

MYOFASCIAL TECHNIQUES

for the Medial and Lateral Pterygoids

By Til Luchau & Bethany Ward

Where would we be without jaws? In the evolutionary version of our creation story, there was a long period when no animals had them. Ancient animals such as amphioxus had a mouth, but not a mandibleⁱ. Once jaws appeared, however, they proved extremely popular, as now all vertebrates (except for lampreys and hagfish) have mandibles.

As useful as jaws are, they do come with complications. In modern humans, primary among these are Temporomandibular Joint and Muscle Disorders (TMJMD or TMD), or Temporomandibular Joint syndrome. These umbrella terms describe conditions characterized by biting discomfort, jaw clicking, facial and jaw pain, earaches, headaches, gastric disturbance, and restricted jaw motion, among other symptoms. Although estimates of TMD prevalence range from 4.6%ⁱⁱ to 17.9%ⁱⁱⁱ of the populations studied, the number of people who experience TMD-like symptoms at some point is probably even higher. Fortunately, there are effective ways that hands-on work can help relieve and prevent the symptoms associated with TMD.

In this article, we'll discuss myofascial techniques for two of the "most valuable players" in TMD: the medial and lateral pterygoids. Although many temporomandibular joint (TMJ) symptoms can be alleviated by pterygoid work, other structures and patterns will almost always need to be addressed as well. For example, it is essential to assess and balance the effect of the masseters, temporalis, digastrics, and superficial cervical fascia on jaw alignment and mobility before working the deeper pterygoids. (You can find techniques for addressing these structures in the Resources section of our website at *Advanced-Trainings.com*, or on Advanced-Trainings.com YouTube channel. These techniques, and the two described in this article, are from Advanced-Trainings.com's *Advanced Myofascial Techniques* seminar and DVD series.)

Speaking, swallowing, and mastication all require three-dimensional movement of the mandible. But with this high degree of mobility comes greater susceptibility to jaw misalignment. Restricted soft tissues, imbalanced movement patterns, and fascial strain from elsewhere in the body can disrupt the delicate balance of the TMJs. The effects of jaw misalignment are compounded by the powerful forces of bite compression, which can squeeze or bind the articular disks and surrounding tissues. The result is tissue irritation, pain, and if uncorrected, possible joint degeneration and damage over time.



Image 1: The medial pterygoids (purple) along with the masseters (orange) form left and right "slings" that support, close, and help align the mandible. Also shown are the lower head of the lateral pterygoids (green) and the articular surfaces of the TMJ (yellow). Source images courtesy of Primal Pictures, used with permission.

The pterygoids are deep structures, and in our experience working inside the mouth (when agreeable to the client) is the most effective way to access them. Before working intraorally, be sure to explain the purpose and intention of the work, and obtain explicit permission from your client to work within his or her mouth. (Some states or governing agencies put stipulations or limitations on Massage Therapists' work within the mouth, such as requiring specific training or endorsements, and a few prohibit it outright. Be sure to be familiar with your local scope-of-practice requirements.) Most clients are very receptive to intraoral work when they understand what it entails and why it's being considered.

Medial Pterygoids

Many (if not most) TMJ symptoms are related to joint compression and misalignment. Because the medial pterygoids play a key role in both factors, working these structures is indicated whenever you see symptoms of TMJ.

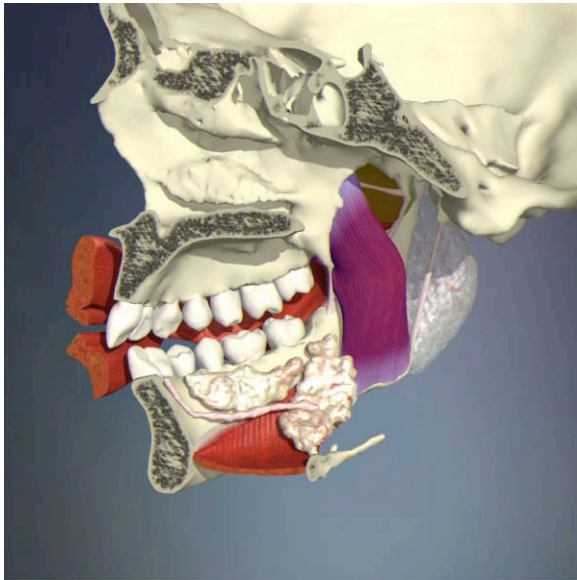


Image 2: When working the medial pterygoid (purple), keep in mind that they lie close the salivary and parotid glands, nerves, and delicate mucous membranes under the tongue. Image courtesy of Primal Pictures, used with permission.

