

New Therapy Allows Predictable Resolution of TMJ, Fibromyalgia and Other Related Conditions

by Farrand C. Robson, DDS

Introduction

There is confusion and a lack of clarity surrounding TMJ problems. What causes these problems? How do you diagnosis it? What can you do about it? Why do people with Fibromyalgia, Chronic Fatigue and other conditions also have TMJ problems?

The serious nature of this condition is clear. TMJ related pain is one of the most common chronic pain conditions today. By themselves the muscular head, neck and facial pain can be disabling. Generalized nervous system sensitization, on edge feelings, body aches and sleep disturbance make these symptoms even more significant.¹

TM joint changes, as well as dental bite concerns, are often present along with the jaw related pain and other symptoms of TMJ problems. This does not mean that the changes that can be found are the cause of the symptoms. Joint and bite issues have been evaluated as possibly causing TMJ problems but are not well correlated with the symptoms that define this condition.² They may well be the result of the elevated muscle contraction present.³

It is apparent that dysfunction in this unique multifunctional jaw system has full body consequences and does not primarily originate from any known pathologic conditions in the chewing muscles or temporomandibular joints.^{1,3} The jaws work in balance with other body systems and if the cause of TMJ problems goes untreated, the underlying biology may continue with potentially serious consequences.

Purpose

This paper presents new information about the origin and treatment of TMJ problems and the linkage of oral dysfunction to many systemic concerns. It is based upon the anatomy and neurophysiology that allows normal function to take place. Current dental TMJ treatment is not based upon testable concepts of underlying cause or of the biologic complexities and systemic relationships involved.

The Full Body Nature of TMJ Problems

TMJ problems are muscle pain symptoms and their cause cannot be established from examination, laboratory tests or radiographs. There are many conditions, like TMJ, that are named based only on a particular group of symptoms.³ Fibromyalgia, Chronic Fatigue, Irritable Bowel, Migraine, Restless Legs and primary dysmenorrhea are such conditions. Like TMJ problems, these conditions occur in combination with posture breakdown and fight or flight feelings.¹

The *Journal of the American Dental Association* has recognized that TMJ and Fibromyalgia (FM) are closely related.^{4,5} Hadenberg-Magnusson report that not only do the vast majority of Fibromyalgia patients also have TMJ problems but also the intensity of pain of the two conditions relate well to the other.⁶ Buchwald and others relate TMJ problems to Fibromyalgia and other conditions as well.⁷ The National Institutes of Health also notes the relationship to other conditions.³

The broad nature of TMJ-related symptoms suggest that they may be a part of a greater condition. This view was suggested in 1993 by Dr. S.R. Block who reported "the condition of chronic generalized musculoskeletal pain probably is only one part of an even more generalized condition that includes IBS, chronic headaches, regional migratory numbness, TMJ syndrome, and a whole host of other somatic pain syndromes."⁸

Many investigators have noted the common features in this group which The National Heart Lung and Blood Institute calls "TMJ Related" conditions. These conditions all include postural breakdown,⁹ sleep disturbance and on edge feelings, as well as head and neck pain. These are the typical TMJ symptoms. The origin of TMJ problems and these other conditions may be the same.

Oral Systemic Balance

Our discoveries in the understanding of TMJ problems has led to new treatment designs that in the

experience of this clinician are far more effective and far reaching than ever before. The new therapeutic process not only provides relief of TMJ symptoms but at the same time the symptoms of other conditions tend to resolve or markedly reduce.

This system is the Oral Systemic Balance Therapeutic System[®]. It is directed at the management of TMJ related pain and muscular head, neck, facial and jaw pain. Dentists trained and correctly following the protocols are obtaining consistent, predictable success. We are continuing to look for qualified practitioners, dentists and physicians, in order to make this new science broadly available.

Sleep Disordered Breathing (SDB), TMJ and "TMJ Related" Conditions

There has been the awareness that TMJ problems and sleep related concerns, such as Obstructive Sleep Apnea (OSA), have much in common. This relationship was suggested in 1990 in a study from the University of Medicine and Dentistry of New Jersey when it was reported that "An association exists between bruxism, tension headache, and sleep disorders, particularly sleep apnea, in the craniomandibular dysfunction patient."¹⁰ OSA is not classified as a Sleep Disordered Breathing (SDB) related condition.

The National Heart, Lung and Blood Institute (NHLBI) considers SDB, TMJ and TMJ related conditions to likely be the result of impaired muscular control of the throat with respiration, swallowing and increased upper airway resistance resulting from structural and neuromuscular conditions. They further note that the muscles of mastication and the tongue play a role in swallowing and breathing and that their integration is tightly linked to blood pressure regulation.¹

The NHLBI expands this even more and notes that Sleep Disordered Breathing (SDB), TMJ and "TMJ related conditions" may well be caused by abnormalities or impaired nervous system coordination of pain perception, motor output and sleep architecture.¹

These conditions include Fibromyalgia, Irritable Bowel, Chronic Fatigue, Restless Leg, and Migraine, as well as others.

