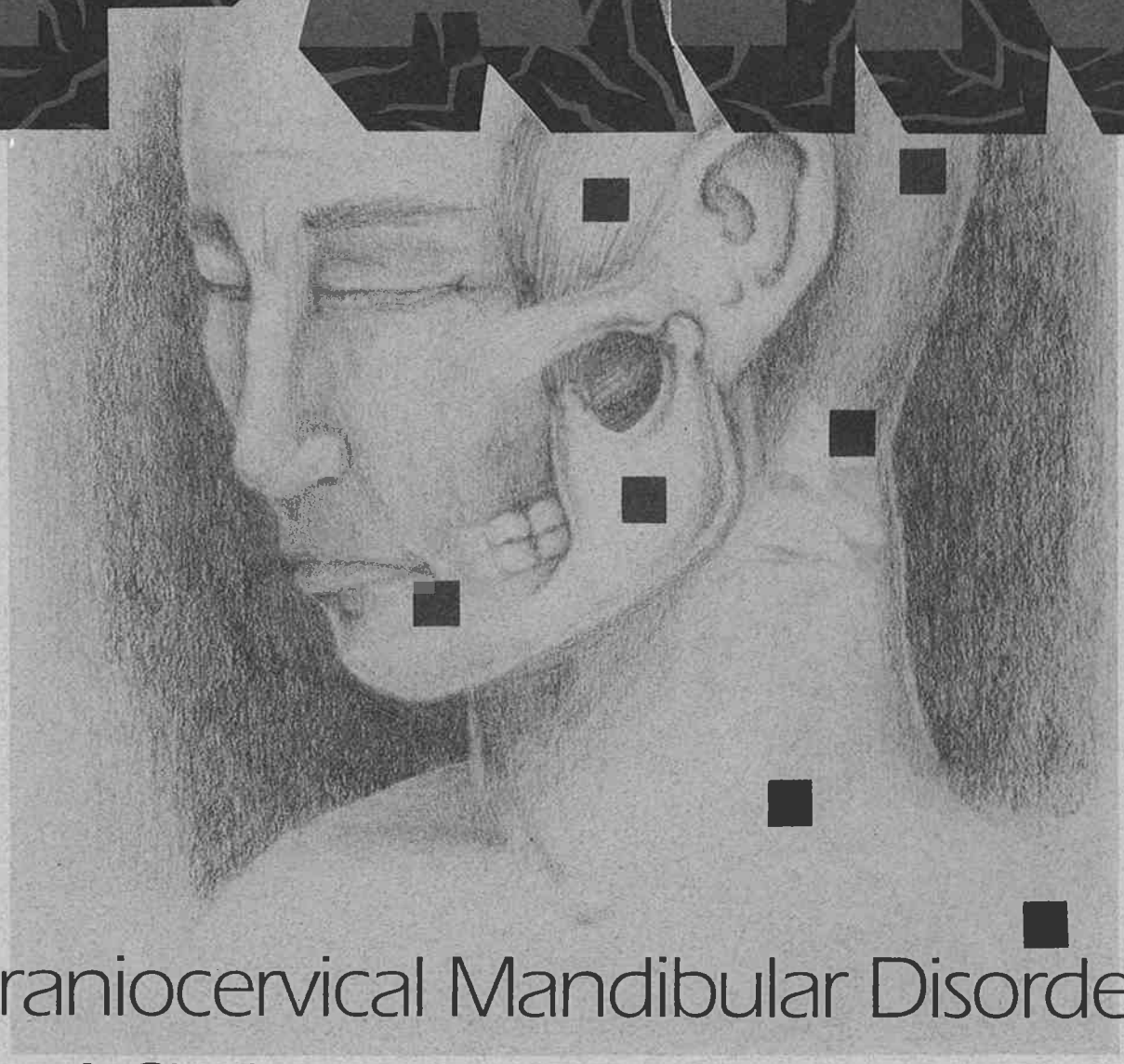
CMD PAIN



Craniocervical Mandibular Disorder

A Skeletal Muscular Problem.

Understanding the Causes and Treatment

National Integrated Health Associates

A comprehensive Medical-Dental Diagnostic Treatment and Research Center specializing in head, neck and facial pain - structural and functional disturbances.

A complimentary approach is employed, a blend of traditional and alternative diagnoses and treatments. Head, neck and facial pain is often a medical-dental problem with multiple component to be diagnosed and treated. Research at N.I.H.A. is ongoing, evaluating the most effective and cost effective solution to chronic pain and chronic health problems.

CMD Patient Flow Chart

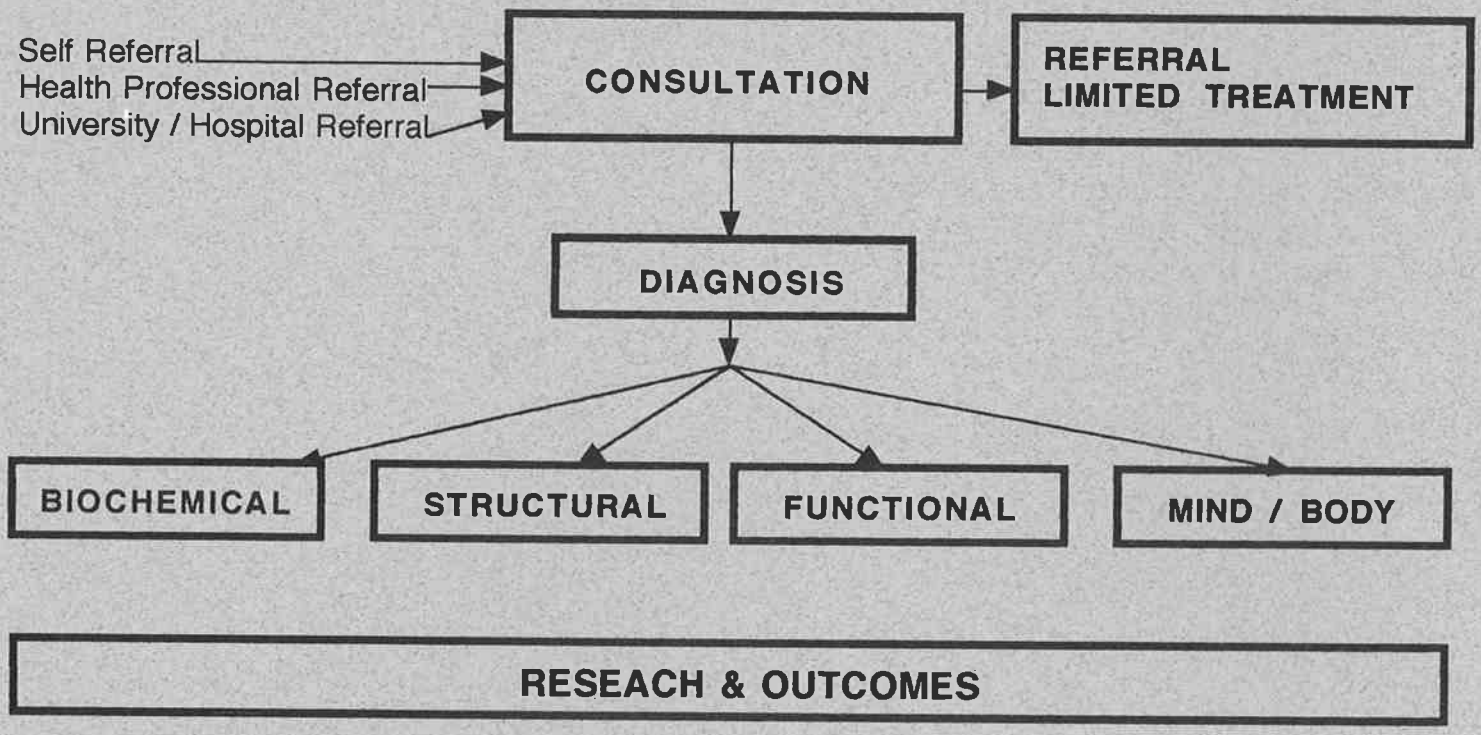


TABLE OF CONTENTS

What is CMD? 1
CMD — The Great Imposter 1
Glossary of Terms 1
Some Common Complaints 2
Some Additional Signs of TM Joint Dysfunction 2
Do Symptoms Get Worse? 2
Acute and Chronic Pain 2

Anatomy 3
A Closer Look At The TM Joint 3

TMJ Disorder 5
Internal Derangements 5
The Click 5
The Lock 5
TM Joint Sounds of Grinding, Grading and Crunching 5
What We Know of Internal Derangement 6

Causes 7
The Trauma Connection 7
A Model for Causes of CMD 7
Biomechanical Factors: Skeletal and Joint Problems 8
Beware of Orthodontic Treatment 9
Other Structural Alignment Problems 9
The Muscles 11
The Fascia 11
The Nerves 11
Biochemical Factors 13
Nutrition 13
Toxicity 13
Hormonal Imbalances 13
Biobehavioral Factors 13
Stress 14

Diagnosis 15

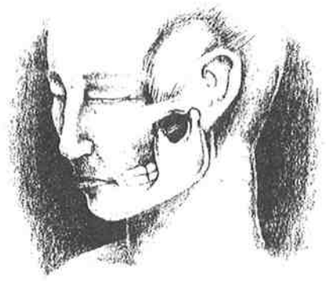
Treatment 17
Treatment Principles 17
Preventive Treatment in Kids 17
Phase 1 - Treatment 18
Biomechanical 18
How Does A Splint Work? 18
Biochemical 19
Biobehavioral 19
Bioenergetic 20
Phase II - Treatment 20
Treatment Objectives 20
Equilibration 20
Orthodontics 20
Reconstruction 21
Overlay 21
Surgery 21

Mark J. MClure D.D.S
Illustrated by Cynthia Johnson

CMD — The Great Imposter

If you suffer from chronic headaches, neckaches, earaches, shoulder pain and stiffness, and the cause has not been diagnosed or treated, you may be suffering from a rather common form of skeleto-muscular disorder called Craniocervical Mandibular Disorder (CMD). CMD has been called the "Great Imposter" because it can exhibit a variety of symptoms which may appear on one or both sides of the body.

