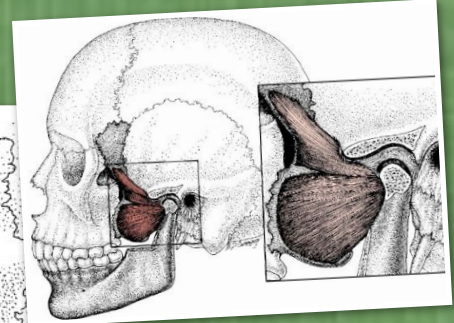
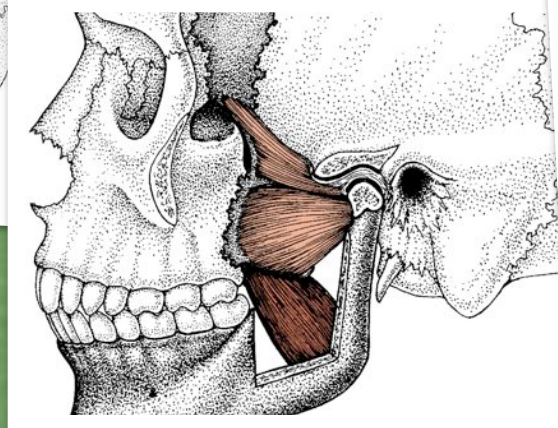
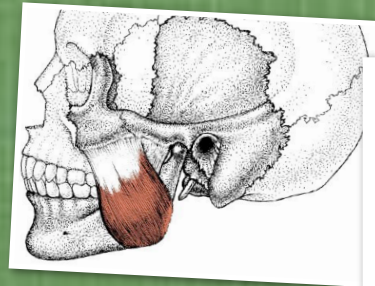


To treat or not to treat

MARCH 2010!

JUDITH DELANY, LMT!

FSMTA TB CHAPTER



Masseter, lateral and medial pterygoid, and other TM joint muscles create havoc in the head.

Should LMTs treat temporomandibular joint muscles?

Although many massage therapists would answer a resounding “Yes! Of course!” to the question in the title of this article, it and many others deserve to be asked.



Can we actually harm with inappropriate techniques? Is every massage therapist appropriately trained and sufficiently qualified for the delicate protocols of intraoral work? How much is sufficient training to safely work there? These are questions that are being asked - whether in Florida,

where massage therapists have routinely worked inside the mouth for decades, or Washington state, where the right to do so has just recently been approved.

Location and function

The temporomandibular (TM) joints are located just anterior to the opening of each ear. These bilateral synovial joints hinge and slide on their fibrocartilaginous surfaces to provide movements of the mandible. These movements include depression, elevation, protraction, retraction, lateral excursion, and a degree of circumduction and lateral rotation. It is rather remarkable that these movements occur in most people without any problem, especially considering the incongruent and

naturally unstable design of this joint.

If the joint remains functional and non-painful, then chewing, talking

*Anatomy, anatomy,
anatomy ... the 3
most important
words in healthcare.*

and displaying a wide range of facial expressions goes on practically unnoticed by the person. However, once temporomandibular dysfunction (TMD) develops, it may seem like nothing within the life is normal.

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Judith DeLany, LMT

Since being certified in NMT in 1984, Judith DeLany has spent over two decades developing neuromuscular therapy techniques and NMT course curricula for manual practitioners as well as massage schools. In addition to instructing NMT seminars internationally, she is also intricately involved in the administration aspect of NMT Center's continuing education department as owner and director of the organization. She supports the technology in curriculum development by consistently reviewing new software products and textbooks for her company, as well as for Elsevier Health Science, and by developing ways to integrate and use them in the classroom.

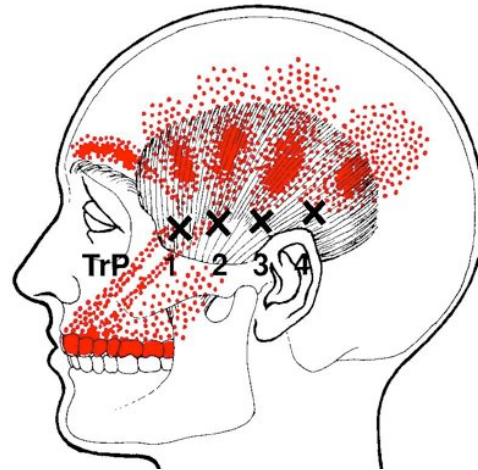


Ms. DeLany has co-authored of three strongly referenced textbooks and authored numerous articles on chronic pain management

for both magazines and peer-reviewed journals. Her position for over a decade as associate editor for *Journal of Bodywork and Movement Therapies* (a peer-reviewed Elsevier journal) supported her professional focus, which aims to advance education in all health care professions to include myofascial therapies in the treatment of patients with acute and chronic pain.

