

# Tenderly Touching the TM Joint

Judith (Walker) DeLany, LMT

A great amount of research and study has been done in the area of temporomandibular joint (TMJ) pain and dysfunction. Research has included practically every field of medicine and holistic therapy available today. Dr. Greer, in 1980, said "Rarely in the history of dentistry have so many labored for so long only to end up in extreme disagreement."

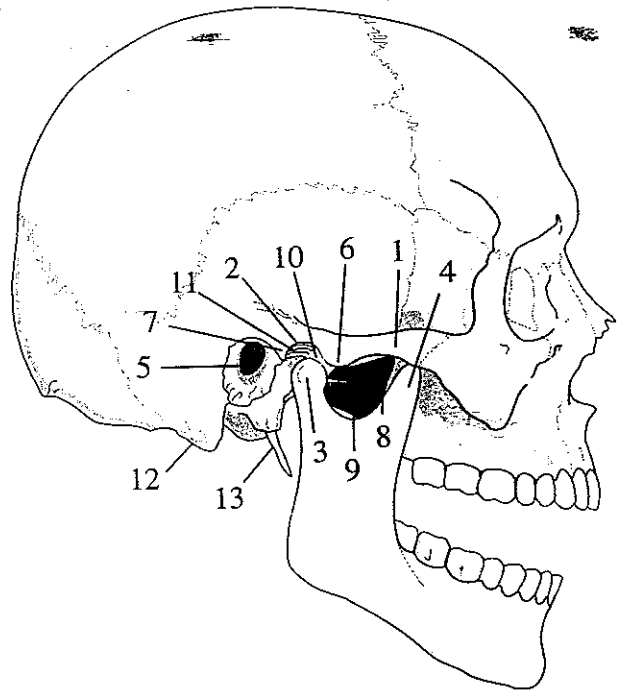
Man has strived for many years to understand the function of the temporomandibular joint. The physician, massage therapist, physical therapist, orthodontist and dentist will each have their own ideas as to the treatment of the TM joint. Since perspective can create narrow focus, there is diverse disagreement as to the cause of pain. Each practitioner tends to approach it from only one angle, the one of his/her most extensive training. The dentist or orthodontist will consider the joint itself, the psychologist the emotional factors. The massage therapist or physical therapist will consider the muscles and postural alignment and the chiropractor the spine's alignment and head position. Who is right? They are possibly all correct, since perspective is everything! What the treatment of this syndrome needs is a practitioner who knows it all OR a team who works together, understanding the importance of each component and how they interrelate.

Successful and unsuccessful treatment of craniomandibular pain syndromes has included dental equilibrations, oral surgery, extraction of teeth, extensive bridgework, facial surgery, physical therapy, injections, craniosacral therapy, chiropractic therapy, massage, ophthalmology, ENT evaluation, medications, acupuncture, biofeedback, and an abundance of other less known procedures, all of which will have unpredictable success or failure. Many cases will respond to a particular therapy, and then, for no apparent reason, stop responding and return to a point of misery and discomfort.

What, then, is the practitioner to do in order to achieve a longlasting result that creates a healing change rather than a temporary remission of symptoms? Where do the varying fields of treatment overlap? How much "therapy" is enough, without being too much for people to handle - with their time, their efforts and their money? Many of these questions will be determined by thorough examination of the soft tissues and cooperation with the dental team treating this condition.

## Skeletal Anatomy of the TM Joint

Temporo refers to the temporal plate. Mandibular is the mandible. Temporomandibular joint is the articulation of the condyle of the mandible into the fossa of the temporal plate.