This syndrome may be known by many other names: Temporomandibular Joint Dysfunction (TMJ or TMD), Myofascial Pain Dysfunction (MPD), Dental Stress, or Costen's Syndrome (named after the physician who in 1930 first identified the relationship between the jaw joint and the Pain Syndrome). So we can see from it's many names that Craniocervical Mandibular Disorder refers to a collection of symptoms which chronic pain may be the most predominant. This skeleto-muscular problem may involve disorders in the jaw joint (TMJ), and the muscle and bony structure of the jaw, head, neck and upper back.



Glossary of Terms

Disorder (Dysfunction) — The body not working properly

Syndrome — A collection of symptoms usually involving pain

Temporomandibular Joint — (TMJ) — The Jaw Joint

Myofascial — myo — muscle, fascial — connective tissue

Mandible — The lower jaw

Internal Derangement — The disc of the TM Joint out of its proper position

Malocclusion — The teeth in poor alignment and in poor harmony with the TM Joint

Bruxing — Night time clenching of the teeth

Predisposing Factors — Conditions that create a susceptibility or tendency to develop a particular disorder

Perpetuating Factors — Conditions that inhibit the resolution of a problem or disorder

Some common complaints of our patients are:

- Recurring head and face pain
- Grading, clicking, cracking, or popping sounds in one or both jaws
- Grinding and/or clenching the teeth
- Neck, shoulder or back pain, and/or tightness
- Pain in the sinus areas or behind the eyes; a feeling of fullness in the face
- Ringing, roaring, hissing, or buzzing sound in the ears
- Sensation of stuffiness, pressure, or blockage in the ears
- Dizziness or lightheadedness
- Hearing impairment that comes and goes
- Pain upon opening or while chewing, opening for a dental appointment is painful, chewing gum is uncomfortable
- Sore teeth and/or consistent tooth pain
- Awakening with a headache
- Numbness or tingling in the fingers
- Depression (usually associated with chronic pain)
- Easily and/or chronically fatigued
- Sore throat for no apparent reason

Here are some additional signs of TM Joint Dysfunction:

- Is it hard to move your jaw from side to side or back and forth?
- Does your jaw deviate to the left or right when you open wide?
- Place your "pinky" finger into your ears while your mouth is open, then close your mouth while pressing forward with your finger. Is that painful? Do you hear crunching sounds when you do this?

Do Symptoms Get Worse?

It has been our observation and the observations of other professionals that problems associated with the jaw joint will become progressively worse with time. The progressive deterioration of the jaw joint often relates to increased severity of the symptoms. Sometimes the joint will deteriorate without exhibiting painful symptoms until an event, either traumatic or otherwise, triggers an irreversible chronic pain response (more on this later).

Acute and Chronic Pain:

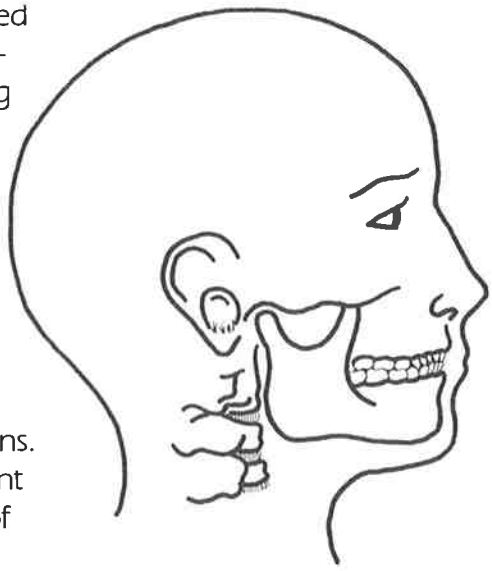
Acute pain, a sharp or searing type pain, serves a necessary function protecting us from injury and allowing injured tissues to heal. Chronic pain, on the other hand, serves no useful purpose and is a sign that something is wrong. It may be the result of an injury that persists past normal healing time. Sometimes the onset of chronic pain may be weeks to months after the traumatic event. Since chronic pain can persist for extended periods to many years, depression and chronic fatigue often result.

Anatomy

The TM Joint, the most active joint in the body, is a complex joint unlike any others because:

a) The TM Joint rotates (like a ball and socket), and translates or slides forward. Opening and closing, sliding side to side and back and forth are all necessary for chewing and other jaw functions.

b) The TM Joints function as separate units but are connected together by the mandible. If one TM Joint becomes damaged it places additional stress on the other joint resulting in possible problems in both joints.

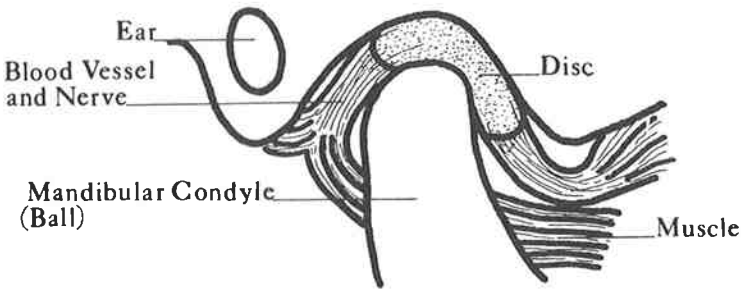


c) Unlike other joints whose surfaces are lined with cartilage, the TM Joint is lined with fibrous connective tissue. The significance of this is that fibrous connective tissue can heal and regenerate, while cartilaginous tissue cannot.

d) A soft flexible disc helps protect the TM Joint from the normal wear and tear of chewing and other jaw functions. In addition, it serves as a cushion for the bones of the joint and helps to hold the bones in place. This disc is made of fibrous connective tissue and has the ability to heal itself.

e) The jaw is ultimately controlled by the teeth which dictate the jaw's movement. If the teeth are not in harmony they can produce strain on the jaw.

A closer look at the TM Joint Shows:

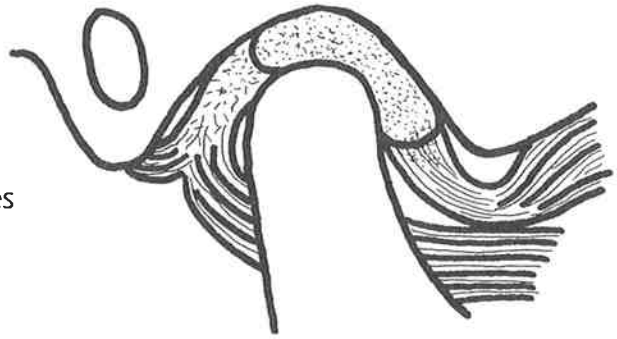


a) The soft flexible disc has a raised border and is thinner in the middle. It is about the size of a nickel.

b) The disc is attached to the back of the joint by an elastic tissue which is rich with nerves and blood vessels. The function of this tissue is to help pull the disc back when the jaw closes and to supply the nutrients for the disc and lining of the TM Joint. When the disc is out of position, the mandibular condyle (ball part of the joint) presses on (impinges) the nerves and blood vessels of the retrodiscal tissue. This trauma causes inflammatory pain and may interrupt the flow of nutrients to the joint, setting up arthritic changes and further disc deterioration.

c) A muscle is attached to the front of the disc and the jaw. This small band of muscle pulls the disc and the jaw forward when opening.

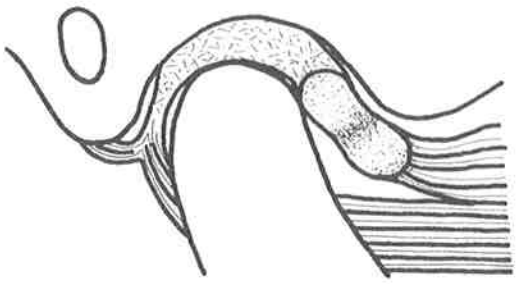
Internal Derangements: TM Joint Disorders



When the soft tissues of the TM Joint are not in proper position, they are said to be internally deranged. Internal derangement always involves some degree of joint deterioration.

