that are fibroses, mineralized (plaques in blood vessels) and inaccessible due to hyper-coagulation;
- **Cellular membranes:** this phase starts the intracellular detox, because as the mercury is stripped away from the outside of the cell the intracellular detox mechanisms can transport more mercury to the outside of the cells
- Keep cellular **barriers closed**, start to open the brain barrier, but do not aggressively detox the brain yet.
- Continue drainage and organ/structure rehabilitation (outlined in Phase II) through detoxification, normalizing blood flow and regulation signaling.
- Support the therapeutics of chronic infections that may occur
- This is the phase to start adding cilantro to your at home strategies.
- Start to rebuild the intracellular stores of **glutathione** through
  - Food – partially hydrolysed whey protein

### **Detox support and facilitation**

**:Biochemical: review previous factors (Phase II) and add:**

- Cilantro: cilantro mobilizes the mercury from the cell membranes, however it needs a chelating agent to be more effective to carry the mercury out
- Other optional strategies:
- Systemic enzymatic therapy: Wobenzyme, marcrozyme or other similar products.
- Sub Q heparin, oral heparin
- Histamine patch
- Reicht's Regulat

**Regulation therapy:** as outlined in Phase II

- The new remedies to consider in this phase to facilitate cellular detox and repair, helping the cells regain normal function are:
  - Schwef- Heel: Sulfur metabolism, This remedy will increase the yield of mercury and other heavy metals, because it gives normal regulation information to all sulf-hydral (-SH) enzymes;
  - Thuja forte: Universal vaccine antidote
  - Thalamus Compositum: Organ extracts of all glands in brain; Cyclic-AMP
  - **Co Enzyme Compositum** (also Citrokehl)
    - Enzymes of the citric acid cycle – increase ATP and aerobic metabolism
    - Removes the cellular biochemical blocks of the cells after toxins
    - Increases the activity and amount of peroxisomes – which detox the intracellular spaces.
    - 2 times / week for the first month, then 1 / week for the entire treatment (2 years)
    - This can be taken in multiple modes of treatment:
      - IM, sub-q, intra-cutaneous, intra nasal and or IV
  - Ubichinon compositum: for metabolic stimulation and cellular chemical detox
- Initiate **exercise program** if possible: refer to Exercise, page 118
  - The exercise program should be geared to the adrenal capacity – so to not overtax the adrenals.
  - To maximize the rebuilding of lung and heart capacity, reduce body fat and to minimize time exercise according to PACE principles (Dr. Al Sears)
  - Other therapeutic exercise:
    - Feldenkrais – gentle to retrain muscle patterns
    - Yoga – various forms
    - Refer to Mary Renschler – Brain gym and other integrative therapies
- Review the other 7 factors for therapeutic strategies
 

Note: it is important to identify and develop a **therapeutic program for the other perpetuating factors** that keep the ANS (functional nervous system) dysfunctional, prior to brain detox Phase IV.
- I. Toxicity has been addressed: metals, chemicals, bowel
  - Address chronic infections in this phase
- II. Biochemical and metabolic support
  - Mostly addressed
  - Could evaluate for and treat in this phase;
    - adrenal support
    - neurotransmitters – amino acid

- III. Allergies – addressed with AET (Allergy Elimination Therapeutics)
  - If allergies are not controlled, or if mold and other environmental allergies are a problem – refer to Dr. Soloman for allergy testing and serums
- IV. Psycho-emotional and family systems issues need to be addressed if not
- Noxious energies: the bed room needs to be cleared of geopathic and EMF noxious energies; other remedies need to be in place if the patient is affected by any noxious energies, which will up-regulate the stress system (ANS) and down regulate the immune system
- VI. Toxic foci: need/ should be eliminated to reduce the neurological and toxic bodily burden
- VII. Structural issues: Dental stress - TMJ
- 

### **Detox (oral) chelators: same and add**

Use the same strategies and products from Phase II (one or more)

- Chlorella is the primary oral chelating product used in all phases; the others are mentioned if chlorella cannot be used because intolerance;
- The mobilizing dosages of chlorella in stage III and IV are often 4-8 grams a couple times a day. Note this is often the chelating dose during Phase II
- Chloralytes – chlorella in selectolytes,
- Porpha-zyme
- These products can now be added (in phase III) to increase the tissue penetration of the at home chelation.
- Clatherating agents (Metal Matrix ,NDF, PCA, Metal Free)
- Phospho lipids plus EDTA –
- Phospho lipid exchange (PLE)
- Detox max
- Zeolites: HP Zeolite, ACZnano (advanced cellular Zeolite), NCD
- 
- Combination products can be used for simplicity, but these products do not allow flexibility to tailor to the specific phase and usually do not supply the enhanced amounts of chlorella and cilantro normally used.
- EDTA based supplements detox combinations (Beyond Chelation, Oral Chelation, Longevity Plus, Pleo-chelate,
- Chlorella, cilantro and multiple other detox and anti-oxidant factors supplement combination formulas: Chelex, Chelorex
- 
- Consider adding: **Cilantro**
- Oral cilantro - to remove mercury and toxins from the cell membranes
- Topical cilantro – that penetrates the skin and removes toxins and mercury from the structures and organs under the skin or site of delivery.
- Always use cilantro with an oral chelator (i.e. chlorella, clatherating agent) to bind the HM
- Receptor site detox: Carnosine 2-4 caps (500mg each) three times a day
- 
- In office chelation strategies:
- Continue the same in office chelators in Phase II

- DMPS with or without Neural Therapy;
- Now add if indicated:
- Glutathione pushes (1000-2500 mg.), IM glutathione protocol (2-300mg 3x/wk and enhanced levels of Glutathione to the IV replacement
- Enhanced amounts of Glutathione to the IV Vitamin and Mineral 800-2000mg, usually gives as separate drip after the vitamin and mineral IV; but can also be given as a push
- Ca EDTA push: 1 ½ g push after at least 2 weeks of oral Ca EDTA
- B - 12 IM Methyl cobalamine 1000-10000mcg 1-3x/wk (at home); this is very effective if the patient has brain and neurological symptoms - for brain detox and restoration.
- Alpha Lipoic Acid chelating protocol- see page 99. time released ALA 1-2 tabs (800 mg) 2-3 times a day for at least 3 consecutive days, with time off
- Use cilantro at time of IV, IM chelator
- Use chlorella and cilantro at bed (with MFT tapping) for maximum brain detox
- Note: B-12 and Alpha Lipoic acid are all good chelators but are penetrating to the brain. Therefore we wait until Phase III to reduce the mercury and other toxins deposits from outside the brain barrier (i.e. connective tissues and blood vessels). Glutathione does not penetrate the brain unless there is a leaky brain barrier. In this manner the diffusion gradients of toxic load will favor the removal of the mercury from the brain by the detox agent, rather than the toxification or carrying the mercury into the brain.

•  
**Detox support:** same as outlined in Phase II

- Melatonin is one of the best brain detoxifiers; to enhance melatonin eliminate all EMF exposures in bed, use a turquoise treatment in the Photon Lite (if you have it)

## **Phase IV-Detoxing the brain and intracellular spaces**

Note when we detox the cells and brain we must also support the detox of the extra cellular/ connective tissues and the detox organs.

Strategies:

- Brain detox- full throttle
- Cellular clearing of toxins
- Helping cells to regain normal function – self regulation
- Begin brain repair and rehabilitation
- Extra cellular detox and organ drainage and the principles of the previous phases must be maintained, to ensure that the mercury detoxed from the deeper bodily and cellular compartments is brought out
- Continue the treatment of the chronic infections until completed
- The detox remedies that we employ at this stage are directed to the brain and have the potential of intracellular and cellular membrane activity.
  - Open cellular and brain barriers
  - Extra cellular spaces have reduced burdens of heavy metals so that the diffusion gradients are in favor of intracellular dumping.
  - Organ drainage is functioning well.

**Detox support and facilitation: same as previously described (phase II and III)**

- See above:

**Detox chelators:** same as in Phase III but consider adding:

**Strategies that chelate and remove heavy metals and toxic chemicals from the brain and cells.**

**1. Heavy metal (and toxic chemical) binding foods and supplements** (same as phase II and III)

- Chlorella:
- The clatherating agents: Metal Matrix, NDF, NDF+
- Phospholipid Exchange (PLE)
- Zeolite products
- Cilantro

**2. At home chelating agents:**

- Trans-dermal DMPS (TD-DMPS)
  - 1.5 mg/ kg dose
  - Surface of skin;
    - Neck, wrist, ankles and scrotum (for boys)
- Evaluate for TD- Glutathione
- Inhaled glutathione (Key Pharmacy)
- Alpha Lipoic Acid protocol
- NAC in enhanced amounts (400-800 mg/ day)
- Homeopathic mercury

**3. Doctor prescription**

- DMSA oral – detox protocols
- Combination of EDTA and DMSA: slow infusion of EDTA with oral DMSA on board
- D- Penicillamine

These chelators are used in the end when the brain is prepared to ‘detox out’ the best

### **About the chelating agents:**

**Notes:** This is the phase when we most aggressively start to detox the brain. The groundwork has been established. The extra cellular and detox organs are functioning better and the burden of mercury has been removed from the extra cellular tissues, so that now we have access to the deeper tissues (i.e. the brain), without the mercury **being carried into the brain**. In addition, the mercury that is being removed from the brain can effectively be carried out of the body - (because it now has a place to go). Detox is skillfully carrying the mercury out of the body, not around the body or worse deeper into the tissues or cells. It is a process of using the right detox agents, for the right bodily compartments, at the right time.

**Detox principle:** It is important to understand the physical **detox law of diffusion gradients**, which states that all substances will diffuse to equilibrium. Bodily barriers (i.e. the skin, gut, blood vessels, cells, brain blood and others), prohibit the toxic substances like mercury from reaching an equal amount on each side of the barrier – if they are intact and not “leaky”. That is unless you use a substance or chelating agent that penetrates the barrier easily. If however, you use a mercury chelating agent that penetrated the brain-blood or cell barriers easily and there is more mercury on the outside of the cell than on the inside of the (brain) cell, the law of diffusion could carry the mercury into the cell, which is not the proper direction of detoxification. (The purpose of detox is to carry the mercury from the inside to outside, not the opposite).

The problem is that when mercury is pushed into the brain, the symptoms may be relieved for a while. This is because the symptoms of mercury and other toxic substances are primarily reactions of the sympathetic nervous system (ANS) in the extra cellular spaces. If the burden of mercury is lowered in the extra cellular spaces, the symptoms are improved. However, if the mercury is pushed into the brain, the brain cell is more toxic and malfunction of the brain cell

only occurs over time – after the mercury has disabled the cellular enzymes, metabolism and the functions of the brain cells. This is why patients/ kids that detox with cellular penetrating chelating agents early in the detox program, develop epilepsy and other brain disorders many years later. What are the agents that can pass the brain barrier, the tightly wrapped blood vessels that supply the brain and filter selectively the nutrition and other agents that enter the brain?

- Alpha Lipoic acid
- DMSA
- NAC
- Mercury homeopathy: i.e. especially the higher potencies 30-100X
- Note glutathione and B-12 also penetrate the brain barrier

### **About the route of administrations to increase brain up-take**

1. We are using chelating agents that are by-passing the blood brain barrier through the trans-dermal remedies. These remedies when applied trans-dermal are up-taken by the rich complex of Autonomic Nerves and with-in days appear in the brain.
2. Another method of by-passing the brain-barrier is to inhale the remedy, which is taken directly into the brain through the Olfactory Nerve. At this phase (IV) we use TD-DMPS, TD- Glutathione, and inhaled glutathione to facilitate the extra cellular brain detox.
3. Drug-uptake- enhancement: This is a technique taught at phase I by the detox and AET practitioner/ coach. It is very effective in opening the brain and any other area of toxic accumulation to the remedies. It involves tapping certain master acupuncture points. Another uptake enhancement technique is stimulating the hand reflex points for the brain.
4. Neural Therapy can be administered into ganglia (that innervate the brain), quaddle (inject) around the head, over the spine, into acupuncture points. The detox and regulation remedies can be loaded into the Neural Therapy injections for profound effects. Many patients are unable or unwilling to have the injections, there is also Neural Therapy without needles, using cold lasers and electrobloc to treat the ganglia and other organs.

### **Treating the chronic infections**

The immune system is inactivated by mercury, which allows virus, bacteria, fungus and worms much easier access. In this phase we focus on the chronic infections that may be aggravated and create more symptoms. The fact that we have started to repair the gut – the body’s largest immune organ, and started removing the mercury from the body, helps to awaken the immune system. A functional immune system is critical for successfully fighting the chronic infections, and until an initial load of mercury is removed and minerals, proteins and anti-oxidants are replenished, it is futile to treat chronic infections.

Symptoms are often the body’s detoxification mechanism working, creating inflammation, fever, sweats, runny noses and increased mucus, skin eczema, rashes and other eruptions, bowel disturbances and many other symptoms. These purging symptoms need to be supported not stopped. The really “sick” person/ child is not able to react to infections in a healthy way, because the immune and metabolic systems cannot mount a proper defense. This is the natural way of healing and unfortunately not well understood and practiced today by many traditional doctors and their patients, who use suppressive drugs to stop the detox symptoms.

It will often take about 4 -6 months after mercury detox, for the immune system to wake up. At this time, you can expect detox symptoms and seemingly adverse reactions. If Herxheimer reaction occurs, slow down the therapy and support the symptoms.

### **Relationship between mercury and microbes:**

**There is no cure for Autism or any other degenerative disease caused by mercury toxicity without eliminating the different forms of mercury from most bodily compartments; even if we only eliminate 10% it will make a difference between a sick and healthy person/ child. Klinghardt**

- Mercury is compartmentalized in its extra cellular storage; mercury inactivates the immune system, which allows an ideal breeding ground for microbes to flourish away from the immune surveillance.
  - i. I.e. Herpes virus in the brain (compartmentalized) is responsible for seizure disorder in ASD kids.
  - ii. Mercury in the gut is responsible for fungal overgrowth (Candida).
- Trying to eliminate the opportunistic microbes before reaching a reasonable degree of toxic elimination in the involved area is not possible; the immune system is required to be activated to eliminate chronic infections.
- Antibiotic, herbal and nutritional up-take in toxin contaminated areas is only minimal and not effective to do the job and will not ultimately succeed. Energy medicine must be employed to detox first and then to get the suppressive remedies (and the immune system) into the areas of toxin contamination.
  - i. I.e. drug-up- take procedures: MFT tapping points or Omura's hand reflex points.
  - ii. Energy devises: microcurrent, Photon-genie, Lasers

### **The most common opportunistic infections are:**

- Measles virus, persistent in the intestinal tract
- Giardia and amoebas
- Roundworms, threadworms and tapeworms
- Herpes virus
- Strep infections and their neurotoxins
- Lyme and co-infections
- Molds and fungi
- Mycoplasma

For more details on treatment of chronic infections See: Comprehensive Integrative Medical program for Lyme and other Neurotoxic Chronic Infections

### **Phase V- Heavy Metal detox Maintenance – for life**

- Probably for life
- Cycle when intuitively moved: oral and /or IV chelation, with many months in between.

### **Detox strategies: overview of the cycles, products and techniques**

The following is an overview of the detox process and some of the principles, products and techniques that are employed by detox- cognizant health care professionals and patients.

One of the principle states: **Detox in cycles (vs. continuously) with time on and time off-time to re-establish equilibrium**, to dissolve and dilute the toxins, re-mineralize and allow the toxins to passively diffuse, and not overload your detox capacity (energy). Note that **nature**

**never does things continuously but in conserves energy by functioning in natural rhythms or cycles.** Most in the beginning of their detox programs find a monthly detox cycle to be easiest. The cycles are explained below:

- Mobilization phase – 1-2 weeks
- Chelation phase – 2-3 days
- Post chelation Phase – 3-5 days
- Rest – no active chelation – 1 week

Other detox principle states: **Neurotoxins are compartmentalized and no one detox agent can be used for everything. Detox from the outside to the inside keeping the bodily barriers intact.** When the outside tissues have been detoxed, then proceed to the more inner tissues and bodily compartments. Therefore detox sequentially in phases over time to protect the integrity of the biological barriers (cells and brain) during detox, so to detox out not deeper and avoid making things worse. Neurotoxins are contained in bodily compartments, contained by biological barriers, accumulation of mercury and other neurotoxins in various tissues/ compartments create different biological consequences.

1. Extra cellular or connective tissues including the GI system, respiratory system, and vascular tree; this is the tissues that produces signs and symptoms; HM can be fibroses or walled off with minerals (plaques).
2. Cellular membrane (cell performance)
3. Intracellular (cell degeneration)
4. Nucleus (chromosomes) (cancer).

Choose the appropriate detox agent for the compartment to be detoxed. The phases are:

**Phase I- gross deposits:** dental removed; start bowel binding, organ drainage and support therapy;

**Phase II- extra cellular (more assessable):** detox the extra cellular spaces - the bowel , connective tissues (matrix), blood vesssels and drainage organs;

**Phase III- extra cellular (less assessable):** detox extra cellular spaces that are fibrosed, plaques and inaccessible due to hyper-coagulation; start brain detox and cellular membrane detox.

**Phase IV- cell membranes and intracellular:** detox the whole body

**Phase V- maintenance for life**

Companion handouts:

- Dosing with Chlorella/Cilantro for Neurotoxin elimination
- Mercury Detox Instructions (and other heavy metals).

### **A. Mobilization with Chlorella (or like remedies) prior to Chelation:**

Suggestion 1-2 weeks. The purpose of the mobilization dose is “chelation-lite”: to detox the gut – remove the mercury from the Candida and other pathogens; start removing the gut biofilm; remove the mercury from the gastro intestinal lymphoid tissue (GALT); lower the neurotoxin (heavy metals, toxic chemicals, and neurotoxins from chronic infections) load of the body by binding these neurotoxins that are being eliminated in the bile thus preventing re-absorption.

Some of the clathering agents (the part of the chlorella that binds the toxics) in the chlorella are absorbed through the bowel and enter the general circulation and the connective tissues where it binds (chelates) and transports the heavy metals into the liver for excretion or from the deeper stores to more accessible areas for detox. The mobilizing doses of chlorella usually vary between **3 and 8 grams per day** during Phase I and II. During Phase III and IV the mobilizing dosages are often able to be increased to 4-8 grams a couple times a day.

The **timing and dosages** also vary according to the purpose and stage of detox. Remember the most important part is to take the daily dose not timing the dosage to the exact right time. Please don't drive yourself crazy with detox schedules. Remember detox is for the long haul.

- a. Taken all at once away from food: this dose concentrates the most chlorella in the bowel at one time and is generally used in the beginning of detox, for **maximum bowel detox**. Don't use this strategy during aggressive systemic detox because it won't bind the neurotoxins that are being removed through the liver. Usually phase I and II.
- b. The best strategy for **mercury (and other heavy metals) detox** is to take chlorella ½ to 1 hour before cilantro. If one applies this strategy around a meal, take chlorella before the meal and cilantro at the beginning of the meal and Vitamin C and garlic at the end of the meal (spaced as far away from chlorella and cilantro as possible. This strategy is easiest for most to comply at breakfast, but not during the day. This will clean the bowel effectively and binds the neurotoxins from the liver, the result of the cilantro dose. The reasons for spacing the chlorella and cilantro will be discussed later. Phase III, IV and V.
- c. When chlorella is taken **with meals**, it is the easiest protocol to comply and will bind the neurotoxins in the bile effectively but the chlorella is diluted with the meal and less effective for maximum bowel detox. Therefore use this strategy later in the program, or when you need convenience. Also note that taking chlorella with meals may be better tolerated for some who are having GI problems with chlorella.
- d. Chlorella taken at bedtime is best for brain detox and should be used with cilantro as well as other products and modalities. Phase III, IV and V.

Chlorella can be hard to digest so it is advised that taking a cellulase digestive enzyme with each chlorella dose can result in better tolerance. Dose: Candisol – 1-2 caps with chlorella; If there are other problems with chlorella, please consult the Appendix.

A. Other oral “chelators” can (and should) used with chlorella during the mobilization phase; these will be recommended according to the Detox phase:

1. Phospholipid – Na EDTA (Phospho Lipid Exchange, DetoxMax);
2. Zeolite- Zeolite HP, Alli-Thiamin (nanonized zeolite); NCD, ACZ nano
3. Cilantro
4. OSR
5. Bowel binder: IMF, clay (red and green), charcoal, kelp (algenate)
6. Transdermal chelators: TD-DMPS, TD-glutathione, TD- DMSA
7. Rectal chelators: Detoxamine – EDTA in suppository, DMPS, DMSA
8. DMSA - oral chelating drug,
9. IM glutathione
10. Others: Alpha Lipoic Acid, NAC

B. Mineralization, anti-oxidants, immune modulators, herbs and other detox support and modalities therapeutics are appropriate during the mobilization phase.

**B. Chelation Phase:** Suggestion – **1-3 days**. The chelation phase of detoxification is often a period of days. The purpose is an aggressive removal of mercury and other neurotoxins through multiple means from the body. **High dosing of Chlorella or 2-3 times the mobilizing dose** is

used during the 2-3 days of the chelation cycle. Other oral and/ or drug chelation remedies can and should be used at this time and can often be used in enhanced quantities. See the above list of oral chelators, which should also be used in increased dosage during the chelation phase.

Note: be sure that you are guided by a detox cognizant professional to initially help you with specific products and strategies for the most effective detox.

**In-office chelation** is most effective during the chelation phase. There are a couple of important reasons:

1. The chelating drugs are stronger by a great order of magnitude than what can be taken by mouth or given IV, IM  
The in-office chelation options are:
  - DMPS: in neural therapy, IV or IM (the most powerful chelator in the detox arsenal)
  - IV vitamins and minerals, IV vitamin C in large doses (25-100 grams), IV glutathione
  - EDTA IV
  - DMSA and oral prescription.
2. Through neural therapy techniques (with or without needles), the stronger chelating drugs can reach the more heavily contaminated bodily compartments, tissues and organs. All therapy is more effective and efficient when the detox agent is concentrated in the area or compartment of greatest toxic concentration.

The **art of detoxification is to place the detox agent into the area that is most contaminated or that needs it the most.** Recognize that heavy metals and toxic chemicals will accumulate asymmetrically in various tissues and organs the body. (Usually in the tissues and organs that have the signs and symptoms). That requires that:

- a) Methods of determining the areas of contamination:
  - History of tissues and organs with signs and symptoms can be a very large clue, ( i.e. brain – any brain disorder, joints - arthritis, muscles- Fibromyalgia, nerves – any neuralgia or nerve condition, GI- and GI disturbance, heart, kidney, liver...)
  - Biofeedback tools that tap into the information of the ANS (autonomic nervous system) can be very helpful in locating the mercury and other toxins. ART and more specifically direct resonance testing of ART has a good track record.
  - In the future, special MRI's will be developed to image the mercury and other toxic contaminates
- b) Methods of concentrating the detox agents into the most contaminated organs and tissues.
  - When a part of or the whole organ or tissue becomes contaminated with toxic metals or chemicals, the ANS will reduce the blood flow to the contaminated part. This becomes a problem for detoxification because **if the blood flow is not ‘opened up’ the detox agents taken orally or IV/IM will not be able to enter the most toxic areas of the body and do their work.** And of course without detoxification, functional rehabilitation of the organ or tissue is impossible.

- **Neural therapy, acupuncture, in-office “energetic” modalities, which open up the blood flow, and other methods of “drug up-take enhancement” are a most critical part of a complete and effective detox program**, because these regulation therapies open up contaminated toxic tissues to the blood flow and thus the chelating agents, making the chelation (getting heavy metals out) much more effective.

### **More on chlorella during the chelating phase**

Chlorella is important to use during the chelating phase, irregardless of which chelating agent or technique is used because there is a synergy of action when multiple chelators (oral and IV, IM) are used, and the yields are usually larger. There is another benefit in using chlorella during chelation. All chelators remove the toxins through a preferred detox organ, when multiple chelators are used, the detox organs that are smaller or more vulnerable (like the kidneys can be spared, in favor of the larger detox organs like the skin or bowel). Pulling the heavy metals through multiple organs of excretion is helpful.

- When using Chlorella, the chelation phase starts the day of or preferably 1 day prior to the office chelation appointment and continues until the Vitamin and Mineral (with Glutathione) IV, (usually 2- 3 days).

### **Spa modalities (both in –office and at home) very helpful during the chelation phase.**

During the **aggressive chelation phase**, every effort should be **used to support the detox organs to support the drainage organs and remove as much of the neurotoxins as possible**. Make this chelation count as much as possible! The following are some of the support modalities that are critical to effective and efficient detox. More explanation of these modalities are in Section II p114.

Removing toxins through the **bowel**:

- Colonics
- Coffee enema –stimulate the production of glutathione 1000 times the normal liver output..

Removing the toxins thorough the **skin**:

- Sauna
- Ozone steam sauna
- Magnetic detox clay in a full bath or foot bath
- Detox baths:. Epsom salts, sea salts, EDTA... see section in appendix
- Hydrogen peroxide foot soaks are very helpful for whole body lymphatic drainage,
- Energetic **detox foot bath** support:

We at NIHA have learned since 1994 that the energetic foot baths are a very important part of increasing the heavy metal yield and reducing un-wanted side effects

- Toxaway, Aqua-chi, Erchonia, and BEFE

**Lymphatic** and general body - detox support:

The lymphatic system must move the toxins, it by nature a slow system, all the lymphatic support one can have will increase the toxic yield during chelation. The following are some of the favorites:

- Lymphatic massage

- Chi machine
- KLM microcurrent – lymphatic therapy
- Photon- genie
- Walking and light exercise
- Trampoline
- Exercise: note do not engage in strenuous exercise during chelation- this could drive the toxins deeper not help them out; stay below your stress limit of exercise

### **delivering the remedies to the brain: Photon light therapy :**

This is a newly discovered method of delivering the remedies to the brain energetically piggybacked on flicker rate and color. Photon light therapy has been used very successfully for all types of mental and physical disorders for the past 30 years. Its success is well documented. This technique is to beam the detox remedies into the eyes, which delivers the frequency into the brain and greatly enhances the brain detox. Getting remedies through the blood-brain –barrier is harder. This appears to be a very elegant and effective means to enhance detox in the brain.

Using the **frequency of mercury** to aid the body in the release of the toxic metal, through the resonance phenomena.

Delivering the frequency of mercury to the body is a subtle, safe and effective energetic method to increase the yield of mercury during detox. The frequency of mercury can be delivered to the body through homeopathic remedies, which we usually recommend in Phase IV, and through beaming the frequency into the body through microcurrent (KMT), sound and light.

- **Sound: Mozart's Requiem** has been shown to greatly aid the release of mercury during chelation. The music resonates with the frequency of mercury because Mozart composed it as his last composition when he was dying of mercury toxicity (mercury was the treatment for syphilis in his day).
- Mercury frequency is delivered when a **mercury vapor light** is shined on the body. Unfortunately mercury vapor lights are proliferating due to misguided leaders and industry trying to reduce the energy of the incandescent light bulb – so getting mercury vapor lamps is now easy, but the environmental impact and enhanced mercury toxic burden of the earth (which is already too much) due to the industrial use and discarding of the new mercury vapor light bulb will be tragic. Better learn to detox for life.

### **Up-take enhancement during chelation**

Remedy (drug) uptake enhancement is an important part of any detoxification program and an important regulation concept to understand in general for more effective results in any health endeavor. It is very applicable for in office and at home parts of the detox program. Remedy uptake enhancement is important for functionally rehabilitating the organs and tissues **most affected by the heavy metal toxicity**. Enhancing the uptake of remedies (into the areas that need it the most) involves increasing blood flow and autonomic regulation to chronically impaired organs and tissues. One of the devastating effects of heavy metal toxicity is the compromising effects it has on the autonomic nervous system, the functional nervous system, responsible for blood flow and nutrient (and remedy) tissue uptake. Tissues laden with mercury and other heavy metals usually demonstrate reduced blood flow due to ANS disturbance. If remedy uptake enhancement is not employed, the remedies taken orally or parentally (IV / IM) will be distributed throughout the body but relatively in less proportion to the ANS compromised area. The

objective in detoxification or any other therapy is to place as little of the remedy in the body while **maximizing the dosage in the areas needing it the most**. Therefore, to increase the blood flow (and healing) to the affected organs or tissues and to increase the remedy uptake to the identified areas of toxic accumulation is a prudent detoxification strategy

There are a number of Regulation therapies that affect the blood flow and Autonomic Nervous System regulation. These techniques should be employed during the chelation phase (and to a lesser amount it is optional during the mobilization phase) to maximize the drug up-take of whatever is being taken therapeutically.

