Temporomandibular Disorders and Masticatory Pain: A Complimentary and Alternative Medicine Approach

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ABSTRACT

Objective: This article will provide an overview and research based evidence on the anatomy, mechanism of dysfunction, and complementary and alternative medical approaches to the treatment of temporomandibular dysfunction (TMD). Temporomandibular disorders are a common healthcare issue facing many people in today’s society. TMD is forecast in some studies to be more common than neck pain.

Data Collection: The research and data collected for this article was obtained by the Ovid and Pubmed search engines. The Learning Resources Center was used to gain access to the information used in the article.

Data Synthesis: The temporomandibular joint is a complex and highly sensitive area. Disorders and dysfunction of this system are very common in today’s society. To fully understand TMD one must understand the anatomy, orofacial pain mechanisms, dysfunction mechanisms of this system and treatment approaches to this disorder.

Conclusion: Although thousands of articles throughout various healthcare fields produce research that supports their specific method of treatment for TMD, there has yet to be a clear solution drawn for the standard of care for this joint. Through articles that were compiled for this review, complementary and alternative medical approaches have been researched and strongly support the conservative treatment approach. Treatments aimed at focusing on the dysfunction and imbalance of the supporting structures in addition to the treatment of the temporomandibular joint should be considered. Evidence demonstrates a high correlation between patients experiencing TMD and also having neck pain.

Key Indexing Terms: temporomandibular disorders; facial pain; orofacial pain; TMD AND chiropractic; TMJ disorders, functional rehab AND TMD, masticatory pain.
INTRODUCTION

Temporomandibular disorders are a common healthcare issue facing numerous people in today's society. This is a condition that some studies have predicted is as common, if not more common, than neck pain. Because a large population of society suffers from the pain of this common condition a conservative approach is often used with great success. One of today's most conservative approaches is the examination of not only the joint, but the function of the whole TMJ complex. Treatment of this disorder can include chiropractic manipulation or mobilization of the disc/joint complex along with the stabilization of the surrounding musculature. Research is demonstrating that temporomandiubular disorders and dysfunction also have a strong correlaton with cervical spine disorders. Today, the modern chiropractor can play a key role in the management and treatment of temporomandibular disorders.

Temporomandibular joint disorders or TMD is a term used to describe a variety of conditions that are present at the temporomandibular joint. These conditions often include symptoms of pain, variability of manible depression and elevation, perceptible auditory clicks or snaps during mouth opening, earache, headache, and orofacial pain. (1) Symptoms often vary in this disorder but have pain present in a majority of the cases. The pain intensity often varies in these patients throughout the day. One study has shown that pain was reported to be the worst between dinner and bedtime in 79% of the cases studied. (2) It is thought that between 5-50% of individuals experience pain related to TMD at some point throughout their life. Women comprise the majority of this group with the stats pointing to females reporting the conditions in around 80% of the cases. (3) There are many different approaches to the treatment of this disorder. Some of the complimentary and alternative medicine approaches include: soft tissue and trigger point therapy, myofascial release therapy, acupuncture, laser therapy, chiropractic
mobilization and joint manipulation. Myofascial pain is one of the most common complaints with TMD. In a recent study, results showed a pain reduction of over 50% after treatment with acupuncture. (4) Proper treatment of TMD conditions often involves a multidisciplinary approach which might include; dentists, orthodontists, psychologists, chiropractors, physical therapists and physicians. (5)

**DISCUSSION**

**Temporomandibular Joint Anatomy:**

The masticatory system is a complex system with many different tissues involved. The primary functions of this system include chewing, speaking and swallowing. The masticatory system also contributes to the actions of breathing and the sensation of taste. The tissues included in this system are; joints, ligaments, muscles, the maxilla, the mandible and the teeth. This system is controlled by a neurological system which is just as complex. The functional anatomical system works with the structured neurological system to coordinate defined movements. These movements are made to allow optimal function of the joint and decrease the amount of damage done to the surrounding structures during these movements (6).

The main joint involved in the masticatory system is the temporomandibular joint (TMJ). This joint is an articulation between the cranium and the mandible. The joint is actually two separate synovial articulations that must function together in unison. This TMJ functions as a hinge joint allowing movement in only one plane. Though many consider this joint a ginglymoid joint due to the movement in only one plane, others would classify it as a ginglymoarthrodial joint due to the gliding features of the TMJ (6).

