

## **Temporomandibular Joint Dysfunction (“TMJ”)**

### **Bioesthetics**

### **Tooth Wear**

### **Bruxism**

### **Dental Induced Head and Neck Pain**

**The following section encompasses all of the above items, as they are most often related to one another and are an indicator of masticatory system imbalance.**

Pathologic (unhealthy; diseased) tooth wear is very prevalent in mankind, so common that even most dentists may think it to be normal. It is not normal, as there are many people who have little or no discernible tooth wear well into their eighties and nineties (see teeth photos - “ “). Just as high blood pressure is prevalent, I would not consider it to be “normal”. In our office, we view that mouth (teeth, jaws, jaw joints (TMJ’s), muscles as a system and how it relates to the person as a whole. An understanding of how a normal, beautiful and healthy system appears and functions is important before we can attempt to diagnose pathologic processes. Dr. McBride’s training and teaching experience in Bioesthetics with Dr. Robert Lee allows for our clients who have tooth wear and jaw joint problems to obtain a treatment plan to develop their oral system as close to the Bioesthetic\* ideal as possible.

\* **Bioesthetics:** “The study or theory of the beauty of living things in their natural forms and function.” - *Dr. R.L. Lee*

The following will describe the relationship of the teeth, jaw joints and surrounding structures, and how we diagnose and treat disharmonies between them.

The Temporomandibular (jaw) joints (TMJ's) connect the lower jaw to the skull. This connection is dictated by the way the teeth fit together - in other words, the positions of the TMJ's (ball and socket joints) and surrounding structures (muscles, ligaments, disks) are dependent on how the teeth interrelate upon contact in chewing and swallowing. When a bite is "off" (uneven interrelation of the upper and lower back teeth) and the teeth meet, the joints "stretch" to accommodate the "off bite". This causes trauma to the TMJ's which can involve joint pain, popping/clicking, and stress to the surrounding structures resulting in head and neck pain, migraines, ringing in

the ears (tinnitus), vertigo, **tooth wear** (especially the front teeth), clenching and grinding (**bruxism**). We now know that most of the deep grooves on the sides of teeth at the gumline aren't from the toothbrush. They're called "abfractions", and are caused by horizontal "stress corrosion" on teeth, which are symptoms of the inherent dysfunction.

It has been demonstrated that up to one-half ton pressure per square inch can be exerted onto the back teeth from the jaw muscles. If there are uneven biting pressures, the brain gets a message to move the jaw forward (it can't go backward) automatically to prevent their heavy, traumatic contact, with resultant **wear on the front teeth** - they "pay the price".

Some persons have jaw joints which are extremely adaptable and they go through life with "off bites" and stretched joints without any discomfort, but most have excessive tooth wear and possible supporting bone loss. Others may adapt for quite a while and then at some time experience either mild **symptoms** (slight clicking, muscle discomfort, headache, jaw starting to "lock"), or possibly severe symptoms (extreme joint, muscle and head pain - even migraine type headaches, loud popping/clicking with the jaw actually locking). Sometimes these events are episodic and the symptoms go away, while there are times that it continues to worsen - a true case of acute TMD (**Temporomandibular Dysfunction**).

### Thorough Diagnosis

Our approach to this problem consists first of developing a complete diagnosis which includes collection of functional data such as models of the teeth, and inter-jaw records to allow for placement of these models on a jaw simulator (articulator). With this, it can be seen how the teeth and joints relate to each other and function without the heavy influence of the protective jaw muscles. Also performed is a muscle palpation examination, measurement of jaw movements, and slide photographs of the teeth in their functional relationships. State of the art jaw joint x-rays (corrected tomograms, or laminograms) are taken at a laboratory to show the "ball and socket" positions at various openings, the positions of the intra-articular discs, and to see if there are any bony changes such as arthritis, due to trauma. The above records, together with a complete history will allow for the development of a diagnosis and an appropriate treatment plan.