1. **Neural Therapy** is a German therapy, which traditionally involves the injection of Novocain and other (regulation and chelation) remedies. Novocain injected into the skin, tissues or ANS structures will increase the blood flow to the area for 3-7 days and often permanently overcome the hypo-perfusion to the affected tissues or organs. Neural therapy is very effective in heavy metal detox because the remedies can be loaded into the injection and taken –up by the ANS nerves and tissues directly.
2. Neural therapy and functional rehabilitation of any tissue or organ can be delivered energetically without injections with:
  - **Low Level Laser therapy devices**; (in-office or at home) – deeply penetrating and very effective for brain, tooth and mouth and any other organ or structure that needs enhanced detoxification or rehabilitation. E.g. Health-lite
  - **Face/ body shield**: a multi laser system that flood the area, very effective for kidney, liver and toning any part of the body
  - **Anodyne**: is a multi laser system that is very effective
  - **Electro-blok**: Special electrical units that function as ANS - TENS units:
  - **Scenar** is a contact micro-current therapeutic tool that re-polarizes the tissues and structures under the skin to which it is applied, thus normalizing blood flow and cellular dynamics.
3. **Acupuncture** is a regulation therapy, which modulated the ANS, increasing the blood flow and cellular responsiveness. Its effect will last for 3-7 days. Acupuncture is a very effective and long tested method to reestablish normal regulation to tissues and organs. A relationship with a Traditional Chinese Medical Doctor during detox is a very helpful idea.
4. **The Reflexes** of the body are concentrated autonomic mappings and when stimulated will increase blood flow to the affected organ. The ear, foot and head are some of the better known reflexes. We are literally tied together by the functional Autonomic Nervous System, the significance of which is not fully understood. The hand reflex has been extensively studied by Dr. Yoshiaki Omoura. (See the hand reflex chart at the end of this monograph.) When these points are vigorously rubbed for 4-5 minutes, the blood flow to the particular site will measurably increase. The effect will last for 5-6 hours. According to Dr. Omoura’s research, the hand reflex is the most powerful reflex to stimulate blood flow. The hand reflex is readily available for self treatment at home.

The medulla of the brain is located below the “bump” in the back of the head and it can be stimulated directly or indirectly for drug up-take for all areas at once. The hand reflex point for the medulla is the back of the middle finger above the first joint – pinch it for 5 min. The medulla can be stimulated directly by placing a magnet with the north side towards the skin. For drug up-take to work metals across the midline (including glasses and jewelry) should not be worn, rings and watches (metals that encircle the body will prevent up-take), electro-magnetic devices such as watches,

paggers, phones and areas of high EMF pollution should be avoided. Synthetic clothes and clothes labels that have metal (most) will prevent up-take.

To get the most out of your at home therapy, to target the remedies to the areas where it is needed the most, drug up-take is very important. The remedies for heavy metals and chronic infections simply will not go to the areas needed without these techniques or another remedy up-take procedure listed in this section. If drug up-take is hard to do during the day because of schedule, this procedure should be done at night before bed to get the remedies working through the night.

#### 5. **MFT (Master Field Therapy) tapping points**

Tapping master acupuncture points have been used very effectively in a number of therapeutic disciplines. Emotional Freedom Technique (EFT) or Thought Field Therapy has used these MFT points to remove the emotional blocks or change the charge behind mental, emotional and physical issues and very successfully eliminate the health problem. EFT is a simple technique, which when learned, can be employed at home to help with any of a wide variety of health problems – pain, anxiety, allergy, addiction and cravings, and any other physical, emotional and mental problem.

### **C. Post Chelation Phase:**

The purpose of this phase is to taper off chelation and to remove the chelated toxins out most effectively. Liver and GI detox is emphasized at this time. Binding the toxins in the bile and removing them through the feces is the purpose.

Immediately after the chelation phase- resume the mobilizing dose of chlorella (or another bowel binding agent, but now divide with meals to bind the heavy metals and other neurotoxins in bile/ gut, preventing GI re-absorption. The post chelation phase is for 3-5 days. This phase emphasizes gut binding the mercury in the biliary tree and GI cleansing. Mineralization, detox support, detox spa and colonics (with liver/gall bladder flushes) is helpful.

### **D. Stabilization Phase:**

No chlorella at this time or if fish is eaten use a very low dose (1/2 – 1 gram) with the meal to bind the mercury in the gut. Let the body stabilize between the active chelation phases. This is also a time for passive diffusion and redistribution of the toxins after the active chelation.

## Section II - the specific products, dosages and instructions

Need to add the supplement that we use and the companies.

### A. Biochemical support for detoxification

Foods are the most important source of nutrition, but in detox, especially in the beginning supplements are important to pharmacologically supply the optimal nutrients to detox and change the internal milieu to aid health and healing. Supplements are always better if they are of food sources, if not then the formulas, binders, fillers and other additives used in the manufacturing of the capsule (even the capsule itself) is important. Quality in supplements is important to results. We recommend only companies that we know have the highest purity, consciousness, and “green” standards. You always get what you pay for!

In “Basics” we discuss foods, diet and life-styles. We also discuss basics for supplementation strategies. The 4 pillars of supplementation that all should consider daily are: A) General vitamin and mineral; B) Anti-oxidants; C) Probiotics and other bowel health products D) fish oils and we would probably add Vitamin D (5000mg) if you are not going into the sun today

Most patients are **taking a general multi-vitamin and mineral** in addition to the basic supplement.

#### 1. **Antioxidant Protection** : Detox is an oxidative process use in all phases

**Foods:** fresh fruits and vegetables, juicing and organic if possible, pigmented fruits and berries that are high in orac value (the amount of electrons in the anti-oxidant complex).

**Supplements:** To protect against free radical pathology, and supply electrons to oxidized heavy metals-to aid in their removal. Use continuously (if needed) or in cycles (if not needed); Natural/ food and herb based nutrients are the best – more tolerable over time. Understand that for detox antioxidants with their electrons are critical to mobilize the toxins, but if chronic infections are the emphasis, which requires oxidation for effectiveness, then less antioxidants are best. (Options)

A. **Garlic:** Protects WBC and RBC blood cells from oxidative damage caused by heavy metals in the blood stream; it a weak detox functions having a high affinity to toxins, but unlike chlorella it has a weak bond to the toxins, which is split off in the GI tract – therefore always use with chlorella to rebind in the gut. Garlic oxidizes heavy metals making them water soluble and more easily transportable. Garlic is an immuno stimulant, supplies sulfur, anti- fungal/ parasitic/ microbial; part of the gut maintenance. Very important in mercury detox

- Frizzed dried – the only type of garlic supplement to consider: Biopure, Bioimmersion, Pharmax; 1-3 capsules after the meal so the allison is not

destroyed is the best timing; in addition – open the capsules into water and let sit for 5 minutes so the allison can become active; use once or twice a day. Dose garlic until you reek – then back off so that you are not socially unacceptable.

- fresh garlic with meals
- Bear garlic tincture is excellent for use in detox, but less effective as antimicrobial agent

Note: Garlic and vitamin C will inactivate cilantro, use at least 20 minutes apart.

A. **Vitamin C:** buffered and with Bioflavinoids and other parts of the Vitamin C complex: Don't use simultaneously with antibiotic, antiviral or cilantro.

- 1-5 g/day: divide dose; Ester C Plus, Potent C Guard, Ultra Ascorbic C
  - Always use the complex
- Vitamin C Powder is important to have if bowel constipation occurs and some will use oral Vitamin C therapy - is taking vitamin C to bowel tolerance

B. **Vitamin E:** Protects blood, cell membranes (with/without Co Enzyme Q) :

□ 400 IU/day (under age 40). □ 800 IU/day (over age 40); if crisis use 2400 IU for 2-3 days.

- Gamma E Supreme (Crayton)
- Tri-En-All (Douglas)

C. **α Lipoic Acid:** Enhances action of all other anti-oxidants, supplies sulfur, a weak chelator. Three dosages with different actions:

- a) low dose (50mg/d) - protects mitochondria and enhances ATP; use in Phase I, II
- b) moderate dose (100-200mg/d)- potent antioxidant; use in Phase III
- c) high dose (800- 1600 mg/d)- ALA max (Xymogen) use in Phase III and IV only; will open the brain barrier. See the Alpha Lipoic Protocol, which maintains blood levels for consecutive days (3-7 days); This product is time released and has about 12 hours of sustained release, therefore it is taken 2 (400 mg) caps – twice a day or 1-2 caps three times a day.

D. **Co Q 10**

This antioxidant nutrient is always helpful to help protect heart, blood vessels, periodontal tissues and all tissues in general. 50-200 mg a day appears to be most beneficial. Ubiquinol is the most potent form

- CoQ max (Xymogen): 50-100mg
- Chewable CoQ 30mg, 100mg (Crayton)
- CoQ Melt

E. **Natural and herbal products: t**

There are many **natural super-foods** and herbs that are on the market, with high orac values (antioxidants are rated with orac values determined by the amount of available electrons that can be given up – their reduction value). These products are food based with high nutritional value and compliment (and sometimes reduce/ replace) the need for vitamin C

- Ecklonia cave (Biopure)
- Mona vie, Golgi juice, Mangostein
- Resveratrol (Xymogen)
- Juice plus;
- Wild Blueberry (Bioimmersion);
- Lycopene Plus
- High Orac Probiotic formula

Use these products as directed on the bottle, or as directed by the therapist, or as you intuitively feel the need (for those with more advanced awareness).

**2. Minerals / Electrolytes:** Heavy metals will (re)attach to open mineral binding sites

To rebuild mineral stores from heavy metal toxicification and chelation. To supply antagonized mineral to prevent heavy metal binding (HM bind to empty mineral receptors – mineralize to prevent HM binding). Electrolyte Balance/ Replacement- (K, Na, Ca, and Mg) is critical to reducing symptoms and ANS nerve function.

Withhold all minerals (including the minerals from your general vitamin and mineral supplement) at least a day prior to DMPS IV or 8 hours from EDTA, DMPS, or DMSA suppositories or oral chelation – to prevent the minerals that you are supplementing being removed by the chelation drugs.

- Mineral therapeutic strategies:
- Selenium is the most important mineral for mercury detox. Selenium levels need to be maintained at high normal for best mercury detox and reduction of symptoms. RBC analysis is the only effective biochemical tool to effectively monitor selenium levels.
- All metals, which compete with Hg, should be supplemented with a general mineral supplement. If a particular mineral is low per RBC mineral analysis, supplement the specific mineral.
- After chelation, when the good minerals along with the toxic metals will be removed, we strongly advocate an IV vitamin and mineral infusion. We consider this to be the second day of a complete chelation cycle
- Supplement the minerals to a level of high normal; this greatly aids detoxification and reduces symptom; use the RBC mineral analysis at least every 6 months to determine the mineral status.
- On the day before and the day of chelation, do not take minerals because the supplemented minerals may compete with the chelating agent and reduce the yield of toxic heavy metals.

The following are the most important minerals and a few of their important functions.

- Selenium – patients with normal to high selenium values are able to detox mercury better and withstand toxic mercury exposure much better. Selenium binds with mercury and helps remove it through the skin, therefore it should always be added to the water one drinks prior to a sauna. Use in higher doses for anti-viral effects. Selenium drops are easiest to add to water, or tabs.
  - Dosages: 200-800 per day; sauna protocol – 800-1500mg prior to sauna
  - Magnesium – the most common mineral in enzymes, responsible for energy production, immune function and many more; magnesium will calm down the sympathetic nervous system, which is always hyper-regulating in toxic overload conditions like heavy metal toxicity. Magnesium is abundant in unprocessed organic foods (fruits and vegetables) that most Americans do not eat. Muscle cramping can be a sign of low magnesium
  - Dosages: 400-800mg: M/M Miraculous Magnesium, Mag Calm, Natural Calm, Mg Plus Guard, Mg liquid drops, Selectrolytes
  - Calcium – needs to be acknowledged, especially if bone loss, muscle and joint issues. Calcium and Magnesium are often supplemented together, if magnesium is low use 1:1 ratio, if not 1 Mg to 2 Ca
  - Ultra-Joint Forte

- Potassium – like magnesium is often processed out of our foods. Potassium is a very important electrolyte and it will stimulate the parasympathetic nervous system, which is the healing part of the ANS the regulating nervous system.
  - Dosages: Liquid drops, Selectrolytes
  - X-CELL-R-8 (Mg-K) (Marcopharmo)
  - Manganese is often low and should be suspected if muscle and joint tenderness and autoimmune is present. Part of the KPU protocol.
  - Dosage: 10-30 mg
  - Chromium is important in glucose regulation.
  - Dosage:
  - Diabetes Option, Glucobalance
  - Copper and zinc need to be closely monitored, because they will be removed vigorously by DMPS. Zinc supplementation is important for the synthesis and metabolism of Methionine, SAmE, Methylation (MTHFR), immune functions, bowel cell repair, metallothione and many other important functions. However, use in low doses only because high zinc will displace mercury and therefore is an adverse synergistic factor, which must be closely watched. Copper is often oxidized and displaced in toxic patients with Lyme's. Zinc is part of the KPU protocol, which prescribes zinc in large dosages. During KPU protocol, detox less aggressively.
    - Dosage: Normal 5-25 mg, KPU 200-600mg
    - Must balance with copper: 2-4mg
    - Molybdenum is important for sulfur metabolism. If low and patient displays problems with eating sulfur foods, supplement for 1-2 months before active detox- See - Rebuild Sulfur Metabolism Protocol
    - Many would add iodine and iodide as routine supplementation due to chronic shortage of these minerals and chronic thyroid problems
    - Lugals solution, Iodoral
- A. **General Mineral:** a general mineral should be supplemented along with a mineral rich diet, blending and juicing if possible. It is more important if the quality of the minerals in the diet has been or is currently a problem.
- Multiminerals (Biotics) – derived from food sources (hydroponically grown and mineral enriched sprouts;
    - With iron, or with-out iron
  - Liquid minerals: liquid drops into the water are usually more bio available. Trace Mineral Complex CWS (Pharmax, E-Lyte)
- B. **Individual Mineral Supplement:** determined after RBC mineral analysis or specific for heavy metal detox.
- Liquid minerals can also be applied trans-dermal for site specific up-take
- C. **Electrolytes:** Adding electrolytes to the water is important for macro mineral supplementation (calcium, magnesium, sodium, potassium, bicarbonate, chloride and phosphorus). Electrolytes provide the electrical charge needed for the body to function. All muscular and nervous symptoms of detox are minimized, nutrient and toxins are better transported, and the body is better able to regulate itself with blood pressure, temperature and other bodily functions when electrolytes are used in the water. It is very important to add electrolytes to the water you drink, and of course the other minerals mentioned above can be added to the same water.
- Water** is very important during any detoxification program- 2-4 quarts/ day:
- Selectrolytes (Morin labs) [

- E-Lyte [
- Cell food to enhance the water.

**Mineral Strategies:** The goal is optimal mineralization, which is evaluated by Labs - RBC mineral analysis and predominance of heavy metals being excreted as evidenced through the urine challenge or hair analysis. The beneficial minerals need to be elevated when there is evidence of the antagonistic toxic metals and supplement the antagonist mineral. If you know the specific heavy metal that you are detoxing, supplement in increased quantities the antagonist metal, to better displace the toxic heavy metal from its binding site. The heavy metal antagonists are:

Mercury  $\leftarrow\rightarrow$  Selenium;  
 Lead  $\leftarrow\rightarrow$  calcium;  
 cadmium  $\leftarrow\rightarrow$  Zinc;  
 Aluminum  $\leftarrow\rightarrow$  calcium + magnesium;  
 lead  $\leftarrow\rightarrow$  Calcium;  
 Iron  $\leftarrow\rightarrow$  Zinc, Molybdenum, Copper;  
 Copper  $\leftarrow\rightarrow$  Zinc, Molybdenum.

No minerals during chelation: The strategy is to build up before and after chelation only.

**3. Build up the sulfur stores** – Sulfur is the primary detox element and needed in abundance during detox. Sulfur is critical in all phases of mercury and other heavy metals detox, due to its thiolic (SH-) affinity or binding, its antioxidant capacity, detoxification properties, required in the production of glutathione, methylation, SAME, and most enzyme systems..

***Foods high in Sulfur Amino Acids:***

- **Cruciferous vegetables (as much as possible)**- cabbage, broccoli, cauliflower, Brussels sprouts, garlic, onions – the stinky vegetables, because they contain sulfur
- **Garlic** is important because:
  1. supplies organic sulfur
  2. it protects the blood and bowel as a potent antioxidant during heavy metal chelation;
  3. it furthermore controls viral, fungal, parasite and bacterial pathogens; In mercury detox you cannot have enough garlic
  4. The important anti-pathogenic component in garlic is Allison, which when processed has a therapeutic life of only 14 days. Therefore all supplements that are not freeze dried, or foods that are cooked and stored for over 14 days still contain sulfur but no active Allison. Fresh garlic, cooked and eaten garlic and freeze dried garlic concentrated food supplements are the best sources.
- **Chlorella**, the perfect detox food, is high in sulfur. Its multiple benefits will be reviewed later.

**Sulfur supplementation** should be strongly considered especially in the beginning of detox. Refer to the appendix and treatment strategies for more on sulfur supplementation during heavy metal detox.

Options for supplementation

- **MSM** 1-3 g/day usually but up to 10g if needed - divide dose with meals; this is the cheapest method to rebuild your sulfur stores and **should always be considered for all initial detox patients.**
- Redoxyl (D.L. Methionine)

- NAC (N-acetyl-cysteine) no more than 250 mg/day during Phase I-III. In Phase III and IV 500-1000mg is appropriate. NAC in this dose will cross the brain barrier, but it helps increase the glutathione. NAC is a weak chelating agent, which is why NAC is only used when the matrix is relative clean up so that mercury is not carried into the brain.
- OncoPlex: Sulforaphane – in cruciferous vegetables – watercress, broccoli, cauliflower, cabbage, Brussels sprouts, arugula, kale
  - Potent inducer of (phase II) detox and anti-oxidant enzymes
  - Induces cancer cells to destroy themselves (apoptosis)
  - Protects against cancer
  - Lowers blood pressure, LDL cholesterol
  - Anti-inflammatory
- Max GSL: to increase glutathione (GSH)
  - Combination of Vitamin C, Alpha Lipoic acid, L Glutamine, NAC and proprietary GSH absorption and recycling blend: Cordyceps, N-acetyl-D-Glucosamine, Quercetin, Milk Thistle extract
- Others sulfur supplements already discussed: [] Garlic; [] Alpha Lipoic Acid

Oral Glutathione (lysine-cysteine-glutamine) is not cost effective because the glutathione is broken down by the proteolytic enzymes of the gut. Options on glutathione supplementation are discussed in protein section

#### **Strategy for sulfur supplementation:**

- Withhold sulfur supplement day prior and day of chelation (DMPS) for better yields. 8 hours after oral dose of DMSA or Captomere.
- If sulfur supplements and or sulfur foods are a problem creating symptoms and intolerances, a strategy to re-regulate sulfur metabolism is important. Don't use sulfur in any form – MSM, DMPS, DMSA, chlorella, alpha Lipoic acid, garlic – causes moderate to severe symptoms. This can be a very important step to your detox. The strategy to overcome this problem is:
  - 
  - Rebuild Sulfur Metabolism Protocol
  - **Allergy/ hypersensitivity elimination** to sulfur, Molybdenum and check all minerals through neurological Allergy Elimination Therapeutics (AET). In the Cowden LED protocol, sulfur is the first toxin to be cleared. Note that when you are allergic to a food or supplement, it becomes a toxin.
  - Then increase the ability to sulfinate by supplementing to:
  - **Molybdenum** (which is usually low) supplementation for 1-2 months. Molybdenum (Mo) is essential to convert sulfite to the bioactive sulfate
  - N acetyl glucosamine supplementation
  - Proper sulfur metabolism requires Molybdenum, which may need to be built back up with supplementation for 1-2 months. A RBC mineral analysis will help assess this condition as will biofeedback therapeutics like ART. In addition, the blood chemistry will reveal a low uric acid (xanthine to uric acid is blocked); and low Chloride in the blood chemistry.
  - Regulation therapies that give therapeutic information to properly metabolize sulfur (i.e. Schweef-Heel)
  - Once sulfur metabolism is re-established then sulfur supplementation is needed to replenish deficiency, and can be taken without adverse effects

Therefore in heavy metal detox, re-building your sulfur stores, and aiding your body with optimal supplies of sulfur foods and supplements for efficient detox is very important. We feel that foods and supplements that concentrate foods are the backbone of our detox program.

#### **4. Rebuild protein:**

It is important to rebuild extra cellular and intracellular glutathione stores, which become depleted during HM toxification. Proteins are critical to repair the harmful effects of mercury toxification. Remember, many patients can't digest proteins (therefore the need for digestive enzymes). In addition proteins are important for blood sugar (and insulin) control. Whey protein (that has been partially hydrolysed) is very helpful in restoring intracellular glutathione, important for intracellular- detox and anti-oxidant protection. Amino acids are critical for making neurotransmitters and neuro-peptides, hormones, immune antibodies and many of the other bio-active chemicals that regulate repair, behavior and metabolism. If the amino acid is not able to be delivered to the protein when it is being made, the molecule is not bio-active therefore the proper amount of amino acids is a critical part of the detox and rehabilitation process.

- Protein metabolism has two issues: First problem: **lack of eating the proper proteins:**
  - Processing foods removes some proteins
  - Commercial growing and raising animals, reduces nutrition and amino acid balance in the plants and animals (we are eating basically un-nutritious foods)
  - Vegetarianism – it is hard to obtain a complete balance of amino acids eating only plant proteins.

The body will only utilize the amino acids that it needs at the time, the rest of the unneeded amino acids are de-aminated (the nitrogen group is cleaved off the molecule) and used to metabolize for energy like sugars. Proteins require 8 essential amino acids that can only be supplied in the diet; the rest can be made in the liver according to the demand. What is the best protein source and is there a problem if we eat too much protein?

The best source of natural protein is whole eggs, utilizes 48% of the amino acids as structural or retained proteins. The next is meat, poultry and fish, which utilizes 32%, with 68% as nitrogen waste; other amino acid formulas including soy, whey, egg white, hemp were 17-18% utilizable amino acids with 83% toxic nitrogen waste.

We advocate **Master Amino Acid Pattern (MAP) as a supplement for most detox patients and all patients in general and with any degree of chronic problems.**

Second problem: **lack of digestion of the proteins**

- Many people have bowel issues: chronic inflammation, allergy and immune problems, often unbeknown, to them.
- Lack of digestive enzymes, especially hydrochloric acid, which is essential for breaking down proteins to digestible amino acid units.
- If the bowel is inflamed, or overrun with pathogenic microbes the bowel has reduced capacity to absorb the digested amino acids or the “bad bugs” eat the proteins and amino acids before you have a chance.
- The neurological and immunological system can overreact to a bad situation and develop an “allergy” or hypersensitivity to the protein or amino acids, which will further reduce its capacity to digest.

Assessment lab test to determine shortage in amino acids or amino acid metabolism especially if mental symptoms (depression, anxiety...), immune issues as in chronic Lyme's:

- Plasma amino acid analysis
- Urine amino acid analysis
- Organic urine analysis

Action steps to ensure proper protein utilization during detox:

- Treat the bowel:
  - supplement with digestive enzymes especially hydrochloric acid
- Eat a quality diet of protein
  - Organic if possible, minimally processed foods
- Supplement with MAP, for full complement of AA
  - 5-10 daily, 23 minutes before meals
- Supplement with whatever amino acid is low to rebuild the bodily stores;
  - individual amino acid powder or capsules can be added to the diet to correct the problem
  - Amino Acid trans-dermal creams – by-pass the gut
- S adenosyl methionine (SAME):100-400 mg 1-3 times a day.
  - Use if methylation problem and therefore problems detoxing and controlling chronic infections, cognitive or brain symptoms, joint problems, or an up-regulated nervous system.
- N-acetyl Cysteine (NAC)100 - 250 mg/day – in Phase II and III; Phase III-IV 250-1000mg/ day
- has been discussed in the sulfur section
- Neurotransmitters:
  - Glutamine GABA -
  - Tyrosine – Dopamine
  - Tryptophen - serotonin
  - IgG 2000 – serum derived immunoglobulin proteins, reduces bowel inflammation
- Metabolic syndrome and bowel repair:
  - Glucosamine
- Whey protein has been used for increasing glutathione levels, because it contains a large supply of cysteine which are needed for glutathione synthesis (in the liver for extra-cellular biosynthesis) and branched chain amino acids (leucine and iso-leucine), which is needed for carrying cysteine into the cell for intracellular glutathione synthesis. We use goat whey, which is cheaper, but also cow whey, which is easier to obtain.
  - Powder protein formulas can be added to food to deliver a broad support of Amino Acids. Whey protein is the most important, because of the intracellular glutathione connection, however various other protein powders should be rotated with the whey so that allergy is minimized. (I.e. rice, soy, hemp...). Note all the supplements and foods should be tested for allergy.
    - Whey protein
    - Mt. Capra Goat Whey (also minerals);
    - Imuplus (milk whey);
    - Immunocal,
- **Glycine and Di-Methyl-Glycine (DGM)** are helpful in detoxing the toxic chemicals. Often Glycine is not present in adequate amounts, so the chemical detox system is impaired:
  - DGM – 125 mg tabs 1 -2 tabs stat 4 times /day
    - Increase dose until symptoms improve
    - Next dose when effect is lost
    - Approximately 20 tabs/day in divided dose

Di methyl Glycine, along with Betaine HCl and tri-methyl Glycine are important methyl group donors for those with detox and methylation problems. More on these in the section on B-12, Folate and methylation.

**Notes on Proteins:** it is critical for the Mercury detox patient to maintain a good source of protein from their diet. Complete protein sources are critical to balance the needs for sulfur, all the amino acids for healing the tissues, neurotransmitters, enzymes and all the other functional and structural requirements for detox and rehabilitation. In regards to proteins in the diet consider:

- **Lean proteins;** no large fish [The larger the fish the higher the mercury content→ concentrates up the food chain]; if fish is eaten, take chlorella capsules –(1/2 -1 gram) to bind the mercury in the fish. RULE: when detox minimize toxification.
- Vegetarian and fasting diets are not recommended, because ample a protein is needed for HM detox along with Vit B 12 (methylation); it is a generally recognized fact among Integrative Medical professionals that the **strict vegetarians are the sickest of our patients.**
- Need to monitor for allergies (hypersensitivity) to amino acids and proteins, (especially if any biochemical test indicates low protein and adequate intake)
- In the initial stage of HM detox, consider a diet higher in protein; also always consider **supplementing with MAP** and protein powders so supply the optimal amounts. **Whey Protein** supplement is particularly important because the whey is the best for rebuilding the intracellular glutathione stores.
- The protein is only as good as the quality eaten and the amount digested. Remember that as we age digestive enzymes are reduced. Some feel that after age 30, most people require digestive enzymes to adequately digest their proteins. It is also recognized that all patients with **chronic health conditions have impaired protein digestion.** Therefore digestive aids (HCl, and enzymes) are usually required.
- **Eggs** are the good source of proteins, fats, B Vitamins, minerals and sulfur; free range chicken's eggs are best quality, because the chickens are eating their natural diet of grains and insects, so the fat and protein composition of the egg is superior. 2-5 eggs daily during active phases of detox and membrane rehabilitation. The yolk is the best part.
- Proteins and fats should be eaten together because they work together.

Amino acid supplementation;

1. **Increasing Glutathione:** more in appendix
  - Intracellular with partially hydrolyzed whey protein;
  - Extra cellular with AA supplementation and glutathione strategies
  - Glutathione is perhaps the most important natural chelator our body produces to manage mercury and other toxins.
  - Some have genetic or toxic blocks,
  - Maintaining optimal glutathione nutrition is the goal in mercury detox. Glutathione accounts for 10-50% of antioxidant capacity of plasma- an important antioxidant and natural detoxifier. Same functions intracellular, however there is a finite amount of glutathione, which when used up reduces the bodies capacity to protect itself from HM toxicity.
  - Intracellular glutathione is the only naturally produced intracellular detoxifying agent to remove HM from inside the cell. It acts as an intracellular shuttle system, however, **intracellular glutathione once spent in removing HM from inside the cell is not easily manufactured, and it can not diffuse back into the cell from the extra cellular stores.** This leaves the cell mitochondria at risk to oxidative damage, which leads to lipid membrane per oxidation and ultimate destruction of the mitochondria.
  - . The nutritional factors that increase glutathione are

- Chlorella – abundant in the right amino acids – Cystiene, Glycine, and the branched amino acids (for the intracellular transport of the above), and B-12. Chlorella is the most abundant food in our detox arsenal.
- B-12 is critical for construction of glutathione; therefore if methylation problems are present, glutathione is reduced.
- Oral NAC (N- Acetyl- Cystiene) the primary rate limiting precursor for glutathione is a supplement that we use in lower doses in the early phases (due to its ability to bring toxins into the brain (or cells) – if the diffusion gradient is greater outside the brain (or cells) than inside).
- Oral Glycine and Di-Methyl-Glycine (DMG) are supplemented for glutathione synthesis, liver conjugation and toxic chemical detox.
- Max GSL: to increase glutathione (GSH)
  - Combination of Vitamin C, Alpha Lipoic acid, L Glutamine, NAC and proprietary GSH absorption and recycling blend: Cordyceps, N-acetyl-D-Glucosamine, Quercitin, Milk Thistle extract
- Glutathione strategies are employed to raise the blood levels during detox and raise the brain glutathione; note that IV glutathione does not raise the brain glutathione levels, unless the brain-barrier is leaky.
  - IV glutathione is added separately to the Vitamin and Mineral IV after the administration of DMPS; this is usually the second day of the chelation phase cycle.
  - IV glutathione, IV NAC are protocols for ASD patients, and others in the later phases of detox
  - IM glutathione strategies 200mg 3 times /week
- Oral supplementation of glutathione does not work, so bypass the gut by:
  - Liposomal skin formulas of glutathione
  - Sub-lingual drops (100mg/cc) or tabs (100mg)
  - Transdermal (TD- glutathione)- 4mg/ drop
  - Transdermal Glutathione Precursor – 30mg- 60 mg/ml
  - Inhale glutathione products, which directly place the glutathione into the brain.
- A coffee enema is a very effective way of raising the extra cellular glutathione levels (estimated~ 200 times normal levels). This treatment is one of the foundations for the Gershon Cancer protocol, used very successfully in all detox strategies. We recommend the coffee enema during the chelation detox cycle; it is in essence a cheap IV glutathione infusion.
  - The Kelly, Gershon, Gonzolas cancer protocol calls for 1-2 coffee enemas a day
- Intracellular glutathione is the only naturally produced intracellular detoxifying agent to remove heavy metals from inside the cell. It acts as an intracellular shuttle system, however, **intracellular glutathione once spent in removing heavy metals from inside the cell is not easily manufactured, and it can not diffuse back into the cell from the extra cellular stores.** This leaves the cell mitochondria at risk to oxidative damage, which leads to lipid membrane per oxidation and ultimate destruction of the mitochondria. When the mitochondria is destroyed the cellular energy is reduced along with all its function (reducing energy and other cellular functions) leading to dys-oxygenosis or the inability of the cell to adequately use oxygen in its metabolism.
  - Intracellular glutathione levels are important to re-build in detox.

