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| **Basic Science Question:** |
| What are the ligaments and muscles of the TMJ? |
| **Report:** |
| The temporomandibular joint (TMJ) is the articulation and pivot point between the skull and the mandible. It is a ginglymoarthroidal joint, which means it has hinge and gliding movements. Many ligaments and muscles contribute to the actions of the TMJ. The ligaments are the sphenomandibular ligament, the stylomandibular ligament, the pterygomandibular ligament, pinto/malleolomandibular ligament, and the temporomandibular ligament. The sphenomandibular ligament originates from the sphenoid spine and attaches to the lingula of the mandible. It protects the TMJ from excessive opening. The stylomandibular ligament originates at the styloid process and inserts on the angle of the mandible. It limits excessive protrusion. The pterygomandibular ligament or raphe is a thickening of the buccopharyngeal fascia. It starts from the hamulus of the medial pterygoid plate and runs to the retromolar fossa of the mandible. It limits excessive jaw movements. The pinto or malleolomandibular ligament has two portions: one involving the middle ear and the other a portion of the TMJ joint capsule. It protects the synovial membrane within the TMJ. The temporomandibular ligament originates from the zygomatic process of the temporal bone and runs to the neck of the condylar process. It prevents posterior displacement of the mandible and prevents displacement of the condyloid process of the mandible.The muscles that aid in movement of the mandible in the TMJ are the masseter, temporalis, medial pterygoid, and lateral pterygoid. The masseter is in contact with the articular disc of the TMJ and it elevates the mandible. The temporalis originates from the temporal fossa of the skull and inserts on the coronoid process of the mandible. It also elevates the mandible. The medial pterygoid originates from the pterygoid fossa and inserts on the angle of the mandible. It elevates and protrudes the mandible. Finally, the lateral pterygoid originates from the greater wing of the sphenoid bone and inserts on the joint capsule of the TMJ. It protrudes and depresses the mandible as well as if activated unilaterally will cause lateral deviation of the mandible. The temporomandibular joint is a complex joint that connects the mandible and skull. Many ligaments and muscles contribute to the joint’s purpose of moving the mandible.  |
| **References:** |
| 1. Bordoni B, Varacallo M. Anatomy, Head and Neck, Temporomandibular Joint. [Updated 2020 Jul 31]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK538486/>
2. Eren, H., Kolsuz, M., & Orhan, K. (2015). An overall look for Temporomandibular Joint Pathologies and Imaging. Retrieved September 16, 2020, from <http://www.ghrnet.org/index.php/ijo/article/view/1539/1724>
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