This joint is formed by a condyle on the mandible fitting into a fossa formed by the maxilla. In the middle of this bony articulation is a disc. The disc and the condyle function as a
complex system that requires precise evaluation of their relationship to determine proper function. (7). Furthermore, the disc functions as a non-ossified bone allowing the TMJ to be classified as a compound joint. This structure is made up of connective tissue and is not supported by blood vessels or the nervous system. Only the most extreme outer parts of the disc have innervations and can be the source of patient pain. Though not highly innervated itself, the disc is attached to structures that are highly innervated and have a distinct vascularization which adds to the complexity of this system (6).

The innervation of the temporomandibular joint includes the auriculotemporal nerve, the masseteric nerve and the posterior deep temporal nerves (7). These nerves are derived from the trigeminal nerve which provides sensory and motor innervation to the muscles involved in the masticatory system. Most of the joint’s innervation comes from the auriculotemporal nerve as it branches from the mandibular nerve posterior to the joint and then proceeds to pass through the oval foramen located medial to the joint (6). This nerve divides into several branches and innervates several structures. These structures include the TMJ capsule, the tympanic membrane, the cochlea, the skin of the external auditory meatus, the auricle, the tragus, the temporal region, the parotid gland and the scalp above the auricle. A healthy TMJ has sensory input from the lateral aspects joint capsule supplied by the aforementioned nerve. The masseteric and deep posterior temporal nerves serve mainly as motor innervation to the joint complex. The masseteric nerve innervates the masseter; and the deep posterior temporal nerve innervates the temporal muscle (7).

Vascularization of the TMJ is supplied by a variety of different blood vessels. Vessels that are contributing a significant amount of blood include: the superficial temporal artery, the
middle meningeal artery, and the internal maxillary. The condyle receives its blood supply from marrow spaces provided by the inferior alveolar artery (6).

There are several different ligaments involved in the masticatory system which vary in function of this system. The stylomandibular ligament, which runs from the styloid process to the posterior angle of the mandible and the sphenomandibular ligament, which runs from the sphenoid bone to the mandibular ramus, are considered accessory ligaments and function to stabilize the joint and protect during mouth opening (7). Other prominent ligaments in this system included collateral ligaments that attach medially and laterally onto the articular disc. These ligaments along with the disc divide the joint into separate cavities. Together, the ligaments and the dics function to prevent the disc from moving away from the joint condyle, which allows the disc to glide in an anterior and posterior fashion (6). The most prominent ligament in this system is the capsular ligament which acts to resist forces that would cause joint dislocation. This ligament also encloses the joint and helps to retain the synovial fluid. The temporomandibular ligament helps to reinforce the lateral portion of the capsular ligament. There are two separate portions of this ligament, an outer oblique portion and an inner horizontal portion. The oblique portion of the ligament functions to prevent excessive movement in an inferior direction of the condyle. The inner more horizontal portion of the ligament limits movement in a posterior fashion of the disc and again the condyle (8). This complex system of ligaments allows proper protection and limits excessive movement of the joint complex protecting the surrounding and involved tissues.

There are many different muscles involved in mastication. These muscles serve to complete the actions of chewing, speaking and swallowing. The muscles involved in this system include the masseter, temporalis, medial pterygoid, and the lateral pterygoid. Each of these
muscles provides a different function to the mastication system and work together to coordinate complex actions. The masseter is a large muscle that extends from the zygomatic arch to the ramus of the mandible. This muscle is very powerful and its main function is mandible elevation. This provides the power necessary to chew in an efficient manner. The temporalis is a large muscle that originates in the temporal fossa and the lateral skull and extends to the zygomatic arch and the coronoid process. This muscle is divided into three portions, which include the anterior, middle and posterior sections. The anterior portion raises the mandible superiorly, the middle portion functions to retrude the mandible, and the posterior portion will only elevate the mandible. The portions function together to help coordinate jaw closing. The medial pterygoid extends from pterygoid fossa to the angle of the mandible and helps to coordinate mandible elevation and jaw protrusion (6). The lateral pterygoid is divided into two separate bellies, the inferior and superior lateral pterygoid. The inferior portion travels from the lateral pterygoid plate to the neck of the condyle. This portion of the muscle functions to provide jaw protrusion. The superior portion of the muscle originates at the infratemporal surface of the sphenoid and attaches to the articular capsule, the disc and the condyle. This muscle provides no assistance in mouth opening but is heavily involved in closing the jaw with resistance. A significant muscle involved in the function of the mandible is the digastric. This muscle is not considered a muscle of mastication but provides the function of mandible depression and elevation of the hyoid bone (9).