Whey protein: has an ample supply of all the amino acid precursors for glutathione – glutamine, cysteine, and Glycine, plus the branched chained amino acids to get the amino acids through the cellular membrane

- Normal dosage 2 packs/ day away from meals, if 2 packs don't work add 3-4.
- Products for cow's whey : Amminocal, Immu plus (Allergy Research) and others,
- **Goat whey** appears to be a good source to whey much less expensive, and a good source of minerals and AA. This is proving to be an important part of our detox strategies. This product also is a very good source of minerals. Products: Mt. Capra (see resources – (360-748-4224) .

## 2. Depression formulas: restore neurotransmitter function

Treatment of depression is a very real problem before and during mercury detox. Mercury seriously alters brain chemistries, affects neurotransmitters and amino acid balance, alters hormonal and other cellular binding sites, reduces neuronal function by destroying beta-tubulin, which reduces the neurons capacity to feed and function ultimately leading to dys-oxygenosis and cellular death. Brain and neuronal signs and symptoms are often pathognomic for mercury toxicity.

- History can often tell which neurotransmitters are needed
- Labs: Amino acid analysis to determine the neurotransmitter precursors. Urine organic acids to determine the biochemical blocks to the Krebs cycle and the vitamin and minerals needed for optimal metabolism of the amino acids to neurotransmitters.
- Once the amino acids needed and the metabolic blocks are identified, then an oral (and /or IV) supplementation program of correction can be started.

## 5. Foods and diet:

High mineral, moderate protein, good fats; foods high in sulfur (cruciferous vegetables – cabbage, broccoli, cauliflower, garlic); foods high in antioxidants and pigmented fruits and vegetables (proanthocyanidins, lycopene); eggs 1-3 daily; mineral rich foods – (organic) fruits and vegetables (juicing if you can);

**Nutrition**, with the nutrition/ detox/ life-style coach:

- Food avoidance: allergic foods that need evaluating - wheat, dairy, corn, soy, sugar and all "white" foods
- If allergic - elimination and provocation protocol then food rotation diets – allergies;
- The diet that is best for you – Weston Price, genetic, metabolic and/or blood type diet
- The Body Ecology Diet is highly recommended
  - If the inner bodily ecology is not established, detox and rehabilitation is very hard.
  - The principles are very important – for it is established on the bowel health and immune support.

The foods that are eaten are the primary source of nutrition, the supplements are only secondary to rebuild the stores and supple for a short time the extras needed to detox and rehabilitate the tissues.

- Water- quality water with electrolytes
- Organic food

## 6. Membrane rehabilitation essential fatty acids

- See Fatty Acid therapy in the section III, and Basics – balance and healthy fat therapy for more understanding
- EFA are an important, forgotten part of most chronic degeneration conditions. The membranes are the life of any biological system. Eating healthy fats and oils, removing trans fats and reducing saturated fats is critical.
- These are some of the choices for you; your life style/ nutrition detox coach can help you incorporate the healthy fats and supplements into your routine.
- Rehabilitating the cellular membranes is critical in repairing the nerve and brain – the organs affected by the mercury toxicity,
- But it is more critical in the early stages of detox to help the liver and other detox organs function, for all detoxification occurs on cellular membranes and membrane structures (peroxisomes)
  - Ca/ Mg Butyrate: butyrate is a short chained fatty acid usually produced by healthy bacteria in the gut, which is absorbed into the liver and used as fuel by the hepatocyte (the liver cells) to detoxify (in the peroxisome). Until the bowel is restored to proper function, the butyrate may need to be supplemented for better liver function.
    - 1-2 caps with food, usually one bottle is sufficient
    - Eat butter – butyrate=butter
  - Peroxisome metabolism also enhanced by hormones (thyroid, DHEA), B2, Manganese and biotin, thiamin and B-12 (cobalamine) and chlorella;
- **Fish oils supplementation-** part of the 4 pillars and critical for nerve and brain repair and enhancement:
  - (Nordic Naturals)- EPA/DHA:
  - Krill oil, PS omega 3 Synergy (Crayton)
    - use only the highest grade (#2), without mercury contamination; or eat the fish oils with the chlorella to bind any mercury that could be present.
    - 2-4 grams/day
  - Udo's oil: a blend of omega-6 and omega-3 oil in 4/1 ratio:
    - 1-2 tsp/ day
- **Phospholipids supplementation and therapy** is important for nerve, brain and all membrane repairs. When nutrients and remedies are combined with phospholipids consisting of phosphatidylcholine, phosphatidylinositol and phosphatidylethanolamine, their bioavailability is greatly enhanced. This forms the basis for Phospholipid enhanced products, and taking phospholipids at the time when taking supplementation nutrients and remedies.
  - Phospholipid detox formulas:
    - Phospholipid Exchange: (Biopure) – 1/3 of bottle mixed thoroughly with 6 oz. Of juice, water or milk. 3 times a week; or 1-3 teaspoon/day at bed time during Phase III- IV brain and cellular detox phase.
      - Combination of microsphere encapsulated DiSodium EDTA and essential phospholipids. Taken orally this product enhances the transport of Phospholipid Exchange through the intestinal wall barrier, blood/ cell and blood/ brain barrier.
      - This product successfully eliminates the possibility of diarrhea symptoms. There is a slow release of EDTA systemically over

48 hours, greatly decreasing the possibility of kidney overload with heavy metals. Phospholipid Exchange produces ‘true’ plasma soluble ion exchange properties, thereby minimizing beneficial mineral excretion.

- EDTA has been used to detoxify the body of heavy metals, primarily lead, cadmium, nickel and arsenic (but not mercury very well); it has been used for clearing the cardiovascular system. In the past EDTA administration has required IV infusions.
- Healing benefits: lowers total serum cholesterol, decreases LDL (bad cholesterol, increases HDL (good cholesterol), increases peripheral and brain circulation, decreases reactive platelet aggregation by 60% in patients with angina pectoris, increases fluidity of RBC cell membranes, decreases angina and helps eliminate chest pains attacks, increases exercise tolerance with angina prone patients.
- Ingredients: 1 oz. 1 gm. DiSodium EDTA, 30 g of Essential Phospholipid (EPL), 150 mg of Magnesium chloride, 100 mg of Alpha Lipoic Acid
  - Detox Max - identical product
    - NT factors in supplementation – EPL wrap probiotics and other general supplements to enhance bioavailability and help bowel rehabilitation and repair.
    - PhosphaLine (Xymogen) – EPL take with supplements for EPL and enhanced bioavailability
    - Lecithin granules are a cheaper alternative to the more highly refined EPL mentioned above.
- Mixed oils in food: olive, grain, nut and seed oils (organic) Omega 6 fatty acids in the diet
- Coconut oil in the diet
- **If omega 6 fatty acids are suppressed** - [] \_\_eggs; [] animal proteins, dairy, butter [] ω6 oils – seed and nut oils (sesame, safflower, sunflower) [] olive, [] borage, primrose;
- some feel that one should build omega 6 fatty acids for 2 mo. prior to supplementing with omega 3 oils, we do not see the advantage.
- **If omega 3 fatty acids are suppressed** – []fish, [] Fish oils, [] flax oil. Avoid trans FA (junk food, hydrogenated oils) and refined carbs, which raise the insulin (create inflammation and fat accumulation.) [] carnitine (to remove trans FA into mitochondria for oxidation). Fish oils are important to supplement when brain and nerve rehabilitation is needed. Fish oils should be of the highest quality to minimize the Hg contamination and ensure the highest concentration of EPA/DHA. Fish oils will inhibit virus. They should be taken with chlorella to bind the Hg and away from cilantro and Vit C. so not to interfere with the HM mobilization action of cilantro, or the antiviral action of the fish oils.

## 7. Other biochemical support

**1. G.I. Support:** and repair is an entire detoxification process to itself and critical to restoring health and removing the heavy metal burden. A healthy GI tract is very important to reduce G.I. intoxicification and toxic body load from a leaky barrier and “bad bugs” (dys-biotic

bacterial) toxins; to prevent re-absorption of mercury in the gut; and to supply good nutrition for detox and functional rebuilding the tissues.

**A. Gut Functional Restoration Program: 4R (BLAND); Feed, Seed and Weed (ALI); GI programs include:**

4 R's: replace, remove, restore, regenerate

Refer to bowel basics

- Replace - digestive enzymes:
  - pancreatic enzymes at the end of the meal (or 20 minutes after), (when the pH of the stomach is less);
  - HCl in the beginning of the meal if needed.
- Restore – the healthy bacteria each meal; the best way to eat live bacteria is to restore their vitality (they are freeze dried – asleep), this can be done by dissolving the organisms in warm water for 10-20 minutes and drinking them at the end of the meal (so the pH does not kill them).
  - Beta Glucan - probiotics
  - Florastor
  - ThreeLac
  - Lactobacillus crispatus
  - Eat Lacto-fermented foods (see “Basics”, “Body Ecology Diet”); Introduce fermented foods (after allergy has been checked): Kefir, Yogurt, cottage cheese, pickled and fermented vegetables, kim-chi...; these foods are nutritious and may be easier to digest. The lacto-fermenting predigests the foods and adds nutrients and probiotics to the food. The synergistic effect of the lacto-fermented foods and the pro-biotic supplements (good bowel bacteria) is very effective for restoring proper bowel ecology.
- Remove – mercury from the gut: chlorella 10-60 tablets/ day (2-7 grams in powder or caps), 2-3 times per day; start slow and build up; chlorella is the primary mercury detox food and used through-out the therapy (many years).
  - Chlorella pyrenoidosa – better detox and harder to digest
    1. if a problem to digest add cellulose (an enzyme in any health food store)
  - Chlorella vulgaris – better nutrition, less detox, easier to digest
- Remove – the bad bacteria, fungus, worms, virus:
  - freeze dried garlic – 1 capsule after meals (dinner), (so the allison is not destroyed); use throughout the treatment for its sulfur supplying, antioxidant and anti-microbe management ability
- Remove – the allergic foods from the diet, which when allergic foods are eaten creates hyper-reaction of the immune system, and inflammation and atrophy of the stomach and intestinal mucosa.
- Rehabilitating the GI mucosa and the immune system that surrounds the gut – protein or amino acid therapy - glutamine

Bowel cleansing formulas: Super Cleanse, Rise and Shine, Ali's formulas, there are other good ones on the market, which are a combination of herbs and specialized foods.

Rx for Infestation:  Nystatin,  Diflucan,  Flaggyl Other \_\_\_\_\_

**B. Heavy Metal Absorption and bile binding** to prevent re-absorption of the mercury after it is excreted from the liver in post chelation phase.  Chlorella: moderate or low dose with meals  Proalgen: 1/day with meals,  Activated charcoal,  ProChitosan

**C. Colon Hydrotherapy:** This excellent bowel restoration therapy is highly recommended in the 2<sup>nd</sup> day of chelation and post chelation phase to remove the heavy metals toxins and dys-biotic microbes from gut, but also useful in the mobilization phase for those with bowel issues.

Colonic, colemas, enema (coffee): after chelation for \_\_\_\_\_ days.

**D.. NOTE: Treat hypoglycemia** which is usually present: eat more often, digestive enzymes, GI program, and eat protein before bed. This is critical to reduce internal stress and promote detox and healing (especially at night).

## 2. B-12 and Folate:

B-12 and Folate are nutrients are critical important in normalizing brain membrane functions, cell replication and detoxification capacity. Lack of adequate B-12 and Folate, which often function together are critical for the methylation of amino acids and other biochemical substances into bio-active molecules as well as numerous other functions including proper signaling in the brain, brain detox and healing. As mentioned mercury will create genetic defects in the methylation genes that need to be compensated by large doses of B-12 and Folate; there are two B-12 strategies. We incorporate hydroxyl Cobalamin (OH B-12), because it is a scavenger for toxic levels of nitrous oxide levels in the brain. Methyl Cobalamin is the bio active form of B-12, which is needed to correct the methylation problem and therefore brain and detox functions.

- OH-B 12 and Folic acid: daily dosing in 5:2 ratio
  - Sublingual drops 2-3 times per day; can use as much as 30 drops/day
  - Other forms of folic acid: methylated folic acid (folinic acid) could also be tried (ART test it)
  - Folic acid de-methylates toxic substances and OH B 12 removes toxic nitric oxide compounds from the brain
- Methyl-B 12 (Neubrandner) (25 mg/ml injection)
  - Dose 65mcg/ kg sub-Q, every three days for kids
  - Adult dose is 1-10 mg per every three days to 1 week
  - Takes several months to show positive results
  - If inject under the skin, the B-12 is taken up by the nerves (ANS) and delivered to the brain very efficiently

Methyl B-12 can be supplied in

- Nasal gel/ spray -1000mcg/0.1cc
- Sublingual drops- 1000mcg-25000mcg
- Transdermal: TD-Methyl B-12
- B-12, Folinic acid nasal gel 125mcg/ 300mcg
- Also the above in sublingual caps.

## 3. Therapies to penetrate the connective tissues that have been fibrosed or hyper coagulation and clean the cellular membranes -Add to detox program in Phase III:

### A. Rechts regulat

### B. Systemic enzyme therapy:

Taking enzymes away from food is a very effective way of cleaning up the fibrosis in the connective tissues and coagulopathy in the lymph and blood. Massive dosage of Proteolytic enzymes away from food is a cancer treatment for penetrating the mucous and fibrosis protective shield that the cancer cells secrete to insulate it from the immune system. The Proteolytic enzymes secreted from the pancreas not only have digestive purpose when eating

food but have a very important housekeeping role – digesting unwanted debris in the blood vessels, connective tissues and lymph system. In an infant in utero the pancreas becomes fully functional at five months and there will be no digestion of food until the baby is born. However, the pancreatic enzymes are secreted into the blood and literally digest the cancerous like growth of the placenta into the uterus at this time. We use systematic enzymatic therapy to penetrate the inaccessible connective tissues in Phase III to expose to the detox agents and the inaccessible compartments of toxic metals and chronic infections that are being stored or hiding from the immune system in the case of chronic infections.

- Wobenzyme (Longevity Plus)
- Marco-enzyme (MarcoPharmo)
  - Take 5-9 away from food 1-3 times a day, or ART test for dose

### **C. Oral, skin patches or sub Q injections of heparin:**

Hyper-coagulation or coagulopathy of the blood and lymph is a common result of a chronic hyper-vigilant (stressed). It is often the result of a chronic state of infection by the common stealth micro-organisms: Lyme, Babesia, Bartonella, Ehrlichia, Mycoplasma, Candida, the family of Herpes virus to name a few. These organisms contribute to the coagulopathy by manipulating the body's biochemistries to evade the immune system. A drop of peripheral blood will easily display a hyper-coagulative state and the need for systematic enzyme therapy and heparin. This should always be used with immune support and specific agents to suppress the chronic infection that will be let loose. (See chronic infection program for details).

Other Phase III support and detox agents:

#### **Receptor site detox:**

The impact of HM on a biological system can be from two sources:

- Gross burden of mercury
- Finite burden of mercury on receptor sites of tissues that while the amount of mercury may be less the biological impact is much greater. (E.g. mercury toxicity of brain receptors giving MS like symptoms).

Carnosine clears receptors such as G proteins from the cellular membranes. Therefore carnosine is an effective Phase III remedy that clears receptor sites of membranes of their heavy metal residues. Carnosine acts like cilantro as an important tool to mobilize mercury, which can effectively be detoxed out of the body once the body burden of mercury is reduced from the connective tissues. Proper functioning membrane receptor sites are critical for cellular metabolism and functioning. If cilantro is not used, at least one bottle of Carnosine should be considered in every mercury detox strategy. If the patient suffers from brain toxicity, which is any brain degenerative diseases or mental symptoms then consider using carnosine with cilantro.

- Product: Carnosine- 2-4 caps/day; 1000 mg 3x/ day; use after initial phase of detox after the extra cellular spaces have been initially cleaned Body Bio 856-825-8338

## **4. Other support strategies during detox that need to be assessed and treated when needed**

### **A. Hormone enhancement and/ or replacement:** thyroid, adrenals, pituitary, sex, insulin.

The state of hyper-vigilance and increased stress from stress patterns often starting in early in life and aggravated by the toxic load of mercury and other toxins is a major contribution to the misery of many patients (your signs and symptoms). Without proper metabolic and hormonal glands functioning, detox and healing (your recovery) is very slow if at all.

The Adrenal gland over time becomes dys-functional and thus the whole metabolism is adversely affected, which negatively impacts the speed of recovery and adds to your misery.

The adrenal gland and the thyroid gland need to be evaluated because treating the wrong gland will not improve the situation and may make matters worse. Dr. Rind has dedicated his practice to these understanding and treating these metabolic conditions. Visiting his web site to understand the strategies to assessment and therapy can be very helpful. See references.

I. Dr. Rinds assessment strategy:

- History: symptoms of Adrenal and Thyroid Dysfunction
- Body type: thin – adrenal type; thick – thyroid type
- Average temperature through the day  
The average temperature is low for both but -
  - If the average temperature fluctuates low on consecutive days, which graphs as a zig-zag, then it is due to adrenal dys-function
  - If the average temperature is low and constantly the same, then the problem is usually thyroid
- Reflexes: Achilles, Knee and eye reflexes are tested
  - Papillary constriction – light into eyes at an angle and the ability of the pupil to maintain the constriction. Pupil vacillates if weak adrenals. If constriction is maintained for 8 seconds the adrenals are normal. If less the grade is how many seconds can the eye pupil remain constricted. Grade: 3/10 pupil stable for 3 sec. before vacillating.
  - This test is similar the postural hypotension test, which is another test for adrenal dysfunction. In this test a blood pressure is taken while sitting and then when immediately standing. If the blood vessels are not able to maintain constriction upon standing – postural hypotension results. The patient will often experience dizziness upon standing.
  - Achilles tendon reflex – reflects the thyroid function. A slow reflex especially the return to the up position indicated weak thyroid function. Normal return is ½ to 1 sec.

Facial diagnosis

Labs:

Adrenal salivary hormone: takes the hormone reading through a day. This is an easy way to evaluate the blood levels of circulating hormone for there is a 97% correlation between the two.

- ASI, Saber Science
- Thyroid – blood labs: TSH, T-4 , T-3

II. Once the proper assessment has been established the treatment of the proper gland can proceed.

Treatment can be:

A. Supplying the necessary biochemical building blocks for hormone function

Vitamins and minerals, amino acids (proteins)

Adrenal: Vitamin C, B-5, essential amino acids

Thyroid: Iodine, Vitamin C, tyrosine

Using glandulars (eating the glands of animals, with all the proper proteins and nutritional factors: adrenal, thyroid, pituitary)

Using bio-identical hormones

Thyroid – Armour thyroid, cytomil

Adrenal: custom creams to supply the hormone to the blood stream through liposomal delivery (which wraps the hormone and nutritional factors in a fat membrane which delivers the contents through the skin into the blood stream, thus by-passing the oral route, which will digest some of the hormone in the GI tract and destroy what gets through of the hormone (or detox it) in the liver.

Saber Science salivary testing and hormonal creams.

The liver must be properly functioning for bio-identical hormone replacement to work. Therefore liver support is critical for hormone therapy.

Oral supplementation includes: [] Basic Cell (for a General Vitamin and Mineral); [] Amino acids supplements, protein supplements, or trans dermal AA cream, hydrolyzed collagen; [] Vitamin B 5 time released; [] Adrenal glandulars (hypo)Cyto-zyme or (hyper) ADHD, [] thyroid- Thyrostim [] pituitary- Cyto-zyme PT/HPT, []Other adrenal herbs \_\_\_\_\_.

B. Regulation medicine for metabolic therapy, which supplies re-programming neuro-immunological system to function properly:

- AET for hormones, autoimmune AET, Cowden LED protocol
- Homeopathy for adrenal and thyroid support – from various companies
- Klinghardt hormone protocol: There can be two reasons for hormone dysfunction, one is too little production the other is receptor site issues. Remember mercury and other heavy metals adhere to receptor sites and alter their function. Therefore the receptor site often needs repair.
  - Low potency hormone homeopathy for too little hormone, to enhance the hormone production from the gland
  - High potency (30C) homeopathy (of the hormone) for repair of the receptor site

Note: references on adrenal and metabolic problems- see Dr. Rind's web.(drrind.com) and symptoms of Adrenal dysfunction.

## **B. Neurotransmitters and brain chemistry normalization.**

Many mercury detox patients have brain symptoms. Mercury binds to neurotransmitter receptor sites, inhibits all enzyme systems that manufacture neurotransmitters, reduces neuronal function by destroying the beta-tubulin – the critical internal structure of the nerve cell, and destroys the detoxifying systems to remove the mercury. Mercury in some of its toxic forms is fat soluble with an affinity to membranes, nerves and brain. Therefore brain detox is critical to understand and brain nutritional support to rebuild brain tissues and regulation remedies to rebuild informational function is helpful during mercury detox. Dr Gant is the orthomolecular expert in brain assessment and function. His simple formula is to get the bad stuff out and put the good stuff in.

I. Assessment:

History can often tell the problems See The Neurotransmitters of Now (Dr. Gant)

Biochemical assessment:

- Toxic testing – same as in section in heavy metal assessment: hair, RBC mineral analysis...
- Labs:
  - Amino acid analysis to determine the neurotransmitter precursors.

- Urine organic acids to determine the biochemical blocks to the Krebs cycle and the vitamin and minerals needed for optimal metabolism of the amino acids to neurotransmitters.
- II. Therapy can be established once the problem is correctly identified (What a unique idea for psychiatry).
- A. Biochemical supplementation
- Oral supplementation of amino acids
    - Best to take away from food for best uptake, ideally at bed
  - Vitamins and minerals that are needed due to genetic or metabolic blocks (as determined by the urine organic acids labs).
  - Oral supplementation can be augmented by IV supplementation when needed in acute needs (i.e. addiction protocols)
  - Membrane rehabilitation program of good fats
    - Phospholipids, (lecithin, Phospholine... )
      - Especially phosphatidyl serine
    - Omega 3 fatty acids (fish oils), and omega 6 FA seed and grain oils
    - Alpha Lipoic acid
    - Acetyl L Carnotine – to repair the membrane binding site
- B. Regulation remedies
- AET, or Cowden protocol LED - to reprogram the bodily response to the neurotransmitters
  - Klinghardt protocol – see above
  - Photon light therapy

**C. Immune enhancement:**

Heavy metals suppress the immune system and virus, bacteria, fungi and parasites take advantage in the toxic bodily compartments. When HM are detoxed the Chronic Infections (CI) become active and an immune system needs to be activated to properly treat the condition. Most chronic health conditions appear to have a heavy metal and chronic infection component. An arsenal of immune system modulators is important to treat the chronic infections when they arise and reduce symptoms. We reviewed these principles in Principle #14 in Section II. There is an entire position paper and with specific strategies treating specific chronic infections “Lyme and other Co-infections”. Please reference for more detail.

The following are general immune modulation formulas:

Transfer Factor, Transfer Factor Plus, Immune-T, Total Immune, olive leaf, oregano oil, IP-6, Freezed fried garlic, Limuplex, IgG 2000, Thymus Option, Immune option, NT factors (essential fatty acids and glycol-lipids) 1,3 beta Glucan, Echinacea, Golden seal \_\_\_\_\_

**B. Heavy metal and toxic chemical binding foods, supplements and chelating agents** (the arsenal)

**Review the information on chlorella in Section II p. 15, and references in the appendix.**

1. **Chlorella** (or chlorella-like products like Porpha-zyme, chloralytes): Cycling food-oral chelators are essential for mobilizing the mercury from the deeper extra cellular tissues to be excreted.
  - Chlorella binds Heavy Metal (especially the Mercury salts) in gut and extra cellular spaces. Does not cross brain barrier and can be used with mercury fillings still present in the mouth, which is why we use it in the pre-dental phase I. Chlorella is also good for binding toxic chemicals and neurotoxins.

- The choices for chlorella are now multiple. The chlorella must be cultivated in a mercury free environment, and specially processed so to fracture the cell wall without harming the vital nutrients. The following are our favorite sources
  - Chlorella 500mg and in bulk (Morin Labs);  Chlorella pyreneidosa 200mg tabs (Biopure);  Chlorella vulgarus 200mg tabs (Biopure) others:  BioRubella 250 mg;  Natures Balance 330mg (also bulk);  Sun Chlorella;  Earthrise 200mg
- Other substitutes for chlorella are:
  - Chloralytes - chlorella in selectrolytes, which potentates the action ;
  - Porpha-zyme (Biotic) 200mg (a Chlorella substitute)

As described earlier there are three dosages for chlorella:

1). **Low Dose of chlorella**  1-2 grams eaten with food to bind heavy metals that are excreted from liver (bile), which minimizes the GI re-absorption during chelation. Any time mercury contaminated fish is eaten, which may be often, a low dose of chlorella will eliminate the mercury problem while allowing the benefit of eating fish.

## 2). **Mobilizing or moderate dose of chlorella:**

Chlorella can be a very important food in detox and its use and strategies can vary depending upon the Phase and the patient's tolerance.

In phase I and II (the dental phase and more assessable extra cellular phases) the bowel is the first and most important organ to detox, therefore taking a moderate dose of chlorella away from food is preferable

3-8 g 1 times/day away from food for maximum chelation effect for the bowel, used in the Dental Phase and the or the beginning cycles of phase II when bowel detox is most important;

If chlorella is not agreeing with you, you may try eating chlorella with food. Eating chlorella with food is a good way of binding the toxins from the liver and is used as a strategy in the later phases of detox Phase II, III an IV. Eating chlorella at night is the best for brain detox. Break the mobilizing dose into any manageable regime (i.e. all at once, AM and at bed, 3 times a day with food is the ideal.

1-3 g - 3x/day with food and/ or at night

In Phase III and IV more chlorella can be tolerated and strategies of eating chlorella with cilantro are used:

3-8 g 1-2 times a day taken ½ -1 hour prior to cilantro

- Chlorella and cilantro is an important strategy in Phase III. Take chlorella ½ to 1 hour prior to meals, with cilantro at the beginning of the meal and Vitamin C and Garlic at the end, as far away from cilantro as possible. This strategy is easiest for most to comply at breakfast, but not during the day. This will clean the bowel effectively and bind the neurotoxins from the liver.
- If chlorella is taken with meals, the chlorella is diluted with the meal and less available for maximum bowel detox but it will effectively bind the neurotoxins including mercury from the bile released by the liver. This method is the easiest to comply and is recommended in the post-chelation cycle, when detox is minimized and removing the mercury from the bile is maximized.

- If chlorella is taken at bed time, it should be used with cilantro and other detox products to maximize the brain effect.
- Chlorella is the best detox food, used to bind heavy metals in gut and reduce dys-biotic (fungus, bacteria, parasites); Stir-up or mobilize heavy metals in extra-cellular spaces, which increases chelation yield of heavy metals.

### 3). **Chelation or High Dose of chlorella:**

The chelation dose of chlorella is by rule 2-3 times your mobilization dose, for 2 -3 days, taken multiple times per day depending upon the phase outlined above. The chelation dose of chlorella can be used with or without other stronger chelating drugs

- The chelation dose more thoroughly excretes the mercury and other heavy metals from extra cellular spaces and through the GI (mostly feces).
- Other oral chelating agents in increased dosages should be used during the chelating phase to maximize the removal of the toxins.
- Strategy: the high dose of chlorella can be used with strong chelating agent (DMPS, DMSA, IV Glutathione) or without IV therapy and naturopathic only (chlorella, clatherating agent)
- If DMPS – you can start the high dose the day before but at least the day of the IV and continue until the vitamin and mineral IV, usually the next day.