It is useful to think of the medial pterygoids as the “inside masseters” of the mouth. Like the masseters, medial pterygoids are strong jaw-closers. Together, the medial pterygoids and masseters create two V-shaped slings (Image 1) that support and elevate the jaw. Habitual tension or imbalance here will exert inappropriate force on the TMJ, contributing to irritation and dysfunction. The medial uppermost attachments on the sphenoid bone are

high and deep in the soft palate, and are probably impossible to palpate directly. However, the belly of the muscle is easily accessible where it lines the inside of the jaw, in a mirror image of the masseter on the outside. The lower insertions are accessible just medial to the angle of the mandible.



Images 3 and 4: To work the medial pterygoids, gently press into their lower attachments on the medial aspect of the jaw from both inside and outside the mouth simultaneously. Ask your client to make small, slow jaw movements to help you locate the attachments and encourage release

To work the medial pterygoids, gently palpate them on the medial aspect of the jaw, simultaneously from both inside and outside the mouth (Images 3 and 4). Feel for areas of higher tonus in the muscle belly, while using care not to mistake the glands and other delicate structures here for areas of tension (Image 2). Some clients can have a mild gag reflex in this area, so work slowly and cautiously. Ask your client to make small, slow jaw movements to help you distinguish the inferior attachments just inside the mandible's angle, as this is where Golgi tendon organs are most concentrated; steady pressure here influences the postural reflexes that govern the resting tone of the entire muscle group^{iv}. Our intention is release, so encourage your client to relax his or her jaw and to breathe, while you keep your pressure steady, slow, and receptive.

The mouth, incidentally, has even more of the brain's sensory cortex dedicated to it, than our hands do. Thus, the mouth may be the only place we work where your client feels your touch more acutely than you feel their tissue. Be extremely sensitive and patient when working intraorally. Try it on yourself first to get a sense of the kind of touch needed, and the feeling of release afterwards.

Lateral Pterygoids

The lateral pterygoid muscles affect TMJ health in at least two important ways. First, they initiate jaw opening. Since their lower heads insert on the mandibular condyle (Image 5), they pull the jaw anteriorly in order to begin the movement of jaw depression. If one side's lateral pterygoid is tighter than the other's, this will misalign the jaw's movement.

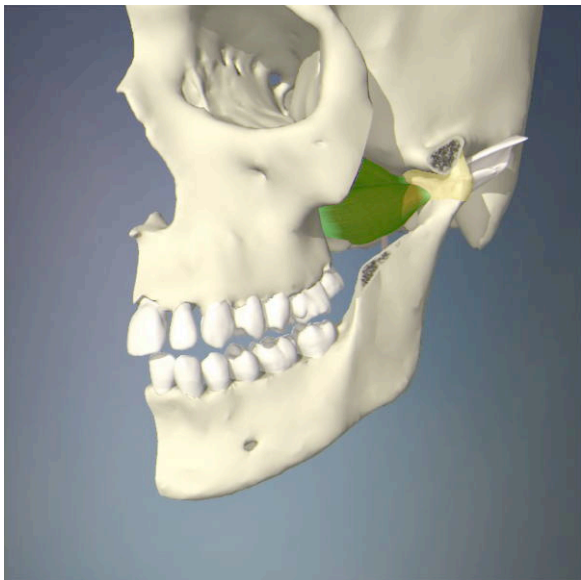


Image 5: The lateral pterygoid is in a unique position to both pull the jaw forward, and to influence the position of the TMJ's articular disk, as the superior head attaches to the TMJ capsule (yellow) and to the articular disk within. The zygomatic arch and the coronoid process of the mandible have been removed in this view to better show the lateral pterygoid. Image courtesy of Primal Pictures, used with permission.

Visit www.massagemag.com/myotechs to see video demonstrations of these techniques.