**Orofacial Pain Mechanisms:**

Orofacial pain is a common symptom that a large population of the population suffers from. It is estimated that only half of these patients seek some sort of treatment (10). There are many mechanisms of pain generation to the orofacial region. These mechanisms include;
inflammatory pain, arthrogenous pain, and myogenous pain. These pain sources can include the periauricular lymph node, otitis media, and trigger point pain, tenosynovitis of the temporalis tendon, trigeminal neuralgia, dental caries, bony tumors, and inflammatory arthritides (8). The objective of the clinician is to determine the cause of the pain and the appropriate method of treatment. To accomplish this objective, one must be able to decipher: is the patient presenting with an orofacial/temporomandibular pain, or is the pain arising from the cervical spine or headache that the patient is experiencing?

Inflammatory pain of the TMJ can arise from acute and chronic conditions. Substance P is a large contributor to the pain in these conditions. This mechanism is mediated through the release of histamine by mast cells, vasodilatation, and an increase the permeability of the capillaries which causes hypersensitivity of the surrounding tissues. The increase of substance P can be the result of arthritic joints, severe inflammation or direct trauma to a given area (7).

Other sources of orofacial pain include both arthrogenous pain and myogenous pain. Arthogenous pain arises from the joint, and is often difficult to distinguish the origin of pain, which is often referred to as the pain generator. When assessing possible TMJ joint pain, the clinician should consider whether the pain is present during biting, chewing, talking or lying on the side. If the pain is absent during these actions, one should consider an alternate pain generator. Joint problems are a frequent source of pain in the TMJ complex. Patients experiencing this condition are often sensitive to the clinician’s touch over the joint area. These patients also frequently complain of pain not only over the joint but also from the ear region (9).

Patients experiencing a myogenic pain often report more pain and dental discomfort and are regularly found to suffer from bruxism. Patients suffering from muscular disorders often describe a diffuse pain that cannot be pinpointed (7) The exact diagnosis of the source of pain
relies on a thorough examination including patient history, and more specifically patient pain history, as well as a clinical examination. In order to diagnose the pain as myofascial, the following criteria must be present: facial, auricular, periauricular, temporal or jaw pain at rest or during jaw function, at least 3 of 14 following muscle areas tender to palpation. These muscles include: the superficial and deep masseter, anterior and posterior portions of the temporalis, insertion of the temporal and medial pterygoid muscles. It is also necessary to exam the cervical spine and surrounding soft tissues in patients presenting with orofacial pain. Studies have shown that the cervical, neck, and paraspinal muscles refer pain to the head and orofacial area through injection of algesic substances in case reports (10).

Bruxism has a high correlation with orofacial pain and temporomandibular joint disorders. Bruxism is a collection of oral parafunctional habits. This includes involuntarily gnashing, grinding and clenching of the teeth. There are many complications of this activity; three of the more common complications include temporomandibular joint dysfunction, myofascial strain of the muscles of mastication, and capsulitis and adhesions in the TMJ joint space (11).

Trigger points are a significant source of myofascial and orofacial pain syndromes. Trigger points differ from tender points as they elicit referred pain. Trigger points are also characterized by circumscribed spot tenderness with a palpable taut band and recognizable pain that is evoked by pressure on the nodule. Clinically these trigger points are diagnosed by the presence of hyperirritable, hyperalgesic taut bands of a muscle. There have been reports of specific areas of orofacial pain as a result of trigger points in the muscles of mastication along with neck and shoulder muscles (10). According to Karel Lewit, he observed and described trigger points in the sternocleidomastoid muscle as well as overactivity as a common finding in
patients suffering with orofacial pain and cervicocranial disorders. This overactivity weakens the deep neck flexors and provides a forward head posture which is often found in patients with orofacial pain disorders (12).

Other causes of orofacial pain or pain in the TMJ region can include nerve entrapment and trigeminal neuralgia. Nerve entrapment refers to the process of a peripheral nerve being irritated or compressed. Pain caused by this mechanism is often felt to be shooting, sharp or burning. This pain can often be felt in the ear, the temporal region, the cheek, the front of the head, the lateral lower face, and retroorbital. This pain cannot be relieved by anesthesia and the symptoms often change during jaw function. Trigeminal neuralgia is also a source of orofacial pain and is characterized by severe parosysmal attacks of sharp, stabbing pain in short time periods. This pain is in regions innervated by the trigeminal nerve. This pain is relieved by local anaesthesia (7).