2. **The clatherating agents** – are enzymatically processed Chlorella with other detox agents added. These products can be used as a chlorella substitute if chlorella cannot be tolerated. These clatherating agents are a very important part of the at home detox strategy and therefore used routinely. These agents are nano-colloidal chlorella, cilantro and detox factors, which have the ability to penetrate the blood vessels and connective tissues very effectively. Use these products with cilantro.

- a. Metal matrix (Biopure) – 1-10 sprays on an empty stomach, 1-2 times a day; if hold sublingual – better blood uptake by by-passing the gut
- b. NDF, NDF+ (BioRay)- 10 drops 2x/day on an empty stomach with water (average for 150 lb.); if sensitive start with one drop and ramp up
- c. PCA
- d. Metal free (Bodyhealth)

3. **Zeolite products** – are a group of crystalline, hydrated alkali-aluminum silicates, naturally occurring from volcanic ash over 300 million years ago. The crystalline mineral matrix that have been processed creating a cage-like, honeycomb negatively charged cavity that attracts and binds positively charged heavy metals and other toxins (chemicals, pesticides, petroleum by-products mycotoxins from mold, ammonia in the bowel and neurotoxins). Because the Zeolites add negatively charged electrons, they not only remove the toxic exposures that are our daily exposures and life time accumulation but also restore a healthier milieu with better pH balance and antioxidant effects. Note that Zeolites contain aluminum, which is a toxic metal. All research indicated that the aluminum is not released but this is not proven conclusively at this time, therefore always use cilantro with Zeolites, because cilantro is a very effective aluminum detox agent to be safe. The Zeolite cages filled with toxins pass naturally out of the body in 5-7 hours

- Zeolite HP (Naturx- Nutramedics)
- Zeolite suspension in ionic gold (Silvermountainminerals)
- ACZ nano – sub micronized Zeolite with nutrients
- Alli-Thiamin (nanonized Zeolite)
- Natural Cellular Defense (NDF): problem - in plastic container

- Because of the aluminum, Zeolites are not incorporated until Phase III when cilantro is started.

#### 4. **Essential Phospholipids (EPL) enhanced with EDTA**

See above membrane rehabilitation #6 in support. These are important in Phase III, IV

#### 5. **Rectal suppository chelators:**

- Detoxamine – calcium disodium EDTA in time-released suppository form
  - Taken at night, uptake in lower rectum, which by-passes the liver and enters the blood stream throughout the night with slow absorption, providing slow-acting gentle detoxification during sleep
  - Can be taken with any IV or oral therapy, therefore it works well in combination with other chelators: i.e. Chlorella, cilantro, DMPS, DMSA, Essential Phospholipids- EDTA, glutathione IV, IM, Trans dermal DMPS, and IV EDTA chelation
  - Detoxamine is a mesodermal chelator, entering the blood stream and primarily acting on the vascular tree and connective tissues. It can be used in the mobilization and /or the chelation phases with chlorella.
  - EDTA is a potent antioxidant, anti-aging and removes chemical and metal toxins; it supports cardiovascular and bone health, brain and neurological function.
- There are other rectal suppositories that can be prescribed with EDTA, DMPS, glutathione, alpha Lipoic acid and DMSA from special compounding pharmacies.
  - These give the advantage of a gentle chelation at night, with lower controlled dosages of stronger mercury chelators
  - It is not advised to use any rectal suppository chelator until the bowel program has been in place for at least two months. If the concentration of mercury and other toxins are greater in the bowel than in the blood vessels, the suppositories will diffuse the heavy metals into the body instead of grabbing the toxic metals and delivering them through the liver – bile – feces.

#### 6. **The Alpha Lipoic Acid (ALA) chelating protocol:**

ALA is a naturally occurring food substance that is a potent antioxidant and a weak natural chelator. ALA penetrates readily the cells and brain barrier, so it can be used as an intracellular and brain detox agent. In addition to being its own chelator, ALA will exchange the mercury (and other toxins) that is being held by glutathione, which is a weaker chelator than ALA. ALA is easily absorbed into the body but its levels are not easily maintained, and as a chelator the levels of ALA must be maintained for at least 3 days if the mercury is to be effectively removed through the liver. A single dose of ALA once a day is not effective to move the mercury.

Doses of ALA used in Mercury detox:

- Smaller dosages of ALA can be used as an extra cellular antioxidant: Phase I and II – the Dental and superficial extra cellular Phases
  - 25- 50 mg/day
- Or ALA used as an intracellular mitochondrial antioxidant in the cellular membrane and deep extra cellular phase III. But remember in these phases the cellular and brain barriers are not opened by the chelating agents; the strategy is to clean the toxins from the cell membranes and extra cellular spaces first before these barriers are opened so

the metals will move passively to a lower gradient inside the cell or brain. Rule: keep the barriers closed until the diffusion gradient is favorable to move the toxic metals out not deeper.

- 50-100 mg / day single dose

- Mercury and other heavy metal detox doses for the **cellular and brain detox phases III and IV.**

1. alpha Lipoic Acid child dose – 50-100 mg every 6 hours for three consecutive days – to maintain the blood levels; the child must be awakened to maintain the blood levels during sleep; 3 days on and 11 days off, repeat every 2 weeks; adult dose is a minimum of 100-200mg every 6 hours
2. time released ALA maintains blood levels for 12 hours
  - ALA max (Xymogen) 2 tabs = 800mg for 8-12 hours: give 1-2 tabs two to three times per day for at least 3 days and up to 7 days, then at least 1 week off, repeat every 2 weeks
  - Give this dose during mobilization and especially the chelation cycles.

7. **Cilantro**- use topical and oral in Phase III, IV and maintenance. Cilantro is a very important herb in **mobilizing mercury**, cadmium, lead and aluminum in both bones and the central nervous system. It is probably the only effective agent in mobilizing mercury stored in the intracellular space, including the nucleus, the cell wall and cell receptors. Because cilantro may mobilizes more toxins than it is able to carry out, cilantro needs a chelating agent – the favorite is chlorella but others are - clatherating agents, DMPS, Zeolites, EDTA) to be effective to remove or chelate the toxins out. Cilantro may be excreting mercury from lungs. Cilantro is good mobilizer but if a GI binding agent is not used (like chlorella), the neurotoxins will be reabsorbed in the small intestine. Cilantro causes the gallbladder to dump bile – containing the excreted neurotoxins into the small intestine.

Dosage:

Start with 2-3 drops 1-2 times a day in hot water and build up to full dose of 10-20 drops; 30 - 60 minutes after chlorella. Cilantro contains a mild toxic compound, which is neutralized in hot water

- Organic cilantro tincture (Biopure)
- Cilantro tincture (Dragon River) 2 drops at first increasing to 10 -15 drops
- Cilantro(Morin labs)
- Fresh cilantro- handful per dose- same

### Strategy for the use of cilantro:

**Oral dose** with chelating agent [chlorella, DMPS...]; first take the chelating agents i.e. chlorella 30-60 min. prior to meal then cilantro at meal. Don't use simultaneously with garlic and Vitamin C, because these nutrients may inactivate the cilantro and chlorella effect. Use at least 1hrs apart. Mobilize the toxins from stored compartments with drug up-take enhancement: MFT tapping points, hand reflex (chart) or a magnet (N) behind the head.

**Topical dosing** over organ/structure with symptoms or identified mercury (and other toxins) compartments or rub into thin skinned areas for uptake into the lymph system (feet and ankles, scrotum, vagina, elbow, ankles and wrists and groin creases. The topical application (dosing) of the cilantro tincture very effectively penetrates the skin; use in areas of suspected heavy metal deposits, dysfunction and pain. I.E. joints, kidney, liver. Cilantro tea – 10-20 drops in cup of hot water, clears the brain of neurotoxins.

### 8. Transdermal (TD) application of chelating and detox compounds.

As previously detailed the transdermal application of detox agents is a very effective way to by-pass the brain barrier and up-take the remedies through the skin and into the rich supply of autonomic nerves that bring the remedies to the brain. If you recall the discussion of the brain and skin are both ectodermal tissues, thus both are embryological and functionally linked. We take advantage of this relationship when we are concentrating on detoxing the brain.

- TD DMPS,
- TD glutathione
- TD DMSA
- TD alpha Lipoic acid
- TD B-12

TD DMPS (needs prescription)

- Recommended dose is 1.5 mg/kg , drops applied according to mg / drops; glutathione is often added; 1 drop= 1 mg of DMPS and 4 mg of glutathione
  - For adults (and kids) TD- DMPS is used in Phase III and IV when brain detox is appropriate
  - The practical dosages range from 10- 35 drops when using TD-DMPS with the other combinations of agents in this protocol.
  - It is not recommended to go above 60 drops in a child, adults can tolerate above this range
  - TD-DMPS can be used as a urine challenge in which case using 120 drops can be done; however using IV or IM DMPS is more practical for adults when measuring the urine output of toxic metals in a urine challenge. The challenge dose of 120 drops may be appropriate for kids to eliminate the injections.
- Apply to thin skin elbow crease, wrist, inguinal area, neck
- This is best to use at night due to offensive odor and at night is the best time to detox the brain
- Use with other chelating agents: chlorella, cilantro, Phospholipid exchange (PLE), Zeolites and clatherating agents,

## 9. Inhaled Glutathione

Inhalation is another method of by-passing the brain barrier and applying the remedy directly to the brain. At this time glutathione and B-12/ folate are the only remedies that are available for inhalation. The olfactory nerves are directly connected to the brain making the nose an ideal route of delivery. Of course one has to pause and be concerned that toxic chemicals and metals inhaled also have the same direct route to the brain. This is why that the home and environment must be evaluated and cleaned up during detox. Rule of environment poisoning is whatever is on the outside will eventually get on the inside!

- Inhaled glutathione and/ or B-12 and Folate
  - Spray or nebulizer (Key pharmacy)

## 10. Homeopathic mercury remedies

Homeopathic mercury, especially the higher doses of 30X (C) to 200X (C) will open up the cellular channels (barriers), therefore use these products when the extra cellular spaces are cleaned up and the bodily diffusion gradients favor the intracellular mercury deposits to leave the cell.

**11. B-12 and Folate** B-12 is both an important support strategy for detox and brain and nerve function and because of its cage like structure it is also a good brain detox agent, therefore we list it in both places in this protocol.

Both should be given together for their combined effect is the most important in correcting the methylation detox pathways and the other multiple bodily functions of methylation. B-12 is not well absorbed in the stomach therefore by-passing the stomach is the preferred strategy. This can be done sub-lingual – into the blood stream through the thin sublingual skin with ample blood vessels close to the surface; or by injections either sub-cutaneous or intra-muscular.

From section II: these nutrients are critical important in normalizing brain membrane functions, methylation of amino acids and other biochemical substances into bio-active molecules, and brain detox and healing. As mentioned mercury will create genetic defects in the methylation genes that need to be compensated by large doses of B-12 and Folate; there are two B-12 strategies. We incorporate hydroxyl Cobalamin (OH B-12), because it is a scavenger for toxic levels of nitrous oxide levels in the brain. Methyl Cobalamin is the bio active form of B-12, which is needed to correct the methylation problem and therefore brain and detox functions.

- OH-B 12 and Folic acid: daily dosing in 5:2 ratio
  1. Sublingual drops 2-3 times per day; can use as much as 30 drops/day
  2. Other forms of folic acid: methylated folic acid (folinic acid) could also be tried (ART test it)
  3. Folic acid de-methylates toxic substances and OH B 12 removes toxic nitric oxide compounds from the brain
- Methyl-B 12 injections (1-25 mg/ml injection)
  1. IM dose 1 -10 mg weekly to every three days
    - i. Takes several months to show positive results
  2. If inject under the skin, the B-12 is taken up by the nerves (ANS) and delivered to the brain very efficiently
- Methyl B-12 can be supplied in
  - ii. Nasal gel/ spray -1000mcg/0.1cc
  - iii. Sublingual drops- 1000mcg-25000mcg
  - iv. Transdermal: TD-Methyl B-12
  - v. B-12, Folinic acid nasal gel 125mcg/ 300mcg
  - vi. Also the above in sublingual caps.

## **12. N Acetyl Cystiene (NAC)**

NAC is the rate limiting amino acid in the glutathione and other sulfhydryl amino acid enzymes and proteins (most detox enzymes are –SH groups. High dosages of NAC in the early phases are detrimental because NAC readily crosses into the brain and if the extra cellular spaces are not adequately detoxed first the mercury and other toxic substances will be carried into the brain. When patients were given or self administered large dosages of NAC early in their detox, multiple cases of acute mercury brain toxicity has been reported, where patients became extremely depressed and committed suicide.

NAC is also a weak coupling agent for mercury.

- 100 -250 mg / day in Phases II, III,
- 600-800 mg/ day in phase III, IV

## **13. The prescription and in office detox strategies: DMPS, DMSA, EDTA**

Chelating (coupling) agent drugs are effective in binding the mercury and other sulfhydryl reactive heavy metals greatly enhancing their excretion from the body. Coupling agents do not bind as effectively as chelating agents. The drug EDTA is a chelating agent for calcium, iron, copper, lead and other metals both toxic and beneficial. DMPS is the most effective in binding mercury followed less effectively by DMSA, and much less effectively by penicillinamine and EDTA. These heavy metal coupling drugs are much more effective binders of the heavy metals than the natural binders (Chlorella, glutathione, NAC, alpha Lipoic acid, Zeolites, clatherating agents) previously described.

However, because these drugs will bind effectively mercury and the other HM, they might provoke HM symptoms. It is very important that the bodily excretion systems/organs (the drainage organs) are properly functioning, so that when the coupling drugs move the mercury it is moved out and not just around, provoking symptoms. Therefore, the **naturopathic program (chlorella, cilantro...)** previously described as well as **Allergy Elimination Therapeutics (AET)** is essential prior to and during the use of any drug based coupling agent strategies.

**1. DMPS** is the most effectively bound to mercury, tin, cadmium and nickel. It is a simple molecule used safely in Europe for 60 years. It binds the HM to two sulfhydryl (-SH) groups, forming a water-soluble complex that is excreted primarily through the kidney. DMPS has a very short ½ life so its action is short and doesn't linger in the body once administered. DMPS is administered by injection- IV, IM and in the neural therapy cocktails, as well as transdermal. It is not very effective by mouth. It is also available in suppository, which is effective provided the lower bowel has been detoxed prior.

DMPS is most effective at coupling the mercury and other HM in the extra cellular spaces (outside the cells). Since the kidney is the major route of excretion for DMPS, kidney function and support are important. DMPS is used for the urine challenge (the best chelating agent for the urine challenge), which is the collection of urine after IV administration of DMPS for the purpose of determining the mercury and other HM still present in the body.

**STRATEGIES:** Used most effectively in Phase II and III when the extra cellular spaces are the primary concentration. DMPS does not cross a healthy brain barrier, however DMPS can also be considered in brain detox of Phase IV to ensure that the extra cellular spaces remain clean and to aid the mercury detox once it has left the brain. Once the naturopathic program has been established with allergy elimination, drainage organ support, GI support, vitamin and mineral supplementation, antioxidant protection, an oral (food) HM binder and the other pertinent strategies previously discussed, DMPS should be considered. As previously mentioned, DMPS can be administered IV for the generalized bodily HM detox. It can be administered IM for a slower and longer DMPS exposure. Using DMPS IM for some will provoke less toxic metal symptoms. It is also very effective to be included as part of the therapeutic cocktail in Neural Therapy injections.

Neural Therapy is a comprehensive treatment system, which treats the Autonomic Nervous System (ANS), the functional nervous system most heavily impacted by mercury. Using DMPS in the Neural Therapy cocktail is a very effective way to pull mercury out of specifically identified compartments (tissues, structures and organs). Therefore neural therapy with DMPS is a local bodily HM detox. Neural Therapy always employs Novocain, as an effective therapeutic agent to rehabilitate the ANS nerves and help the ANS to release the mercury.

**DOSAGE/PROTOCOLS:** As previously described, DMPS can be used as an IV or IM for general body detox and in combination with other regulation therapeutics in Neural Therapy injections for more local action, concentrating the detoxification to the areas needed most. This method of drug uptake enhancement is a very elegant therapeutic detox procedure, requiring less amounts of the drug to achieve a better and safer therapeutic result. The dose of DMPS can be

arrived for the patient's body weight- 3mg./kg of body wt. not to exceed 250mg., or through an ANS biofeedback assessment tool like ART.

The frequency of therapeutic appointments using DMPS is usually once a month, with a range of no sooner than 3 weeks and an outward range of 2-3 months.

To get the most out of the DMPS detox procedure, the naturopathic program needs to be followed especially the Chlorella or similar products. The strategy that works the best is to use the Chlorella and other oral detox products to provoke the Mercury (mobilize) and bring it into the extra cellular spaces, where the DMPS can bind it to excrete it from the kidneys. Therefore DMPS can be used in all Phases of detox.

Unfortunately there is no simple full proof method accepted by all to determine when the majority of the mercury is released from the body. Currently there are mercury challenge tests (previously described), which may give some indication that the mercury has been released. Three months of little or no mercury spill after 8 hour challenge is one method of determining when the active detox phase is over. Another method of monitoring the active detox phase is ART, particularly the direct resonance portion of the assessment. See ART patient guide.

**CAUTIONS:** Since DMPS is so effective at moving Mercury, the ANS hyper-reaction (allergy) must be eliminated before and checked for after delivery of the DMPS. Use as little a dose as possible and use Neural therapy (with or without needles) to concentrate the DMPS in the local compartment to be detoxed. This is the value of a biofeedback technique like ART to determine the bodily compartments, dosage and whether the dosage is too much for the patient.

Stop minerals and sulfur supplementation 1 day prior to DMPS administration, resume 8 hours after if IV and 24 hours if IM. The minerals and sulfur will interfere with the effectiveness of the DMPS.

**2. DMSA** is not as strong as coupling agent as DMPS, but definitely has an important place in the HM detox strategy. Orally administered, it appears to be able to better penetrate the brain barrier and cross the cellular membranes, giving it some intracellular activity. There are in general fewer symptoms observed with DMSA than DMPS, due to its reduced ability to move the mercury around. Because DMSA is an oral capsule, it can often be used with less frequent visits to the offices, making it an advantage for those who may have problems traveling. DMSA is excreted from the liver and kidneys. It is an acceptable therapeutic agent but not as good as DMPS to use as a urine challenge. The urine challenge dosage for a DMSA urine challenge: take one 500mg. capsule and collect the urine for 6 hours.

**STRATEGIES:** DMSA is preferred by those mercury detox cognizant physicians, experienced with the use of DMPS to be used at the end of detox treatment – Phase IV. The detox strategy is to reduce the body stores in the extra cellular tissues first with Chlorella, DMPS and other agents described above (phase II and III), then aim at the intracellular stores with DMSA and other strategies of Phase IV. The fundamental concept behind this is diffusion of the toxic substances in the direction of excretion and not deeper into the cells. Toxic substances in the body have two ways to migrate- deeper into the tissues and cells, or out through one of the excretory systems (i.e. liver, gastrointestinal tract, lungs and any of the respiratory mucous membranes, kidneys, uro-genital mucous membrane system, spleen and the skin). By reducing the toxic deposits in the extra cellular spaces first, before opening the cellular and blood-brain barriers with therapeutic agents ensures that the diffusion of the toxic substances proceeds out and not in.

Some clinicians and organizations will use DMSA as the major coupling agent in the beginning of treatment, because it will provoke fewer side effects. Some are advocating the use of DMSA for kids in autism, ADHD, LD, asthma, and other HM allergic/ toxic disorders. While side effects are always to be minimized if possible, the opening of the cellular and brain barriers to the possible backward diffusion of mercury may be a short-term gain for a long- term

problem. There appears to be good evidence that the use of DMSA early in the detox increases the incidence of brain degenerative and neoplastic disease (i.e. cancer and epilepsy years later).

Another principle that is applicable here is that immediate HM symptoms occur when the Autonomic Nervous System reacts to the toxic substances, which can only happen when the toxins like mercury are in the extra cellular spaces (the place where the ANS is physically located). It furthermore been our experience that when immediate adverse symptoms occur an allergy or ANS stress response is present and needs to be treated (Allergy Elimination Treatment).

#### DOSAGES/PROTOCOLS:

1. Recommended by the Manufacturer: 10mg/kg per day, taken in three divided doses with meals. The first day, take one cap with the evening meal. If symptoms occur, (tiredness, depression or any symptom attributed to your HM condition), remain with one per day until symptoms improve. If or when you feel fine, take one cap at breakfast and one at dinner. Proceed until the maximum dose is achieved. DMSA is taken in courses of 3 days, followed by a rest period of 11 days, allowing the body to re-mineralize and the kidneys and drainage organs to recover in between courses of DMSA. Multiple courses of DMSA, (between 2-10), are recommended followed by a rest period of re-mineralization.

The standard doses are;

|               |        |                   |     |                              |
|---------------|--------|-------------------|-----|------------------------------|
| If you weigh: | 100lb. | Take 450mg. / day | Or: | 150mg. cap three times a day |
|               | 125lb. | 560mg. / day      |     | 180mg. cap                   |
|               | 150lb. | 700mg. / day      |     | 250mg. cap                   |
|               | 175lb. | 800mg. / day      |     | 275mg. cap                   |
|               | 200lb. | 900mg. / day      |     | 300mg. cap                   |

Dosing and duration of the treatment and rest periods can also be determined by a ANS biofeedback test like ART.

2. The protocol used by Dr. Klinghardt is to take one DMSA 500 mg. cap. every other day for 2 months on and 1 month off.
3. Other effective protocols in Phase IV are: take 500mg. of DMSA daily in the morning for a cycle (1-4weeks), then rest for 1-4 weeks. Note: it usually is 2 weeks on and 2 weeks off, or 4 week on and 4 weeks off. These protocols are individually customized using ART.
4. Combining - DMSA while using EDTA slow infusion: 500mg of DMSA with standard 45 min-1 ½ hour infusion.

#### CAUTION:

As was mentioned earlier, mineral and sulfur supplementation cannot be taken while DMSA is active, for it will bind to the active binding sites of the DMSA rendering it unavailable for heavy metal binding. Therefore in protocol 1, mineral and sulfur supplements are withheld until the rest period. In protocol 2, the supplements are taken on the day DMSA is not taken. In protocol 3, the supplements are taken in the evening 12 hours away form the DMSA dosing. This dosing does not affect any other naturopathic detox strategies.

**3. Captomere (Magnesium succinate)** (Thorne Research, Allergy Research) can be substituted for DMSA. These products are classified as vitamins and therefore don't require prescriptions. Although the chemical structure is similar to DMSA they do not appear to be as effective.

**4. IV Vitamin and Mineral:** There are a number of times during heavy metal detoxification when IV/IM support and detox therapies can be very helpful. It is commonly used:

1. Prior to HM detox to rebuild mineral bodily stores and strengthening the bodily systems. Chronic heavy metal toxification, compromised absorption, poor food choices and a whole host

of other reasons can create inadequate supplies of vitamins and minerals which in turn reduce the output of the enzyme systems that rely on them, contributing to the symptoms. Supplying the needed biochemical ingredients in pharmacological dosages, can be helpful. By-passing the gut, which often is a primary contributor, is an Integrative Medical strategy to rehabilitate the biochemical milieu.

2. IV vitamin and mineral therapy is also strongly recommended 24-72 hours after DMPS and DMSA and

3. IV cocktails are used during detox, as needed.

The purpose of the vitamin and mineral cocktails is: to replace the minerals lost due to the action of the coupling agents; to re-supply the minerals identified to be in suboptimal quantities in the bodily stores; to supply antioxidant protection before or after detox; to alkalize the body fluids, which promote better enzymatic and immune functions; to supply in large pharmacological doses the Krebs cycle enzyme cofactors and other enzyme systems, which force cellular uptake, thus providing energy, enhanced detoxification and repair; to supply the nutrients to prevent the formation of homocysteine, a potent oxidizer, which damages the lining of the blood vessels causing atherosclerosis.

#### **IV Vitamin and Mineral with high dose Vit. C, Glutathione**

This is a special cocktail used as a stand alone IV chelation or after the naturopathic chelation (with Chlorella), or as a second chelation/ mineral replacement 24-72 hours after DMPS / DMSA. The formulation is designed to supply additional heavy metal “coupling” detoxification through the use of the vitamin C and glutathione. Vitamin C supplies the electrons to the mercury to uncouple it from its bound ionic form in the tissues, promoting its diffusion into the extra cellular spaces. This enables the mercury to be more accessible to the glutathione in the extra cellular spaces, which is made amply available to couple the mercury for elimination through the liver. Elimination through the liver of the toxic metal is particularly useful to reduce the burden from the kidneys after the DMPS

#### **5. EDTA IV Therapy**

Historically, EDTA IV infusions have not been a front line consideration for mercury detox, because EDTA while it is a very effective lead detox agent, for mercury EDTA is much less effective. In addition, historically EDTA was believed to form an insoluble intracellular complex with mercury which was unable to be chelated out. This has been proven to be not true in vivo (in the body).

However there is another emerging strategy that recommends that for some very fragile patients, to initially start with EDTA infusions (1-5 times) to remove the lead, cadmium and other less harmful heavy metals first, then use the DMPS to go after the mercury, which is much more toxic to the body and harder to remove.

Another strategy for IV EDTA is one or more EDTA infusions during the mobilization and / or post chelation phases of DMPS / DMSA administration or even the rest periods. It could be recommended for those patients with occluded arteries in the heart, brain (i.e. stroke) or peripheral tissues. Other EDTA considerations would be excessive bodily oxidation, arthritis and a generalized non-stabilizing condition.

EDTA is effective in removing toxic heavy metals of lead, nickel, cadmium, and aluminum. In addition EDTA binds and removes effectively iron and copper, which when present in excessive amounts can be effective in reducing excessive oxidation. EDTA is best known for its ability to remove excessive calcium, especially from the soft tissues (i.e. blood vessel linings where it is a major component of the arteriosclerosis plaque, joints and other connective tissues). Therefore EDTA would be appropriate to be used as a support agent in Phase III, to reduce the arterial plaques. Furthermore EDTA has demonstrated a remarkable ability to put the calcium back into the bone, where it belongs. The desirable result of EDTA therapy is to normalize the

calcium metabolism, which has a stabilizing effect on the cell membranes in general. The calcium removal from the soft tissue opens up clogged arteries and improves circulation, and improves arthritic joint conditions.

Most importantly however, EDTA is a powerful reducing agent providing electrons to the body and thus serving to reduce the excessive oxidation, which is so prevalent in chronic health conditions.

The above discussion has been directed to the use of Na –EDTA in a slow infusion with other vitamins and minerals according to ACAM protocols. However some have more recently used Ca - EDTA fast IV pushes. The results have been mixed and the jury is still out regarding the effectiveness.

The use of EDTA is a very important strategy in this detox protocol, for EDTA is a proven detox agent that synergizes very well with other agents. We suggest Phospholipid exchange or Detox Max which is EDTA and phosphor lipids. Detoxamine is EDTA suppository. We also suggest oral and EDTA for baths to remove from the gut and skin. These protocols provide low level therapeutic dosages of EDTA.

There are multiple combinations of EDTA and other chelating agents:

1. Combine oral EDTA therapy (or suppository), which supplies a prolonged low level concentration of EDTA - 1/4 to 1/2 teaspoons ( 1-2 gm 3x/day) for 2 weeks prior to a 1 1/2 gram push of EDTA.
2. Combine: DMSA and EDTA IV slow infusions, or Detoxamine and DMSA

The excretory route appears to be the stool for mercury with EDTA, although this has not been well confirmed. EDTA appears to be most effective with methyl mercury, which is most helpful in Phase IV.

#### **6. D-Penicillamine:**

Mobilizes intracellular mercury effectively however not as effective and more toxic potential. If use, Phase IV. This drug is the champion of Dr. Russell Jaffe.

Oxidative Therapies: these are not chelators but are included here because these oxidative therapies are employed when needed to control infections

Oxygen therapies alter the body's chemistry to stimulate the immune system, thus overcoming disease, promoting repair and improving overall function. Oxygen therapies are safe and effective. They include the IV therapies of hydrogen peroxide, ozone and ultraviolet blood irradiation; they also include the spa therapies of ozone steam detox and hyperbaric oxygen therapy. These therapies can be used after any vitamin /mineral IV. These therapies are very helpful in raising the redox potential in the body (correcting an acidic and oxidative condition, the condition that promotes disease and degeneration). Oxidative therapies are recommended when chronic infections of yeast, parasites, virus and bacteria are present. They have also reported to be extremely useful in clearing up chronic skin conditions like psoriasis. For more information about the oxygen therapies see our handout.

### **C. Regulation therapy, organ support and rehabilitation:**

**All neurological diseases you must include energy medicine for any degree of rehabilitation.**

Cells, tissues and organs require systems to organize and regulate their individual and collective functions. Regulation therapies therefore supply cells and tissues information to properly act (or regulate) and thus support and rehabilitate the target organ or system. Self-regulating is the goal but the toxic patient because of the years of toxic exposure and the body's struggle to survive the toxic loads often need outside information from regulation therapies to help restore self-regulation. In addition, when toxicity has changed genetic signaling for critical detox pathways, regulation therapy is critical for support. See the appendix for more background understanding of regulation therapy.