SDB, TMJ and TMJ related conditions all share common symptoms of headache and other pain, on-edge (survival) feelings and disturbed sleep, along with postural breakdown, a nervous system relationship and a cardiovascular linkage. It is noted that TMJ patients may also be at increased risk of cardiovascular (CV) disease, hypertension, heart failure and stroke.¹

The Oral Component of Swallowing, Speaking and Breathing

Functionally, the jaw takes part in swallowing, speaking and breathing. There are postural, physiological, neurochemical and pain management considerations in these functions, as well as the tongue that is at the center of the oral component of these oral functions.

The jaws have both voluntary and involuntary neuromuscular action that allows jaw functions to take place in harmony with each other. This is seen in the chewing and swallowing functions that can take place as head posture and respiration are maintained. Any interference with this normal muscular action and balance, that is necessary to allow swallowing, speaking and/or breathing, can be responsible for the elevated muscular contraction. This hyper contraction of the muscles must then take place to maintain the throat and, as a result, produces such symptoms that define TMJ.

The mouth and jaw hold the position and action of the tongue and thus maintain and define both the oral cavity above the tongue and the pharynx behind the tongue. The precise determination of which area is pharynx and which oral cavity depends upon the level of muscle contraction present. The position, tone and action of the tongue in the mouth and pharynx contribute to the ease of swallowing, speaking and breathing.

The Origin of TMJ Problems: A Working Hypothesis

The suggested origin of the great majority of TMJ problems is hypothesized to be an Impaired Ease Of Oral Functions (IOF). This is defined as a decreased ease of the oral and pharyngeal component of swallowing,

speaking and breathing. These oral (pharyngeal) functions are maintained by the Autonomic Nervous System (ANS) mediated muscle contraction that is needed to maintain these functions.

TMJ muscular symptoms represent the elevated muscle contraction needed to maintain these oral functions. The presence of impaired oral functions is implied by the elevated muscle contraction that produces pain and TMJ symptoms by overloading of the TMJoints. This then satisfies the NIH position that evaluation and treatment of TMJ problems should first address the cause of the underlying neuromuscular concerns.

Impairment of oral functions is then implicated in the origin of SDB, TMJ and TMJ related conditions. For this working hypothesis a protocol has been developed that allows the presence of IOF to be determined and tested by providing support for these functions and then monitoring changes in symptoms, postural correction and physiologic alterations. This patient centered treatment approach requires that care be supported by the diagnosis and modified by clinical outcomes. This is an essential part of the OSB protocol for management of these conditions.

Compensations That Support Oral Functions

Individuals' symptoms primarily result from the physical compensations that are in place in order to maintain oral functions. The throat is a musculoskeletal structure that is maintained largely by ANS mediated muscle contraction. The muscular compensations most frequently seen will be discussed.

Postural Muscle Support of Oral Functions

I. Forward Head Posture

Forward head posture is associated with TMJ problems.^{11,12} Forward head posture allows the throat to be more open and is also associated with breathing concerns. This effect has been seen in normal subjects,¹³ as well as in those diagnosed with Obstructive Sleep Apnea (OSA).¹⁴ Respiratory dysfunction has been shown to have an influence on TMJ problems along with forward head posture.¹⁵

II. Jaw Muscle Activity

A. Forward Jaw Posturing

When supine, protruding the jaw will open the pharynx by pulling the tongue forward. This occurs either with or without Obstructive Sleep Apnea (OSA) being present.¹⁶ The tongue is a muscle of respiration with reflex response to allow greater airflow.¹⁷⁻¹⁹ Position and boundaries of the tongue are determined largely by the mandible and structure closely associated with the mandible. The vast majority of instances of upper airway problems involve movement of the tongue, when it relaxes back into the pharynx, thereby reducing or stopping the flow of air. Muscular compensations, including postural changes, are needed to allow the throat to be more open.

In an individual with upper airway concerns, the muscles that move the lower jaw forward may have muscle contraction problems.²⁰ This is then by definition a "TMJ problem." It would, however, be expected that if the pharynx were maintained in a more open state then muscles could relax and muscle contraction and pain would subside. This effect is seen when the mandible is positioned forward with functional orthodontic appliances. We also see a decreased postural EMG activity.²¹ Functional demands on muscle may exceed the adaptive capacity of muscle and result in the discomfort seen in TMJ problems.

B. Elevator Muscle Activity

The origin of the TMJ related jaw pain and head pain is made apparent by the Jaw Tongue Reflex (JTR) which often plays a significant role in the maintenance of an open pharynx and supports the ease of swallowing, speaking and breathing.

The JTR is initiated by contraction of the elevator muscles of the mandible, primarily the temporalis and also the masseter muscles. The JTR adds to this by increasing the tone of the genioglossus tongue muscle which then changes the morphology of the tongue and helps open the pharynx.^{22,23} The presence of this reflex is not surprising since the pterygoids, masseter and temporal muscles, commonly referred to as the muscles of mastication, are also secondary muscles of respiration.



