

## TEMPORO-MANDIBULAR JOINT PAIN – HYOID MUSCLES AS THE SOURCE

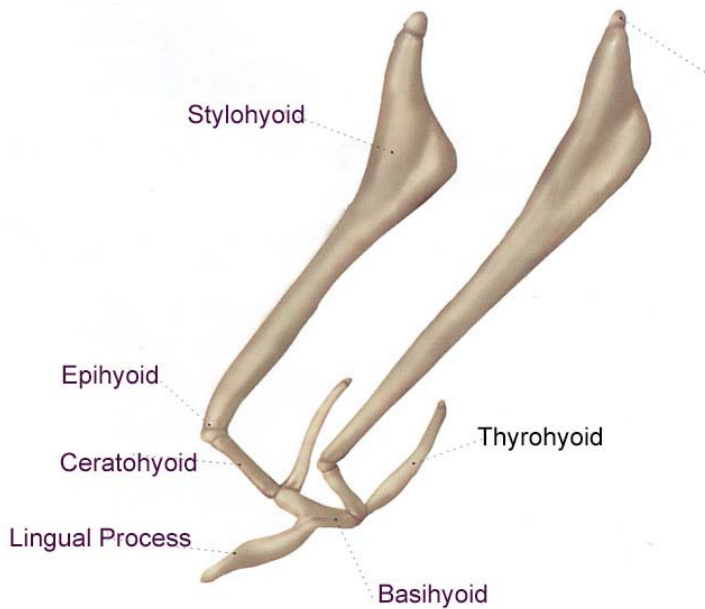
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### INTRODUCTION:

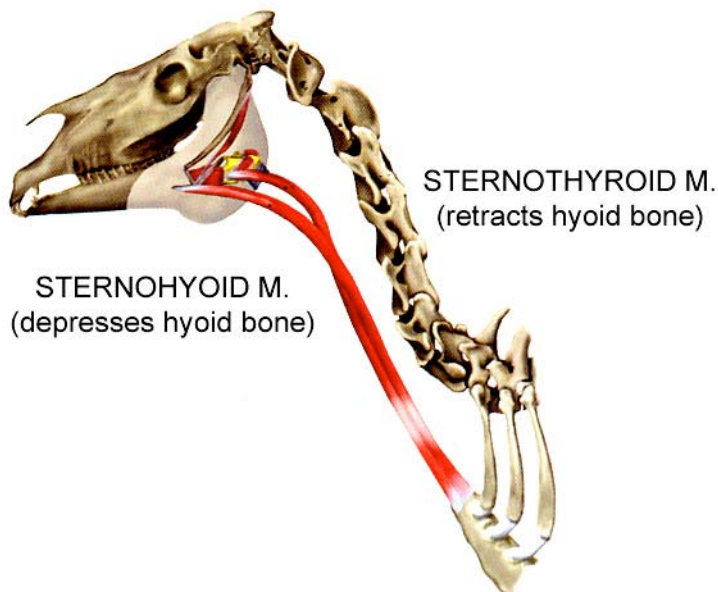
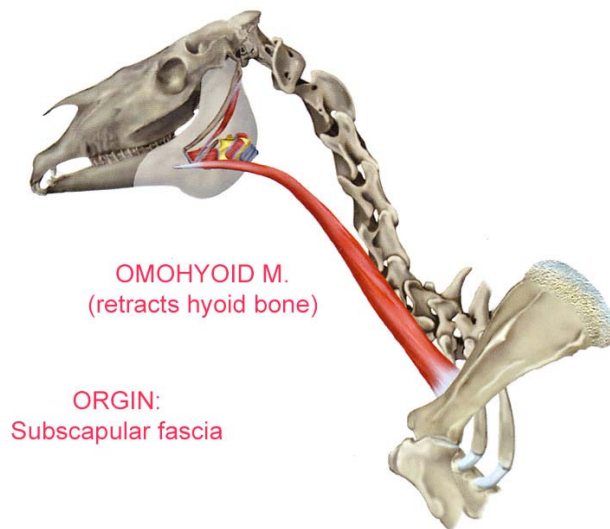
As many as 70% of the horses in my practice that are presented for performance oriented complementary medicine work-ups exhibit some degree of pain in the Temporo-mandibular joints. The pain may be expressed unilaterally or bilaterally. Many of the cases seen have frequent recurrence. There are a number of etiologic mechanisms that can trigger TMJ pain. They include: primary dental problems, biting issues, a rider with “hard hands,” an ill fitting saddle, tie downs, side reins, running reins, or simply a horse who holds tension in the jaws. Over the past two years, I have come to recognize that another very common source is *hypertonicity of hyoid musculature*. The issue with hyoid musculature often persists after the other causes are ruled out or have had appropriate therapy. All of the above factors may set up the hyoid tension and spasm.

### ANATOMY AND BIOMECHANICS OF THE HYOID BONES AND MUSCLES

The key hyoid bones involved include the *Lingual process of the Basihyoid*, the *Basihyoid* itself and the *Ceratohyoid* connecting the Basihyoid to the Stylohyoid bone. Note that the Lingual process is centrally imbedded in the root of the tongue. This structure is palpable through the tongue musculature and is approximately the size of the 5<sup>th</sup> digit on a man’s hand. The examiner can then trace caudally and palpate the anatomy of the Basihyoid bone. The Stylohyoid bone is a long thin bone 18 to 20 centimeters (seven to eight inches) in length extending from the Basihyoid (via the Ceratohyoid) to connect via a rod of cartilage to the hyoid process of the petrous temporal bone and the tympanic bulla.



