

INFORMATION FOR HEALTHCARE PROFESSIONALS

It is estimated that head and neck pain affects one in four Americans. Most look first to their primary care provider for help, but all too often experience a long and frustrating search looking for relief.

Head, neck and facial pain is very often the result of problems related to the way the mandible relates to the cranial base. The majority of those who suffer from TMD (temporomandibular disorder) are women. Many doctors and patients are unaware that they could successfully solve these problems through proper TMD treatment.

SIGNS AND SYMPTOMS

TMD problems can often mimic other medical complaints. This often leads health professionals to miss the underlying imbalance in occlusion, jaw strain and muscle tension as the Trigeminal nerve tries to comfortably cope with these problems.

Patients with TMD often present complaining of jaw neck and back pain, headaches, and migraines. Although not universal, a common finding is a jaw that pops or clicks, ear congestion, ear pain, or tinnitus. Jaw and neck muscles can also hurt as the Trigeminal nerve works to posture and balance the mandible beneath the skull.

All of these can produce muscle and ligament pain as well as lead to internal derangement of the TM joint. With prolonged insults to these structures, muscles hurt or develop painful “trigger spots”, teeth wear out, ligaments stretch and thin, bone undergoes osteodegenerative changes, and the joint remodels.

CAUSES:

TMD problems are usually multifactorial and deal with the relationships of the teeth, the TM joints, the muscles, and the associated neurology. Causes of craniomandibular problems can include:

- **Trauma:** whiplash, ligament strains/sprains, muscle injury and splinting.
- **Systemic disease:** cervical osteoarthritis, rheumatoid arthritis, auto-immune disorders, connective tissue disorders, allergies.
- **Growth & development:** malocclusion, joint remodeling, airway problems.
- **Poor posture:** stress on joints/muscles to support function, weight and balance.
- **Dental bite instability:** gum disease, perio bone loss, worn down and broken teeth.
- **Muscle tension:** spasms from injury, bad bite, poor posture, stress, etc.
- **Stress:** reduced adaptive capacities from physical and emotional stress

A partial list of common signs/symptoms include:

Chronic headaches – migraine and tension

Restricted or altered mandibular movements

TM joint sounds; popping, grating, clicking

Ear problems: congestion, vertigo, tinnitus and pain with no obvious etiology

Face, neck, shoulder and back pain

Insomnia and depression

Ascending postural problems, pelvic or shoulder tilts, forward head posture

History of trauma, orthodontic braces, extensive dental work

Sensitive or mobile teeth, broken fillings or teeth

Night grinding, gum-line teeth notching

Thoracic outlet syndrome, paresthesia in hands/fingers

The Neuromuscular and Biomechanical Relationship

It is well known that sustained muscle tension will result in build-up of lactic acid due to poor oxygen distribution and anaerobic muscle function. This applies to muscles of the head neck and jaws when they must work to accommodate postural adaptations in the head and neck, and imbalances in jaw movements and in the bite.

Due to the inter-relatedness of the head and jaws, and the coupling/bracing that occurs between the jaw and the neck, a problem in one area may collaterally affect other areas and mislead the diagnosis and course of treatment.

The dental bite determines the lower jaw's relationship with the cranial base. Even though the jaw has six movements (vertical, anterior/posterior, lateral, "pitch, yaw & roll"), there is only one "home" position. Discrepancies between where the neurology and

muscles want the jaw positioned (“neuromuscular position”), and where the teeth want the jaw positioned (“centric occlusion”), can create an elevated or sustained degree of muscle tension as muscles work to bring the teeth into a functional position for swallowing, chewing, and bracing.

While tension headaches are a common finding with sustained muscle activity, the resulting increase in Trigeminal afferent proprioceptive and sensory traffic is now believed to be a significant player in migraine headaches (the so called “Trigeminovascular Event”). Imbalances in inhibitory and excitatory neuronal pathways may sensitize the trigeminovascular system and provoke a vascular headache event. Thus the importance of diminishing the muscular component involved.

Current use of Botox to reduce this muscular component now serves to validate this concept. But the better questions are: “Why are the muscles tense in the first place?” and “Can anything be done beyond short-lived measures to quiet this upstream afferent traffic resulting from heightened muscle activity, proprioception and sensory input?”

The answers very often lie in the arena of neuromuscular dentistry – balancing the craniomandibular relationship so that the muscles are “happy” and relaxed with the dental occlusion which supports the mandibular posture.

In our modern world of Tylenol and quick fixes, many believe that the suppression of symptoms is the treatment of choice. They often fail to look “upstream” at the true source of the muscle tension, neck pain, teeth grinding, or popping jaws.

DIAGNOSIS & TREATMENT:

When TMD signs & symptoms are diagnosed, it is important to have an evaluation by a trained and qualified TMD dentist. Our office can perform a full examination of the TM joints, muscles, head, neck and facial area, along with jaw functions and range of motion.

Modern computer diagnostic equipment allows us to objectively determine the pathological nature and extent of joint sounds, injuries, muscle status, and dental occlusion, and aids in arriving at a realistic treatment plan and prognosis.

Because of the unique nature of the mandible’s relationship with the skull, and the neuromuscular control of the head/neck, it is becoming more obvious that a dentist who is specially trained in treating these disorders may best direct this multi-disciplinary care.

Patients treated correctly for TMD benefit from the conservative nature of treatment our office provides. When symptoms are controlled and function is restored, then the dental occlusion and mandibular posture can be balanced so that teeth, muscles and joints will work together without strain or further injury. Surgery is indicated in less than 3% of all patients.

Other supportive therapies may include:

- Ultrasound / Hot/cold therapy
- Physical therapy / Massage therapy
- Spray & stretch
- Stress counseling
- Chiropractic
- TENS (ULF – ultra-low frequency)
- Trigger point injections
- Medications (analgesics, anxiolytics, anti-depressants, muscle relaxants)

Said differently, the degree to which jaw and neck muscles must be recruited to position or hold the jaw in its functional position in any or all of the six planes of movement, is the pivotal issue with regards to TMD problems of myogenic or muscle origin. If muscles can't find or obtain a restful postural position for the mandible, where the muscles can operate in a healthy aerobic state, they will suffer impaired blood flow and poor oxygen saturation, and accumulate metabolites of anerobic muscle metabolism (lactic acid), and suffer pain and eventual injury.

Often people can have damaged or stressed joints, or tense muscles due to these imbalances and stresses, yet display no symptoms or complaints. The popping joint without pain is a good example. This is due to individual “adaptive capacity” of these people to tolerate abnormal muscle physiology, function and posture.

Traditional dental medicine operates on the assumption that the existing dental bite is the best position, and/or that the jaw joint itself should be the determining factor in jaw position and posture. Most dental therapies generally attempt to restore or maintain the bite to one or both of these positions.

While these traditional jaw positions may be correct or tolerable for a specific person, it is not uncommon to find that the muscles and ligaments are stressed and strained in order to use or hold these structures in their functional positions (chewing and swallowing) which may not be the same as their “rest” position.

When this discrepancy or imbalance exists and if muscles are forced to work or “rest” at higher states of tension or activity, muscle metabolites such as lactic acid can accumulate in the muscles, and ligaments can be slowly damaged because of stretching and strains. If left unresolved, slow but sure changes can occur in hard structures (teeth and bone), which gradually adapt to the unintended forces of unrelenting muscle tension.

When problems or symptoms develop, one can often find hereditary and growth & development factors