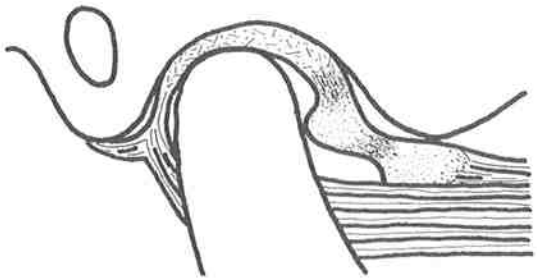
The Click

An early sign of a TM Joint problem is a click upon early (minimal) opening of the jaw. In this situation the disc is displaced forward so as the jaw is opened the mandibular condyle (ball part of the joint) pops into its proper position on the disc. When the posterior teeth close, the condyle pops off the displaced disc. If the disc is not brought back into proper position through therapy, or if the joint does not spontaneously repair itself, this early click upon opening occurs later as the mouth is opened. In the mid to late click, the displaced disc becomes more deformed and stretched out. The mouth must be opened wider for the condyle to pop into its proper position on the disc.



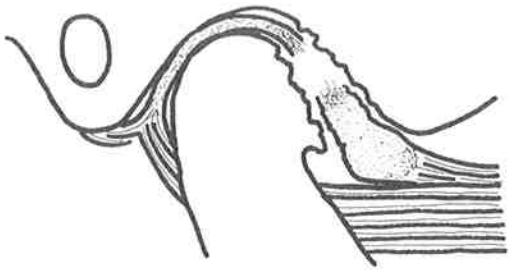
Some people can misinterpret the late opening click as less of a nuisance and the TM Joint getting better. In reality the TM Joint is getting worse. However, the click or pop in the TM Joint does indicate the disc is still going into place at some time during the opening cycle.

The Lock



The disc can also be displaced in such a way that it does not "click" into its proper position during opening. The locked disc may restrict the jaw opening and/or deviate the jaw upon opening to the locked side. Similar to the clicking joint, the longer the jaw remains locked, the more inflamed, deranged and stretched out the soft tissue of the TM Joint (including the disc) becomes.

The TM Joint Sounds of Grinding, Grading and Crunching



With the disc out of position, the two bones of the TM Joint may cause an erosion of tissue behind the disc, which is often not capable of withstanding such wear. As discussed, this tissue is rich with nerves and blood vessels. As this tissue continues to wear down, perforations appear, the bones start to rub together, bony arthritic changes begin to occur, and a new sound is heard. This is a grading sound called

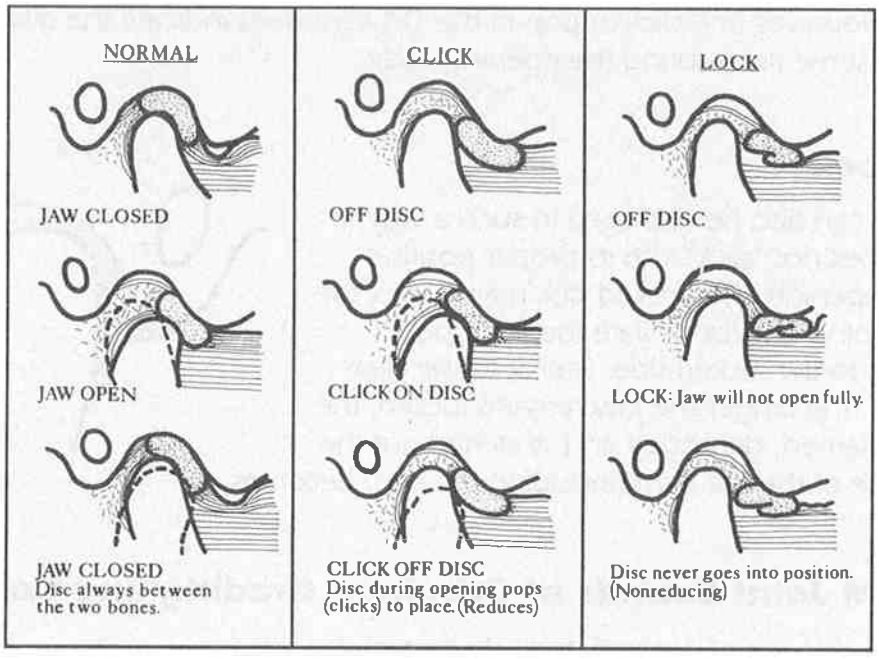
crepitus often described as ground glass, or a crunching sound, and is a sign of further deterioration. Crepitus is associated with the bony changes of degenerative joint disease and advanced destruction of the soft tissues of the joint.

In summary there are five stages of TM Joint internal derangement and deterioration.

Printed with permission, Dr. Clyde H. Wilkes, MD, Ph.D.

TABLE 1 — SUMMARY OF STAGING CRITERIA FOR INTERNAL DERANGEMENTS OF THE TEMPOROMANDIBULAR JOINT	
STATE	SYMPTOMS
1. Early	Painless, soft, early reciprocal clicking; no inflammatory symptoms; slight forward displacement of disc
2. Early intermediate	Minimal inflammatory symptoms, beginning major mechanical symptoms (loud clicking, transient catching, and locking); slight forward disk displacement with early anatomical disk deformity
3. Intermediate	Major mechanical and inflammatory symptoms; moderate to marked deformity of disc, partial or complete forward disk dislocation
4. Late Intermediate	Clinical chronicity; complete forward disk dislocation; hard-tissue degenerative remodeling changes
5. Late	Clinical chronicity; complete forward dislocation and perforation of disk (posterior attachment); marked anatomical deformity of hard and soft tissues

What we currently know of internal derangement through long term studies is:



1) It is an organic lesion usually involving some degree of inflammation

2) There is a clear progression of joint degeneration

3) It occurs frequently in our population, even in children

4) The internal derangement contributes significantly to the symptoms of CMD

Patients who suffer from CMD may go through periods of remission at which time symptoms seem to be stabilizing. However, without proper treatment the internal derangement will continue and later stages of joint deterioration will develop.

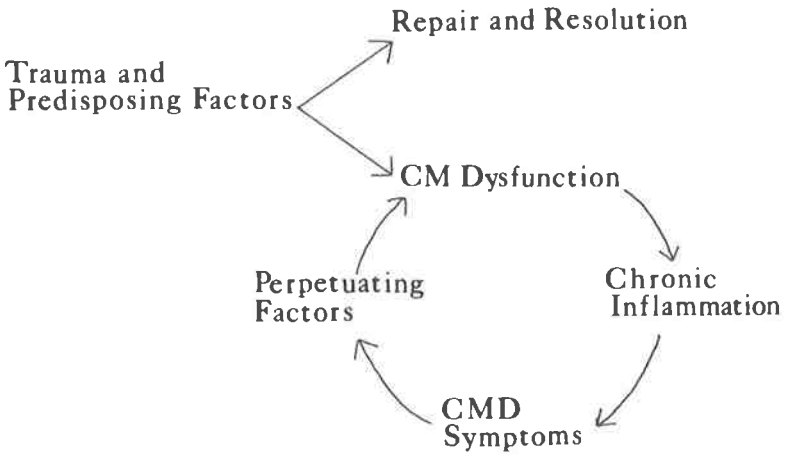
The level of pain may vary during the progression of joint deterioration, because pain in the muscles or joint relates to inflammation. Whether inflammation occurs depends on the degree of trauma, tissue destruction, and the individual's biochemical and behavioral resistance factors.

"I was just chewing and my jaw snapped. My face and head have hurt ever since". "I had a very stressful period in my life and that's when my headaches started". "I fell on my chin and later my jaw started to click; soon after my head and neck pain started". These are some of the typical stories our patients tell us. They often relate to a traumatic event or period of stress which "caused" the problem. But, oftentimes there is more to it.

The Trauma Connection

Often trauma can initiate TM Joint problems. However, any condition that places excessive stress on the TM Joint, or the muscles that work this jaw joint can predispose a person to TM Joint Disorder and CMD.

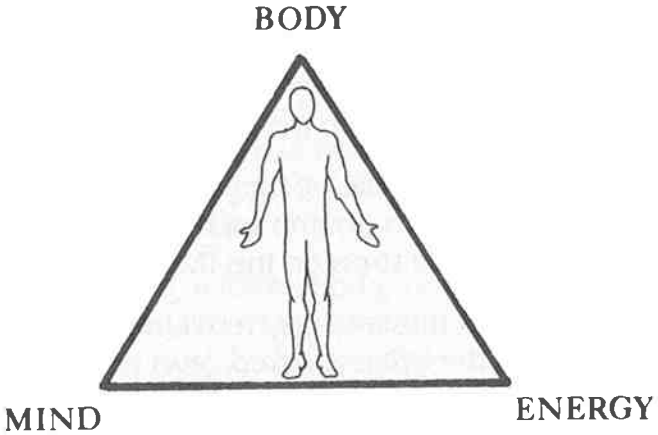
Of course, not all trauma, even severe trauma to the jaw joint, will result in TM Joint Disorder. Much depends on the person's capacity to heal. The predisposing factors, biobehavioral, biomechanical alignment, biochemical resiliency (and to some degree the bioenergetic) cannot only predispose a person to TM Joint Disorder, but if positively applied could predispose a traumatized TM Joint to heal, repair, and resist deterioration.