Judith's dynamic and clear presentation style and her use of the most up to date technology and comprehensive anatomy software makes learning a difficult subject easy and fun.

Trigger points refer pain, tingling, numbness, itching and a variety of other sensations.



Trigger points of the temporalis muscle refer to teeth and cause headache pain.

Symptoms of TMD include headache in a variety of patterns, toothache, burning or tingling sensations in the face, tenderness and swelling on the sides of the face, clicking or popping of the jaw when opening or closing the mouth, reduced range of motion of the mandible, ear pain without infection, hearing changes, dizziness, sinus-type responses, overt pain behaviors and postural changes. In fact, it is characterized by so many symptoms that could arise from other ailments that it has a strong reputation as an elusive, baffling condition. (DeLany 1997) Add to these the major losses in self-esteem and social support caused by decreases in normal activities and it becomes easy to understand the devastation associated with chronic TM dysfunction.

Structure of the joint

“Temporo” refers to the temporal bone. “Mandibular” refers to the mandible or lower jaw. Temporomandibular joint is the articulation of the condyle of the mandible into the mandibular fossa of the temporal bone.

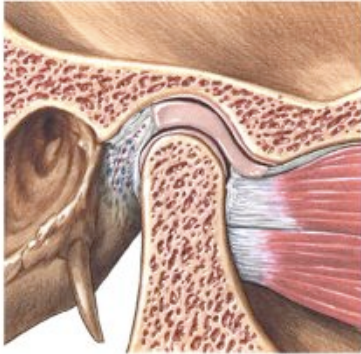
The mandibular fossa (aka glenoid fossa) is an indentation

on the temporal plate located just in front of the ear. The mandibular condyle, the most postero-superior portion of the mandible, has a rounded top that fits into that indentation. In between these two structures is an articular disc that is similar in shape to a Lifesaver™ candy, although a bit smaller and more oval. 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 disc to be “seated” onto the condyle and to be carried forward by the condyle as it translates during movements of the jaw. A viscous synovial fluid provides a liquid environment with a small pH range that lubricates and nourishes the disc as well as the joint surfaces, thereby reducing the possibility of erosion.

The articular disc

The functions of the articular disc are not thoroughly understood although ultimately it protects the joint from the demands of eating, speaking and facial expression. This includes shock absorption, improvement of fit between surfaces (congruity), facilitation of combined movements (slide

and rotation), checking of translation, deployment of weight over larger surfaces, protection of articular margins, facilitation of rolling movements and the spread of lubrication. Whew! That sure is a lot going on in such a small space!



The disc is tightly bound to the mandibular condyle, its inferior concave surface fitting the condyle like a cap. Its upper surface is concavoconvex, which allows it to correspond to the mandibular fossa and glide against the articular tubercle. The joint surfaces as well as the interposed disc are designed to remodel in response to stress, changing shape to accommodate imposed forces, such as the mechanics of chewing, grinding and talking, or from chronic head positioning and other postural compensations.

It is often suggested that the discs stabilize the temporomandibular joint while allowing considerable movement of roll, spin and glide of the condylar head. These movements are often performed with full loading while also attempting to reduce the possibility of trauma. Does this create stability? *Gray's anatomy* (2005) implies otherwise, suggesting "its function is to destabilize the condyle (certainly not to stabilize it) in the same way that stepping on a banana skin destabilizes the foot." This concept certainly makes more sense given the slippery, sloped surface on which the disc travels.

Conditions that improve the chances for healthy TM joint function include

- Both discs being firmly attached to their respective condyles
- The disc resting on the condyle in an ideal position to load and transport the mandible in a variety of directions
- The disc deforming during these motions and reforming after termination of motion (Cailliet 1992)
- Internal joint surfaces being well nourished and lubricated by healthy synovia.
- The joint having full range of motion in all directions.
- Having no trigger points in muscles that serve the TM joint or those whose trigger point target zones include the TM joint or any of the TM joint muscles.
- The person's posture reflecting symmetrical balance and coronal alignment with head and pelvis in neutral position when standing or seated
- The masticatory muscles being free of contractures, trismus, trigger points and myofascial pain.
- No significant traumas having been suffered by the joint or by the cervical region.
- Harmonious occlusion.