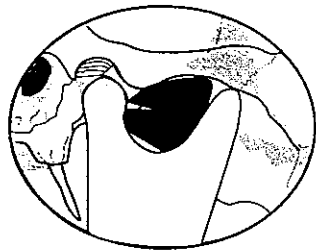
### Anatomy of Temporomandibular Joint

- |                                      |  |
|--------------------------------------|--|
| 1. Zygomatic Arch                    | 8. Lateral pterygoid superior division |
| 2. Articular fossa                   | 9. Lateral pterygoid inferior division |
| 3. Mandibular condyle                | 10. Disc (with attachments)            |
| 4. Coronoid process                  | 11. Bilaminar zone                     |
| 5. Auditory meatus                   | 12. Mastoid process                    |
| 6. Articular eminence                | 13. Styloid process                    |
| 7. Tympanic portion of temporal bone |  |

The articular fossa (2) is an indentation on the temporal plate located just in front of the ear. The mandibular condyle (3), the most posterior portion of the mandible, has a rounded top which fits into that indentation. In between these two structures is a disk (10). The disk is a bit smaller than and about the shape of a Lifesaver™ candy, but instead of a hole in the middle, the round pad of fibrous material is thinner in the center and thicker around the edges. This allows the disk to be "seated" onto the condyle and to be carried forward by the condyle as it translates during movements of the jaw.

The lower head of lateral pterygoid (9) attaches onto the neck of the mandibular condyle. The upper head of the lateral pterygoid (8) attaches onto the anterior aspect of the disk. As

the mouth opens, the upper and lower heads both contract, pulling the condyle and disk simultaneously forward and down the slope of the articular eminence (6). The disk in a healthy joint will glide forward with the mandibular condyle



TM Joint Enlarged

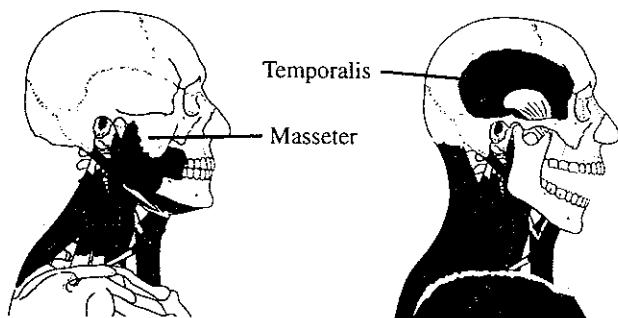
as it descends the posterior aspect of the articular eminence. The condyle's ride down the posterior aspect of this upside down mountain is what actually gives the mandible its opening effect since forward pull by the lateral pterygoid would only cause protrusion of the jaw.

The TM joint is a synovial joint. That is, it has a joint capsule which is filled with a slippery synovial fluid that allows gliding motion and also nourishes the joint. The synovial fluid fills the space above and below the disk, allowing for easy translation. Considering that this motion occurs every time the mouth is opened, not only for chewing, but for talking, drinking, singing, etc., this disk must be made of a resilient substance indeed.

In a healthy, functional joint, normal symmetrical movement and good synovial fluid lubrication is needed. As the condyle translates forward, the disk translates with it down the articular eminence with both the right and left joints moving at the same time. As the mouth closes, the disk returns to the fossa with the condyle, being pulled there by elastic fibers which attach the disk posteriorly to the tympanic portion of the temporal bone (7) and to the condyle. The upper head of the lateral pterygoid will stabilize the disk during closure.

Within the joint itself are two chambers, one above the disk, the other below the disk. Both of these chambers need healthy lubrication (synovial fluid) and good proprioceptive (pressure) information. When the jaw bites hard on anything, the receptors inside the joint signal to the brain how much pressure is being used. Without that information, damage could result to the disk, joint surfaces or to the teeth.

The mouth is closed by the contraction of the masseter, medial pterygoid and temporalis muscles. These powerful muscles exert a tremendous force which masticates food, protects by biting and serves as an incising tool. Excessive dis-



stress of these muscles may lead to bruxism (clenching and grinding the teeth) which contributes to TMJ pain and dysfunctions of the joint.

### Dysfunctional TM Joints

In dysfunctional joints, non-symmetrical movement or loss of range of motion may be displayed due to a derangement of one or both disks. If the disk has become displaced anteriorly, the person may experience a popping or clicking sound or a jerking movement when opening or closing. The range of motion may be reduced significantly and pain may or may not accompany the symptoms. If the disk is laterally displaced or torsioned on the condyle, the mandible will usually display a zigzag pattern when opening or closing. The disk may also be completely or partially destroyed or the condylar head may be eroded by osteoarthritis.

