**WHAT IS TMD?** Painful condition of the jaw musculature, the joint, or both. Usually unilateral. TMD affects 10-25% of U.S. population. Most are women (90%). In rare cases, it can affect speech such as a lisp.

**CAUSES:** Causes include posture (sleeping prone, forward head posture, spinal deviations) & trauma (blows to the jaw, whiplash), malocclusion, congenital abnormalities, ligament laxity, excessive stress, & bruxism. Bruxism is teeth grinding or clenching. Researchers have found that TMD often occurs with other conditions & include arthritis, cancer, fibromyalgia, chronic fatigue syndrome, chronic headache, endometriosis, cystitis, irritable bowel syndrome, sleep disorders, & scleroderma. Other causes are gum chewing, nail biting, thumbsucking, mouth breathing, chewing hard objects, holding objects in mouth, & open mouth strain.

**SIGNS/SYMPTOMS:** Signs & symptoms of TMD are facial pain, jaw pain, headaches, earaches, toothaches, & crepitation with jaw motion. Examples of crepitant sounds are clicking, popping, & grating. Other signs & symptoms of TMD are limited jaw motion which may affect eating & oral hygiene, abnormal swallowing, lateral deviation, & bruxism. Other signs & symptoms are visual disturbances, dizziness, insomnia, depression, fatigue. These may interfere with personal relationships & social activities.

**TREATMENT:** Treatment team may consist of a primary healthcare provider, dentist, orthodontist, psychologist, physical therapist, & ENT. Treatment methods include; 1) Splints: appliances may prevent bruxism & assist with proper alignment. 2) Meds: antiinflammatories, analgesics, injections such as Botox & cortisone. 3) Surgery & implants may also be used in extreme cases. There have been no long-term studies to test the safety & effectiveness of surgical procedures. 4) Self-care such as eating soft foods, reducing stress, hydrotherapy, self-massage, & stretching.

**ANATOMY:** Bony elements of TMJ are the mandible (articular surface is convex) & the temporal bone (articular surface is concave). Between these bones is an oval-shaped fibrocartilaginous articular disk (meniscus). The central, intermediate portion of the disk is thin while the anterior & posterior aspects, or bands, are thicker. The posterior portion of the disc assists the condylar process in moving forward. There are 3 ligaments; the temporomandibular ligament, the stylomandibular ligament, & the sphenomandibular ligament.

**ACTIONS:** The TMJ allows the jaw to open, close, protrude, retract, & deviate laterally. These actions are mainly used for chewing & speaking. The temporomandibular joint is different from the body’s other joints. The combination of hinge & sliding motions makes this joint among the most complicated in the body. Normal opening of the jaw is 3 knuckles.
**MUSCLES:** The main muscles of mastication are the temporalis, the masseter, & the medial/lateral pterygoids.

**Temporalis:** O: Temporal fossa ~ I: Coronoid process & ramus of mandible ~ A: Elevates & retracts the mandible

**Masseter:** O: Zygomatic arch ~ I: Mandibular angle (superficial layer) & Mandibular ramus (deep layer) ~ A: Elevates & protracts the mandible. *Notes:* The zygomatic arch is formed by two processes; one extending from the zygomatic bone & the other from the temporal bone. Masseter possesses a superficial & deep layer & these may fuse. Masseter is essentially a mirror image of medial pterygoid.

**Medial pterygoid:** O: Pterygoid plate of sphenoid bone ~ I: Mandibular angle & ramus (interior surface) ~ A: Produces lateral mandibular movements, elevates & protracts the mandible. *Notes:* Medial pterygoid is essentially a mirror image of masseter.

**Lateral pterygoid:** O: Pterygoid plate of sphenoid bone, greater wing of sphenoid bone ~ I: Condylar process of mandible, TMJ capsule ~ A: Produces lateral mandibular movements, depresses & protracts the mandible. *Notes:* Lateral pterygoid has superior & inferior heads which occasionally fuse. Some sources say that the superior head may also elevate the mandible

**MASSAGE:** Massage the suboccipitals, trapezius, posterior cervicals, scalenes, rotator cuff, & pecs. Massage muscles of jaw movement (masseter, temporalis, medial, & lateral pterygoids). Avoid the prone position if it causes facial pain. Apply pressure on sensitive TPs with deep, slow, short strokes.

**CAUTION:** Avoid working the belly of SCM because it may contain plaque and be dislodged. Working Os & Is of SCM is permitted as this does not have the same health risks.

**MASSAGE TEMPORALIS:** Circular & cross fiber friction temporal fossa. Use fingertips or knuckles. After you massage, ask the client to open & close the jaw while you continue with the massage.

**MASSAGE MASSETER:** Cross fiber friction 1) mandibular angle & 2) zygomatic arch. Repeat with active resistance during jaw depression. TPs? Spend quality time.

**FRICITION INTRAORALLY:** Thumb inside mouth, fingers on cheek - sweeping motion to angle of jaw. Cross-friction massage parallel to inner & outer fibers. This technique also addresses the medial pterygoids. If trigger point are located, focus on them.

**FRICITION MEDIAL PTERYGOIDS:** The inferior attachment of medial pterygoids can be palpated under the jaw.

**JAW GUIDED STRETCH:** Open jaw. Guide laterally while jaw closes slowly. Repeat 3-5x on both sides. PNF are stretching techniques to enhance both active & passive range of motion. The two most common techniques are contract/relax & hold/relax.

**PNF - OPEN/CLOSE:** Open jaw. Place thumbs inside mouth on lower molar surfaces. Resist light closure 6 seconds. Relax 6 seconds. Repeat 3-5x.

**PNF – MEDIAL RESISTANCE:** Move mandible laterally. Resist medial movement 6 seconds. Relax 6 seconds. Repeat 3-5x on both sides.
JAW JOINT MOBS: Jostling & vibration

MANUAL TRACTION: Bilateral pressure on mandibular rami. Gentle pressure in anteroinferior direction.

AFTER CARE: 1) Moist hot packs & cold packs. 2) Relaxation techniques & electromyographic biofeedback. 3) Tongue rest: a) Lips together, teeth slightly apart. b) Anterior 1/3 of tongue against roof of mouth with slight pressure. c) Breathe through nostrils with diaphragmatic breathing. 4) Yes/Yes movements. To be sure you are flexing/extend the head over the cervical spine, clasp behind neck to stabilize C2-C7. 5) Anterior/Posterior movements. Push posteriorly on the upper jaw. This improves the functional relationship between the head & cervical spine. 6) Shake – shake – shake. 7) Talk with tongue between lower jaw & lip & enunciate. 8) Self stretch. 9) Cork stretch.

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