TMJ Therapy



Initiating elevator muscle activity by clenching when the lower jaw is in a retruded position allows greater ease of breathing in a great majority of patients. This explains the presence of masseter and temporalis muscle pain in patients in whom an impairment of oral functions has been demonstrated. Morning headache and jaw discomfort are commonly seen in these individuals.

Since the tongue moves away from the back of the throat as the jaw moves forward, stimulation of the JTR by grinding of the teeth also recruits the elevator muscles and adds the benefits of jaw position changes. This effect is tested by the demonstration that clenching in a forward jaw position has been observed to often provide even greater ease of breathing than clenching in the normal biting position of the jaw. Holding of rigid jaw positions has also been observed to initiate the JTR.

Bruxism is part of Sleep Disordered Breathing and TMJ problems that also share anterior temporal headache. Sleep bruxism is the third most common sleep disorder and has been related to other conditions, as have SDB and TMJ problems. In view of the JTR this relationship could be expected.

There is a central release of norepinephrine that occurs prior to or at the same time as catecholamine release from the adrenal gland.²⁴ The masseter reflex is increased by norepinephrine when the system is stressed.^{25,26}

Norepinephrine allows for more rapid nerve conduction by lowering the nerve thresholds, which maintains the sympathetic tone, activates the Hypothalamic-Pituitary-Adrenal axis and stimulates the release of endorphins. The highest concentration of norepinephrine in the central nervous system is in the motor nucleus of the trigeminal.²⁷ Sleep bruxism appears to be neurochemically stimulated²⁸ and occurs at sleep stage transition with a 16.6% increase in heart rate that is indicative of elevated sympathetic activity.²⁹

III. Dental Shapes and Contours

The JTR is seen to initiate neuromuscular control of the throat. We have also found that the contours and shapes of teeth and other oral tissues also initiate neuromuscular responses that alter the tongue position and volume in the mouth and pharynx. They can directly reduce areas of muscular pain and have major therapeutic implications.

Dental shape and contour alterations can stimulate muscle tone changes in the tongue that allow for a more open pharynx. These reflexes are used as a basic part of therapy. They often provide rapid reduction of jaw, head and other pain and appear to be maintained even in deep sleep.

Dental Shapes and Contours in Dentistry

Dental restoration has been demonstrated to produce the same alteration in head posture that occurs in upper airway disorders.³⁰ Similar head posture alteration has been demonstrated to be reflexly associated with respiration.^{13,30,31}

Intraoral orthotics of other designs, such as mouth guards, night guards and TMJ orthotics involve mandibular and affect the airway. Any dental, dental occlusal, orthotic or facial skeletal changes will affect the upper airway. This should be considered as part of any dental care to avoid the risk of reducing the throat.

As dentists, we provide care that has an effect on the throat, even though it has not been apparent to us. Training of dentists in this area is critically needed.

IV. Fight or Flight Effects

Autonomic Nervous System effects, such as the Jaw Tongue Reflex, are associated with TMJ problems. This is not surprising since the maintenance of the throat is essential for survival and this is accomplished in the body by postural muscle mediated by the ANS.

The fight or flight feelings, muscle pain, and postural changes all reflect ANS activity. The aversion to cold, touch and fogginess of Fibromyalgia and other TMJ related conditions have also been related to the ANS.

Jaw muscle action is mediated from the brain through the Trigeminal Nerve, the largest of the 12 Cranial Nerves. This nerve is associated with the brainstem's Reticular Formation

function that provides central control of the ANS. This functions with the Limbic System, Hypothalamus and Cerebellum and controls the reflex physiology throughout the body.³³

Treatment Considerations

TMJ problems are related to a great many symptoms and diagnosed conditions. Improved understanding of this relationship allows a new treatment approach that promises relief for millions of people who suffer with TMJ symptoms and the broad variety of TMJ related conditions.

Additionally, the recent linkage of heart disease, stroke, hypertension and sleep disturbance to TMJ concerns, raises the possibility that the health of the majority of the population may be negatively impacted by the underlying cause of TMJ symptoms, even if they try to ignore them and do not yet have a diagnosis.

My years of study have led to the creation of the OSB Therapeutic System[®]. The patented assessment and therapeutic techniques have enabled OSB trained dentists to provide predictable, successful treatment. With greater ease of oral function, there is reduction in muscle contraction and a balancing of the ANS. As a result patients experience improvements in symptoms throughout the body. A patient recently treated captured the effects of the OSB Therapeutic System[®] best when she wrote, "I immediately knew right there my life would be 100% better."

The information presented is substantiated through literature and clinical outcomes of the author and dentists he has trained as part of Oral Systemic Balance Therapeutic Systems[®].

The Author

As a founding member of TMJ Diagnostics and Oral Systemic Balance, Inc. Farrand C. Robson, DDS, resides in Tacoma, Washington where he is involved in training, development and clinical practice. His primary focus has been to provide a systematic therapeutic system that can be broadly used by other practitioners and in the re-integration of medicine and dentistry.

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