Symptoms reported with a dysfunctional TM joint may include pain which is constant or sporadic, masticatory muscle tenderness, a clicking or popping sound, head pain, a locking sensation, and limited opening with or without deviations of the mandible. Any or all of these symptoms may be present. About 85% of patients feel pain on only one side, usually in the temple, cheek, and front of the ear.

### Causative Factors of TMJ Dysfunction

Some of the most common factors include:

- Intrajoint dysfunction
  - adhesions and scarring
  - disc displacements
  - disc destruction
  - arthrosis and calcium deposition
- Musculoskeletal
  - hypertonic TMJ muscles
  - referred pain from trigger points
  - postural distortions
  - skeletal misalignments
- Occlusal factors
  - premature contacts
  - loss of vertical dimension
- Psychological
  - stress and emotional distress
  - depression and neurosis
- Biochemical
  - hormonal - especially estrogen
  - neurostimulants, such as caffeine
  - allergies - both known and hidden
  - chemical exposures
  - drugs - prescription, OTC, recreational
  - mineral and vitamin deficiencies
  - biochemical imbalances

There are many causal factors of chronic facial pain. Injuries may occur from direct trauma such as a blow across the

face, overstretching the mouth as if biting a big apple or from reconstructive surgery or extensive bridgework. Immobilization of the mandible when the mouth is wired shut or when traction equipment, head gear or cervical collars are worn may distress the joint. Pulpal inflammation (the pulp is the center of the tooth housing the nerve and blood supply) may lead to abscess of the tooth and related swelling. Entrapment of the trigeminal nerve as it passes through a muscle or compression of the nerve by the base of the skull may irritate the nerves which supply the joint area.

The parotid gland (a very superficial salivary gland), the joint capsule, the pre-auricular lymph nodes and the muscles of the TM joint all need consideration when massaging the craniomandibular area. Many massage therapists frequently work on and around this joint. An understanding of the structures and precautions not only will prevent irritation to the area, but may also assist to eliminate some of the causes of pain and dysfunction.

Reconstructive dentistry will probably be necessary for the majority of people suffering with craniomandibular dysfunction (another name for TMJ syndrome). One or more teeth may need to be crowned or replaced to retain or rebuild vertical dimension. The position of the teeth may need to be rearranged (orthodontics). Bite splints or acrylic appliances (also called night guards), worn over a period of time, may assist to decompress the joint or recapture the disk.

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It is not uncommon for \$30,000-80,000 to be spent on therapies needed to prevent further damage to the joint. This condition needs a full team approach as seldom is one approach by itself successful. Massage therapy is one facet of the many courses of treatment needed to rehabilitate the dysfunctional craniomandibular joint. Therapists and physicians seeking to expand to this exciting field of work will benefit from reviewing "Ending Head and Neck Pain, The TMJ Connection" by Randall Moles. Though written for the lay person, it has a thorough multifaceted approach to TMJ dysfunction.

Training for the treatment of the cervical as well as craniomandibular muscular tissues is highly recommended. Knowledge of postural distortions and structural compensations will augment the results of therapy. A full team approach is recommended for all head and neck pain cases.

*About the author:* Judith (Walker) DeLany, founder and director of the International Academy of NeuroMuscular Therapies, is an international speaker on the treatment of soft tissue pain and dysfunction. She has contributed the American version of NMT to the popular book, *Modern Neuromuscular Techniques* by Dr. Leon Chaitow, and is associate editor of *Journal of Bodywork and Movement Therapies* (Churchill Livingstone Publishers). Her extensive training in the area of TMJ dysfunction includes 7 years as a chairside dental assistant and over 12 years of instructing advanced massage techniques of the TM joint. She has presented this material for the Florida Chiropractic Association, the Florida State Massage Therapy Association and the American Massage Therapy Association as part of a team approach in addressing cervico-cranio-mandibular dysfunction. She may be contacted through the NMT Center, 900 14th Avenue North, St. Petersburg, FL 33705 or seminar information obtained by calling (813) 821-7167.



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