### **Recognized causes of TMD:**

- . Trauma to the TMJ's
- . Genetic predisposition
- . Stress
- . General state of health
- . Changes in the way the teeth fit together due to:
  - sleeping on your face
  - missing teeth with resultant tooth shifting
  - improperly placed fillings, crowns, etc.
  - improper orthodontics

### Treating the Problem

Typically, after the diagnosis, the first treatment step is the construction of a removable orthotic device, or "splint" known as a "MAGO," which covers the biting surfaces of the upper teeth. It is initially adjusted so that all the lower front teeth hit it evenly, which starts taking the pressure off the jaw joints and surrounding muscles. Soon after its placement, it is modified to contact all the lower teeth evenly. This device is worn full time (excepting for removal during oral hygiene) and only soft foods are eaten at first - this is a major commitment. As the jaw joints become more healthy, the lower teeth will begin to contact the orthotic differently, therefore it needs to be adjusted periodically to keep up with these healthy changes.

If a person is in severe discomfort, x-rays are taken of the joints, and orthotic treatment is started immediately. The definitive diagnostic process will begin once the person is free from pain and the joints are quantifiably stabilized.

The purpose of collecting data and developing a diagnosis is to let the dentist discover and the client to learn, before definitive dental treatment of any kind is started, what type of dental care will be needed to maintain healthy, stable TMJ's after orthotic treatment. Usually the health, and certainly the new positioning of the joints will not be sustained without continuing orthotic wear, so it is important to know what type of dental treatment will be needed to allow a discontinuance of its wear, prior to starting orthotic treatment. Dental treatment can consist of any one or a combination of four different types:

- 1** Precision Bite Adjustment (PBA - re-shaping of teeth biting surfaces).
- 2** Restorative treatment such as crowns, bonding etc.

### 3 Orthodontics

4 In extreme cases of jaw discrepancy-orthognathic (jaw repositioning) surgery.

**Orthotic wear** and adjustment is the first treatment step in order to:

- eliminate pain, malfunction, and hopefully - popping/clicking
- develop stable, healthy jaw joints before commencing any of the above dental treatment. In other words, since the joints and teeth have an influence on each other, the final treatment of the biting surfaces of the teeth should be dictated by joints having been treated to a healthy and quantifiable "end point".
- determine whether your symptoms are all or in part due to the bite discrepancy. It is important to understand that many times, along with a bite discrepancy as described above, other factors can contribute to the symptoms such as physical and emotional health, muscle tension caused by stress, general attitude and habits.
- have a reversible, non-invasive treatment to test our diagnosis. If orthotic treatment alone is unsuccessful, other treatment modalities can be instituted such as Biofeedback, Stress Management, Acupuncture, etc. At any stage during this active phase of treatment, discontinued wearing of the orthotic will result in the joints assuming their original positions - it is a reversible process. However, with sustained wear, the jaw joints may remodel to new healthy positions. This is a good thing for the jaw joints, however if the teeth correction measures are not undertaken, and for some reason it is elected not to wear the MAGO, there is a possibility that the teeth will not mesh in a manner that they did prior to MAGO therapy. One could be "in limbo" with their bite. This is why, prior to the beginning of treatment during the consultation phase, you understand that once MAGO therapy is instituted, it is part of a treatment and diagnostic process. A process that is intended to continue through and including treatment of the teeth by means of the above methods so that they can ultimately be in harmony and sustain the new, healthy jaw joint positions.
- Some people find that after the resolution of their symptoms, night time or partial orthotic wear only will either eliminate the symptoms or lessen them enough to be adequate without further treatment.

TMJ dysfunction has come to light within the last 15-20 years, because more people are keeping their teeth for a lifetime. It is important for the dentist to

have a sound, tested and workable philosophy in dealing with these problems.

**Our goal is to develop a comprehensive plan before we take the first step, so that our road can be paved with mutual understanding, improved health and function.**

If there is any aspect of this information which you would like to have further explained, do not hesitate to ask for a consultation with me.