**Temporomandibular and Masticatory System Dysfunction and the Associated Signs and Symptoms:**

Temporomandibular Dysfunction is defined as a group of abnormal conditions involving of the masticatory muscles, the temporomandibular joints, and the associated neurological and musculoskeletal structures. Temporomandibular disorder is a collective term that encompasses masticatory muscle pain as well as disorders of the temporomandibular joint (TMJ), including capsulitis, degenerative joint disease, and internal derangement. Dysfunction of this system can arise from many different sources (13). The National Institute of Dental and Craniofacial Research (NIDCR), a branch of the National Institutes of Health (NIH), classifies TMD into 3 main categories: myofascial pain, the most common form of TMD which is discomfort or pain in the muscles that control jaw function and the neck and shoulder muscles, internal derangement
of the joint, meaning a dislocated jaw or displaced disc or injury to the condyle, and degenerative joint disease such as osteoarthritis or rheumatoid arthritis in the jaw joint. A person can have one or more of these conditions at the same time (14).

The masticatory system is a complex system including the TMJ, disks, ligaments, and dental arcades. As discussed previously, this system is responsible for chewing, swallowing, and speaking but requires a complex neurological control system to carry out these functions. Mastication is an action that is controlled by the central nervous system and has many peripheral sensory inputs which help to coordinate movement patterns (15). It is apparent that this action becomes well coordinated by the age of four to five years when the primary teeth have appeared. It is also believed that by this age each individual has developed a unique pattern of masticatory movement (16). These movements are coordinated by three sources: the motor cortex, the central pattern generator, and the peripheral input. For normal function, movement and posture of this system to be maintained information about the absolute position is required. This requires the neurological sources to work in unison (17). Masticatory dysfunction is a broad term encompassing a wide-range of disorders. This can include over-activity, joint dysfunction, muscle imbalance and orofacial disorders. These sources have histories that complicate and have significant contribution to the patient’s condition (18).

Temporomandibular dysfunction demonstrates a variety of signs and symptoms. Common features of this disorder include; joint sounds (with or without pain), abnormal jaw motion (deviation or deflection upon opening), tenderness to palpation of the periauricular region and the muscles of mastication, restricted interincisal opening, pain during rest, mastication and clenching, and psychosocial factors (11). Pain is the major symptom experienced and the
primary reason that patients seek treatment for this condition (Jankelson from Cooper). The following equation is thought to simplify how symptoms of TMD dysfunction develop (6):

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\text{Normal function} + \text{Event} > \text{Physiologic tolerance} = \text{TMD symptoms}
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Other common signs demonstrated with a dysfunction in this system include transient locking, a limitation in mouth opening, impaired mouth closure, and a gradual shift of the mandible. All of these signs have different etiologies and must be fully investigated. Transient locking is a restraint in the ability to open the mouth. This can last from seconds to hours. The locking phenomenon can be the result of a disc displacement with reduction, hypermobility of the joint that causes condylar dislocation, or loose intra-articular bodies in the joint space (7).

A limitation in mouth opening is often seen when the patient is experiencing a non-reducing disc, intra and extra-articular fractures of the condylar process, or sometimes post-whiplash. When a patient unexpectedly begins to experience a limitation in mouth opening and a click in the TMJ can be observed a disc displacement without reduction is expected. Other causes of gradual limitations in mouth opening can include disease, infection, arthritis and tumours. Another common sign of dysfunction is impairment in mouth closure. This limitation can be caused by a variety of thing which includes a medial disc displacement, condyle dislocation, a bilateral condylar fracture, rheumatoid arthritis, acromegaly and tumours. Mandibular shift is another common sign and when this sign is noted a differential diagnosis should include a tumor on the side of protrusion, acromegaly, and rheumatoid arthritis (7).

To properly assess dysfunction of this complex system, a complete head and neck physical examination should be performed as well as an oral examination. There is a high
correlation between cervical spine disorders and dysfunction of the masticatory system (18). Sensory information from the cervical spine converges with trigeminal afferent nerve fibers in the spinal tract of the trigeminal nucleus and these fibers descend down to the C2-C3 vertebrae and sometimes as far down as C6 (19). Muscles of the head and neck related to mastication must be palpated for tenderness. These muscles include the temporalis, sternocleidomastoid, both the deep and superficial portions of the masseter, and the medial pterygoid (20).