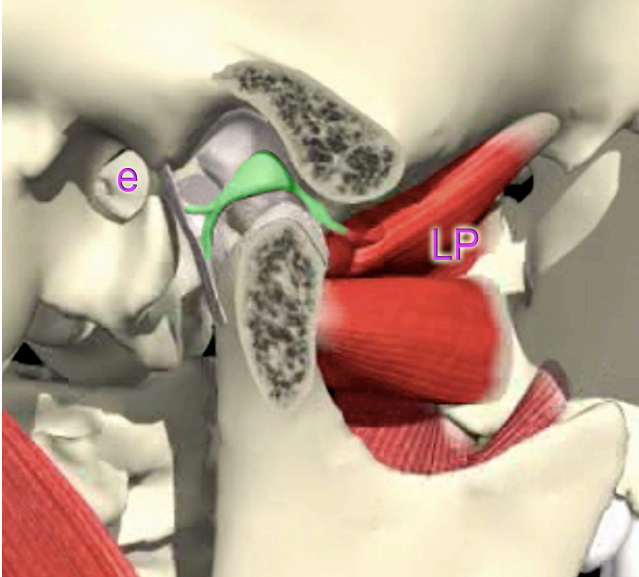


Image 6: As the jaw depresses, membranes contiguous with the TMJ capsule and the upper head of the lateral pterygoid ("LP") suspend the articular disk within the joint (in green). When there is tension, misalignment, or excessive compression, the disk can be displaced (most often anteriorly). Note also that the anterior tissue of the external acoustic meatus (marked "e") forms the posterior side of the TMJ joint capsule. Source image courtesy of Primal Pictures, used with permission.

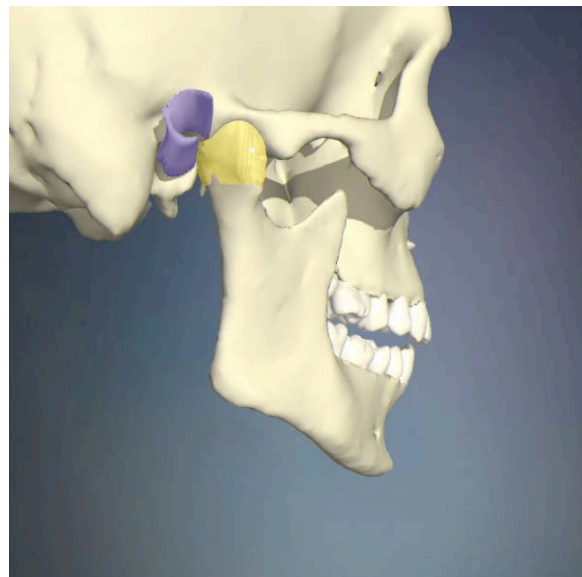
The lateral pterygoid affects the TMJ in a second way. As you open and close your mouth, the TMJ's articular disk is positioned by its suspensory membrane, which is attached directly to the upper head of the lateral

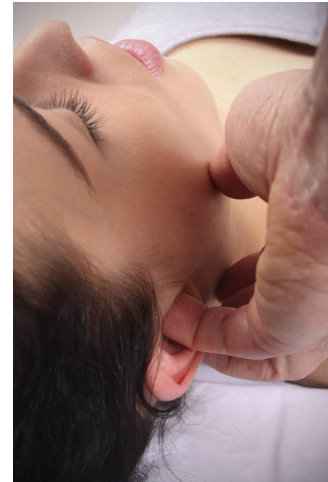
pterygoid (Image 6). In a healthy joint, this helps keep disk in position to cushion the contact point between the mandibular condyle and the temporal bone during opening and closing. However, excessive tension in the lateral pterygoids can contribute to anterior displacement of the articular disk. When this happens, or when there is excessive compression on the disk, the condyle can slide on and off the disk during jaw movement, producing the pop or click often associated with TMD. In more severe cases, the disk remains anterior to the condyle; the tell-tale popping sound is absent, but jaw opening is painful and limited.

LATERAL PTERYGOID ASSESSMENT

Since the anterior wall of the ear canal is contiguous with the posterior side of the TMJ capsule (Image 7), we can easily assess the amount of anterior mandibular condyle movement here. Position the tip of your little finger just inside each ear passage (Images 8 and 9). With your finger pads, feel for the mandibular condyles, which are palpable on the anterior wall of the canal. Ask your client to slowly begin to open his or her jaw, and you'll feel the condyles glide anteriorly. As the jaw begins to open, which condyle glides anteriorly (away from your finger pad) first? The lateral pterygoid on that side is likely tighter, so work that side as described below and recheck.

Image 7: The anterior wall of the external acoustic meatus (purple) is the posterior side of the TMJ capsule (yellow). Palpating the movement of the condyle just inside the ear canal is an effective way to assess lateral pterygoid tension and balanced function. Source image courtesy of Primal Pictures, used with permission.





Images 8 and 9: To assess left-right balance of the lateral pterygoids, use your finger pads to palpate the anterior wall of the external acoustic meatus. Feel for any left/right differences in the anterior movement of the mandibular condyles as the jaw begins to open. The tighter lateral pterygoid will usually be on the side that moves earlier or more.