The sizeable *Omoxyoides* muscle originates under the scapula body on subscapular fascia. It inserts on the caudal end of the Lingual process of the Basihyoid bone. Its action is to retract the tongue back to aid in swallowing. In the case of chronic hypertonicity, it is pulling the tongue back in the throat without release and inhibiting movement of the tongue. By virtue of the origin of the Omoxyoides, the muscle tension limits the shoulder action as well. The other critical hyoid muscles that cause retraction of the tongue and create too much tension in the shoulder are the *Sternohyoides m.* and the *Sternothyroides m.*. When these muscles are retracted, the *Stylohyoid* muscle and *Occipitohyoid* muscle contracts putting tension on the Temporo-mandibular joint.



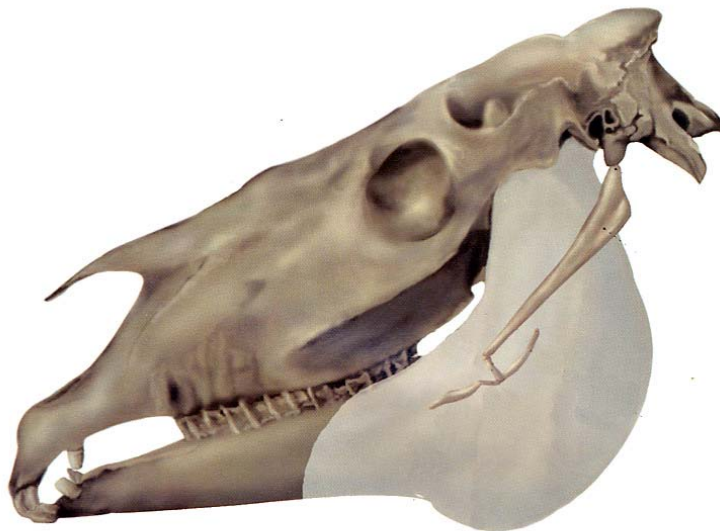
A thorough examination will often show that there is also pain and tension in the *Sternocephalicus muscle*. The *Sternocephalicus* originating at the manubrium of the sternum and inserting on the ramus of the mandible, opens the mouth in normal swallowing, flexes the neck and pulls the head downward. In a resistant horse it opens the mouth and the chronic tension/hypertonicity adds TMJ dysfunction. The *Longis capitis* muscle can also place the TMJ joint under chronic tension.

#### DIAGNOSIS OF TMJ PAIN

Reactivity found when the clinician puts pressure into the *Masseter muscle* one centimeter cranio-ventral to the TMJ (location of acupuncture point Stomach 8) This point is indicative of pain in the TMJ. TMJ pain may also show as pain lateral to the Occiput – C<sub>1</sub> junction (location of acupuncture point Gallbladder 20). Traction cranially and caudally will evoke a withdrawal response if TMJ pain is present.

#### DIAGNOSIS AND TREATMENT OF HYOID MUSCLE INVOLVEMENT IN TMJ PAIN

By reaching (with the palm up) under the ramus of the mandible (on the opposite side from the examiner) near its cranial curve, the base of the tongue can be palpated by bringing the fingers medially and dorsally. Within the base of the tongue the examiner can palpate the mass of the *Lingual Process of the Basihyoid bone*. By gentle manipulation (traction and release) toward the examiner one can mobilize the bone and the root of the tongue. Even gentle traction and manipulation may evoke a fairly strong evasive action. Persistent gentle massage and traction and mobilization will accomplish a myofascial release of the involved musculature. Release is often followed by a good head shake and paroxysmal yawning. Evaluation and mobilization via the Lingual process should be accomplished on both sides.



After accomplishing the releases the examiner can re-check the reactive acupuncture points described above as well as tractioning of the mandible to be sure that the points and TMJ pain has been ameliorated. Some horses may be so painful and reactive that they are reluctant to allow manipulation of the Lingual process. In those cases it is

advisable to first palpate under the scapula and effect a myofascial release at the origin of the Omohyoideus m. (*under and caudal to the Ascending pectoral m. (Subclavian m.)*) by doing a set and hold into the subscapular fascia. This is accomplished by flexing the head and neck toward the examiner and entering the open palm under the scapula. The lower the head the easier it is to get behind the scapula. This release may require two to three minutes of hold. It is not uncommon to hear “audibles” as the tension on the lower cervicals is released. Again check to see that the pain in the TMJ is relieved.

The results of this procedure are very gratifying. The client or groom can be instructed on how to perform the procedure. Follow up releases should be done for at least twice weekly for two weeks and thereafter by palpation and evaluation of the mobility of the Lingual process.

It is, of course, important to discover and remove the inciting cause to effect long term relief. This would include evaluation of the appropriateness of the bit, the horse's reaction to the bit and to the rider's hands and use of side reins, etc.. It is also important to check for concurrent dental problems. Other considerations were listed in the first paragraph of this paper.

The author has had success in specific cases to ameliorating the condition where horses want to hang the tongue outside of the mouth.