Postural imbalances in the head and neck have also demonstrated high correlation with disturbances of the temporomandibular joints. In the cervical spine, the facet joints and ligaments contain mechanoreceptors that control and balance proprioception. As postural changes become apparent and the normal 30 to 35 degree cervical lordosis is lost the proprioceptive input is disturbed. The sternocleidomastoid (SCM) also provides proprioceptive input through orientation of the head and neck (21).

When cervical postural position changes the anterior neck flexors become weak or inhibited. This is due to overactivation or hyperactivity of the SCM. As a result of this muscle imbalance, spasm may result in other muscles including the suprahypoid and the upper trapezius. This will lead to forward head posture and can cause an unbalanced stretching of the TMJ resulting in an abnormal resting position of the joint complex. The pain that results from this postural deviation most often occurs in the temporal region as well as the angle of the mandible. These regions are the source of proprioceptive input from the upper trapezius (22).

Changes in posture also lead to muscle imbalance which includes hyperactivity and tightness. The muscles experiencing these changes are primarily the muscles of elevation and protrusion of the mandible. These muscles include the masseter, temporalis, medial pterygoid, and the lateral pterygoid. Trigger points often accompany these hyperactive shortened muscles.
As the muscles become overactive, other muscles become inhibited; these are the muscles of mandible depression. The muscles responsible for this action are the digastrics and the mylohyoid (23).

Along with the postural imbalances of the head and neck, many patients experiencing TMD also suffer from neck pain. This neck pain can result from minor disc derangements, malalignment, degenerative disease, proprioceptive deficits, muscle weakness, laxity, ergonomic issues, and anxiety or depression. Positional changes of the head and neck, primarily at the junction of the cranium and cervical spine, often modify patterns of occlusion and jaw or mandible position (18).

When neck pain is experienced as a result of masticatory dysfunction, the pain is usually located in the upper cervical spine. This pain is associated with one or two intervertebral derangements at the corresponding level. It has been found that the C2-C3 levels are often the derangement, and the actual source of pain is the cervical spine from which C2 innervates a large area extending from the mandible to the temporal region. Other notable findings include limited or restricted neck rotation in patients suffering from masticatory dysfunction from the reflex splinting of the cervical muscles in response to the neck pain (24).

**Complementary and Alternative Medical Approaches:**

Once the appropriate assessment and diagnosis is made, a treatment approach must be considered. Currently there is no gold standard treatment for temporomandibular disorders. Treatment of this disorder can range from a conservative approach to surgical intervention. When choosing a proper treatment for TMD, one must consider the treatment goals. These goals should include pain alleviation, decreased loading of the masticatory muscles, and restored oral function (10). Before treatment begins the patient should be given the correct information about
their condition including the diagnosis, presumed etiology, and risks or side effects. It should also be discussed with the patient of any oral habits or patterns that can lead to impairment of the joint complex (25).

There is a wide variety of treatments for patients suffering from TMD. These treatment options include palliative therapy, temporary oral appliances, moisture and heat, exercise, physiotherapy, electrotherapy, iontophoresis, low-level laser, infrared, chiropractic care, soft tissue therapy, joint mobilization, medication and surgery (26). In today’s society many people are questioning the effectiveness of surgical intervention and seeking a more traditional or conservative approach (Godden from furto).

Some options for palliative therapy of TMD include the use of moist heat and ice. This is used to reduce inflammation and has fewer side effects than medications serving the same purpose. Moist heat promotes an increase in blood flow but should only be used for the first 72 hours after an injury, after that point, ice becomes a more effective treatment option. Passive stretching can be used in accordance with moist heat to prevent tightness of the muscles and reduce the pain (26).

Physiotherapy modalities are also used to treat patients with TMD. One modality is electroglavanic stimulation which utilizes variations in polarity to reduce inflammation by denaturing proteins and promoting an outward flow through the capillaries of metabolites and tissue fluids (8). Ultrasound produces heat and vasodilation through a vibratory mechanism which increases metabolic activity on a cellular level. This vibration has a neurological effect on peripheral neurons to override nociceptive input. Ultrasound is found to be most effective when used with massage and exercise (27). Laser therapy can also be used to treat TMD patients. The laser induces nitric oxide synthesis which causes vasodilatation increasing blood flow to the
injured tissue. This can lead the tissue to return to higher pre-injury energy levels and decrease the pain and swelling of the tissues (28).