There are three groups of therapies:

1. Suppressive remedies, which suppress bodily signs and symptoms: I.e. anti-inflammatory, anti-biotic
  - most antibiotics are heavy metal chelators
2. Substitution remedies, which substitute needed substances: I.e. nutrition, hormone replacement
3. Regulation remedies: which regulate the bodily functions
  - The most profound regulation remedies have always been homeopathy.
  - If the patient is to truly heal, they must become self-regulating; you cannot heal with only suppressive and substitution remedies.

Regulation therapeutics include:

- Allergy elimination therapeutics – reprogramming the ANS, so not to hyper-react (stress) to the foods, nutrients, chemicals, environmental agents, autoimmune substances like hormones neurotransmitters, organs and any other substances in the child's environment.
- Homeopathic remedies – we use a wide range of homeopathic remedies to support and reprogram the cellular functions, genes and other bodily functions.
- Drug up-take enhancement includes a number of techniques to place the detox agents in the toxic bodily compartments where they are needed the most. It is the most eloquent and cost effective method of detoxing. It can be done by tapping specific acupuncture points, reflex point stimulation, acupuncture, Neural Therapy, laser stimulation and other electro and magnetic therapeutic modalities.
- Neural Therapy (NT) is a German therapeutic system of ANS detoxification and rehabilitation. Traditionally NT uses Novocain injections under the skin, into scars and infected organs, into ANS ganglia (nerve cells outside the central nervous system) and other areas of dys-function and dys-autonomia. Detoxification, homeopathic and other regulatory remedies can be effectively added to the injections for profound effects.
- There are numerous energy medicine modalities - electrical, laser, sound, frequency or magnetic energetic signaling modalities that we employ in the office and are available for your purchase at home. These modalities are an important part of the treatment, for the mercury toxic patient/ child has lost his/her capacity to regulate their cellular and bodily functions, which must be supplied until the person's system regains control of their regulation capacity.
- Laser energetic detox: this very effective technique developed by Dr. Lee Cowden that our office employs to detox the energetic field of the toxins and chronic infections

## **1. Drainage organ support and rehabilitation during detox**

The following are commonly used complex homeopathy regulation and organ support therapies, known as homotoxicology remedies. Always think – lymph, kidney and liver, of course the bowel is a given. These remedies can be supplied in oral or injectable in the neural therapy or IV cocktails with DMPS or EDTA.

The first set of remedies is for Phase I, II and III when extra cellular detox is the concentration.

### **Lymph system remedies**

- **Lymphomyostat** (HEEL) lymphatic (matrix), immune support, kidney, thyroid and many other **drainage functions**
  - This remedy is one of the most important and the first used because it covers such a wide range of functions; if you had to choose one remedy, this would be the one.
  - Best to give it in lymphoid tissue: submandibular or tonsil injection, 2<sup>nd</sup> best oral drops: because the lymph is a mesodermal tissue
  - Used in Neural therapy cocktails
  - Best to use in the beginning of detox and throughout because it has the widest range of support.
  - Adults: Oral – as directed; IM 1 amp 1-2/ week
  - Kid's in ASD - dose 10 drops daily for the first three phases then 1-2 times per week, for 2-3 years

### **Kidney remedies:**

- **Berberis homacord (HEEL):** give as kidney drainage and support whenever needed; consider giving with any form of DMPS (transdermal or injections):
  - Note we only use DMPS IM during Phase II and III and the Detox Physician will place this remedy in the injection and possibly do Neural Therapy over the kidneys.
  - Best route is injection because the kidney is a mesodermal tissue, therefore Neural Therapy injection over the kidney; quaddle, subcutaneous or IM are the preferred route; most injection therapy frequency is once per week in treatment mode and once per month if maintenance,
  - Second best is oral drops: therapy dose 10-15 drops daily, 1-2 times per day; maintenance dose - 10 drops in water – 2-3 times a week
  - When using transdermal DMPS use 10 drops / day to support the kidneys
  - During detox crisis 10 drops in water, 3 doses per day.

Other Kidney remedies from HEEL are:

- **Solidago** (HEEL): mostly for kidney
  - Same instructions

### **Liver remedies:**

- **Hepar Compositum** (HEEL): liver drainage
  - Contains Lycopodium a deeply grounding plant (very old plant with deep roots); good for grounding
  - Give 2 weeks on and 1 week off during detox
  - 10-20 drops every other day.
  - The best route is oral drops (because it is an endodermal tissue remedy – GI type)
- Hepeel – same instructions

## 2. Support remedies:

- **Histamin:** this remedy is for food sensitivities and any allergic condition
  - This remedy decreases brain inflammation
    - use during stemming and regression reactions in kids with ASD
  - supports allergies, eczema and detoxification
  - in every crisis use this remedy early
  - Dose for kids: 5 drops before each meal, or in crisis 5 drops 3 times per day; adult dose 2-3times.
- **Psorinoheel:** this remedy has 3 miasmas (not TB), and Thuja the vaccine antidote
  - This remedy is long term and helpful **as a vaccine antidote**, especially useful in kids with autism
  - Give 10 drops 2 times / week for the whole treatment
  - Use the alcoholic drops if can (not single use sips) because it is the only one with syphilinum
  - Most adults require foundational work with miasmas to aid their detox

Note in Phase II the remedies are chosen for organ drainage and general support. These remedies need to be continued and possibly modified during the later phases as the conditions change. Starting in Phase III the remedies are added for:

- Cellular detox – cellular clearing of toxins
- Helps the cells regain normal function
- Begin cellular repair

The new remedies to consider in this phase III and IV to facilitate cellular detox and repair are:

### 1. Schwef- Heel

- a. Sulfur
- b. This remedy will increase the yield of mercury and other heavy metals, because it gives normal regulation information to all sulf-hydral (-SH) enzymes;
  - ◆ It normalizes the –SH enzymes (all detox enzymes).
  - ◆ It could increase the yield 100x, but it also has a healing crisis potential (because of its effectiveness)
- c. Mobilizes mercury and all the toxins from protein binding sites
- d. 1 drop / day, increase every 3 days until 10 drops/ once per day
- e. Stop if detox reaction

### 2. Thuja forte

- a. Universal vaccine antidote
- b. 5 drops every other day for 3 months (after vaccination)
- c. Eliminates the toxin vaccine residue
- d. Helps cells to awaken and regain their intelligence after injury by vaccines
- e. Activates the blocked detox enzymes

### 3. Thalamus Compositum

- a. Organ extracts of all glands in brain
- b. Cyclic-AMP
  - ◆ Communicates incoming messages, which is a problem in all ASD patients
- c. 1 amp / week for 3 months

- ◆ 3 drops into each nostril 2x/ day – into the brain; 5 days on and 2 days off.
  - ◆ Or add to the IM shot
- 4. Co Enzyme Compositum** (also Citrokehl)
- a. Enzymes of the citric acid cycle – increase ATP and aerobic metabolism
  - b. Removes the cellular biochemical blocks of the cells after toxins; all toxins block the enzymes of the TCA or energy producing cycle; useful in the cellular toxification and degenerative phase
  - c. Increases the activity and amount of peroxisomes – which detox the intracellular spaces.
  - d. 2 times / week for the first month, then 1 / week for the entire treatment (2 years)
  - e. This can be taken in multiple modes of treatment:
    - ◆ IM, sub-q, intra-cutaneous, intra nasal and oral
- 5. Ubichinon**
- a. Cellular detox for chemicals
  - b. Ubichinon-stimulate defense mechanisms against toxins to reactivate blocked enzymes systems (cellular intoxication phase)
- 6. Tonsilla Compositum:** 1 amp / wk for 1 year
- a. stem cells and growth factors, embryonic growth factors
  - b. Influences the brain of the kids to grow again
  - c. RNA of adrenals and other healthy organs
- 7. Placenta Compositum:** 1 amp / week
1. More growth factors, very important
  2. All growth factors – nerve growth factor

## **D. Herbal, physical medicine and combination therapies for organ drainage and organ support.**

### ***1. Organ Drainage and Support:***

To promote health and excretion of functionally compromised organs and organ systems that is needed to excrete the toxic metals and chemical. Mercury can easily mobilize and redeposit in other tissues if drainage organs are not properly functioning. **This is a critical step in HM detox.**

#### **A. Lymph:**

Herbal drainage organ remedies:

- Lymphomyostat – mentioned above
- 4+1Forticel – this is Essiac Tea used in cancer for lymph and immune support.
- Ecchinecia (Marcopharmo)
- Lymphonest (Marcopharmo)
- Pleo-muc (Enderlain remedy)
- other: \_\_\_\_\_

Physical medicine for lymph support:

- Chi machine - an at home devise
- Trampoline – very effective for physical lymph support (at home)
- Deep breathing
- Water immersion with exercise – needs to be done at pool

- Electron-sound-beam generator (an at office machine) or the at home devise Electron Genie
- Lymphatic massage with a skilled massage therapist is very effective the second day of chelation – the spa day when IV vitamins and minerals are administered along with colonics and sauna.
- Lymphatic massage with the KMT - the most advanced microcurrent machine, especially adapted for detox.

## **B. Liver/ Gall Bladder:**

Herbal drainage remedies

- **Hepatica (MarcoPharmo)** used for liver support primarily
- **Cholenest (MarcoPharmo)** used for liver and gall bladder support, this is a stronger remedy than hepatica
- **Artichoke** used for cholesterol and other liver conditions
- **Homeopathic remedies mentioned above: Hepar compositum, Hepeel**
- **other:** \_\_\_\_\_

**The Gall bladder flush** is a very important at home strategy to consider during any detox therapy. The purpose of the gallbladder flush during heavy metal detox is to cleanse the liver and gallbladder of sledge and stones and to purge the liver of toxic metals and chemicals. The book “The Amazing Gallbladder Flush” by Andreas Moritz is a very good reference to understand this important procedure and highly recommended. The best timing during the detox cycle of the gallbladder flush is after the first day of the chelation phase and / or during the post chelation phase. This is the time when the liver is processing the toxins to be removed through the bile. It is equally important to have chlorella or another bowel neurotoxin binding remedy on board to bind the toxins in the bile during the gallbladder flush. This prevents the re-absorption of the neurotoxins in the bowel. There are a couple of variations of the gallbladder flush that we recommend: one from the book the other is Dr. Ali’s, both are outlined below.

. The liver flush can be for 1 day, the day of the flush itself or 2, 3 or 4 days flush. The difference is 1-3 days of preparation, the flush remains the same.. It is best to start with the one day at first and progress to the 3-4 day if needed or inclined. Often it requires more than one gallbladder flush to produce a high volume of gelatinous “stones”, therefore the gallbladder flush is a procedure to consider multiple times during detox.

To minimize complications and maximize results it is best to prepare for the gallbladder flush The day of the flush:

1. The preparation – the day of the flush – the best time for the gallbladder flush is over a weekend, with minimal pressure with time to rest; although it can be done at any time of the month, the best day is between full and new moon. The day of the new moon is the most conducive for cleansing and healing:
  - Soften the stones in the liver and gallbladder and liver with malic acid, making their passage smooth and easy with organic apple juice/ cider or malic acid supplementation if apple juice is a problem due to allergy, Candida or blood sugar problems.
    - 5-8 glasses throughout the day, slowly between meals (in addition to your normal (6-8 glasses of water)
    - A two or three day liver flush is to drink 5-8 glasses of apple juice or cider for days before the flush
    - The fermentation of the cider helps widen the duct, giving additional benefit

- Drink plenty of water
  - A state of over hydration is desired so add more water (6-8 glasses) from morning to 6 PM
- Eat vegetarian throughout the day with no dairy, fried, meat or fat foods; avoid foods and beverages that are chilled or cold, because they chill the liver and reduce the effectiveness. All foods should be warm or room temperature
- Continue the supplemental and medication program that has been suggested for you
- Drink Epsom salts (magnesium sulfate), magnesium citrate or disodium phosphate to relax the bowel muscular tonus for easier passage of the “stones”, and to induce diarrhea
  - 3 hours after lunch – 2 teaspoons dissolved in hot water (a few drops of lemon juice and a pinch of salt will reduce the bad taste.
  - At 6 PM repeat the above step (2 teaspoons of Epsom salts, or the pr-made dose outlined below)
  - If 3-4 day flush – start the Epsom salts in the morning one hour before breakfast
- Take an evening meal of grapefruit or grapefruit juice if the whole fruit is not available.

Note; the 2 day protocol is to take the apple juice/ cider for the first day (or Malic acid) and follow the day of the flush procedure outlined above. The 2 day flush often yields more stones, and should be done only after at least one cycle of the one day flush. The diet during the multiple days should be low fat and vegetarian. The patient can advance to the 3 and 4 day flushes for better results after the 2 day flush is well tolerated. The only change to the protocol outlined above on the day of the flush for the 3 or 4 day protocol is to start the Epsom salts (disodium phosphate) one hour before breakfast (on the day of the flush) and eat a light breakfast avoiding sugar, spices, milk, and dairy products, meats and fats (don't eat protein butter or oils). Note that regular bowel movements are critical during the gallbladder flush and detox in general. Constipation must be addressed aggressively with a multi-phased program that can be outlined in “Bowel Basics” usually including colonics is critical prior to a gallbladder flush if regular bowel movements are not present. Colonic irrigation is the fastest and easiest method to prepare for the liver flush.

## 2. The flush:

- Add 4 tablespoons of Epsom salts (magnesium sulfate) to 24 oz. to make 4 -6 oz. glasses (add lemon juice and a pinch of salt to improve the taste);
  - Drink the first portion at 6 PM
  - Drink the second portion at 8 PM
  - If by 9:30 you have not had a bowel movement within the past 24 hours, we now suggest a enema, which triggers a bowel movement.
- At this time (9:30) take 1-2 gram of chlorella, or Proalgen to bind the toxins during the gallbladder flush.
- At bed time drink one cup of equal parts of extra-virgin olive oil and freshly squeezed lemon juice (1/2 cup each); prepare this concoction into a bottle shake and drink all at once at 10:00PM, standing next to your bed.
- Lie down immediately. Lie on your right side with your knees pulled up for about 30 minutes – this aids the release of the stones as the oil and lemon causes a strong contraction from the gall bladder

- Be prepared to experience nausea, some abdominal cramps and diarrhea during or after taking the lemon juice and olive oil; use Tigan suppository if nausea persists.
3. The following morning:
    - 6-6:30 AM upon rising drink the 3<sup>rd</sup> glass of Epsom salts, and warm water is thirsty. Rest preferable in an upright position.
    - Yoga or light exercise is preferred.
    - 8:00 – 8:30 drink the last glass of Epsom salts
    - 10:00 eat breakfast – a light and on fat or protein.
    - Drink plenty of water.
    - Examine your (watery) stools for gallstones, which appear pea green and float in toilet. The stones will be different shades of green, usually light from the gallbladder and darker green if from the liver. If the stones are tan or white, they will sink and are calcified (they are heavier). Green and yellowish stones are soft and putty like.
  4. The gallbladder flush can be done each month during the cycle of detox. It may take 8-12 flushes to remove all the stones and debris from the liver a biliary tree. Consider the stones gone when 2 consecutive flushes produce on stones.

### **C. Kidney:**

The kidney is an important excretory organ, however as we have discussed is often damaged in heavy metal toxicity, with reduced function. The square foot area of excretory capacity of the kidney is small compared to the larger bowel and skin, and one of the principles is to detox through the organs that have the most capacity to minimize the damage of the toxic mercury. The urine challenge with DMPS and DMSA uses the kidney to excrete the toxic mercury, which could place a further burden on the kidney. However, often the kidney dys-function is due to the accumulation of the mercury in the kidney.

#### **The following strategy has been used to overcome this problem**

- Determine the kidney status: history, symptoms and the functional blood chemistry can be helpful but the best is a creatinine clearance test
- Use kidney “drainage herbal and homeopathic remedies” to enhance the kidney function
- When using Neural therapy with DMPS, inject a little DMPS over the kidney and very little in the IV or IM portion. This will concentrate and confine the chelating agent to the kidney and not bring the mercury from the rest of the body to the kidney.
- Always use the challenge dose of chlorella (2-3 times the maintenance dose) to direct the mercury through the liver and bowel (and to create a much higher yield of mercury). The chlorella will spare the kidney.

Herbal and drainage formulas:

- **Bucco**, (MarcoPharmo)
- **Solidago**, (MarcoPharmo)
- Homeopathic remedies mentioned above
  - **Berberis homacord (HEEL)**
  - **Solidago (HEEL)**

#### **The kidney flush**

Chronic disorders frequently cause dehydration, which prevents the kidney from functioning to remove toxins from the blood. The first line is to maintain a constant state

of over-hydration from morning to 6 PM. Good water is the best detox agent available and cannot be underemphasized.

The kidney flush can further facilitate kidney function and blood filtering.

In watermelon season:

- Eat watermelon – moderate amounts
- Juice watermelon – 1 to 2 glasses; chlorella (powder or open capsules) can be added to watermelon
- Take 1-2 teaspoons of salt water from morning to 6 PM, with or without watermelon; if add lemon the salt may be better tolerated.

Out of watermelon season.

- The juice of one lemon with 16-24 oz. of water and drink throughout the day
- Additional fluids to maintain the state of over-hydration.
- One glass of unsweetened cranberry juice throughout the day.

D. Other herbal drainage options (MarcoPharmo):

Sinus support:

- Hydra,
- Luffa
- Topical application of remedies very effective through a syringe or Netti pot; add therapeutic salt, herbs, tea tree oil and other medicines to the sinus wash

Spleen:

- Scholapendium

Blood/ circulation detoxifiers:

- Lappa,
- Asceulus,
- Viscum

Lung:

- Pulmonest, .

## **B. Spa and other modalities used in the office or at home that are very helpful to get the toxins out especially during the chelation phase.**

During the aggressive chelation phase, every effort should be used to support the detox organs to support the drainage organs and **remove as much of the neurotoxins as possible**. Make this chelation count as much as possible!

1. Removing toxins through the **bowel**:

- Colonics is very helpful, but consider it the next day after DMPS
- Coffee enema – is part of NIHA detox spa colonic, but can be done at home very effectively. Coffee enemas are a very important part of cancer therapies (Gershwin), and coffee delivered to the liver (via the colonic) will stimulate the production of glutathione 1000 times the normal liver output. Glutathione is a very important natural detox agent that can be very beneficial at this time. Therefore the coffee enema is an inexpensive way of receiving an IV glutathione push at home.

2. Removing the toxins through the **skin**:

The skin is one of the largest detox organs and unlike other organs the skin excretes outside of the body immediately with little chance of re-uptake, unless the vapors are re-breathed. Note that mercury is a volatile metal, which means that if it is secreted through the skin the mercury vapor is present. Re-breathing mercury vapors

needs to be minimized by having well ventilated saunas and rooms where the mercury vapors are removed.

The skin functions as a third kidney and can very effectively remove toxins from the blood by sweating. The sweat will detox the lymph and the blood, the two most important fluids that carry the mercury and other toxins out. Spa detox through the skin is very important to efficiently remove heavy metals and toxic chemicals.

Before or during any skin detox for mercury drink 16 – 32 oz. of water with selenium (400-800 mcg). Selenium binds mercury and carries it effectively through the skin.

The sauna program of L Ron Hubbard is very sound to enhance the sauna detox of chemicals and metals. Before the sauna:

- Drink water 16-32 oz with selenium (see above)
- Take grain or seed oils (1-2 tablespoons); the fats enter the blood stream and dissolve and carry the toxic chemicals through the blood and out through the sweat. The oils are also important in rebuilding the membranes, the primary cellular component damaged by toxic chemicals.
- Take Vitamin B-3 until you have a peripheral flush; the dose might be as low as 50 mg, but often the flushing dose is higher. The flushing further opens the pores.
- Sauna – of the saunas, infra-red is the best for most, however some very sensitive patients cannot tolerate and must use the standard saunas. See the sauna protocol for enhancing toxic chemical and mercury elimination.
- Exercise and sweating – mentioned here but reviewed later. Do perform strenuous exercise during the chelation cycle it may drive the toxins deeper.
- Ozone steam sauna – is very good because in that it supplies oxygen and immunological stimulation through the oxidative action of the ozone. The ozone steam can be very helpful if chronic infections like Lyme are a problem.
- Magnetic detox clay in a full emersion bath or foot bath – this at home therapy is very effective in drawing out the heavy metals (mercury, aluminum and radiation) through the skin
- Detox baths are highly recommended during detox. There are many types of detox baths:
  - Epsom salts (magnesium sulfate) is a favorite for it removes toxins and replaces magnesium; the most important mineral is detox. 1 cup
  - 2 cups of vinegar and 1 cup of sea salt
  - ½ cup of baking soda and ½ cup of Epsom salts – alkaline the body with the baking soda, especially when allergy or hyper-reactive symptoms prevail
  - 3 table spoons of ginger, and /or 1-2 teaspoons of cayenne can be added to any of the above to enhance the opening of the skin pores.
  - Hydrogen peroxide foot soaks are very helpful for whole body lymphatic drainage and can be added to a full bath.

### 3. Energetic **detox foot bath** support:

We at NIHA have learned since 1994 that the energetic foot baths are a very important part of increasing the heavy metal yield and reducing un-wanted side effects. Detox can sometimes be a rough sail, but these detox foot baths are very helpful in reducing symptoms of detox. Placing one's feet in the foot bath for 30 minutes will aid the lymphatic system, kidney and liver drain the toxins out. There are a number of energetic foot baths that we have used over the years. These can also be used for home use.

- Toxaway, Aqua-chi, Erchonia, and BEFE are some

The benefit of the footbaths is the energetic detox assistance, not the toxins that are purported by some to be removed from the feet.

#### 4. **Lymphatic** and general body - detox support:

The lymphatic system must move the toxins, it by nature a slow system, all the lymphatic support one can have will increase the toxic yield during chelation. The following are some of the favorites:

- Lymphatic massage
- Chi machine
- KMT microcurrent – lymphatic therapy
- Photon- genie
- Walking and light exercise
- Trampoline

#### 5. Using the **frequency of mercury** to aid the body in the release of the toxic metal, through the resonance phenomena.

Delivering the frequency of mercury to the body is a subtle, safe and effective energetic method to increase the yield of mercury during detox. The frequency of mercury can be delivered to the body through homeopathic remedies, which we usually recommend in Phase IV, and through beaming the frequency into the body through microcurrent (KMT), sound and light.

- **Sound: Mozart's Requiem** has been shown to greatly aid the release of mercury during chelation. The music resonates with the frequency of mercury because Mozart composed it as his last composition when he was dying of mercury toxicity (mercury was the treatment for syphilis in his day).
- Mercury frequency is delivered when a **mercury vapor light** is shined on the body. Unfortunately mercury vapor lights are proliferating due to misguided leaders and industry trying to reduce the energy of the incandescent light bulb – so getting mercury vapor lamps is now easy, but the environmental impact and enhanced mercury toxic burden of the earth (which is already too much) due to the industrial use and discarding of the new mercury vapor light bulb will be tragic. Better learn to detox for life.

#### 6. **Photon light therapy – delivering the remedies to the brain.**

This is a newly discovered method of delivering the remedies to the brain by energetically piggybacking the remedies on a photon light machine. Photon light therapy has been used very successfully for all types of mental and physical disorders for the past 30 years. Its success is well documented. This technique is to beam the detox remedies into the eyes during a photon light therapeutic session of carefully prescribed colors and flicker rates, which delivers the frequency into the brain and greatly enhances the brain detox. Getting remedies through the blood-brain –barrier is harder. This appears to be a very simple, safe and effective means.

#### 7. **More on Up-take enhancement**

**Every in office and at home detox strategy needs to include some form of remedy/ drug up-take enhancement.**

Remedy (drug) uptake enhancement is an important part of any detoxification program and an important regulation concept to understand in general for more effective results in any health endeavor. It is very applicable for in office and at home parts of the detox program. Remedy

uptake enhancement is important for functionally rehabilitating the organs and tissues **most affected by the heavy metal toxicity**.

Enhancing the uptake of remedies (into the areas that need it the most) involves increasing blood flow and autonomic regulation to chronically impaired organs and tissues. One of the devastating effects of heavy metal toxicity is the compromising effects it has on the autonomic nervous system, the functional nervous system, responsible for blood flow and nutrient (and remedy) tissue uptake. Tissues laden with mercury and other heavy metals usually demonstrate reduced blood flow due to ANS disturbance. If remedy uptake enhancement is not employed, the remedies taken orally or parentally (IV / IM) will be distributed throughout the body but relatively in less proportion to the ANS compromised area. The objective in detoxification or any other therapy is to place as little of the remedy in the body while **maximizing the dosage in the areas needing it the most**. Therefore, to increase the blood flow (and healing) to the affected organs or tissues and to increase the remedy uptake to the identified areas of toxic accumulation is a prudent detoxification strategy.

There are a number of Regulation therapies that affect the blood flow and Autonomic Nervous System regulation. These techniques should be employed during the chelation phase (and to a lesser amount it is optional during the mobilization phase) to maximize the drug uptake of whatever is being taken therapeutically.

- **Neural Therapy** is a German therapy, which traditionally involves the injection of Novocain and other (regulation and chelation) remedies. Novocain injected into the skin, tissues or ANS structures will increase the blood flow to the area for 3-7 days and often permanently overcome the hypo-perfusion to the affected tissues or organs. Neural therapy is very effective in heavy metal detox because the remedies can be loaded into the injection and taken –up by the ANS nerves and tissues directly.
- Neural therapy and functional rehabilitation of any tissue or organ can be delivered **energetically without injections** with:
  - **Low Level Laser therapy devices**; (in-office or at home) – deeply penetrating and very effective for brain, tooth and mouth and any other organ or structure that needs enhanced detoxification or rehabilitation.
  - **Face/ body shield**: a multi laser system that flood the area, very effective for kidney, liver and toning any part of the body
  - **Anodyne**: is a multi laser system that is very effective
  - Special electrical units that function as ANS - TENS units: (**Electro-blok**).
- **Laser enhanced detox (LED)** or the Dr. Cowden protocol
  - This is a very sophisticated technique that used laser enhancement and frequencies of heavy metal and chemical toxins, allergens, pathogens and their healing antidotes to correct the autonomic dysfunction in the affected organs (and thus an effective drug uptake), as well as energetically releasing the toxins from the affected bodily compartment.
- **Acupuncture** is a regulation therapy, which modulated the ANS, increasing the blood flow and cellular responsiveness. Its effect will last for 3-7 days. Acupuncture is a very effective and long tested method to reestablish normal regulation to tissues and organs. A relationship with a Traditional Chinese Medical Doctor during detox is a very helpful idea.
- **The Reflexes** of the body are concentrated autonomic mappings and when stimulated will increase blood flow to the affected organ. The ear, foot and head are some of the better known reflexes. We are literally tied together by the functional Autonomic Nervous System, the significance of which is not fully understood.

- The **hand reflex** has been extensively studied by Dr. Yoshiaki Omoura. (See the hand reflex chart at the end of this monograph.) When these points are vigorously rubbed for 4-5 minutes, the blood flow to the particular site will measurably increase. The effect will last for 5-6 hours. According to Dr. Omoura's research, the hand reflex is the most powerful reflex to stimulate blood flow. The hand reflex is readily available for self treatment at home.
- The medulla of the brain is located below the "bump" in the back of the head and it can be stimulated directly or indirectly for drug up-take for all areas at once. The hand reflex point for the medulla is the back of the middle finger above the first joint – pinch it for 5 min.

The medulla can be stimulated directly by placing a **magnet with the south -pole (or negative pole) against the skin**. For drug up-take to work metals across the midline (including glasses and jewelry) should not be worn, rings and watches (metals that encircle the body will prevent up-take), electro-magnetic devices such as watches, pagers, phones and areas of high EMF pollution should be avoided. Synthetic clothes and clothes labels that have metal (most) will prevent up-take.

To get the most out of your at home therapy, to target the remedies to the areas where it is needed the most, drug up-take is very important. **The remedies for heavy metals and chronic infections simply will not go to the areas needed without these techniques or another remedy up-take procedure listed in this section.** If drug up-take is hard to do during the day because of schedule, this procedure should be done **at night before bed to get the remedies working through the night.**

### **MFT (Master Field Therapy) tapping points**

Tapping master acupuncture points have been used very effectively in a number of therapeutic disciplines. Emotional Freedom Technique (EFT) or Thought Field Therapy has used these MFT points to remove the emotional blocks or change the charge behind mental, emotional and physical issues and very successfully eliminate the health problem. EFT is a simple technique, which when learned, can be employed at home to help with any of a wide variety of health problems – pain, anxiety, allergy, addiction and cravings, and any other physical, emotional and mental problem.

Each patient has specific MFT master acupuncture points that when stimulated will regulate the autonomic nervous system. By tapping these points drug / remedy uptake will also be affected. Therefore before any detox remedy (or any other food, nutrient, drug or supplement) we strongly suggest this simple 1-2 minute exercise. The effects are multiple – remedy / drug uptake, less allergy (or ANS hyper-reaction) to everything, better therapeutic effects and by reinforcing ANS regulation your nervous system can start to react appropriately.