The diagram summarizes the relationship of trauma and predisposing factors. Predisposing factors can perpetuate a chronic condition. Trauma beyond the threshold of an individual's skeleto-muscular system to heal itself, as determined by the predisposing factors, can initiate chronic CM disorders.

A Model For Causes of CMD

The emerging understanding of many health professionals through treatment of the whole person is that we function on multi-levels: the physical or biologic level, the mental or biobehavioral level, and an intermediate level which might be called the bioenergetic level. For the purpose of understanding the predisposing conditions of chronic skeleto-muscular disorders (CMD), it is helpful to further subdivide the biologic level into biomechanical and biochemical components. Consequently, contributing or predisposing factors resulting in CM disorders can develop from any of the following functional levels:



Biomechanical Factors involve the mechanics of the structural system: the bones, joints, muscles, and their alignment.

Biochemical Factors refer to the individual's response to trauma, repair and general functioning of the skeleto-muscular system at the cellular or tissue system level. (i.e., response to inflammation)

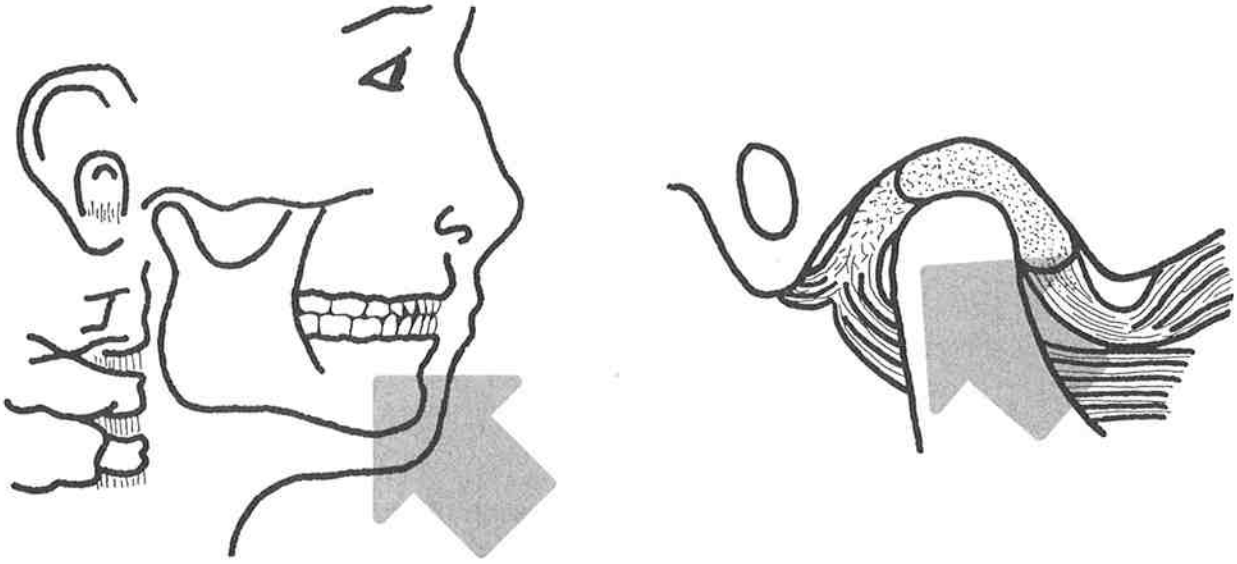
Biobehavioral Factors relate to the very important role the mind plays in the body's healing or dysfunction.

Bioenergetic Factors involve the subtle energies (electrical, electromagnetic, and others) that influence the functions of the body and mind.

Since the whole person is a complete system, each functioning level will always affect the others and their resolution.

Biomechanical Factors: Skeletal and Joint Problems

When pressure or stress forces the jaw backward, damage to the TM Joint is possible. This stress tends to force the ball of the joint backward into the "Socket", which increases the likelihood the disc will slip forward out of position and dislocate. This starts the destructive process associated with clicks, locks, and grinding sounds of the joint.



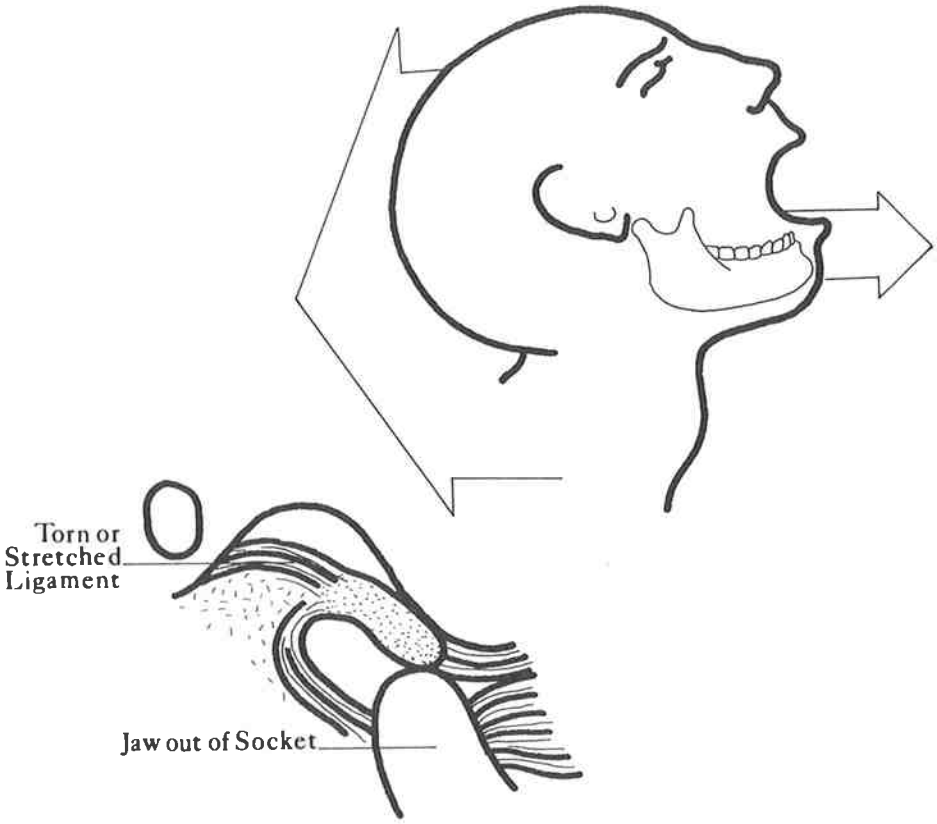
Some specific biomechanical problems that contribute to TM Joint Disorders and CMD:

1. Malocclusion: occurs when the teeth do not fit together well, or when the position of the teeth is not in good harmony with the TM Joint.
2. Developmental Jaw Abnormalities: if the jaw is not able to grow normally due to genetic or acquired detrimental habits (thumb sucking, grinding teeth, tongue thrusting, mouth breathing, etc.), it can place stress on the TM Joint and the entire chewing mechanism.
3. Loss of Vertical Height of the Jaw: may result from grinding, clenching (abnormal muscle habits) or tooth loss. If the bite is lowered, jaws collapse, putting additional stress on the TM Joint and foreshortening the muscles, increasing the risk for muscle spasm.

4. Traumatic injuries to the jaw, head or neck, including blows and whiplash:

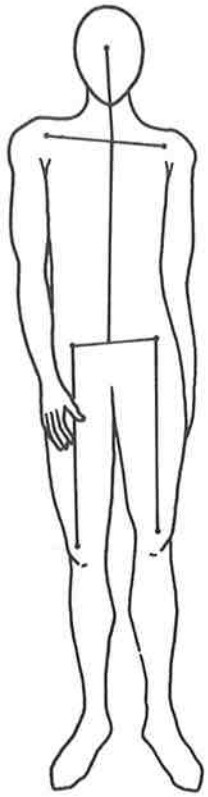
   a. A blow to the chin can cause damage to the joint or ligaments that hold the joint in place.

   b. A whiplash injury causes the head to jerk back while the jaw is thrust forward. The neck and cervical muscles can become strained or sprained. The sudden thrust of the jaw can sprain, tear or strain the ligament and disc of the TM Joint.



Orthodontic Treatment: it may be hazardous to your TM Joint!

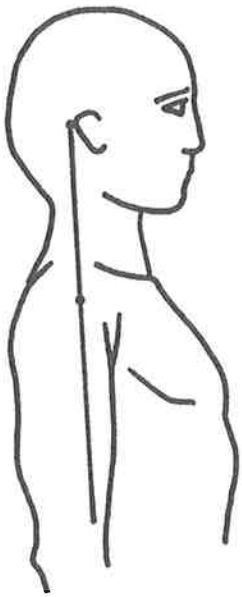
An estimated 40% of past orthodontic patients have TM Joint problems. The Orthodontist may have aligned the teeth beautifully, but not in harmony with the TM Joint. Orthodontists are traditionally taught techniques that may force the teeth or jaw posteriorly, effectively stressing the TM joint and helping to promote displacement of the disc. Some new functional Orthodontists and Pedodontists emphasize Jaw to Jaw treatment, understanding the significance of placing the jaw in good position first, and later moving the teeth into position to support the jaw.