Temporary use of intraoral appliances can help to reduce pain and establish the appropriate diagnosis. Occlusal splints and physical therapy are a source of nonsurgical treatment procedures for patients with anterior disc displacement without reduction (26). Although occlusal splints are frequently utilized, the evidence to support their effectiveness is scant. Physical therapy is commonly utilized in the treatment of patients with TMD, towards the general goals of reducing adverse loading and pain, and facilitating a return to full, pain-free function (29).

Manual therapy is often grouped with exercise to demonstrate tremendous results in TMD patients. Treatment by this means has demonstrated significant reductions in pain and an increase in joint range of motion (30). Joint manipulation of the cervicocranial junction and other cervical vertebrae is a critical element and can reduce acute symptoms immediately but must be used with caution and should not be the sole treatment for TMD. Mobilization of the TMJ has also been shown to be productive in this treatment approach along with soft tissue therapy on the muscles of mastication (12).

Rehabilitation of the surrounding impaired musculature has demonstrated a more functionally controlled and supported joint. This includes the deep cervical muscles and the anterior neck flexors. Based on these muscle impairments, two exercise programs have been constructed. The first program consists of general strengthening and endurance exercises for patients with inhibited neck flexor musculature. Exercises should include training the deep and superficial muscles including SCM, anterior scalene, longus colli and longus capitis. The second program should focus on muscle control and improve neck flexor synergy. This would require
the patient to minimize the activation of the superficial neck muscles (31). Another key link to proper function of the TMJ complex is proper activation of the digastrics muscle. When this muscle actively co-contracts it works to stabilize the mandible. Teaching the TMD patients to properly activate the digastrics, by placing their tongue on the hard palate while they palpate the contraction with their own, hand behind the mandible is essential in restoring function (8).

Dr. Clayton Skaggs quotes, “to put it simply, primary treatment should be conservative and simple.” From that quote, the argument on the appropriate conservative treatment is established (12). Literature is supporting that occlusion therapy is not mandatory in the treatment of TMD (3). Literature also supports that issues involving the cervical spine often accompany TMD and are more likely to be the pain generator than the TMJ. It is also strongly supported by literature that muscle and myofascial dysfunction is more often the source of pain in orofacial disorders than the TMJ itself. From this data one can conclude that the conservative treatment should include manual techniques to address muscle imbalance and joint restrictions, exercise for proper head and neck posture, and behavioral techniques to address parafunctional habits (12).

A common technique used to address muscle imbalance and over activity is postisometric relaxation. The overactive muscles benefitting the most from this technique in TMD patients are the masseter and the lateral pterygoid. When assessing joint function, the practitioner should focus on joint symmetry bilaterally. When asymmetry is found and joint mobilization is indicated, the treatment should be directed towards the joint with the final transitional position that is more posterior. This joint mobilization is used to normalize function and restore symmetry to both sides. Another anatomical structure that greatly benefits from mobilization is
the hyoid. The digastrics often become shortened in TMD patients leading to abnormal tension on the hyoid. This tension can result in difficulty in swallowing for the patient (8).

After properly treating patients suffering from TMD, the practitioner must educate the patient on activity restrictions to avoid further complications with the disorder. These activities include lip biting, fingernail biting, pencil biting, teeth clenching, teeth tapping and tongue thrusting. Ergonomic issues that must be considered are phone carriage, computer station set-up, weight-lifting, and any other issue that can disturb normal spinal and postural position. It is also important that the patient is aware of proper jaw position as well as ideal swallowing function. Kinesthetic awareness of these procedures will form habits which will lead to a more efficient and more stable tempomandibular joint complex (8).

CONCLUSION:

Temporomandibular disorders are a prevalent issue facing many people in today’s society. There has been a tremendous amount of research done over the years to study many different aspects of this problem. A large amount of data has been collected on the signs, symptoms and efficiency of various treatment methods for TMD. There is still no gold standard treatment protocol for patients suffering from this disorder. Research demonstrates that the effectiveness of each treatment is often dependent on the individual case and signs and symptoms present in that particular patient. This is likely because research has lead to many different conclusions on the various hypothetical etiologies of TMD. Current treatment ranges from conservative care without the use of drugs or surgery to intense very invasive surgical procedures. Many of these treatments are only directed at one aspect of TMD. With research proving that TMD is very complex and involving many different anatomical structures and body systems, how can one think that only addressing part of the issue will lead to health? It should
be considered that this disorder should be co-managed with multi-disciplinary action to address all components of the disorder. This could require co-management with dentists, chiropractors, physical therapists, and medical doctors depending on the individual case.
References