### **8. Exercise Program:**

Exercise is a very important part of every detox and rehabilitation program. The documented benefit of exercise programs for health is indisputable, from cardiovascular to hormonal and blood sugar health and every system in between. Movement and flexibility of the skeleton-muscular system, the largest system of our body is essential for every recovery and health maintenance program. Healthy exercise is pushing the body and allowing it to recover by building more muscle, stretching joints and structures, enhancing our oxygen carrying and cardiovascular capacity, using the available blood glucose and rebuilding supplies, reducing our adrenal stress and in general just using our systems. Use it or lose it!

In detox, there is an added benefit of sweating the toxins out during exercise. There are all different types of exercise, aerobic - using oxygen and taxing the cardiovascular system (like running, rowing, jumping rope, swimming...); anaerobic, which stresses more the stretching and muscular system workout and less the cardiovascular system (like weight training, yoga, trampoline jumping, walking...). Whatever the choice of exercise, the program must cause no harm and that is done by being aware of the condition of the adrenal gland and exercise accordingly.

When we exercise within our adrenal gland limit, which is not over stressing the adrenals, the benefit is a rise in cortisol temporarily to support the immediate demand for cortisol. But this is followed by a lowering in the stress hormone of the adrenals – cortisol. The objective of every rehabilitation program is to lower the stress hormone – cortisol. Cortisol is chronically high in all stress related conditions (major problem in modern life) and especially heavy metal toxification, which we have previously described as a chronic form of stress to the nervous system and therefore adding to the adrenal gland being continually overtaxed. In addition, if the right amount of exercise is done, DHEA levels - the rebuilding (or anabolic hormone of the adrenal gland) will rise. Exercise to lower the stress hormone (cortisol) and build up the rehabilitation hormone DHEA blood levels is exactly the result of any healthy exercise program.

However some chronically debilitated/ fatigues patients report that whenever they try to exercise, they feel worse for many days after. Exercise for them is destructive and it can be a problem for many if any exceeds their healthy limit. The exercise program needs to be based on the patient's level of adrenal stress, so as to support the rehabilitation of the adrenal gland and not cause it further stress. There are three adrenal gland conditions that will dictate the level and vigor of exercise:

Stage III of adrenal stress – adrenal exhaustion or fatigue is when the patient is unable to respond to exercise with adequate amounts of cortisol and little or no DHEA production. If the patient is in adrenal fatigue – the exercise schedule is no more that 5 minutes of light exercise with prolonged rest; no overtaxing the adrenal system. But exercise is important to ultimately rehabilitate the adrenals.

Stage II of adrenal stress (or the hyper- stress condition) is characterized when the adrenal gland is chronically over producing cortisol but incapable of making adequate and healthy amounts of DHEA and often the sex hormones that come from DHEA in the adrenal gland. If this condition persists, adrenal exhaustion usually follows. This chronic state of stress is where most heavy metal and toxic chemical patients find themselves. The symptoms vary and are listed in the assessment section of this paper. A salivary hormone test, which measures the adrenal hormone levels 4-6 times a day through their circadian rhythm is the diagnostic determinant. The goals of the exercise program remain the same, that is to lower the cortisol and aid in the recovery of the adrenal gland, certainly not adding to its' stress load. The exercise program should be less aerobic and no more that 25 minutes for stage II of adrenal stress.

Stage I of adrenal stress is characterized by high cortisol levels and high DHEA levels. In this condition the adrenal glands are still functioning well and responding to the body's demand, but the stress levels are too high. Stress levels can be high due to blood sugar problems (hypo-glycemia), creating up and down blood sugar levels. Hypo-glycemia chronically taxing the adrenal glands to raise the blood sugar when the blood levels of sugar fall and the brain, which cannot store glucose (the brain's only fuel) demands to be fed. Stress levels can be high due to chronic heavy metal and chemical toxicity, chronic infections over-taxing the immune system, a bowel that is functioning less than ideal. Allergies and chronic environmental conditions at home cause enhanced stress levels, as well as chronic physical structural problems like Dental stress from a mal-aligned jaw and cranium (TMJ) or postural stress from leg length problems. Of course psycho-emotional stress, the kind of

stress produced by our mind and emotional patterning is the type of stress that we all recognize the most. The Autonomic Nervous System of the brain handles the stress and the adrenal gland responds to the brain's stress signaling. The brain (ANS) sees all stress as one and additive. In other words to lower the total stress load - all the above stresses need to be addressed. The exercise program for a patient in Stage I of adrenal stress is 45 minutes.

After 45 minutes of vigorous exercise, the blood glucose storage reserves of the liver and muscles are used. This triggers an additional adrenal response to activate the gluconeogenesis pathway which converts the muscle mass (or the amino acid glutamine of the muscle) into blood sugar to feed the brain. This creates two unwanted health and rehabilitation problems: one is that we are tearing down muscle (to make energy); the other is that the additional stress on the adrenal gland causes a high cortisol level to remain for days, thus adding to our bodily stress level and eliminating the DHEA rehabilitating hormone to activate.

Good (non-overstress) exercise therefore can be beneficial to the adrenal gland. Mildly increasing cortisol levels for a short time but then reducing the cortisol levels for an extended period post exercise while increasing the DHEA, testosterone and other androgenic hormones levels for many hours. Exceeding these levels of exercise will have a poor stress response on the adrenal gland increasing the cortisol output for many hours while concurrently decreasing the androgenic (rebuilding) hormone levels.

A good fitness book/ reference is "PACE, Rediscover your native fitness" by Al Sears MD. Dr. Sears explains why how to exercise to rebuild fitness in your skeleton-muscular system, strengthen your oxygen carrying cardiovascular system, regulate properly your metabolic system for fat burning, blood glucose regulation and the metabolic glands (adrenal, thyroid and growth hormone). The secret to PACE exercise, whatever your level or exercise of choice is to exercise to oxygen exhaustion or when you are out of breath, recover and repeat. Note that patients in adrenal exhaustion Stage III need to modify drastically their PACE. See references for Dr. Sears book.

## **IV. Appendix**

## A. Overview of the evaluation and the basis for the therapeutic strategies – the seven factors that need to be addressed (the seven sins):

The following are the functional medical issues – the result of a thorough assessment of the patient. The Comprehensive Integrative Medical therapeutic strategy contained in this protocol flows from this functional assessment of the causes and perpetuating factors.

### I. Toxic substances that need to be detoxed:

- Mercury and other toxic heavy metals; note mercury is the most potent heavy metal neurotoxin and when combined with other heavy metals (lead, aluminum, cadmium, tin, nickel...) the toxic synergy becomes logarithmic.
  - Toxic chemicals – plastics, solvents, pesticides, insecticides...
  - Chronic infections (and their neurotoxins)
  - Bowel dysfunction and the dys-biotic overgrowth dumping poisons into the system, overwhelming the (compromised) detoxification capacity of the liver and other detox organs
- **bowel/ liver/ blood ecology system** overloads the body/liver with bowel toxins, reduces immune function, minimizes nutritional uptake, source of chronic infections. Due to all the above, all patients find it impossible / difficult to improve with a toxic or dysfunctional gut.
    - Toxic overload is the root cause of most pain and health problems; toxic metals and chemicals ultimately cause immune incompetence and the altered internal milieu-lack of oxygen and increased acidity and congestion, which causes the nerves to become hyperactive (pain), the cells and their enzymes, hormones and bodily reactions to reduce function, (and tissues won't heal) as well as the proliferation of chronic infections and their neurotoxins.
    - Mercury is by far the worse of the toxic heavy metals, synergistically making lead, cadmium, tin, arsenic, nickel and others much worse. Mercury is the most neuro-toxic to the Autonomic Nervous System: In summary: (A.) Hg highly reactive free radical generator, which (B.) reduces bodies capacity to protect itself from free radical chain reactions [Complexing and inactivating -Glutathione, Glutathione peroxidase (Se), SOD, catalase] and (C.) reduces both extracellular and intracellular glutathione, which are major detoxifiers of HM and other toxins and (D.) reduces the stores of sulfur required for all other detoxification, and (E.) is very tenaciously bound both intracellular and extra cellular membranes, enzymes, cellular structures, receptor sites, and (F.) inactivates minerals binding sites, thus reducing enzymatic function. This occurs over time as the body burden of Hg accumulates, the anti-oxidative capacity is reduces, the heavy metal binding and inactivating ability of the patient is reduced, and the bodily functions become degraded. This is very dependent of thresholds of toxicity (amount and time), genetic susceptibility, other toxicities, environmental impact and nutrition. Where does Mercury go in the body? Any where it wants! ---Hg is one bad dude!
    - Toxic metals, chemicals and chronic infections are not just biochemical problems, but cause **Dys-autonomia- disturbance in the functional nervous system:**
      - The autonomic nervous system (ANS) is the functional regulation system and is always involved in chronic pain and dysfunction. Among many other functions the ANS controls **blood flow to the tissues (of the chronic pain)**, which has been reduced and therefore not able to heal. The list of above disturbances directly affects the ANS, which in turn stores the toxicity in the painful tissues and/ or reacts by reducing the blood flow and promoting inflammation.
    - Chronic Infections: virus, fungus, bacteria, parasites, stealth infections

- Chronic infections are a major component of most chronic health problems and need to be assessed in all chronic pain and dysfunction syndromes.
- In short, mercury and other heavy metals accumulate in brain, organs, endothelial lining of the blood vessels, gut, joints and other skeleto-muscular structures, which enable the chronic infections to flourish. Lyme and other chronic infections (Chlamydia, Strept., Mycoplasma Herpes, Candida, parasites and others) are pandemic, are very hard if not impossible to eradicate, so the only reasonable treatment strategy is to remove as much of the enabling toxicities as possible and control the chronic bugs with our immune system, so we can live symptom-free.

II. **Metabolic and biochemical issues** that may need to be supplemented to facilitate detoxification, symptomatic relief, normal functioning, compensate for genetic and acquired mal-function of the detox mechanisms.

- Cellular membrane rehabilitation – essential fatty acids
- Amino acids
- Neurotransmitters
- Metabolic factors: adrenal and thyroid function
- Immune modulating factors
- Detoxification foods and nutrients
- Vitamins and minerals

***Hormonal/ metabolic dys-regulation: adrenal, thyroid.***

- Chronic toxicity as well as pain and dysfunction is constant stress which reduces the functional capacity of the stress gland (adrenal) which affects metabolism (thyroid), the sex hormones dysfunction, and sleep is disturbed (pineal). Hormonal dysfunction perpetuates the chronic stress and reduces the healing potential. Normalizing the hormones is critical to well-being and healing, always a major component in chronic disease.

***Nutritional metabolic imbalance and life style factors:***

- Metabolic typing, diet, nutrition, vitamins and minerals, proteins, essential fatty acids, water, exercise and sleep
- without the proper nutrition, healing is impaired and healing from any chronic health problem is prolonged
- One must understand the specific genetic and biochemical problems and supplement with optimal nutrition for that individuals bio-chemical uniqueness, as well as support the dys-functional or weakened organs/ systems.

**Dys-oxygenosis: lymph and blood congestion, tissue acidity, hyper-coagulation and blood vessel disease, results in reduction of Oxygen to the tissues and the change of the local environment to an anaerobic condition**

- All chronic problems are due to lack of proper blood flow, lack of oxygen, and results and is perpetuated by the above congestion problems. All chronic dysfunction and disease including pain requires oxygen therapy and normalization of the acidic condition, which perpetuates the suspended state of dys-oxygenosis.
- When tissues are deprived of oxygen, their energy production and function is reduced, which perpetuates the chronic pain and lack of healing.

***Cell Communication dys-function:***

- Due to- lack of or increased need for neurotransmitters, electrolytes, immune factors; cellular and nervous membranes dysfunction and neuro- toxins accumulate.
- Herbs, neuro-transmitter precursors (amino acids), minerals and other electrolytes, and immune enhancing factors, as well as a membrane rehabilitation program of the essential fatty acids and other good fats is critical to the restoration of tissue health and the chronic health condition.
- Chronic problems are a degenerative condition and over time the healthy functional nutritional reserves become altered for adaptation and eventually depleted. Of course with a poor choice in foods(diet), lack of supplements, and a dys-functional bowel, the nutritional reserves required in enhanced amounts for healing are depleted

### III. Allergies and hyper-reactions and your environmental health:

Allergy is a psycho-neuro-immunological dysfunction which can be reprogrammed (re-regulated) to reduce the symptoms and facilitate the detoxification and biochemical and metabolic support. While allergies may not have caused the dysfunction or the health issues, they surely perpetuate the misery and complicate the detox and healing. In addition to the toxic chemicals, perfumes, insecticides and pesticides, pollens and other environmental substances that cause so much problems you may hyper-react to many beneficial and toxic substances, such as:

- Foods,
- vitamins and minerals,
- toxic metals, and chemicals and chronic infections,
- their own biochemical processes – hormones, neurotransmitters
- their organs

To understand allergy and its successful elimination through allergy elimination therapeutics:

- Allergy/hypersensitivity is an **ANS dysfunction** (disturbance), which (may) also include(s) the psycho-emotional centers (limbic brain) and/ or the immune system. Therefore, it involves the psycho-neuro-immunological system, an interrelated system functioning as one.
- Allergy/ hypersensitivity is a **conditioned reflex** involving the psycho-neuro-immunological system, which is **defending and preserving life by adopting** the toxic internal milieu to the most compatible condition for the health.
- The Psycho-neuro-immunological system in **general** and the ANS in particular is the **primary stress reactor, adapting or mal-adapting to all stressors**. Some of the stressors that are most devastating to the ANS are chronic exposures to heavy metals, toxic chemicals, noxious energies (electro-magnetic radiation and /or geopathic stress, infestations (virus, fungus, bacteria and parasites); chronic dysoxygenosis, tissue acidity, GI dysfunction, electrolyte imbalance, neurotransmitter imbalance; unresolved psycho-emotional issues and chronically generated electrical pathology that overwhelm the ANS- usually generated from scars and chronically infected tissues (Interference Fields).
- All stressors are **accumulative** to the ANS and can at any one time, overwhelm the sensory input- so that a “confused” (mal-adaptive) reaction is generated. The reaction, in the case of Allergy /Hypersensitivity, is an **ANS stress (alarm) response**. Therefore, excessive ANS chronic stresses (like those mentioned above) increase the likelihood of a person forming allergy/ hypersensitivity.
- Allergy/ hypersensitivity can also be **adaptive** (as opposed to mal-adaptive) when the system becomes overwhelmed with chronic stressors that it cannot detox (excrete). Allergy to the toxic stressor is an ANS efficiency to assist in the deposition phase of toxic storage in lesser vital areas (Homotoxicology).
- Allergy/ hypersensitivity is a very common problem, affecting people of all ages, from infants to adults, healthy to the infirmed, and should be considered a part of every chronic pain and health restoration program and /or enhancement program.

- Health problems, which have an allergy/hypersensitivity component are rising exponentially due to the increase in (ANS) stressors and the increasingly “toxic world that we continue to subject ourselves and our offspring.
- Allergy/ hypersensitivity and autoimmune is treatable.
- Its treatment involves the neurological re-programming, immunological desensitization and cleaning up your environment of mold and other contaminants and chemicals.

#### **IV. Dys- regulation (or dys- autonomia) on the Psycho-emotional, Mental, Family Systems, and Spiritual Levels**

Psycho-emotional trauma and family systemic issues, which are sub-or unconsciously held traumas can be reprogrammed. By releasing the patient from the harmful past unresolved psycho-emotional trauma the toxic effects on the patient’s thoughts, attitudes and beliefs can help normal-regulate the specific dysfunctional organs or structures as well as the patient’s entire psycho-emotional load and their functional nervous system.

- This is the **body- mind connection** (plus). All chronic problems have at its roots one or more unresolved psycho-emotional conflicts, which affect the patient’s beliefs, thoughts and attitudes; in addition there can be unconscious family systems or karmic issues, which can be assessed and resolved, resulting in dramatic benefits.
- These therapies result in dys-autonomia and reduced blood flow to affected organs and tissues. Assessing and treating this component is critical to resolving chronic pain.

#### **V. Toxic foci: Jaw bone cavitations, dead teeth, scars, chronic infected organs**

Toxic Foci or interference fields– are structures in the body that retain chronic neurotoxic activity and/ or chronic electrical pathology for the functional nervous system. Traumas and chronic infected organs and tissues often retain an abnormal neurological input into the ANS with resultant adverse multi-system effects. These energetic traumas must be reprogrammed after the chronic infection and toxins are removed. Toxic foci can be:

- Tonsils
- Scars like umbilicus, circumcision and others
- Vaccination sites
- Dead teeth and jaw bone cavitations
- Bowel (after chronic intestinal inflammation)
- Toxic foci are electrical pathological disturbances, which overwhelm the Autonomic Nervous System; they usually have a chronic toxic component which the body cannot eliminate (i.e. jaw bone cavitations have mercury and chronic infections stored away from the immune system; dead teeth have the highly toxic thioethers and carcinogenic toxins from the infected root canal tubules; tonsils become toxic foci when they become overwhelmed from the toxic oral debris and are unable to function; scars are pathologic electrical tissues that trap toxic metals and chemicals – scars are known to be a major energy block for the past 5000 years in Traditional Chinese Medicine.
- These toxic foci create autonomic nervous system dysfunctions which reduce the blood flow to the affected tissues, causing of contributing to the chronic organ and structure dysfunction including pain. Reestablish blood flow and healing begins and organ, breast, or other structure that is in chronic pain or dysfunction is relieved.

E. **Noxious Energies: can be a major problem for biological systems because they affect the Autonomic Nervous System causing/perpetuating dys-autonomia**

Noxious energies from geopathically disturbed sleeping areas, microwave and electrosmog from EMF. These energetic noxious energies, especially when present in the bedroom can perpetuate the overload of stress for the nervous system reducing the likelihood of any recovery.

- No cordless phones, no wireless internet, away from cell phone towers, electrical lines
  - Protect from microwave with a faraday cage
  - Protect from EMF by turning off the electricity at the breaker
  - Home audit: Remove all electrical appliances from the bedroom, no geopathic noxious energies under bed
  - Noxious energies are: geopathic stress, ground or earth radiation; Electromagnetic radiation or air radiation and radiation from x-rays
- Very important to consider in **any chronic dys-ease /disease**; often overlooked in Integrative Medicine and always overlooked in Conventional Medicine; Noxious energies can be the **major perpetuating factor or precipitation reason** in any disease patho-physiology or why a **treatment program does not net results**
- Any disease, especially chronic ones must be ruled out for an Noxious Energetic component perpetuating factor: Arthritis, autoimmune, cancer, chronic fatigue, ANS dysfunction, immune dysfunction

VII. **Structural dysfunctions (stress) issues:**

- cranial distortions during birth and developmental
- dental stress from TMJ can perpetuate the stress overload
- leg length discrepancies
- Chronic pain unusually involves muscles, joints, connective tissues, and cranio-mandibular dysfunction (TMJ)
- Chronic pain usually needs structural (manipulative) therapy, exercise and movement. Analysis of the skeleton-muscular system looking for compensations like leg length problems is important.

There are **genetic issues** that need to be considered because they impact biochemical function, detoxification and healing. These genetic issues can be compensated and even corrected with detoxification, nutritional (supplementation) and regulation medicine.

Glutathione metabolism  
Apo-Protein E  
Methylation  
Sulfation  
Acetylation  
Liver detoxification (Cytochrome p-450 enzymes)

In addition, there are **synergistic factors** that make the mercury toxicity worse that need to be identified and treated to enhance the detoxification and brain rehabilitation.

Testosterone –

Toxic load – other heavy metals and toxic chemicals make things worse exponentially

## **B. Regulation therapy:**

**All neurological diseases you must include energy medicine for any degree of rehabilitation**

The following are some of the types of regulation therapy we use in detox.

### **1. Allergy treatment – Immunotherapy/ Allergy Elimination therapeutics**

Allergy/ hypersensitivity, an exaggerated response, is a major component of all the Oxidative Inherited Disorders and must be treated if symptoms are to be resolved. The evolving understanding of Allergy is a conditioned reflex of the ANS, which also includes the psycho-emotional brain centers and/ or the immune system (psycho-neuro-immunological disturbance). Consider:

- The neurological component of allergy can be assessed by ANS biofeedback.
- The immunological component can be assessed by skin pricking (the Conventional Medical method, which is not diagnostic for low level allergens – the majority of food and environmental problems), blood tests (ALCAT, Elisa) and Meridian Stress testing (fast, cheap and high degree of accuracy)
- Allergy can be treated neurologically by ANS reprogramming (Allergy Elimination Technique)
- Allergy is treated immunological by specific dilutions of the allergens (neutralizing dose) - injected or oral- neutralizing the immune system. Homeopathic allergy treatment reinforces the reconditioning of the psycho-neuro-immunological system.
- Allergy treatment must be accompanied by the treating other stressors to the ANS. ANS sensory overload is the primary cause of the ANS allergic stress response, so reduction in the primary ANS stressors is critical.
- All chronic problems have an ANS component and an allergy component.
- Diagnose and treatment of mold allergy, other types of inhalant allergies and food allergies as well as allergies to the toxic metals and chemicals that the patient cannot excrete is critically important in the allergic and detox treatment strategies.

“The ANS is our functional nervous system responsible for normal psychological control. It stores a vast amount of information about the health and well-being of the person and coordinates all the bodily functions through its vast sensory input, from the organs, the bodily structures and the five senses to the ANS brain centers. The ANS regulates blood flow, all organ activity, glandular functions, skeleto-muscular structures; it also modulates the immune response. In addition, the ANS is intricately related to the emotional centers of the brain. The ANS is constantly adapting to keep our internal bodily terrain as healthy as it can. In fact its primary job is to adapt to our external and internal environment so as to preserve life. Our new insight is that “allergy is created from an adaptive or mal-adaptive reaction of

the ANS is its primary role to defend our body from perceived or real harm.” (Allergy Elimination Therapeutics: Reprogramming the Autonomic Nervous System for Allergy)

## 2. Regulation remedies

The following is in small print because is being repeated.

There are three groups of therapies:

- A. Suppressive remedies, which suppress signs and symptoms, I.e. anti-inflammatory, anti-biotic
  - most antibiotics are heavy metal chelators
- B. Substitution remedies: which substitute needed substances I.e. nutrition, hormone replacement
- C. Regulation remedies: which regulate the bodily functions
  - The most profound regulation remedies have always been homeopathy.
  - If the patient is to truly heal, they must become self-regulating; you cannot heal with only suppressive and substitution remedies.

The cells and tissues require systems to organize and regulate their individual and collective actions. This is the function of autonomic nervous system. The body, its cells and tissues, are engaged by many types of stimuli/ signals - some biochemical and physical, but others electrical, magnetic, light (laser) and frequency in nature. This component of therapies which help the body to regulate itself is thus energetic in nature, signaling the cells, structures and biochemical reactions of the physical body, thus re-patterning the brain and cells to function better and heal. The body heals or repairs itself due to the proper harmonious signals delivered to the immune, circulatory, detoxification, digestive, hormonal and all the other systems of the body. Regulation therapy is critical to the success of treatment, for the mercury toxic child is unable to regulate themselves at the cellular and organ functional level. These regulation therapies functionally rehabilitate the cells and organs to detox effectively and efficiently, but also to regain their innate cellular intelligence to repair, heal and regenerate when the time comes (after the detox phases).

”Illness can only be lastingly healed, if the self-regulation of the system is fully restored and fully functional. This cannot be achieved with suppression methods or substitution methods. It can only be achieved with regulation medication. The leading treatment is and always was homeopathy.” Klinghardt

- a. Regulation therapeutics include:
  - i. Allergy elimination therapeutics – reprogramming the ANS, so not to hyper-react (stress) to the foods, nutrients, chemicals, environmental agents, autoimmune substances like hormones neurotransmitters, organs and any other substances in the child’s environment.
  - ii. Homeopathic remedies – we will be using a wide range of homeopathic remedies to reprogram the child’s cellular functions, genes and other bodily functions. There are two types of homeopathic remedies that we use:
    - 1. Complex homeopathic remedies (Reckewegs Homeopathy) – these are multiple synergistic combination remedies that are blended together for the desired effect. We will be reviewing the specific remedies that we are currently using later. These complex homeopathic remedies are very effective and the most important part of the regulation therapeutics, and used throughout the detox and healing phases of therapy.
    - 2. Integrative Homeopathy Ralph write it up
  - iii. Drug up-take enhancement: It can be demonstrated that taking a detox or any other remedy will not penetrate an area (tissue compartment) of toxicity, for the ANS usually restricts the blood flow to tissues that are chronically toxic. Therefore, the tissues that need the detox remedies the most get the least when remedies are taken by mouth – unless the autonomic nervous system is manipulated. This is called drug-up-take enhancement, which can be done by reflex point stimulation, acupuncture, Neural Therapy, laser stimulation and other electro and magnetic therapeutic modalities. We teach a specific technique (for your child) Mental Field Therapy (MFT) or tapping a sequence of master acupuncture points that mom and the child taps 3 times a day, prior to taking detox and other supplements. This is a very important part of our therapy, for after tapping these MFT points the ANS is very responsive and can be demonstrated to distribute the detox agents in the areas most needed (i.e. the brain).
  - iv. Neural Therapy (NT) is a German therapeutic system of ANS detoxification and rehabilitation. Traditionally NT uses Novocain injections under the skin, into scars and infected organs, into ANS ganglia (nerve cells outside the central nervous system) and other areas of dys-function and dys-autonomia. Detoxification, homeopathic and other regulatory remedies can be effectively added to the injections for profound effects. The

ANS nerves up-take the remedies and distribute it throughout the nervous system and brain. Neural Therapy can be employed during detox without using needles and injections – by using electro-bloc, lasers and other electrotherapeutic modalities. NT maintains drug-uptake-enhancement to the treated area for 2 weeks.

- v. There are numerous modalities that we employ, some are available for your purchase at home (from the companies), that are regulatory devices because through electrical, laser or magnetic energetic signaling, messages for proper cellular and tissue function and rehabilitation are very effectively imparted to the child. These modalities are an important part of the treatment, for the mercury toxic child has lost his/her capacity to regulate their cellular and bodily functions, which must be supplied until the child's system regains control of their regulation capacity.
- vi. Laser energetic detox: this very effective technique developed by Dr. Lee Cowden that our office employs to detox the energetic field of the toxins and chronic infections

Regulation and detoxification principles note: Give the route according to the embryonic layer - when using supplemental, detox or regulation therapies it is most effective to place the remedy in embryonic germ layer, or like tissues. For example:

- organs of digestion – liver, pancreas, which is endoderm tissues, use the mouth and swallow the remedies
- when aiming the remedies at the mesoderm tissues – the blood vessels and its appendages the heart, lungs, spleen, the muscle and connective tissues – it is best to give the remedies into the connective tissues (i.e. IM or IV injections or liposomal delivery, which goes through the skin into the blood vessels easily.
- when aiming the remedies at ectoderm organs- the skin and the nervous system, including the brain, it is best to administer the when aiming the remedies at the GI tract, and it's appendages- the remedies intra-cutaneous or on the skin. This is the most effective way of getting the remedies into the brain if detoxing the brain is the objective. There is a rich complex of ANS nerves under the skin that are afferent or sensory, so that their flow is into the brain. The nerves actually engulf the remedies and transport the detox and regulatory therapies through the nerves and into the brain. This process is called pinocytosis, and it is a very effective way of administering these remedies.

Note: in Neural Therapy if one wants to especially detox and functionally rehabilitate an organ, injection over the skin, over the para-vertebral nerves that innervate the organ and the acupuncture points that govern that organ is used.

Therefore then using NT:

1. if you wanted to give remedies to the brain, give in intra-cutaneous (ectoderm)
2. for the matrix of the connective tissues and all the extra cellular tissues of the organs – give the remedies sub cutaneous; (mesoderm)
3. for organs the organs inject into the ganglia, over the skin of the organ, and into the acupuncture sites governing the organ (endoderm)

Notes about homeopathy and energy medicine:

There are three carriers of homeopathic (frequency) healing energy:

1. liquids – water or water and alcohol (or saline, minerals)
  - a. Liquids store the information the strongest, holds the energy for many years
  - b. Don't use plastic bottles – contaminates with phthalates, bisphenol and dioxin

- c. Alcohol is a problem for some – allergy, AA, some believe it causes intestinal overgrowth of bad bugs.
  - d. If alcohol is not added, the remedies can be contaminated with bacterial or yeast growth in a month.
    - i. Heel offers multiple dose vials in alcohol, or single dose vials which are water or saline
2. sugar pellets (lactose – milk sugar)
    - a. holds the energy of the remedy in the water coat surrounding the sugar, not in the actual sugar; therefore the energy is weaker than in the liquid based remedies.
    - b. Lactose based homeopathics are not suitable for many of these kids for they can be: intolerance to lactose (can't digest) or allergic to the milk. All American homeopathic companies use lactose tablets.
  3. Energy medicine: healing energy frequencies (signaling) can be superimposed on other forms:
    - a. Superimposed on pulsed microcurrent – i.e. microcurrent, photon-genie, LED
    - b. Audio/ video tape or digital information stored on a computer: CD's, sound technology
      - i. Radio shack- copy the CD to a continuous play and play throughout the night.
      - ii. CD – the sounds of the microbes and their metabolic activity sound print are recorded; the immune system thinks it is being attacked, raises its awareness and mounts a specific attack.
    - c. Homeopathic information superimposed on laser beam, sound, magnetic field of other EM carriers: Erchonia laser, Dr. Cowden's laser detox technique

Guidelines for the use of homeopathic remedies:

1. Only oral sips are universally acceptable for all ASD kid's
2. Use 20 minutes away from food and drink
3. If multiple remedies are taken, (which is often the case) separate by 30 seconds.
4. Most remedies have their place in the treatment.,.