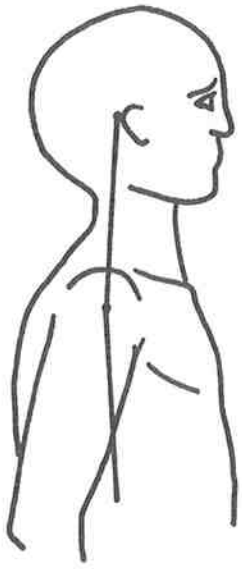


Other Structural Alignment Problems:

Differences in leg length, rotation of the pelvic bones, curvature of the spine, and subluxation of the spinal bones are all structural alignment problems which affect the muscles and may ultimately affect the jaw. Because of these structural imbalances the body is forced to compensate in order to function properly. The jaw often acts as a compensating gyroscope swinging to the side of the short leg. If this type of structural alignment is a problem, treating the jaw without balancing the other end, (i.e., leg length, pelvic rotation, sub located spinal bones etc.) may not achieve the desired results.

Forward head posturing, a form of poor posture, occurs when a person normally postures the head forward of the spine and thus place continuous stress on the muscles and structures of the upper back. Forward head posturing may affect more than





just the neck and back muscles. It may pull the TM Joint back placing strain on the joint, and round the shoulders to accommodate the position of the head. Mouth breathing is often present because forward head posturing drops the lower jaw lowering the resting position of the tongue. A forward rotated head is misaligned with the cervical spine, placing strain on it's important structures.

Poor posture is a learned behavior and can have repercussions beyond just looking unattractive. Fortunately it can be "unlearned". Those problems which exacerbate forward head posturing, such as chronic mouth breathing, can be diagnosed early and corrected.

Destructive oral habits or developmental jaw abnormalities, if detected early, can be easily corrected. Furthermore, facial and jaw form can be normalized so that the risk of developing CM Disorders later in life is reduced.

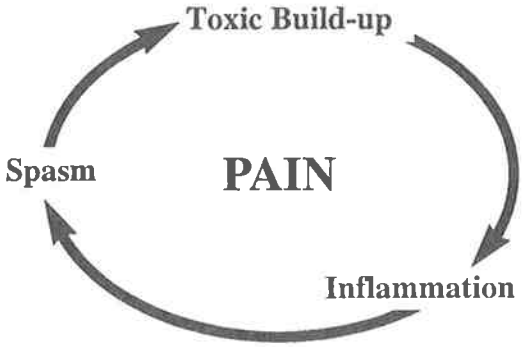
Destructive oral habits can adversely impact proper growth and development and put strain on the TM Joint, muscles and other structures of the head and neck. The child or adult is often unaware of these habits. These habits should be controlled or relearned when treating CM Disorders.

Some of these destructive oral habits are:

1. Grinding, clenching or night time bruxing.
2. Tongue thrusting when swallowing can impact upon the eruption of the teeth.
3. Mouth breathing can seriously impact the development of the jaw as well as contribute to a forward head posture and tongue thrust. Usually the cause of the mouth breathing must be eliminated so proper nose breathing may be learned. Common causes of mouth breathing are enlarged tonsils and adenoids, narrow structure in the nose (turbinates) and deviated septums.
4. If breathing is primarily from the chest and not from the abdomen, the muscles of the upper chest and neck can become overworked and spasmatic. Chest muscles are not designed for continuous breathing as are the muscles of the diaphragm and abdomen. Mouth breathers are often chest breathers.
5. In kids, other destructive habits are thumb sucking and pacifier use, which may impact on the eruption of the teeth, jaw formation, and place posterior strain on the developing TM Joint. In adults, pencil biting and pipe smoking can be problems. For adolescents, the familiar habits of propping the head on the hands while studying or watching TV on the floor are common triggers for TM Joint dysfunction.

The immediate pain from an injury may disappear within a short time, but the resulting tear or disc displacement, if not properly treated, may flare up months or years later as the degeneration continues.

The Muscles



Many investigators estimate that over 90% of head and neck pain is caused by "muscle tension headaches." Although spastic muscles can be the primary cause of the CM Disorder, often they are actually a secondary problem reacting to a structural, postural, or joint dysfunction. In addition, muscles can adversely respond to biochemical and behavioral imbalances.

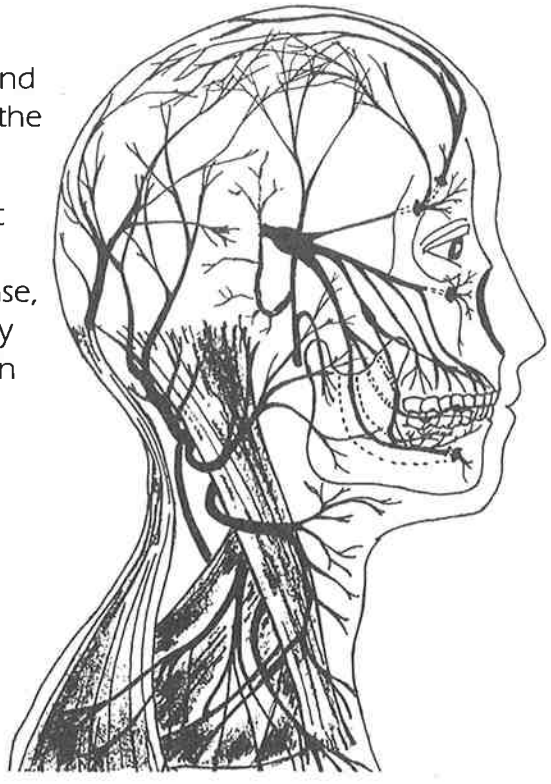
Muscles may become trapped in a cycle of spasms producing pain, muscle tenderness and possible tissue damage. At a cellular and biochemical level, sore muscles in spasm are inflamed. These dysfunctional muscles build up "Non-end product metabolites" which are irritating and toxic and promote more spasm and pain. Trigger points (T.P.) are specific areas of muscles spasms that produce pain when palpated. These T.P. can often refer pain to another area. This "referred pain" phenomenon is quite common in the head and neck regions, becoming worse the longer the problem exists. This often masks the diagnosis of CMD, while creating a wide variety of pain patterns seen frequently in sufferers of Craniocervical Mandibular Disorder.

Furthermore, muscles always function in groups forming a complex interrelationship. When one muscle or group goes into spasm, the associated muscles will often be affected.

If muscles are abnormally tight or spastic, blood vessels and nerves may become entrapped resulting in decreased blood flow and partial numbness.

The Fascia

The term fascia is applied to a sheet or broad band of tough connective tissue which covers and supports muscles, skin, and all other organs of the body. Superficial fascia lies immediately under the skin and serves as a storehouse for water and fat, and forms a layer of insulation and protection for nerves and other superficial organs.



Deep fascia is a denser connective tissue which separates and supports muscles, allowing free movement, and providing the origin for muscles. It also carries nerves and blood vessels.

Because of its extensive network of function and placement throughout the body, fascia plays a vital role in the healthy relationships of nerves, muscles, and bony structures. Disease, trauma, poor posture, and inflammation can limit or destroy the normal interplay between fascia and organs, resulting in abnormal pressure on nerves, muscles, bones, and organs. This can create pain and dysfunction throughout the body.

A Neuro-Skeleto Muscular Disorder — The Trigeminal Nerve

At a meeting of the American Association for the Study of Headache, in 1990 the moderator summarized "We are