LATERAL PTERYGOID RELEASE TECHNIQUE

Because the lateral pterygoids can be difficult to locate^v, explore this area in your own mouth before working with a client. Using your little finger, slide along the outside of your upper teeth until you come to the back edge of the last molar. Laterally, feel the inside of your cheek for a vertical bony fin — this is the coronoid process of the mandible, and the strong temporalis tendon. You can confirm you're on the coronoid process by opening and closing your jaw slightly--the process will clearly move. Now shift your jaw to the left (Image 10) to open up more space between the coronoid process and the teeth. Notice that a pocket opens up behind the last molar (Image 11). You may have to open your mouth a bit more to feel this, but only do so enough to accommodate your finger as you move it further posteriorly and slightly medially. The tip of your finger will now be on the lateral pterygoid; confirm and refine your location by opening your jaw slightly and feeling the muscle contract.

Use the same approach with your clients, being very gentle, patient, and specific. Address the tighter side first, based on your assessment of condyle movement as described above. Apply steady, slow, receptive pressure to the lateral pterygoid while asking for small opening and closing movements to facilitate its release. Reassess to see if the left and right mandibular condyles' anterior glide is more coordinated, and check in with your client about any changes in pain level or their own perception of movement. You may need to work back and forth between the lateral pterygoids to achieve more balanced movement and greater comfort.

Images 10 and 11: To access the lateral pterygoid, ask your client to shift their jaw towards the side you're working, and slide your finger posteriorly and slightly medially. Because the lateral pterygoid inserts on the TMJ capsule and the suspensory membrane of the articular disk, work here can reduce tensions that cause the anterior disk displacement characteristic of TMD.



Team Players

Although the medial and lateral pterygoid techniques are often the “most valuable players” in your TMD toolbox, they are by no means the entire team. Like star players, their key role can overshadow the importance of other structures and relationships. If you forget the rest of the team, your ability to help clients with TMJ disorders will be limited.

You can maximize your effectiveness by attending to both local factors (such as jaw tension and alignment, bite occlusion, and head position), as well as global, whole-body patterns, since issues such as pelvis muscle tension^{vi}, pelvic angle^{vii}, and spinal curves^{viii} have all been shown to correlate with jaw function. When you get the “MVP” pterygoids and the other players working together as a team, chances are very good that your TMD clients will feel much better, and you'll enjoy knowing that you've helped make that possible.

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ⁱ Though still existent, amphioxus are thought to be an evolutionary predecessor to the modern vertebrates they resemble.

ⁱⁱ Isong U, Gansky SA, Plesh O. Temporomandibular joint and muscle disorder-type pain in U.S. adults: the National Health Interview Survey. J Orofac Pain. 2008 Fall;22(4):317-22.

ⁱⁱⁱ Deng YM, Fu MK, Hägg U. Prevalence of temporomandibular joint dysfunction (TMJD) in Chinese children and adolescents. A cross-sectional epidemiological study. *Eur J Orthod.* 1995 Aug;17(4):305-9. Review. PubMed PMID: 8521924.

^{iv} Schleip, R. "Fascial plasticity – a new neurobiological explanation: Part I." *Journal of Bodywork and Movement Therapies* (2003) 7(1), 11-19

^v Due to their location, there has been some debate about whether or not the lateral pterygoids can be palpated intraorally. (See: *Tuerp JC, Minagi S. Palpation of the lateral pterygoid region in TMD--where is the evidence?, J Dent. 2001 Sep; 29(7):475-83, and Stratmann U, Mokrys K, Meyer U, et. al. Clinical anatomy and palpability of the inferior lateral pterygoid muscle, J Prosthet Dent. 2000 May;83(5):548-54*). A more recent study (*Stelzenmüller W, Weber N-I, Özkan V et al. Is the lateral pterygoid muscle palpable? A pilot study for determining the possibilities of palpating the lateral pterygoid muscle. International Poster, Journal of Dentistry and Oral Medicine 2006; 8(1):Poster 301*), employing MRI and electromyogram verification, concluded that the lateral pterygoid's "muscle structure and pain sensation can be determined by digital palpation and subsequently treated by functional massage...". This outcome is consistent with our clinical experience that addressing this area is an effective approach to alleviating TMD symptoms. (Thanks to Dr. Leon Chaitow.)

^{vi} Lippold C, Danesh G, Schilgen M, Derup B Hackenberg L. Relationship between thoracic, lordotic, and pelvic inclination and craniofacial morphology in adults. *Angle Orthod.* 2006;76:779-85.

^{vii} Rocabado Seaton, Mariano & Iglarsh, Z. Annette. *The Musculoskeletal Approach to Maxillofacial Pain*. NY: Lippincott Williams & Wilkins, 1990

^{viii} Cuccia A, Caradonna C. The relationship between the stomatognathic system and body posture. *Clinics* 2009;64(1):61-6.