Sips from Heel are recommended in this protocol; these can be injected but also taken orally. The rationale for taking liquid has been addressed but the expense of taking sips for every dose can be prohibitive for some parents. Therefore putting the sips in a bottle of distilled water (with added electrolytes) is ok. The remedy loses a little of its potency but it is still very effective and much cheaper. If money is no object, then use sips full strength. If not: add 1 amp to 1 oz of water + electrolytes, then succuss (shake the bottle against your hand for 50-100 times

Remember tissues are derived embryologically from germ layers and each layer has its own immune system that does not talk well to each other.

- Ectoderm – skin and nerves
- Mesoderm – muscles, bones circulatory system
- Endoderm – gut and related organs – liver, pancreas
  - a. The route of administration is the most effective in regulating the target organ if applied to the proper tissue: Remedy in the right tissue:
  - b. Brain – skin: injection under the skin, baths, transdermal products, sniff into the nose

- c. Extra cellular (matrix) and its structures – Intra muscular, sub-cutaneous, or IV
- d. Gut, liver – oral.
- e. If treat the mucous membranes – put remedy on MM.
- f. If treat the lymph – remedy into lymph; tonsil is the primary lymph organ of the gut, therefore injection, gargle or laser the information into the tonsil.
- g. Get the remedy as close to the tissue as possible.

### III. Drainage Remedies – getting the toxins out

A principle in detox is to get the toxins out (not around). This requires the excretory and mobilization organs/ systems be functioning well. The efficiency and effectiveness of mercury (other heavy metals and toxic chemicals) detox requires multiple methods and organs of removing the toxins. Toxins by their nature damage cells and the tissues, decreasing their function. Therefore detox organ drainage (as well as antioxidants and minerals) are essential for getting the toxins out and minimizing the damage the toxins make while they are moving out.

There are two types of drainage remedies:

- 1. complex homeopathic remedies
- 2. and herbal remedies (We use both)

The following are the organs/ systems to consider:

- 1. The lymph system: There is possibly more fluid in your lymph system than in your blood vessels. When the toxins are bound in the extra cellular tissues (where most of the mercury and other toxins reside), the lymph system along with the veins are the drainage ducts. The fluid in the veins moves fast the fluid in the lymph moves slow and often becomes stagnant. Note that when the toxins are detoxed from the cells, they must enter the extra cellular spaces to get out, so much of the toxins are moved through the lymph system. The lymph system is a very active system, in addition to its transportation capacity (returning fluids to the circulation), it is a very important immune system organ. Remember mercury (and the other toxins) inactivates the immune system and the body's response to toxins which it cannot easily excrete (like mercury) is to create stasis or compartmentalization storage. Therefore lymph drainage and lymph therapeutic modalities are very important for the success of mercury detox.
  - a. Lymphatic congestion remedies
    - i. Homeopathic: Lymphomyostat (Heel)
    - ii. Herbal: Lymphonest, Echinacea (MarcoPharmo)
      - a. red clover, lobelia herbs
      - b. Hanna Kruger herbs
    - iii. Foods: cucumber, lemon (juice)
    - iv. Enzymes: Congested or congealed lymph is oxidized (lost electrons) and the proteins are interconnected, matted or congealed, thus the fluid is congested and does not flow. Proteolytic enzymes from plants (and animals) digest proteins and other debris. In the digestive tract they help digest the food, reducing the burden and increasing the efficiency of our digestive enzymes. If taken away from food, enzymes will pass into the blood and lymph and digest the congealed protein and

other coagulated debris. Most whole foods that have not been cooked are full of the enzymes to help digest the food. However cooking destroys the enzymes. Therefore taking enzymes (and antioxidants) away from food can be very helpful for congealed lymph.

- a. Vitamin C, Quercetin and Bromoline
  - b. Proteolytic enzymes
    - i. Wobenzyme, Marcozyme, Inflazyme and other brands
  - v. Water is the universal solvent and critical for any detox fluid treatment. To enhance the solubility of the water and its ability to carry away toxins:
    - a. Add electrolytes
    - b. Enhanced by structured water (hexagonal)
  - vi. Physical manipulation: lymphatic massage, chi- machine, trampoline, exercise (walking, swimming, jogging), deep breathing
    - a. Lymphatic massage can be taught to the mom's
  - vii. Photon sound beam machines, which liquefy the lymph through electrical charges. Note, anytime that electrons are added to the system the toxins are mobilized. These are very effective and used with lymphatic massage for maximum effect.
    - a. Photon sound beam machines – in office
    - b. Photon-genie is photon sound technology enhanced with healing and detox frequencies; This can be purchased (collectively if needed) for home use.
2. The liver cleans the bowel and the blood. It is our primary detox organ and thought by some to be our most overworked organ. Liver support (or drainage) is often helpful during some stages of the detox treatment. This should be monitored by the Doctor looking at signs and symptoms, or using biofeedback or other monitoring tools. The liver removes the toxins and other metabolites by either: a) oxidizing them then binding them with a water soluble conjugant or b) binding the toxin in the bile and excreting the bile into the upper intestine.

The only problem with neurotoxins like mercury and others (Lyme...) is that the neurotoxins are easily reabsorbed by the intestine cells and nerves, and thus recycled. Neurotoxin binding foods are required to be eaten to bind the mercury from the bile and remove it in the feces. The best neurotoxin binding food is chlorella, others are charcoal, alginate and beta Sitesterol.

If the liver is being relied upon to remove the mercury, due to the chelating agents used specifically detoxes through the liver, then liver drainage support and chlorella with meals (to bind the neurotoxins) is important.( I.E. DMSA, alpha Lipoic acid, Cilantro, Glutathione, chlorella and the chlorella clathering agents)

Liver drainage strategies and remedies are:

- i. Homeopathic (HEEL):
  1. Hepar Compositum
  2. Hepeel

- ii. Herbal:
  - 1. (MarcoPharmo): Cholenest, Hepatica
  - 2. Silamarin
  - 3.
- iii. Treat the Bowel – some of these may not be suitable for kids
  - 1. coffee enema
  - 2. liver and gall bladder flushes
  - 3. colonics
  - 4. chlorella is an ideal food for the bowel and liver because of its nutrition, antioxidants and detox ability
- 3. The Kidneys are another important detox drainage organ and one that often becomes damaged with mercury toxicity. Certain chelating agents remove the mercury through the kidney – DMPS and DMSA less so. Kidney support will be necessary due to weakness and damage to the kidney, which can be determined by history, symptoms/ signs or functional assessment tools. The Kidney drainage options are:
  - i. Homeopathics: (HEEL)
    - 1. Berberis Homacord
    - 2. Solidago
  - ii. Herbal (MarcoPharmo):
    - 1. Bucco
    - 2. Solidago
- 4. The bowel is one of the largest detox organs and the first organ that must be addressed in any detox program. We initiate bowel therapy in the first phase and maintain it throughout the detox program (1-2 years). The strategies for the bowel have been discussed in Phase I but here are some additional notes:
  - a. **Detoxify and restore bowel ecology** to reduce the burden from the liver and **better nourish** the body is the 1<sup>st</sup> Natural Medicine principle and always the first place to start.
  - b. Brain toxicity begins in the bowel (Ali). Inflammatory bowel disorders involve excessive toxicity generated by the overgrowth of the “bad bugs” of the bowel; the overworking of the detox organs (Liver) to clean the blood and body; Bowel allergy with commonly eaten foods perpetuate bowel inflammation and lack of proper digestive enzyme response to food; the bowel is the primary area of incubation for the primordial (yeast like) microbes (all producing toxins) that overwhelm the blood and body; the “leaky gut” that is produced by the inflammatory bowel disorders must be the “healed” and proper gut function reestablished if the Oxidative and toxicity disorders of these conditions are to be resolved.
  - c. Restore bowel ecology with good bacteria and their nutrients, and with natural (and sometimes prescription) antifungal agents.
- 5. Other drainage organs of lesser importance but vital in the complete armamentarium are: lung, sinus, blood,
- 6. The skin is a detox organ and very important in the detox strategies. The skin can be thought of as the third kidney, because it is a very effective method of getting toxins out. More on this later.

5. **Skin detoxification**- the skin is the largest detox organ and unlike other organs, the skin excretes outside of the body immediately with little chance of re-uptake, unless the vapors

are re-breathed. Very important in a comprehensive detox strategy. Spa detox is very important to efficiently remove HM and other toxins.

- Oxygen/ozone steam cocoon: (very effective at removing much toxic materials). [ ] day after chelation. [ ] \_\_\_per week/month.
- Magnetic clay baths- this ancient therapy aids in pulling out toxins (mercury, radiation, aluminum). Whole bodily emersion or foot baths.
- Infra-red sauna: a) home—rental/buy: b) in office (when we get it)

Detox (hot) baths: A. 2c vinegar, 1c sea salts; B. ½ c baking soda, 1/2c Epsom salts; 1-3tablespoons ginger, 1-2 teaspoons cayenne can be added to both

## **The Klinghardt Axiom: New theory of chronic illness and the Triad of Detoxification:**

The following is written by Dr. Dietrich Klinghardt from his course “Healing the Brain”

With the PCR test (polymerase chain reaction) which is increasingly used, a new picture is emerging in traditional medicine; most, if not all chronic illnesses have one common cause or co-factor, Infections. These can be viral, bacterial, fungal or mycoplasmal.

We found, based on the work of Bechamp, Virchow, Voll, Omura, and myself and others, that chronic infections can only be present, if the bioterrain of the infected area is altered first. The most common underlying cause of this are compartmentalized heavy metals, foremost: mercury, aluminum, lead and cadmium.

Based on findings from psycho-neuro-immunology (PNI) and my work with psycho-neurobiology in eh last years, I found that one cannot have compartmentalized heavy metals unless this body compartment is first compromised by abnormal “behavior” of the ANS. This in turn is most often caused by abnormal signals arising in the limbic system from unresolved Psycho-emotional conflicts, traveling via the limbic-hypothalamic axis to the ANS nuclei in the hypothalamus and from here down into the pituitary.

The brain: the same underlying causal chain we find in the brain:  
Traumatic psychological events set up areas in he brain where hypo-perfusion and hypo-lymphatic drainage. It is here where conflict specific toxic metals are stored. Now the immune cells are compromised in their ability to clean the area from foreign invaders, which set up housekeeping here. The illness-specific symptoms are a combination of he neurological effects of the metal and the biochemical effects of the infection.

The detrimental effects of the heavy metals and chronic infections are compounded by the other 6 of the 7 factors of blocked regulation.

1. Biophysical fields (EM, radio, microwave radiation) are received by metal deposits, which act as micro antennae. Geopathic stress is high frequency waves, which can be devastating to the health of a person.
2. Food allergies cause mild encephalitis, which decreases the perfusion in already underperfused areas and thus inhibits immune cells from reaching the infected areas, nutrients to get to the ailing areas, toxins to build up and so forth.
3. TMJ problems an abnormal occlusal plane forces the cranial bones into an adaptive misalignment. This again compromises flow conditions in the low pressure systems: the lymphatics and the veins. The pituitary is suspended in the falx cerebri and can

sit in a kinked position. The infundibulum again I a low pressure system.

4. Solvents and other toxins have a synergistic effect with metals: if the cell wall lipids are compromised or dissolved by solvents, metals can easily enter the interior of the cell. Dental sulfur based toxins (from root canals, cavitations, or periodontal disease) have a devastating synergistic effect with metals, especially mercury.
5. Interference fields: focal areas anywhere in the body can cause ANS changes, which in turn can compromise flow conditions anywhere in the body or brain; also changes in ground system and cell wall kinetics.
6. Unresolved psycho-emotional conflicts and trauma
7. Heavy metals

There is a synergistic effect between the 7 factors. The brain (and the body) responds best to a synergistic treatment approach addressing all factors and co-factors simultaneously or – better- in a sequential treatment approach that addresses things in the natural order.

### **Triad of Detoxification**

By experience, I found the following to be true: Each unresolved psycho-emotional conflict or each unresolved past trauma causes the body to lose the ability to successfully recognize and excrete toxic substances. Also each entanglement or limiting connection with another family member, unhealed relationships and unhealthy, non-life affirmative attitudes limit the organisms ability to detoxify itself. In fact, the type of retained metal or other toxin and the body compartment, where it is stored, can be predicted with a high degree of certainty by knowing that type of unresolved psycho-emotional conflict is present in a client and at what age the associated event occurred.

### ***For each unresolved psychological issue there is an equal amount of toxins stored in the body.***

When this emotional material is not dealt with, the body stops releasing further toxins- the tension or discrepancy between the unresolved psycho-emotional material and the already released physical toxins is too large. Both are out of balance – the toxin container is less full then the container with the unresolved emotions. Unless appropriate psychological intervention is chosen as the next step I treatment, detoxification cannot progress.

Things are further complicated by the increased activity of microorganisms such as fungi and molds, bacteria, viruses, prions and different species of mycoplasma during a detox program. Insecticides, herbicides, wood preservatives, mercury and other toxins are used by us with a single purpose- to stop the growth of microorganism and other unwanted pests in the outside world (farm fields, materials, and furniture made from wood, to preserve food, etc.). When these toxic agents have entered our inner environment (via the food chain, air, water, skin contact of amalgam fillings), they have the same effect in us. They stop the growth of microorganisms- at a price: they also harm the cells of our body.

As the patient is detoxifying from these agents, microorganisms may grow out of control, since the growth of the microbes is no longer inhibited by the poison. Paradoxically, it is the toxin-induced impairment of our immune system that enables the microorganisms to enter our system in the first place. Once established, they are hard to conquer and removing the causative toxin is no longer enough. The organism needs help with the elimination of the infectious agents.

The flare-up of previously hidden infections occurs regularly during mercury detoxification. Historically, this fact is well known: mercury was used quite effectively for treatment of the bacterial spirochete causing syphilis. Some people died from side effects of the treatment, but many people lived after eradication of the infection. The reverse happens when we withdraw mercury from the body: spirochetes, streptococci and other microorganisms present in many hiding places (such as the red blood cells, the jaw bone, inside the lateral canals of a root canal filled tooth, inside the calculus of a bone spur, in the soft, tissues of a whip-lash injured neck, in the gray matter of the brain etc.) may start to grow and extend their hold on us. Microorganisms use their respective neurotoxins to gradually achieve control over our immune system, our behavior, our thinking, and every aspect of our biochemistry. It is the microbial neurotoxins that are responsible for many, if not most, poison-related symptoms, not the poisons themselves.

**For each equivalent of stored toxins, there is an equal amount of pathogenic microorganisms in the body (Milieu theory of Bechamp).**

Patients who are infected with *Borrelia burgdorferi*, the spirochete that causes Lyme disease, often are unaware of their illness. They may have some joint pains or fatigue, but nothing that alarms them. However, frequently they start to become more symptomatic during or after a successful mercury detoxification program: they may experience MS- like symptoms such as muscle weakness, increased levels of pain, numbness, fatigue of mental decline. The same is true for infections with mycoplasma, streptococci, tuberculosis and others.

Therefore, it is important to anticipate the temporarily enhanced growth of microorganisms during a successful detox program. There is a latent period in which the microorganisms are already recovered, but the host's immune system is not. During this time the practitioner has to prescribe appropriate antifungal, antibacterial, antiviral, and antimycoplasma medications. I prefer natural solutions, which are often sufficient- or even better in the long run than drugs – such as freeze-dried garlic, bee Propolis, colloidal gold and microbial inhibition microcurrent frequencies.

The immune system in a client with unresolved psycho-emotional material and compartmentalized toxins is unable to recognize and eliminate the microorganisms present in the toxic areas of the body. Those areas serve as hiding and breeding places for these organisms. Unfortunately they have been termed “stealth organisms”, implying that they behave in secret unpredictable ways that they have learned to evade a perfectly evolved and functional immune system. There is a fear, that they are slowly gaining control over us and that there is really nothing we can do about it. We can, if we understand the triad of detoxification.

**The Klinghardt Detoxification Axiom**

For each unresolved psycho-emotional conflict or trauma there is an equivalent of stored toxins and an equivalent of pathogenic microorganisms. To successfully detoxify the body the three issues have to be addressed simultaneously.

The triad of detoxification;

- Detoxification of the physical body
- Treatment of latent microorganisms and parasites
- Treatment of unresolved psycho-emotional issues

The inherent order, in which the different and distinct layers of chronic illness present and in which they may be best treated:

1. treat the psycho-emotional cause (Applied psycho neurobiology)
2. detox the metals
3. treat the infections

#### 4. attend to other factors

### **Relationship of Chronic Illness and infection**

(with published data in peer reviewed literature)

- Multiple Sclerosis: HHV-6 and 8, CMV, Lyme and active measles
- Rheumatoid Arthritis: Mycoplasma (several types), Chlamydia, Lyme
- Diabetes: CMV, influenza echo and other viruses
- Bell's palsy: Herpes (several types), Lyme, Bartonella
- Coronary artery disease: H. pylori, CMV, dental pathogens, Lyme Bartonella
- ALS: CMV (+ mercury), herpes viruses, mycoplasma, Bartonella (always)
- Parkinson: CMV (+mercury in caudate nucleus, low dopamine, low tyrosine), herpes viruses, Lyme (always)
- Morbus Alzheimer: Viruses, bacteria, mycoplasma, (+ mercury, aluminum), Lyme, Bartonella, Babesia, poor detox genes

### ***Conclusion:***

Detoxifying the patient from heavy metals can be an elegant smooth experience of rollercoaster ride. The problems that occur can always be resolved with a clear understanding of the issues, the use of a therapeutic biofeedback assessment technique (like autonomic response testing (ART), or another tool Meridian Stress Testing (MST), or NES...). Without the knowledge and the use of ART or these other tools and addressing the psychological issues with Applied Psycho Neurobiology (APN), embarking on a heavy metal detox program can be unsatisfying, incomplete, and sometimes dangerous and may not lead to resolution of the underlying medical condition.

We recommend that each patient undergoing a mental detox program stays under the supervision of an experienced and qualified practitioner. There are many more ways to approach metal detox. However, many roads I have witnessed also did not lead to complete resolution of the underlying problem and are shortsighted, The practitioner should avoid short-term interventions for long-term issues and should not underestimate the depth and magnitude of the underlying problem.

### ***Dosing with Chlorella/Cilantro for Neurotoxin elimination***

Your Maintenance dose of chlorella is: \_\_\_\_\_g/ day.

Summary:

Chlorella dose 45-60 min. prior to cilantro dose (or meal)

Cilantro dose at beginning of meal

All supplements (except digestive enzymes) at end of meal (over 20 minutes later)

Note: if fish oils are taken, you may want to take with chlorella.

Note: Vitamin C and Garlic will inactivate the action of chlorella and cilantro, therefore space them

1. **Mobilizing phase:** 10-14 days prior to your scheduled chelation appointment, start your maintenance dose.

- When **mobilizing mercury with cilantro**, it is best to take your dose divided 30 min. prior to your meal; then your cilantro with the meal. If fish oils are taken, it is best to take the fish oils with the chlorella (30 min prior to meal). If Vit. C and garlic are being supplemented, take these after the meal. This will space the nutrients so that each will have maximum benefit.
  - When **cilantro is not being used in the early phases of detox**, it is best to take your dose away from food by at least one hour and entire dose can be taken at one time. This will detox the GI better than if chlorella is eaten with meals.
  - If you chew the chlorella and fish oils (mix it with your saliva) the chlorella and fish oils will be tagged (monoclonal antibodies) and delivered to the most receptive areas.
  - If you have problems with chlorella, divide your dose and take with meals. Although this will provide less detox action, it may be easier on the stomach.
  - If you have continued problems with chlorella, try adding cellulose (an enzyme able to be purchased- health food store). If still a problem, switch to Porpha-zyme, or one of the clatherating agents (NDF, PCA, Metal Free)
  - This is a mobilizing dose intended for minimal chelation but maximum mobilization to more accessible areas for detoxification.
  - The gut is the major route for heavy metal detoxification, therefore the gut must be functioning well with (hopefully multiple bowel movements per day). If not, re-absorption of the mercury is likely to occur.
2. **Chelating phase:** The day prior to your appointment **double or triple the dose**, and continue the doubled dose the day of the chelation and the day after.
    - This is a chelation dose of chlorella is designed to move the mercury out (through the bowel).
    - This dosing can be used as a **naturopathic chelation by itself**, or in conjunction with DMPS, which has been shown to enhance the yield.
    - The day after the chelation we usually schedule a vitamin and mineral IV with glutathione, which is also a chelator with a slightly different action. The doubled dose of chlorella is extended to cover the day of this therapy; in addition lymphatic and skin detox (in the detox spa) is very beneficial to maximize the mercury removal.
  3. **Post-chelation phase:** For 3-5 days after the finish of the chelating dose take the mobilizing dose in divided dosages with meals.
    - To bind the mercury from its release in the liver
    - This is the time to do gall bladder flushes and to take additional GI binders
  4. **Stabilization phase:** Don't take the maintenance dose until the start of the next cycle.
    - If eating fish or other mercury contaminated products, take 1-2 grams of chlorella with meal to bind the mercury.

## Understanding the elimination of neurotoxins using chlorella/ cilantro

Chlorella is the most important food known today for detoxifying all neurotoxins. Neurotoxins include: (i) toxic heavy metals (mercury, lead cadmium, aluminum...); (ii) toxic chemicals (formaldehyde, dioxin, insecticides, solvents, PCB's...) (iii) bio-toxins from chronic infections (Lyme, botulinum, parasites, Chlamydia, TB, fungus, Candida, virus to name a few), and (iv) other endogenous and exogenous neurotoxins (foods, preservatives, cosmetics, bad gut bugs).

Neurotoxins are not excreted easily; Neurotoxins are naturally excreted from the bowel via the liver and bile. Unfortunately, neurotoxins are naturally and mostly re-absorbed in the bowel by

its vast nervous complex (enteric nervous system) and then redistributed into the liver brain, peripheral nerves, cellular membranes fat or other bodily compartments.

To effectively remove the neurotoxin, they need to be effectively bound in the upper part of the small intestine, when the bile is secreted during digestion. This is the reason for dosing chlorella 1 hour prior to cilantro, to have the chlorella available to bind with the bile. The action of cilantro is quick (about 20 min). Cilantro mobilizes mercury and other neurotoxins from the cell membranes but does not chelate them well, therefore have chlorella on board at the time of mobilization to more effectively chelate the metals out. In addition, cilantro, causes the liver to release the bile, and supplies organic selenium.

## Section III

### Appendix of foods and supplements

#### A. Chlorella is a major nutrient in Heavy Metal Detoxification

##### A. General comments:

- ◆ Chlorella is the most studied nutrient (2000 peer reviewed articles mostly Asian)
- ◆ Can be used **prior to Hg filling removal** [1-2 weeks] and is part of the pre-dental protocol. It won't remove Hg from fillings (like other chelating agents), so it can be used safely with Hg fillings in the mouth (pre-dental protocol).
- ◆ Binds **heavy metals in the gut**, and from the blood circulating through the bowel wall. The chelating agents or HM binding peptides appear to pass through the bowel and enter the blood stream and extra cellular spaces. It does not cross the brain barrier.
- ◆ Chlorella binds **strongly to all Heavy Metals** and therefore can become contaminated with HM easily; some sources appear to be contaminated; quality is important.
- ◆ Can be used as a **mobilizing agent or chelating agent depending upon the dosage**.
- ◆ Chlorella is an **excellent food for detox**, complete source of amino acids, B12, essential fatty acids and good mineral source; green foods are very good for gut health and alkalizing the body; it has anti bacterial and viral properties, and enhances growth hormone.
- ◆ There are two species of chlorella that are important for detox:
  - ◆ C. pyrenoidosa is better for the absorption of toxins, but harder to digest,
  - ◆ C. vulgaris has a higher amount of chlorella growth factor content, is easier to digest but less metal binding capability

##### Detox properties of Chlorella (most in peer review)

- Anti-viral – CMV and other herpes V
- Toxin binding (mucopolysaccharide membrane) – toxic metals, environmental toxins (use for Toxic Chemical detox concurrently)
- Repairs and activates the body's detoxification functions:
  - Dramatically increases reduced glutathione
  - Various peptides restore coeruleoplasm and metallothionein
- Sporopollenin effective in binding neurotoxins (as effective as cholestyramin) and more effective in binding toxic metals than any other natural substance

- Lipids (12.4%) of alpha and gamma linoleic acid – for membrane and peroxisomes rehabilitation.
- Methyl-cobalamin – important in any nervous system detox and restoration
- Chlorella growth factor – detox but not well understood (specific peptides for every toxic mental)
- Porphyrins in chlorophyll have strong mental binding effect; Chlorophyll activates the PPAR receptor on the nucleus of the cell, which is responsible for peroxisome coding (turn on the gene), opening the cell wall (important for all detox procedures), normalizing insulin resistance and more. Note that medical drugs that activate the PPAR receptor (pioglitazone) effective in treatment of breast and prostate cancer.
- Super nutrient: 50-60% amino acid (good for vegetarians), methyl-cobalamin, minerals, vitamins, chlorophyll
- Immune system tonic
- Restores bowel flora by reducing the heavy metal binding on the pathogenic bacteria and fungus, thereby reducing their competitive advantage with the beneficial bacteria
- Digestive aid
- Alkalinizing agent” Klinghardt

#### Clinical notes on chlorella:

- ◆ **Starting dosages** → **small** (1-2 caps) and build up to mobilizing dose 3-6g/ day. This is to minimize/ prevent adverse GI symptoms.
- ◆ Approximately **20% of the patients** cannot tolerate chlorella in the beginning and a smaller percentage seem not to be able to ever tolerate chlorella. Initially the problem could be the pathogenic gut flora, however the inability to digest cellulose, allergy to chlorella or other biochemical anomalies that cannot be overcome may be the problem. Some of the causes of the side effects of chlorella can be remedied, but if no other gut binding products and green foods can be substituted. E.g. Porphra Zyme
- ◆ **Overcoming the side-effects: If GI symptoms occur** after starting even small doses of chlorella, (and one can have severe gut symptoms-pain), it is likely due to fungus-chlorella interaction. In short, the bugs are not happy with the chlorella. Two strategies can overcome this problem: 1) stay on low dose for an extended period of time and gradually build up or 2) take a chelating dose (massive dose). The increased dosage appears to overwhelm the dysbiotic bugs and eliminate symptoms.
  - If the chlorella is eaten with food, it will be diluted and may be more easily tolerated.
  - Some patients need to start with a non-recommended species of chlorella (that will very weakly bind the HM), and then work up to a recommended brand/ chlorella.
  - If problem digesting the chlorella – cellulase (health food store);
  - using *C. vulgarus*, rather than *C. pyrenoidosa*, *vulgarus* has a thinner cell wall, therefore less cellulose and easier to digest.
- ◆ Suggestion to **chew the chlorella**. Old naturopathic observation that chewing the foods and nutrients is more effective. Chewing mixes the nutrient with saliva (ptyalin tagging), the Submandibular and Otic ganglia control the salivary glands. There appears to be multiple ANS controls regarding where to direct the nutrients to the most needed parts of the body during eating. Researcher John Norris, working with monoclonal antibodies, documented antibodies in saliva are able to tag the food and

that the food-antibody complex can be recovered in the gut. He noted that if food was heated past 140, the food proteins lost their ability to bind.

- ◆ After any aggressive chelation therapy the body should recover at least one week (and it could be more). This is the rationale for cycles in HM detox
  - ◆ Chlorella is also an excellent agent for **detoxing toxic chemicals and radiation**. Often toxic metals and chemicals can be detoxed at the same time.
  - ◆ Chlorella is safely used in vast quantities for **brain cancer (16g/ day) and detox**. Brain cancer forms around mercury deposits in brain (Japan study)
  - ◆ Chlorella appears to chelate Hg salts ( $Hg^+$ ), and not the more tightly bound organic Hg, ( $Hg^{++}$ ). However the detox strategy is to give electron rich foods (Vit C, Microhydrin) to mobilize the Hg by giving it back its electrons.
  - ◆ Brand names of chlorella are important to identify, important considerations are:
    - the correct species (*Chlorella pyrenoidosa* and *vulgaris*)
    - contamination of the product with mercury and other heavy metals
- the processing of the chlorella. The cell wall must be cracked to extract the natural metallothionines and other agents. The methods to crack the cell wall are important. One method utilized only sound others have special mechanical methods to preserve the bio-activity of the chlorella. A protein inside the cell wall appears to be the active agent and the chlorella must be processed to expose the agent (**peptyl chelating agent**).
- ◆ There are a whole host of agents for chelating HM that are processing the chlorella active agent (PCA, NDF, Metal Free).
  - ◆ During HM detox, allergy to chlorella is possible and must continually be checked, especially in the early stages.
  - ◆ If a high spill of mercury in a urine challenge with DMPS, or DMSA is desired for documentation (i.e. insurance, diagnosis), mobilize with chlorella prior but don't use chlorella during the chelation. Remember chlorella during DMPS chelation is kidney sparing.
  - ◆ HM detox is a life long process; chlorella should be product that is used routinely for detox maintenance and when eating contaminated food like fish.
- 
- ◆ NOTE: *Observation:* If chlorella is used as a mobilizing dose in a cycle of chelation (once a month), patient may experience an **increase of Heavy Metal symptoms** as the Hg is mobilized. As more Hg accumulates in Interstitial Spaces, where the ANS nerves become agitated, the HM symptoms that may have been dormant may reoccur, until flushed out with chelating drug/ dose of chlorella.