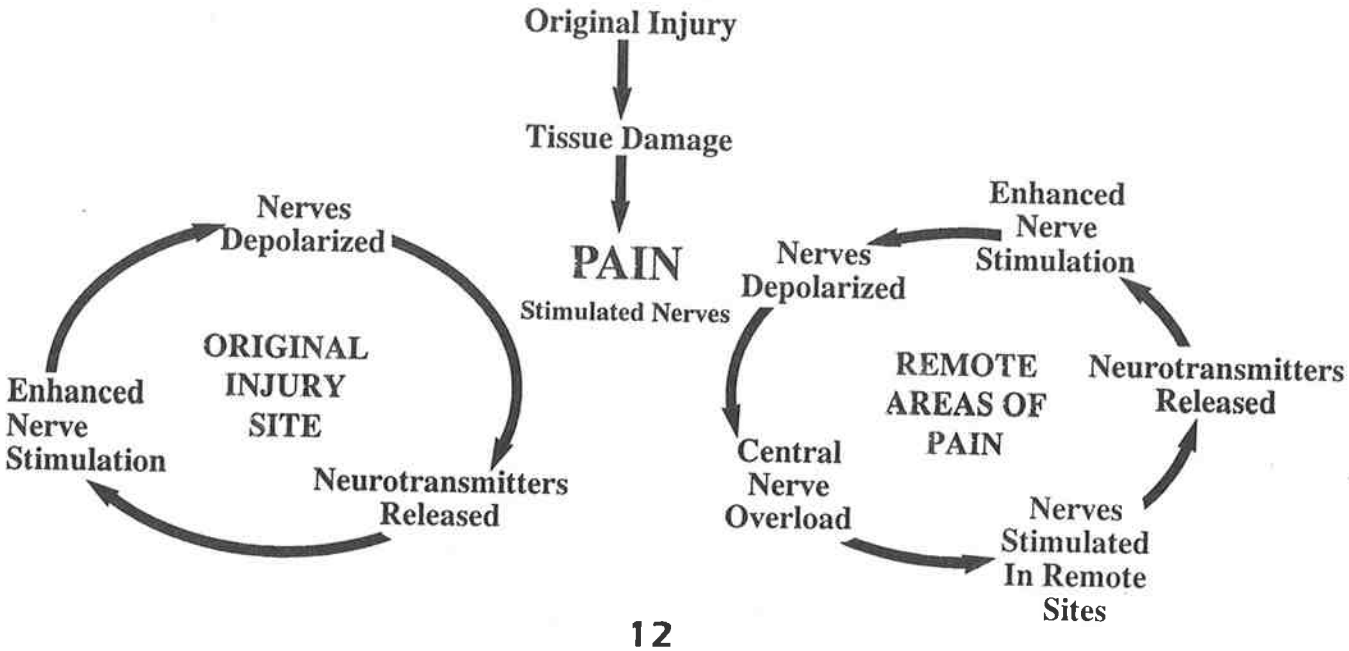
moving towards a central idea of headache...not migraine nor tension but a unified theory...based upon a central disturbance of the Trigeminal Nerve". The Trigeminal Nerve is the largest sensory nerve in the head, also containing motor nerves to the muscles of the jaw. While central disorders of the brain can cause skeleto-muscular problems, more often chronic skeleto-muscual disorder overload or hypersensitive the nerves, affecting organs, glands and other structures, far away from the perpetuating source of the problem.

Typically as painful stimuli enter the Trigeminal Nerve System, sensory impulses mix in the brain and spinal column with other incoming Trigeminal, Cranial and Cervical nerves of the head, neck and shoulder regions. Likewise, all these nerves of the head and neck peripherally overlap (see diagram). Due to the extensive peripheral and central "overlap" of nerves, specific pain referral remote from the actual site of disorder is common in chronic head, neck, and shoulder pain. Mapping the pain pattern can often lead to the specific peripheral site(s) perpetuating the chronic condition. These sensitive "hot spots" can be trigger points is muscles or other chronic inflammatory conditions in tendons, ligament or joints. Palpating (pressing) these painful sites often duplicates the pain pattern of the headache the client experiences.

At the cellular level, when injury occurs to any tissue of the body a predictable cycle of events takes place. The injured tissue produces pro-inflammatory substances that sensitize and stimulate the nerve endings. A nerve activated by pain produces its own neuro-transmitters which further stimulate the nerve from which it was released enhancing the pain process. This predictable cycle of nerve hyperstimulation by the nerve itself may occur remotely from the original injury, which may explains in part why chronic pain seems to "spread" over time. Additionally, if a nerve is stimulated long enough, it becomes depolarized. That is changes in ther nerve membrane allow the painful stimuli to readily transmit to the brain.

When the chronic pain pattern has been established from some time, the original (or primary) injury site may be indistinguishable from other peripheral (or secondary) tender sites, over-stimulating the entire Trigeminal System.

In conclusion, many researchers now believe that the primary perpetuating factor of chronic head and neck pain is a hypersensitized Trigeminal Nerve System. That is specific areas in the head or neck that remain continuously hypersensitized due to a chronic unresolving inflammatory disorder or a disturbance of the Trigeminal Nerve System in the brain which continually stimulates the painful peripheral sites.



Biochemical Factors

CMD and all skeleto-muscular problems involve chronic inflammatory conditions in the muscles and joints often producing the pain. There are a number of biochemical factors that could adversely impact one's cellular response to healing, remission, or the perpetuation of the chronic inflammatory condition of CMD.

Nutrition

In order to heal, damaged tissues require an adequate, if not optimal, supply of nutrients if repair is to proceed at the expected pace. An inadequate intake of essential nutrients can increase the risk for skeleto-muscular problems or impede the healing time of damaged and/or dysfunctional tissues.

Toxicity

Chronic inflammatory conditions in muscles and joints can result or be exacerbated by a build up of toxic substances. Toxins can accumulate in muscles and joints from many sources.

Endotoxins are toxic substances produced within the body as a result of metabolism. For any number of reasons, any one of these metabolites can back up in the tissues and create inflammatory conditions which then reduce the normal functions of those tissues and cause pain.

Exotoxins are natural or synthetic chemicals or biological agents in our food, air, and water. Allergic or hypersensitive foods, additives, impurities, chemicals and natural toxins are examples of exotoxins. In addition, parasitic resident flora of the bowel (such as harmful bacteria, viruses, and protozoa) can release extoxic substances.

The liver, our body's chief detoxifying organ, can become overloaded and overwhelmed by toxic loads. When this happens, toxicity occurs, causing chronic and diverse symptoms. Chronic toxic overloads are often more difficult to diagnose than acute toxicity because of the diverse and unusual patterns of reactions.

Hormonal Imbalances

Hormones, which regulate so many of our body functions, can contribute in many ways to skeleto-muscular dysfunctions. Low thyroid function increases the risk for muscle spasms. Low adrenal function may result in increased fatigue and poor response to inflammation.

Biobehavioral Factors: A Biopsychosocial Approach and Stress

When pain becomes chronic, a non-resolving pain which lasts past normal healing time (1-2 months), a feeling of helplessness or hopelessness may become overwhelming. In learning to live with the pain, the mind and the emotions can become as important as the physical (or biological) causes of the pain, and these may perpetuate the chronic condition.

For some, the physical assessment and treatment of their chronic pain condition is as important as understanding the behavioral and psychosocial factors which may be contributing to the condition. "Working through" major life events, integrating and learning from the pain rather than suppressing the pain, understanding the affects of disuse or over-guarding are some of the factors that may lead to resolution of the chronic pain. For some chronic pain patients who do not seem to be able to resolve their chronic pain, a broader biopsychosocial approach to this complicated pain is helpful.

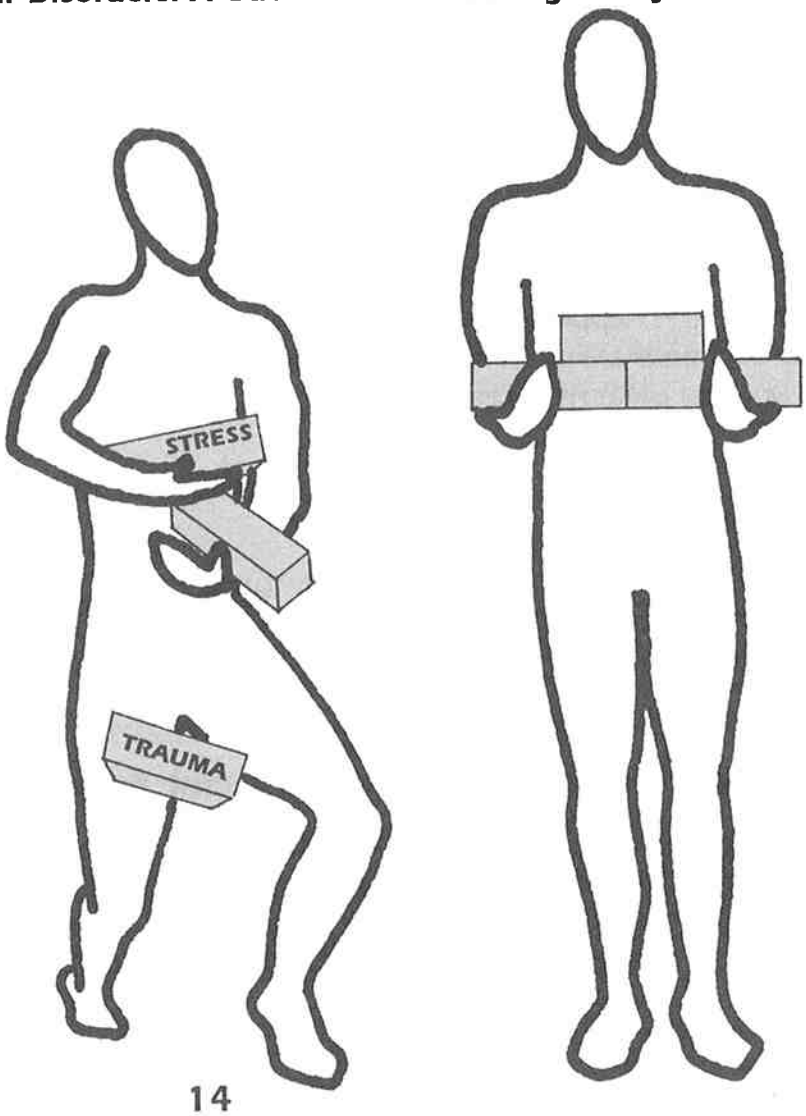
Stress

The relationship between muscle spasms and stress has long been recognized; when we are under stress we tighten up. Dr. Hans Selye, a noted medical researcher, stated that too much mental stress can eventually overwhelm our coping mechanism, leading to decreased immune resistance, fatigue, stomach disorders, and muscle spasms. The avoidance of stress is not possible for most, although the reduction of stress is often helpful. One's response to stressful stimuli, a learned behavior, can be modified through therapy and treatment, and for some this is essential in learning to deal with CMD and its associated problems.