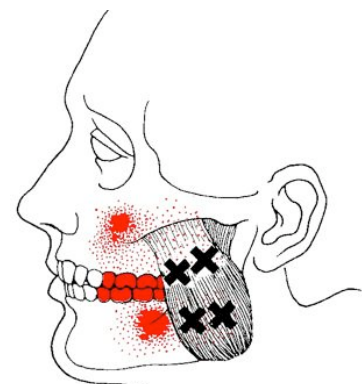
Real-life situations seldom offer all of these conditions simultaneously. More often, various combinations to the contrary are observed. In some cases, what the patient presents is none of the above and with nutritional, emotional and structural stresses imposed as well. Although historically TMD has been thought to be primarily based on mechanical dysfunction (such as disc derangement, malocclusion, deformity or bruxism) and has been primarily addressed by the dental profession, a more integrated biopsychological model has now emerged. (Kalamir et al 2007a) A

whole team of clinicians, each influencing the body and its healing process while interfacing with each other, is often required to achieve long-term results. Understanding the roles the other team members play is an important step in the success of the overall plan.

Spotlight on Masseter

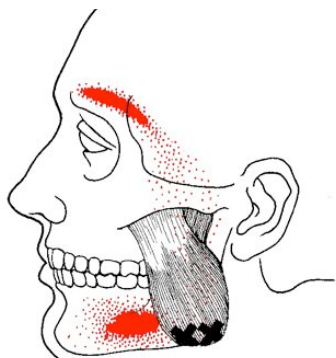
A number of muscles act upon the TM joint directly or indirectly through mandibular positioning. These include lateral pterygoid, medial pterygoid, masseter, temporalis, digastric, and several other suprahyoid muscles. Of these, the masseter, capable of exerting hundreds of pounds of pressure, is the most powerful and certainly worthy of today's spotlight.

Masseter comprises three layers stacked upon each other. These attach the zygomatic process of the maxilla and inferior aspect of the zygomatic arch to the inferior, central and upper aspects of the lateral ramus of the mandible. Like all of the masticatory muscles, it is innervated by the trigeminal nerve. It elevates the mandible and has some influence in retraction, protraction and lateral deviation of the mandible. (*Gray's anatomy* 2005)



Masseter is involved primarily with chewing, clenching and strong closure of the jaws. Temporalis, on the other hand, is responsible for postural

positioning and balancing the jaw. Both of these muscles can be overworked by the habits of daily life, as well as those that take place during sleep. Consideration should be given regarding irritant activity including mouth breathing, chewing gum, bruxing, clenching and grinding the teeth, as well as possible dental involvement (malocclusion).



Masseter is indicated for treatment when the range of opening of the mouth is restricted or when there is pain or other sensations in areas indicated by the trigger point target zones shown here. Masseter can also produce tinnitus (ringing in the ears) and may be involved with bruxism (grinding of the teeth). It is overworked by repetitive habits, such as gum chewing, nail biting or clenching the teeth. Although emotional problems can lead to major problems in the muscle, the pain and dysfunctions associated with this and other TM joint muscles may also contribute to emotional stress.

NMT intraoral masseter release

A complete intraoral protocol is part of the NMT training for temporomandibular dysfunction. Although it is strongly recommended that practitioners receive appropriate training before working inside the mouth of clients/patients, it is certainly within the scope of this article to offer the following step, which will give the practitioner a personal experience of releasing

his/her own masseter. After releasing the first side, it is suggested that the practitioner pause to open and close the mouth and to feel any change that has been achieved with this release.

When considering gloves, nitrile or vinyl are better choices than latex, which is not recommended due to the rising incidence of allergic reaction. When working on yourself, you might consider using a thoroughly scrubbed bare finger. However, when working on a client/patient a protective barrier is required.

1) Place a gloved index finger inside the mouth, resting just inferior to the zygomatic arch with the pad of the finger facing toward the cheek. Clench the teeth to contract the masseter's deep portion for identification and then relax the jaw for treatment. It may be necessary to shift the mandible toward the side being treated to allow room for the treatment finger.

2) Apply static pincer compression against an externally placed thumb or finger of the opposite hand. Use enough pressure to match the tension found in the tissues and hold the pressure for 18-20 seconds. The amount of pressure to use is that which provokes a medium level (7 on a 1-10 scale) of discomfort within the compressed tissue. The discomfort should begin to fade and the tension in the tissue should begin to subside within the prescribed time.

3) Move the finger one finger-width down the muscle and pressure once again in a similar manner. Continue working down the muscle as far as possible, one fingertip at a time until the mandibular attachment is reached. This treatment line has a vertical orientation. While many tissues respond to compression within 8-

12 seconds, masseter may require the suggested longer compression of 18-20 seconds.

4) Place the treating finger again at the starting point just under the zygomatic arch and apply compression in a similar manner as described. This time apply compression at fingertip intervals to the tendon attachment of masseter along the inferior surface of the zygomatic arch. This treatment line has a horizontal orientation.

5) Repeat steps 1-4 two or three times, as needed. There is often a profound change in the tension of masseter when a thorough (not aggressive) treatment has been applied. You may note an appreciable difference when comparing the side that has been treated with the one that has not been touched.

6) Be sure to repeat these steps to the second side in order to maintain balance between to two sides.

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