### **Chlorella substitutes: Porphra-Zyme (Biotics)**

- ◆ Processed chlorella, a concentrated porphorin  $\Rightarrow$  Heavy Metal binding in chlorophyll; heme is a porphorin ring that holds Fe (chlorophyll is the porphorin ring with Mg).
- ◆ Good studies on effectiveness as mobilizer and chelator. Dosages 30-40 tabs/ day in divided doses tid.
- ◆ Similar effect as chlorella, and the use and dosages are similar.
- ◆ Porphra-zyme is often easier on the patient with adverse symptoms (at first) than chlorella.

## Cilantro-Chinese Parsley

Cilantro is an important detox agent to incorporate after the initial phases of mercury detox.

The significance of cilantro was discovered by Dr. Omura using Tech-99 scan-accidentally:

### 1. Clinical notes:

- ◆ Cilantro mobilizes mercury and other divalent heavy metal (including aluminum, which is not mobilized very well by any of the chelating agents).
- ◆ Cilantro's effectiveness is very type and dose dependant: to actively mobilize the mercury a good amount of cilantro oil is required. The active ingredient appears to be the oils, therefore fresh cilantro is required, not dried. If using fresh cilantro, the dose for effectiveness is a handful. According to Dr. Omura, the cilantro needs to be boiled, however other clinicians/ researchers do not find the need for boiling to release the oils.
- ◆ Mechanism of action is not understood, can only measure the effects
- ◆ Cilantro appears to mobilizes mercury **bound to the cell wall receptor sites**
- ◆ Cilantro is a **good mobilizer but poor chelator** (out of the body). Therefore the best strategy is to always use cilantro with a chelator. To prevent the re- attachment/ re-toxification of mercury, potentially increasing symptoms. Chlorella is a natural choice to use with cilantro, and should be incorporated in the mobilization, chelation cycle with chlorella. But cilantro should also be used/ considered with other chelating agents DMPS, TD-DMPS, DMSA, Glutathione, Metal magnet.
- ◆ Rapid removal of Aluminum from skeleton, better than any other known detox agent.
- ◆ Cilantro should be used **later in the chelation process, after the extra cellular spaces are have been cleaned up**. If it is used too early in the detox process, with the extra cellular spaces relatively full of HM deposits, the mercury that is mobilized by the cilantro is likely to reattach to the cell. If the Hg is mobilized and reattached, the patient may get worse symptoms with no net gain.
- ◆ Cilantro's action appears to be **rapid, within 5-30 minutes**.
- ◆ Do not **dose garlic or Vitamin C with cilantro**, for both remedies will cancel out their positive effect. Vitamin C and garlic are very important nutrients for mercury detox. Use the cilantro at the beginning of the meal and the supplements at the end of the meal (interval 15-30 minutes), this will facilitate the rapid action of cilantro.
- ◆ **Trans-dermal application** is a very effective way of delivering a remedy to a particular part of the body. The cilantro herbal tincture (Dragon River) can be used effectively over any part of the body which could display mercury deposits (e.g. areas of painful joints, muscles, organs and any other area of the body displaying symptoms of pain or dysfunction.) Remember that mercury accumulates in compartments of the body. During DMPS, cilantro tincture should always be **rubbed over the kidney (and liver)** to aid in the mercury release.
- ◆ Some clinicians/searchers feel that cilantro could **excrete mercury through the lungs**. The mechanism is not known. **Transdermal cilantro challenge** with Mercury analyzer (Jerome): solution of cilantro rubbed over the skin over suspected Hg areas of Hg storage (i.e. joints, trigger areas, organs) and analyze the breath for Hg 1, 2, and 5 minutes later to document results. Use over painful joints and often pain will be gone in 2 hours.
- ◆ Cilantro tea: 10-20 drops in cup of hot water. Sip slowly. Clears the brain of neurotoxins. Good for headaches and other acute symptoms (joint pains, angina, headache)
- ◆ When using cilantro tincture, it is advantageous to add the dose to hot water first

- ◆ Cilantro causes the gallbladder to immediately contract and to dump bile, which excretes its accumulated neurotoxins and bound mercury and other heavy metals. This is the reason that our protocol suggests that chlorella be taken 30-45 minutes prior to cilantro, to be in the duodenum to bind the neurotoxins and the mercury being released by the liver in the bile. Think of cilantro as a mini-gallbladder flush.
- ◆ Cilantro is also a very rich source of organically bound selenium.

## 2. Dosing cilantro

- ◆ Use in the later phases of detox (Phase III- extra cellular deeper, phase IV- cellular) when the extra cellular spaces are cleaned-up.
- ◆ tincture: 2 drops at first; taken 30-45 min after chlorella, increase to 10-15 drops (for full benefit); always take cilantro with chlorella or another chelating agent.
- ◆ Trans-dermal:
  - Trans-dermal application can be used with the oral or instead of the oral. If oral application is a problem for a particular reason, the trans-dermal application can be substituted.
  - Generalized application: Rub 5 drops into ankles for mobilization of metals below the diaphragm, and wrists for organs and structures above the diaphragm. (the wrists and ankles have dense ANS – axonal uptake and are crossed by the main lymphatic channels).
  - Specific area of signs or symptoms, see notes above

### Sources / preparations of Cilantro

- Cilantro Pesto
- Cilantro Tinctures
  - Biopure: organic with special enhancements -specially grown with Mozart's Requiem
  - Dragon River
- MIC (Omura's); Marco-Pharmo
- Morin Labs
- If using fresh cilantro, the therapeutic dose is a handful

**Sulfur supplementation** should be strongly considered especially in the beginning of detox:

- Supplementing sulfur along with foods high in sulfur is important. **Sulfur is the detox element** and greatly impacted in heavy metal and toxic chemical toxification
- Loading the patient with sulfur is very important prior and during the chelation. Heavy Metal toxic patients are all sulfur deficient. If the patient takes a chelation agent being sulfur deficiency, the body will cleave off the sulfur and the chelation agent will become an expensive supplement.
- General functions of sulfur amino acids (Cysteine, Methionine):
  - Binds- Hg, which aids in detoxification
  - Repairs and rebuilds protein and enzymes with SH damaged by Hg.
  - Essential for glutathione, your most important and ubiquitous naturally occurring detox tool.
- The sulfur containing in cruciferous vegetables acts as antioxidants and phytochemicals, which are weak chelating agents for toxic metals. Two important sulfur containing phytochemicals are:
  1. Dithiolthiones are 5 membered ring compounds of 3 carbons and 2 thiol groups (–SH) bound to various groups (E.g. phenols, pyridinyl). These are natural products found abundantly in cruciferous vegetables. They appear to be strong enzymatic antioxidant phytochemicals.

2. **Alpha Lipoic Acid** (or Thiolic acid (TA) - is a 5 member ring of 3 carbons and 2 sulfur with a 4 carbon chain terminating with carboxylic acid.
  - **Di- hydrolipoic acid (DHLA)** is the reduced or active form. DHLA protects the cell membranes and organelles from free radical oxidation. In addition, DHLA regenerates Vit. C and E from the oxidized form to the active reduced form.
  - DHLA render antioxidant protection with more specificity for certain organs, namely the brain, nerve tissue, liver, heart, and skin.
  - DHLA quenches OH (hydroxyl radical); it is active in both water and lipids Note: Alpha Lipoic acid greatly enhances a Vitamin C infusion and the redox effect dramatically (recommend 200 mg. of ALA before any Vitamin C infusion.)
  - The strategy for taking Alpha Lipoic Acid will be covered in the anti-oxidant section.

The important sulfur supplements to consider during various times in your detox program are:

***MSM - Methyl- Sulfonyl Methane:1-10 g/ day, divided doses with meals***

- This is generalized recognized as the most popular sulfur supplement, because of its effectiveness and cost.
- Important and beneficial part of DMSO
- Start at 1-2 and build up to 10 g/day as needed in the early phases of detox; then take 1-4 grams at various times throughout the detox.
- One strategy in the early phases of detox cycled with chelating agents (DMPS) is to load with sulfur prior to chelation, suggested up to 10g/d;
- MSM is a natural form of organic sulfur- found in low concentration in fluids and tissues
- MSM is found in a variety of fresh foods- fruit, vegetables, meat, fish and milk, which is processed out with heat
- MSM is the flexible bond between cells, and if low in tissues, the patient loses flexibility
- No odor, no side effects and it is cheap
- MSM is a free radical scavenger, therefore has antioxidant value; it will act as a weak mercury and other heavy metal chelator.
- MSM has anti- inflammatory properties
  1. joint inflammation
  2. MSM can help with allergy; sniff MSM to control upper respiratory symptoms in allergies.
- MSM coats gut, thus helping with anti parasites and constipation
- Helps cells become more flexible and repairs cells like DMSO

**NAC (N- Acetyl Cysteine)** 250mg/ day in the early phases of detox and only when you have been detoxing for many months and you are now into the intracellular phases can you safely go above 250mg to 500mg – 1 grams.

- Precursor to Glutathione and most effective form of Cysteine supplement
- NAC is a weak chelator of mercury
- NOTE: do not use over 250 mg/ day in the early phases of mercury detox.

NAC passes through the brain barrier and cell membrane, and will carry the complexed (chelated) mercury with it (methyl Hg- cysteine). Therefore do not use higher dosages of NAC until the later phases of detox for it may increase the mercury toxicity condition in the brain. There have been cases of tragic patient psychosis reported when higher dosages of

NAC have been used especially in the earlier phases of heavy metal detox. Therefore we only recommend the use of doses over 250 mg in the Intracellular Phase of mercury detox after the higher concentrations of mercury is removed from the extra cellular spaces.

**Garlic**\_Take as much as you can get away with or to socially acceptable level

### ***Redoxal: (d-l methionine)***

- This supplement is promoted by the IAOMT, and uses by some in the detox field, therefore it is worth mentioning.
- Methionine is the precursor to homocysteine, a toxic metabolic by- product, which damages blood vessel walls; homocysteine is shunted from methionine due to a deficiency in methylation, which is remedied by B-12 and foliate.

### ***Glutathione (oral)***

- Glutathione is a very important endogenous molecule in the detoxification of all toxins including mercury and other heavy metals. As discussed, glutathione is a tri-peptide of cysteine, glutamine and lysine. If take orally as a supplement, the three important amino acids are supplied but the tri-peptide most believe is broken down by the digestive process. Therefore the cost-benefit of the constituted glutathione may be lower than if the amino acids were given separately or protein with these amino acids eaten. Bottom line – oral glutathione tables are not worth the cost, however amino acids and especially cysteine are critical to build up your glutathione, neurotransmitter, immune complexes and other critical peptides and proteins required for proper function.
- We recommend a protein diet and often supplementation with Whey protein to rebuild the amino acid stores. This will be reviewed in another section.

If you are supplementing with MSM and undergoing DMPS chelation, withhold sulfur supplement day prior and day of chelation with (DMPS); if you are chelating with DMSA or its naturopathic substitute, Captomere, the MSM dose is taken 8 hours after these chelators so that the MSM does not interfere with the action of the chelators.

### **Antioxidants:**

#### Ecklonia Cave Extract

- Sea based polyphenols 10-1000 times stronger than land based ones (green tea, resveratrol). Ocean polyphenols pass blood brain barrier.
  - Long ½ life 12 hours, land based ones 30 min.
  - Strong anti-oxidant, lipid and cholesterol lowering
  - Calcium scavenger (from endothelium), which helps in the biofilm removal
  - Anti-plasmin effect: increase of micro-circulation.
  - Anti-inflammatory, Inhibition of NF-kB
  - Supports healthy blood glucose levels, very good for uncontrolled blood sugar
  - Down regulate of DGAT enzyme (turns food into fat) by 60%: significant in weight loss (for weight loss – 4 caps 2x/day
  - Pain relieving effect by inhibition of COX enzymes
  - Inhibition and reversal of beta-amyloid plaque formation (Alzheimer's)
- Clinical effects: improves sleep, weight loss, reduced blood pressure, anti-arthritis, significant reduction in Fibromyalgia pain, increase in memory and cognitive function,

more potent than Viagra is ED, reversal of arterial plaque and vascular inflammation , anti-aging

Mona Vie  
Reservatrol

## **Amino acid supplementation;**

### **1. Increasing Glutathione:**

○ **Intracellular with partially hydrolyzed whey protein;**

○ **Extra cellular with AA supplementation**

- ◆ Glutathione is perhaps the most important natural chelator our body produces to manage mercury and other toxins; It is theorized that some have genetic blocks which prevents glutathione from being produced in the quantities required to adequately detox naturally. In addition, nutrition of the precursor amino acids, or enough of the substrate to make adequate (much less optimal) glutathione, as well as the toxic demand on the existing glutathione stores are some of the important factors to consider.
- ◆ Maintaining optimal glutathione nutrition is the goal in mercury detox.
- ◆ Reduced glutathione (GSH), glutamine-cysteine-glycine, functions extra-cellular and intra-cellular as an antioxidant and detoxifier. There is a finite amount of glutathione, which when used up reduces the bodies capacity to protect itself from HM toxicity. Glutathione accounts for 10-50% of antioxidant capacity of plasma- an important antioxidant and natural detoxifier.
- ◆ Glutamine and cysteine are two of the most important essential amino acids, which are routinely undersupplied in diet, especially in a diet which limits protein. For this reason, routine supplementation of a good protein source is critical for mercury detox. Glutamine is critical for glutathione, structural integrity of the GI mucosa, neurotransmitters, and the first amino acid metabolized in blood sugar dys-metabolism. Cysteine is critical for all detox functions, most enzyme structures, membrane binding sites and structural proteins.
- ◆ Intracellular glutathione is the only naturally produced intracellular detoxifying agent to remove HM from inside the cell. It acts as an intracellular shuttle system, however, **intracellular glutathione once spent in removing HM from inside the cell is not easily manufactured, and it can not diffuse back into the cell from the extracellular stores.** This leaves the cell mitochondria at risk to oxidative damage, which leads to lipid membrane peroxidation and ultimate destruction of the mitochondria. When the mitochondria is destroyed the cellular energy is reduced along with all its function (reducing energy and other cellular functions) leading to dysoxygenosis.
- ◆ Glutathione is an extra cellular chelator of mercury and other heavy metals; Glutathione is a weak chelator but ever- present, and will shuttle mercury (detoxify) through tissues including brain, liver...; in chronic toxicity, mercury uses up all the available glutathione to shuttle out (of the brain), which leaves the brain unprotected. The mercury now is able to bind to the lipophilic (nerve) structures, thiol groups of tubulin, enzymes, structural proteins, causing neuronal dysfunction. Each person has their limit of natural detoxifiers which when used up, expose the tissues to oxidation, and the effects of the toxicity. Toxic dys-function/

disease/ degeneration/neoplasm is bio-individual (genetic), nutritional, and (amount of) toxin dependent. Therapeutics can control the last two variables to toxic damage and can optimize the first.

- ◆ Partially hydrolyzed whey protein will increase **intracellular glutathione** levels by providing all the essential precursors. To be effective the whey must be non-pasteurized and only very slightly hydrolyzed (heated) to only slightly break-up the whey protein. It must be dosed away from food, with as little stomach acid present as possible to be effective. Whey protein is high in **cysteine**, a complete protein (containing glutamine and glycine) and high in the **branched chain AA leucine and isoleucine**, which are required for absorption of the cysteine into the cell. Other rate limiting nutrients needed for intracellular glutathione production are Mg, K and taurine.
- ◆ Glutathione is used to remove HM from the cell but is not re-usable in the process (it is lost). If intracellular HM toxification is extensive, intracellular glutathione stores will be depleted, which increases oxidation and can lead to mitochondrial destruction. The intracellular stores of glutathione must be made in the cells; it cannot be absorbed by giving GLU.
- ◆ This strategy can be critical for some chronic fatigue patients with depleted glutathione levels and thus **reduced cellular ATP**. Patients taking whey protein require at least 6 months of therapy, and often won't respond until 2 months.
- ◆ Normal dosage 2 packs/ day away from meals, if 2 packs don't work add 3-4. Products for cow's whey : Amminocal, Immu plus (Allergy Research) and others,
- ◆ **Goat whey** appears to be a good source to whey much less expensive, and a good source of minerals and AA. This is proving to be an important part of our detox strategies. This product also is a very good source of minerals. Products: Mt. Capra (see resources – (360-748-4224)
- ◆ Extracellular glutathione is a very important chelation agent and will be addressed later. It is manufactured in the liver, with cysteine and glutamine being the rate limiting (usually) amino acids.
- ◆ Always use some form of whey protein in your supplementation strategy, especially in the early phases.
- ◆ Strongly consider individual supplementation with taurine, glutamine and that ever amino acid that is proven low (or not optimal) per plasma amino acid profile or neurotransmitter profile or symptoms and clinical presentation.

## 2. Depression formulas:

### restore neurotransmitter function

Treatment of depression is a very real problem before and during mercury detox. Mercury seriously alters brain chemistries, affects neurotransmitters and amino acid balance, alters hormonal and other cellular binding sites, reduces neuronal function by destroying beta-tubulin, which reduces the neurons capacity to feed and function ultimately leading to dys-oxygenosis and cellular death. Brain and neuronal signs and symptoms are often pathognomic for mercury toxicity.

- Labs: Amino acid analysis to determine the neurotransmitter precursors. Urine organic acids to determine the biochemical blocks to the Krebs cycle and the vitamin and minerals needed for optimal metabolism of the amino acids to neurotransmitters.
- Consider always rebuilding and optimizing serotonin: 5-HTP, Serocin Remember much more serotonin is produced in the enteric nervous system than the brain, so if depression think fixing the gut and detox.
- Klinghardt's depression protocol: Stabillium (Allergy Labs- fish peptide) and Norval (Bioterrain- tyrosine).

## H. Other supplements/ conditions to consider in HM detox:

### 1. Receptor site detox: Carnosine

The impact of HM on a biological system can be from two sources:

- Gross burden of mercury
- Finite burden of mercury on receptor sites; this has less amount of mercury but impact is much greater. (e.g. MS).
- Carnosine clears receptors such as G proteins from the cellular membranes
  - Product: Carnosine- 2-4 caps/day; 1000 mg 3x/ day; use after initial phase of detox after the extra cellular spaces have been initially cleaned Body Bio 856-825-8338

Carnosine should be used in the later phases of mercury detox, after the extra cellular spaces are cleaned-up.

Cilantro appears to have a similar spectrum of action

If cilantro is not used, at least one bottle of Carnosine should be considered in every mercury detox strategy. If the patient suffers from brain toxicity and degenerative then consider more carnosine.

## Summary of the assessment organization into a coherent treatment strategy

- A. In order to detox efficiently and effectively, as we have discussed, you must **detox the heavy metals from the outside to the inside**; that is clean up or detox the organs and tissues that are the easiest access – like the gut, the kidney, liver, the connective tissues, the blood vessels, the lymph system and the entire extra cellular tissues. After you have spent some time on removing the heavy metal load from these tissues, then one can expect reasonable effective results from detoxing organs that are more protected like the brain behind the blood-brain, or the cellular membrane structures, or even fibrosed and coagulated areas in the extra cellular spaces and the vascular tree. We must use different adjunctive products and detox agents to reach the deeper areas but unless the detox is approached in this systematic method the heavy metals can be driven deeper into the body and not detoxed out, which is the objective. The last area of the body to detox is inside the cells, which need detox agents that will penetrate the cellular barriers.
- B. Remember that detoxification is a process of diffusion and dilution with specific agents that chelate with the mercury, establishing a new concentration of mercury in whatever tissue the detox agent reaches – i.e. the extra cellular spaces, on either side of the brain- barrier, the bowel, the blood vessels...

- C. Phases of Detox have been established to bring organization to suggested detox agents to choose in each phase so that the bodily barriers can be used to prevent driving the mercury and other heavy metals deeper into the cells or tissues of the body like the brain. The Phases are:

Phase I – The dental phase where the gross deposits of mercury is removed and the body is prepared for detox.

Phase II – once the mercury fillings are removed and the mercury containing products and foods are eliminated the next most accessible tissues can be detoxed the extra cellular spaces, the muscles and connective tissues, the blood vessels, the bowel and detox and drainage organs (lymph, liver kidney).

Phase III – is the less assessable extra cellular spaces or the connective tissues that are fibrosed, plaques in the blood vessels and lymph and blood coagulopathy, due to acidosis, oxidation, chronic inflammation and infection resulting in hyper-coagulation. Sometimes this phase is combined with the cellular membrane phase (phase IV).

Phase IV – is the phase of detox when the extra cellular spaces are relatively cleaned up, the drainage organs and the bowel have been detoxed and functionally supported and now the cellular membranes and intracellular spaces are ready to be treated with detox agents that strip mercury from the cell wall and possibly penetrate the cell wall. As we have discussed previously, there is less mercury on the outside of the cell than on the inside, so when we use a penetrating chelating agent that may penetrate the cell, the diffusion gradients will now support the mercury going out of the cell and not into the cell, which could happen if the more penetrating agents are used when there is more mercury on the outside than inside the cell.

Phase V – is maintenance because don't kid yourself, we live in a toxic world and you need to consider to detox for live. This is why you need to be educated in the principles, so you can intelligently do this yourself.

- D. **How fast and how aggressive** to detox is an art and science and of course very individually driven. This manual contains as many of the options that we understand work, but each individual needs to pick and choose the best for them.

1. There is a **naturopathic detox**, which uses agents that are foods, herbs and only products that are orally or topically applied (and detox spa modalities to specifically target the mercury in their bodily compartment and aid to removing them). This can be mentored by a detox cognizant Naturopathic physician, nutritionist, Dentist or other professional. This can also be self administered, which is our goal to empower and teach you to do detox yourself. Most of the time it is helpful to start with a detox cognizant professional to assess and initiate treatment until you are stable and educated and then to report periodically for assessment and advice.
2. There is a **Chelation detox** with injectable chelating agents administered by a detox cognizant physician, which is always an addition to the naturopathic oral and topical detox (and spa modalities). This is by far the most effective and efficient method to detox and probably necessary if there is any degree of medical complexity. **Neural therapy with Chelation** is a very effective tool to specifically target the mercury with the detox agent and functionally rehabilitate the tissues and organs including re-establishing the normal blood flow.

More on Neural Therapy in the Appendix

An Integrative Medical team for mercury detox can therefore include:

- A Biologic Dentist
- A mercury cognizant Physician and / or Naturopath(or other professional)
- Diet and life style professional
- Regulation therapist: allergy elimination, other modalities to functionally rehabilitate the organs and tissues.
- Spa therapy team: colon hydrotherapy, sauna, ozone steam, foot baths...

E. The question always arises - **How long do I detox?** Is it 3mo → 24 mo → 2 years or 5years of active detox? It is very important to realistically set your expectations. If your body is toxic from chronic exposure of heavy metals, especially mercury, which is a very potently toxic and tenaciously bound, it is not very realistic to expect that a couple months of detox will be sufficient to remove a life time of toxic accumulation. The process of detox from heavy metals and toxic chemicals, and the functional rehabilitation of the bowel and immune system to control chronic infections take time and needs to follow a certain rhythm. It is the long term results that are important. Think of this process as getting in shape to run a marathon, or going what you have to do to stay in shape for the rest of your life!

One will never get all the mercury (or other heavy metals and toxic chemicals) out of their body for it is too tenaciously bound too deeply into the body, but you can remove a significant amount to reduce your load. Lowering you toxic load below the biologic threshold significantly changes your body's functional dynamics and your ability to rehabilitate from all diseases or dys-functions. This is why we recommend that you detox for life, off and on like you would do for spring cleaning of your house. The only practical manor to detox for life is to teach you the principles and the products. We recommend detox in natural occurring cycles not continuous, taking time off to rest within the cycle and sometimes in between the detox cycles. It can be continuous, intensity level can vary at any time during the process, and /or the detox process can be pulsed with weeks to months of no detox effort.

Be aware of detox professionals that recommend that you detox for a few weeks of months, and then you are finished; their recommendation does not make biological sense.

- F. **Guard against detoxing too much and too fast. The symptoms** that arise during detox, is the body's regulation system (ANS) reacting to the toxic load from too much detoxification. Too much mobilization of heavy metals or too much redistribution of the mercury not excretion can invoke a hypersensitivity (or allergy) reaction, which often returns the toxic symptoms.
- G. Heavy metal detox will stir up **latent infections**- so be prepared. As the mercury and other heavy metals are released the other toxic substances that the ANS is storing (along with the HM) will start to be detoxed. The usual order for detoxification is: heavy metals→ toxic chemicals→ chronic infections; extra cellular to intracellular (or superficial to deep)
- H. There are 2 parts to most patients Heavy Metal Detox – the **Medical and Dental**
- Must remove the gross source or the implanted (mercury and other toxic metals) from the mouth. I.E. the mercury fillings, the toxic crowns, the mercury under the crowns if present, the mercury fillings at the end of a root canalled tooth if present and sometimes the nickel braces; and the gross mercury deposits in the tissues in the form of amalgam tattoos.
  - If you chelate with any strong chelating agent with mercury fillings in the mouth, the mercury may be pulled out by the chelating agent with great energy from the

body, but an equal (or greater) amount of mercury will be dissolved from the fillings and re-deposited, and thus the mercury is just moved around and not removed, which is the purpose of detox. The chelating agents will dissolve the mercury in the teeth and redistribute it throughout the body for no net gain. In fact, leaving the mercury fillings in the mouth while stronger chelation agents are used will often makes the patient considerably worse.

- Some patients report that many of their health problems were exacerbated when they had their mercury fillings removed. The removal of the mercury fillings is a critical first step to detox, but the hygienic and safe removal is most important to prevent any negative consequences. Any adverse reactions can entirely be prevented if a few simple principles are observed.

The integrated detox team must adequately **prepare the dental patient** (as well as possible) prior to the dental phase, don't rush into the dental mercury removal. Consider prior to dentistry:

1. Allergy Elimination therapeutics for the toxic metals especially mercury. All mercury toxic patients are allergic to mercury from the chronic exposure to mercury from their dental fillings. Even with the best of precautions, there is some mercury that the dental patient will be exposed to during the dental removal. Therefore the neurological hypersensitive reaction to mercury needs to be turned off prior to dental mercury removal, or the patient runs the risk of neurologically hyper-reacting. In addition the AET therapies can evaluate and treat the neurological sensitivity to foods, minerals and vitamins in addition to the other heavy metals of nickel, arsenic, tin, lead, cadmium...
2. Build up minerals, electrolytes, antioxidants and some good fats essential fatty acids and fish oils.
3. Only chlorella or chlorella like products is recommended prior to the dental phase. No other stronger chelating agents.
4. Establish drainage evaluating for lymph, liver or kidney drainage remedy
5. If major TMJ problem exists consider treatment prior (at least appliance therapy), to reduce the ANS burden and facilitate the lymphatic drainage from the head, mouth and neck.

Some patients may need more preparatory work prior to the dental removal phase, like bowel rehabilitation, a more extended period of nutritional stabilization or more of the many therapeutic strategies that accompany this monograph. But for most this pre dental phase can be accomplished safely in 2 weeks. Many well intentioned professionals that don't have experience with the safe hygienic dental mercury removal that is advocated here, are unnecessarily hesitant to recommend the dental removal to their patients. We feel that the sooner that the mercury is removed, which is often one of the root causes of their toxic overload, the faster the patient will start to respond to therapy.

Dental heavy metal removal and reduction in toxic stressors includes:

1. All mercury implants-Amalgam fillings, Amalgam under crowns, amalgam tattoos(in the soft tissues)
2. Dissimilar metals from different types of metal crowns
3. Toxic teeth and jaw bone- Cavitations and Root Canals

## Where to get products:

Biopure:

Zeolite products:

- Zeolite HP (Naturx- Nutramedics)
- Zeolite suspension in ionic gold (Silvermountainminerals)
- ACZ nano – sub micronized Zeolite with nutrients
  - ii. Longevity plus 1-800-580-7586; Dr. Gary Gorden
- Alli-Thiamin (nanonized Zeolite)
- Natural Cellular Defense (NDF): problem - in plastic container

Body Bio: 856-825-8338

Carnosine

Liquid minerals

Books:

“The Amazing Gallbladder Flush” by Andreas Moritz

“The Altered States of Bowel Ecology and Health Preservation” by Dr. Majid Ali

“Rediscover your Native Fitness, PACE” by Al Sears, MD

Web sites:

Klinghardt for all things

Rind – metabolic glands – [www.nihadc.com/drrind](http://www.nihadc.com/drrind), [drrind.com](http://drrind.com)

Chlorella: cycles p 76-81

Laws of homotoxicology: 5, 8, 12-13,