PERPETUATION OR RESOLUTION

Chronic Skeleto-Muscular Disorders: A Question of Balancing Bodily Functions

- **Injury**
- **Habits**
- **Bite**
- **Genetic**
- **TM Joint displaced disc**
- **Nutritional & biochemical problems**
- **Stress**
- **Reaction to stress**
- **Trauma**
- **Cranial and skeletal malalignment**
- **EMF**
- **Toxic Exposures**



"Once we know the what, the where and the why of a patient's complaint, we are in a position to plan rational and effective therapy." Dr. Weldon Bell

If you have chronic head and neck pain of skeleto-muscular origin (90% of all chronic head pain is skeleto-muscular in origin) it is very possible you have been to many health professionals to seek relief.

Medical Physicians and many other professionals are involved in treating chronic head and neck pain of the joints and muscles. Some may be Physical Therapists, Osteopaths, Chiropractors, Message Therapists, Acupuncturists, Nutritionists, and Psychiatrists or Psychologists for pain and stress management (when no one can solve the problem — it must be all in your head!).

If the problem is Craniocervical Mandibular Disorder medical testing or other adjunctive services may fail to find the CAUSE of the problem. The problem is not just medical, osteopathic, or chiropractic; it is also a dental problem. The presence of teeth complicates the picture and makes the dentist highly qualified to assist the other professionals in treatment.

Our office recognizes the contribution of the health care professionals who involve themselves in treating chronic head and neck pain. Their contributions are important to the success we hope to achieve with patients affected by CMD. Our office routinely refers and coordinates treatment with these other professionals.

A thorough Craniocervical Mandibular Disorder diagnosis in our office includes:

1) A Medical, Dental, and TMJ History

2) Dental Exam and Bite Analysis

3) Muscle Exam and Analysis

4) Skeletal & Postural Analysis

5) X-Rays of the Joints

Since it is very important for this office to obtain an accurate diagnosis of all the factors contributing to Craniomandibular Disorder, additional diagnostic tests may be requested. These could include:

1) Specialized Imaging of the TM Joint, Skull and Spine with X-rays or MRI

2) Blood, Urine, or other Diagnostic Tests

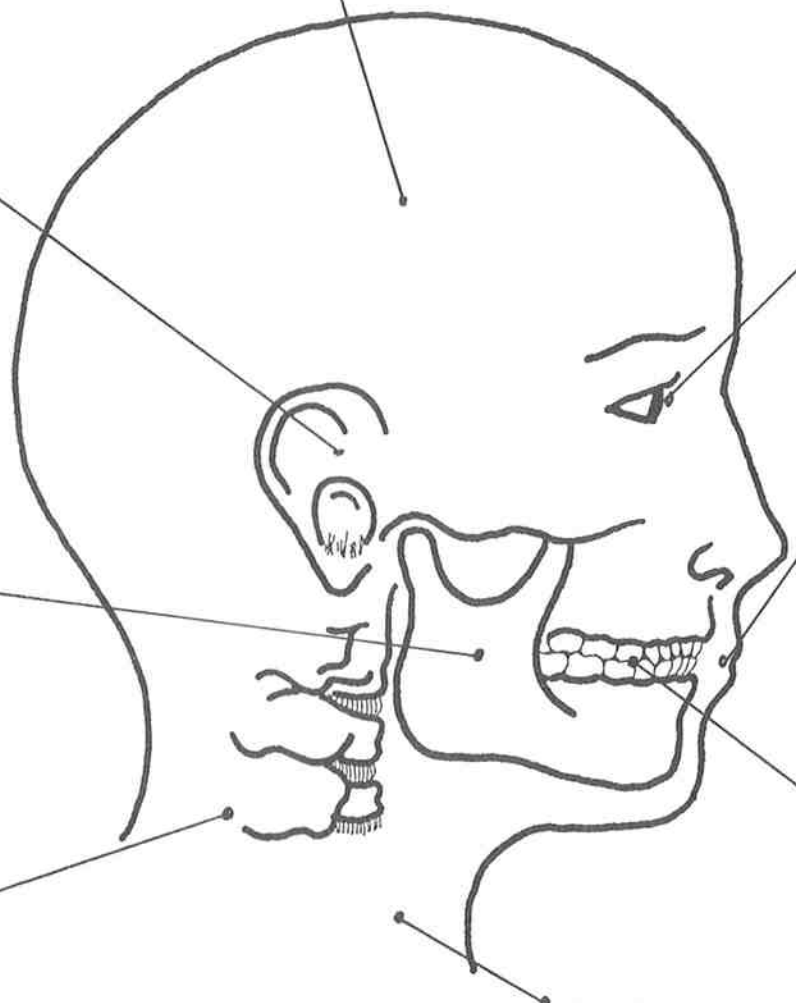
3) EMG

4) Thermography

5) Computerized Jaw Tracking

6) Computerized Sonography

The K-F-S Temporomandibular Joint Visual Index*



HEAD PAIN, HEADACHE

1. Forehead
2. Temples
3. "Migraine" type
4. Sinus type
5. Shooting pain up back of head
6. Hair and/or scalp painful to touch

EAR PROBLEMS

1. Hissing, buzzing or ringing
2. Decreased hearing
3. Ear pain, ear ache, no infection
4. Clogged "itchy" ears
5. Vertigo, dizziness

EYES

1. Pain behind eye
2. Bloodshot eyes
3. May bulge out
4. Sensitive to Sunlite

MOUTH

1. Discomfort
2. Limited opening of mouth
3. Inability to open smoothly
4. Jaw deviates to one side when opening
5. Locks shut or open
6. Can't find bite

JAW PROBLEMS

1. Clicking, popping jaw joints
2. Grating sounds
3. Pain in cheek muscles
4. Uncontrollable jaw and/or tongue movements

TEETH

1. Clinching, grinding at night
2. Looseness and soreness of back teeth

NECK PROBLEMS

1. Lack of mobility, stiffness
2. Neck pain
3. Tired sore muscles
4. Shoulder aches and backaches
5. Arm and finger numbness and/or pain

THROAT

1. Swallowing difficulties
2. Laryngitis
3. Sore throat with no infection
4. Voice irregularities or changes
5. Frequent coughing or constant clearing of throat
6. Feeling of foreign object in throat constantly

*A visual, clinical index correlated from the most frequently seen symptoms documented in craniomendibular pain patients by Dr. Bruce H. Kinnie (Columbia, South Carolina), Dr. Lawrence Funt (Bethesda, Maryland) and Dr. Brendan C. Stack (Falls Church, Virginia) and patterned after the F-S Index of the Craniomendibular Pain Syndrome.

A doctors duty is:

To cure sometimes

To relieve often

To comfort always

—HIPPOCRATES—

Treatment Principles

Treatment for Craniocervical Mandibular Disorders will vary from person to person. Treatment strategies are highly individualized due to the many causes of CMD, the degree of tissue destruction, the individual's response to healing, and the treatment objectives the patient and doctor are seeking to accomplish.

These are some of the principles we incorporate into our Treatment Strategies.

1. Treatment is only started after a thorough diagnosis has been made. We prefer that our clients understand and mutually agree upon objectives to be accomplished by the treatment.

DIAGNOSIS → UNDERSTANDING → TREATMENT

2. All treatment usually begins as conservatively as possible using non-invasive procedures before advancing to more aggressive procedures.

Conservative TX → Aggressive TX

(non-invasive) (invasive)

Preventive Treatment in Kids

Some youngsters may show early signs and symptoms of developing CMD problems. Children, however, usually do not exhibit the tissue destruction in the TM Joint or the chronic muscular disorders.

The correct type of orthodontic intervention, especially at an early age when jaw growth is still present and destructive habits can be changed, will reduce the risk of developing Craniomandibular problems later in life. This early orthopedic treatment is aimed at placing the TM Joint into a favorable position and correcting skeletal imbalance in the way the jaws come together. Thus treatment becomes orthopedic — realigning joints and jaw bones, and orthodontic — moving teeth.

Early orthopedic and orthodontic treatment in youngsters, sometimes before all the permanent teeth are present, is called Phase 1 Orthodontics. We find this to be crucial in helping to prevent Craniomandibular problems.

Phase 1 — Treatment

Craniocervical Mandibular Disorder Treatment is often divided into two distinct phases with different objectives.

Phase 1 treatment objectives aim to eliminate or relieve pain symptoms, encourage healing of the involved joints and/or muscles, and improve or eliminate as many predisposing conditions that may be contributing to the skeleto-muscular disorder as possible. Reducing inflammation, improving range of motion, improving postures, strengthening the skeletal and muscular systems, improving stress resistance, and patient education are some of the more specific goals for Phase 1 Craniocervical Mandibular Disorder Treatment.

As there are many causes of CMD, there are many treatment approaches to correcting or managing the condition, which, as a total, are directed at the whole person.

Biomechanical

Biomechanical Therapy are those treatments which manipulate the skeletal system (spine, jaw joints, cranial bones, etc.), the muscles and the fascia. Muscles will often respond adversely when there are bony and joint misalignments. Likewise, joints and bony structure can become displaced with chronic muscular tension or spasms.

During the initial physical exam and history, the skeletal, muscular and postural problems of the jaw, neck and whole body are evaluated. Because of the chronic nature of the condition other therapists may be needed to correct or properly manage the dysfunction. Since CM Disorder is a skeleto-muscular disorder we refer to practitioners who have a good understanding of the Muscular and Skeletal Systems, as well as postural tongue placement and mouth breathing disorders.

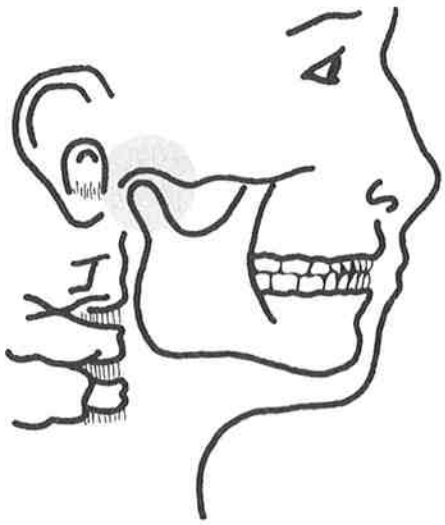
Appliance therapy (splint) and other structural appliances, physical, osteopathic or chiropractic, myofunctional, massage, and acupuncture therapies and structural appliances which facilitate the proper functioning of the skeletal and muscular systems are examples of biomechanical therapies.

The specific manipulative and therapeutic modalities that can be employed are varied depending upon individual needs and practitioner preferences.

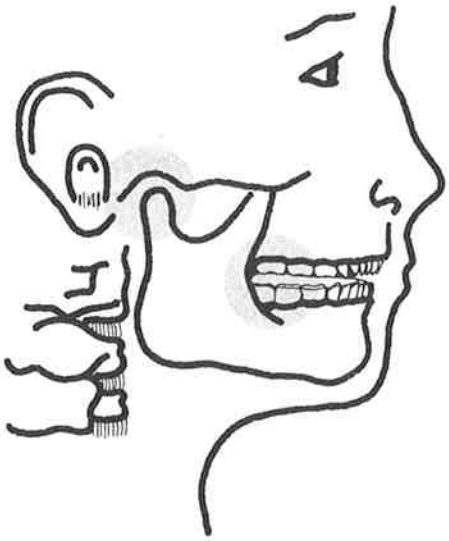
How Does A Splint Work?

1. The splint will move the joint down in the socket thus decompressing the blood vessels and nerves of the TM Joint. This reduces pain, increase the supply of blood and nutrients to the joint tissues, and promotes healing.
2. The splint restores fore-shortened muscles of mastication to their normal resting lengths. When muscles are stretched the spasms are reduced.
3. The splint decreases Dysfunctional Impulses (pathophysiologic proprioception) into the Central Nervous System which, in turn, decreases electrical muscle activity.
4. Since the splint limits TM Joint function, it will promote healing.

5. Since the splint repositions the jaw, it will often have an effect on the other structures of the head, neck, upper quarter, and sometimes the whole body.
6. A splint can recapture the disc to its proper position and keep it in place while healing of the stretched or torn ligament takes place.
7. The splint restores the bite during the joint changes of therapy.



A Splint made of clear plastic, covers the back teeth. Notice that the Splint changes the positioning of the structures of the TM Joint.



Biochemical

Skeleto-muscular disorders can also be treated biochemically. Underlying biochemical disorders can help precipitate or perpetuate the pain symptoms of Cervicocranial Mandibular Disorders. Any factor that impairs the metabolism necessary for muscle function, connective tissue and bony repair, or aggravates the inflammatory response has the potential to exacerbate a skeleto-muscular problem.

Specific biochemical therapies that can be used as adjunctive treatment to biochemical treatment include: nutritional, hormonal, detoxification treatments, specific antiinflammatory treatment regimes, and herbal therapies as well as pharmaceutical drugs. Treatment of medical conditions like chronic infection (i.e. Yeast), Digestive System Disorders, Hypoglycemia, Anemia, Allergy, Sleeping Disorders, is also critical.

Biobehavioral

Behavioral therapies for CM Disorders are aimed at the mind and how it influences how we use or abuse our muscles and joints. This may include reducing stress and modifying one's responses to stress, as one would learn in biofeedback or meditation training.

Increased muscular tension during periods of stress can precipitate or perpetuate CM Problems. Stress avoidance is impossible, but stress reduction is not. Moreover our response to stressful episodes can be modified to minimize tension. Some practical methods for modifying one's response to stress are counselling, hypnosis, biofeedback, and meditation.

Chronic Pain Support Groups can be very helpful. Information on support group and other behavioral therapies will be supplied upon request or if indicated.

Bioenergetic

Our understanding of the energetic portion of the body appears to be emerging as we understand more about the human body and its potential. Bioenergetic therapies influence healing through the diagnosis and manipulation of these subtle forms of bodily energies. Biomagnetism, acupuncture, homeopathy, contact reflexology, and applied kinesiology are some examples of Bioenergetic therapies that can be useful in treating skeleto-muscular conditions.

Phase II — Treatment

Phase II Treatment Objective: Phase II treatment objectives include modifications made to the teeth to stabilize the jaw position and thus prevent recurrence of TM Joint Disorders and pain symptoms.

The jaw and TM Joint can be harmoniously stabilized by a number of methods.

Equilibration: If teeth and jaw changes have been slight to none, then equilibration may be all that is required in Phase II. During equilibration small spots on the teeth are adjusted so that the teeth meet ideally.

Often stabilizing the jaw cannot be accomplished by equilibration. The teeth must be restored or moved to a new "position" (established by the splint).

A new "Bite" may be recommended to stabilize the jaw because:

1. The joint position may change as a result of therapy, especially if repair of the disc has been accomplished
2. The teeth may shift during therapy as a result of new biting forces
3. A new bite, which may be different from the original bite, is critical for stabilizing the joints and eliminating symptoms

Dental Treatments that can restore or move teeth to stabilize the jaw are:

1. Orthodontics
2. Overlays: fillings, porcelain or resin onlays, partial dentures
3. Reconstruction: crown & bridge, new dentures
4. Surgery
5. Extended use of the appliances

Patients can choose which option may be best for them at that time. No one form of treatment is best for all patients.

Orthodontics

Orthodontic techniques that we emphasize in Phase II treatment are often different than the traditional Orthodontic techniques practiced by most Orthodontists today. As previously discussed teeth that are straightened or moved into a new position must be in harmony with the jaw joint or recurrence of the Craniocervical Mandibular Disorder is likely. Functional Orthodontic techniques, (a new form of Orthodontics) are often used to accomplish the bite, jaw and aesthetic harmony desired.

Overlay

A new bite can be reestablished with overlays which fit over the top of the teeth. Overlays can be removable partial dentures or fixed restorations. These procedures are less expensive than reconstruction with crowns and bridges and preserve much more of the tooth structure. The recent advancements in adhesive dentistry have given us these overlay choices.

Reconstruction

If teeth are broken down or missing, or if teeth need to be stabilized or restored due to cavities or gum disease, then reconstruction of the teeth and bite should be considered using crowns and bridges, implants or partials. Correcting the bite is performed immediately in reconstruction as compared with Orthodontics which may take many months.

Surgery

Surgery need not be considered as a last resort for patients when non-surgical methods have failed. TMJ surgery is an effective treatment for specific joint disorders. The TM Joint is amendable to surgical techniques like any other joint in the body. Surgical outcomes are significantly influenced by proper diagnosis and patient selection, the clinical judgement and expertise of the surgeon, and post operative patient care and compliance.

In addition to TM Joint surgery, orthgnathic surgery may be required if the bite is so far off that orthodontic or reconstructive treatment cannot make the teeth fit properly.

Our purpose in writing this booklet has been to help you understand the skeleto-muscular disorders of the head and neck, and the strategies available to prevent or treat Craniocervical Mandibular Disorder. We offer help and patient understanding for those experiencing the chronic head and neck pain of CMD. We want our clients to know that CMD can be treated and that the chronic pain of CMD can be conquered.

— the Authors

National Integrated Health Associates

Craniocervical Mandibular Disorder, as described in our booklet, is often a complex problem, involving multiple interventions, from a variety of professionals, for maximum resolution. C.M.D. is neither a medical nor dental problem. N.I.H.A. is a unique Medical-Dental facility, blending traditional and alternative therapies. Our treatment protocols are timed in such a manner so that multiple intervention can be integrated, for our goal is to reduce your treatment time while maximizing treatment results. Our group is organized to be outcome sensitive, monitoring the effectiveness of treatment and your costs.

5225 Wisconsin Avenue, N.W.
Suite 401
Washington, D.C. 20015-2014

(202) 237-7000
Fax (202) 237-0017