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Headaches: The Dental Connection

You probably remember the old song "...the knee bone's connected to the leg bone; the leg bone's connected to the hip bone...etc." Your (lower) jaw bone actually is connected to your "head bone"—and it is connected by muscles, ligaments, and tendons. This area is known as the *temporomandibular joint* or the *TMJ*. When the lower jaw lines up perfectly with the upper jaw and everything functions normally, everything is fine. If the lower jaw does not line up properly or, perhaps more importantly, if there is abnormal stress present when the lower jaw contacts the upper jaw, problems can occur. The abnormal stress is usually clenching or grinding of the teeth and it can occur any time, day or night, awake or asleep. When this happens, a person can develop regular, chronic, or migraine headaches; muscle pain or tenderness in the jaw joint muscles; or the temporomandibular joint dysfunction (TMD). Forty-four million Americans suffer from chronic clenching and grinding, resulting in tooth damage, and 23 million suffer from migraine headache pain.

While mouthguards have been used with some success to treat TMD patients, a new FDA-approved device seems to offer a higher success rate in eliminating TMJ problems. This device has an additional advantage in that it was designed to reduce the clenching habits that often lead to chronic and migraine headaches. This device prevents the upper and lower teeth from coming into contact. By preventing high-intensity clenching (and the muscular irritation that leads to migraine pain, TMD, and chronic headaches), studies have shown that 82% of migraine and headache sufferers had a 77% reduction in the migraine incidents. In short, the frequency and intensity of headache episodes and muscle tenderness can be reduced with the use of a bite guard.

A tension suppression system is another effective form of bite guard that can treat TMD. This small removable device, made in the laboratory, can be worn day and/or night and has been shown to reduce clenching intensity by 66%. It takes advantage of a naturally protective reflex that suppresses the powerful chewing muscles active in clenching. For those concerned about insurance coverage, the cost of this device is submitted first to medical insurance for evaluation of benefit coverage. Most insurance carriers do consider this device a payable benefit.

How important is the reduction of the clenching stress? Try this simple demonstration. Put a pencil between the last top and bottom molars on one side and bite hard. Remember how hard you were biting. Then take the pencil and place it between the top and bottom front teeth and bite down hard again. You will not be able to bite down as hard when just biting on the front teeth. You should be able to detect a great difference between biting (clenching) on back teeth only and front teeth only. Try another test: lightly place your fingertips on either side of your head in the temporal area (above and in front of the ears). Clench your teeth and feel the muscles on either side of the head bulge out. Then take a pencil, place it between the top and bottom front teeth, and bite down again. You will easily feel that the temporal muscles do not (cannot) bulge out as much, meaning that not as much clenching compression is possible.

Temporomandibular Joint Dysfunction (TMD) Syndrome

Causes and Symptoms

Temporomandibular joint (TMJ) dysfunction, or TMD, can be a complicated and complex problem. The TMJ is located in front of each ear and is responsible, with the associated ligaments, tendons, disks, and muscles, for all jaw movements. Problems with the joint are referred to as *TMD*. They can be manifested in a variety of ways including headaches, earaches, ringing in the ears, problems with jaw opening or closing, tenderness of the jaw muscles, popping or clicking noises when the jaw is opened or closed, neck pain, and upper back pain.

When the jaw joint does not function properly, there can be pain and muscle spasms. However, it should be noted that muscle spasms and resulting pain may have nothing to do with the jaw joint. The TMJ is essential to all movements that involve the jaw. The pain can be slight, moderate, or severe. It can be sporadic or constant and even debilitating. It is common for a TMD patient to have difficulty chewing hard foods or opening the mouth wide without discomfort. Some of the patients may have a problem chewing soft foods. Normal function of the joint can be affected by trauma (accident), improper positioning of the teeth, disease (arthritis), and stress-related habits such as clenching and grinding.

TMJ dysfunction has been called *The Great Imposter* because it mimics other problems. Sometimes it is hard to diagnose.

Sometimes it is easy to determine. Many times, special radiographs are absolutely necessary to see the nature of the problem.

Treatment Options

Once the problem is diagnosed, possible treatments are considered. The usual method of treatment is very conservative: mouthguards (bite guard) and various repositioning splint therapy appliances specifically constructed for you. They permit the joint area to rest and give it a chance to heal. These therapies are relatively inexpensive. Time of treatment varies considerably among patients. Some may get relief in a few days; others may need months. Some may have to wear the appliances all the time; some, just at night. Other treatment may include prescription medication, habit-breaking appliances, TMJ orthodontics, physical therapy, biofeedback and counseling, and in extremely rare cases orthodontic corrective surgery along with total bite reconstruction.

Depending on the exact nature of your TMD problem, we may decide to treat you here or send you to a specialist or surgeon for this treatment. Early treatment may help you to a better chance for a successful result. This is especially true if the nature of the problem is degenerative, and not related to clenching or grinding. Although diagnosis of TMD problems may often be easy, the exact nature of the treatment needed to obtain relief may be difficult.

Traumatic Occlusion: Occlusal Equilibration or Bite Adjustment

The Normal Bite Relation

In the normal, healthy mouth, teeth should meet without extra stress being placed on any individual tooth. Teeth that mesh and meet properly are similar to two metal gear wheels that, when rotating together, have the projection (or *tooth* as it is called) of one gear fit perfectly and smoothly into the depression of the other gear. If for some reason the teeth of the two gears do not meet exactly, the projections on both gears will hit and there will be an unwanted interference. This interference could make portions of the gear teeth chip, fracture, or wear abnormally causing wear facets in the metal teeth. If the interference continues for a longer period of time or the interference is severe, the gear teeth will be more likely to break, and the break could be more severe. The gear wheels themselves could also loosen on their axis and begin to wobble when rotating.

Even though teeth are not made of metal, similarities to the meshing of gears do exist. The outside surface that normally contacts the opposing tooth is made of enamel—hard but brittle. Your teeth are held in place and supported by the bone that surrounds the teeth. When your occlusion (bite) changes, preventing your teeth from meshing in unison, the enamel could begin to chip or wear. When these teeth have been restored, these restorations could fracture. In the most severe cases, the teeth will become loose. You may also find that the enamel wears away abnormally quite quickly and the teeth change shape and become shorter.

Traumatic Occlusion

All of the above problems could be a sign of traumatic occlusion. The teeth that meet improperly can be damaged every time you close your mouth. One tooth or all of your teeth may be affected. Very often, you don't know that a problem exists because you experience little or no pain until it reaches a very advanced stage. If you have teeth that have compromised bone support because of active or past periodontal disease, the teeth will have a tendency toward slight movement that could place them in traumatic occlusion. The "bite" doesn't have to be off by very much before a problem occurs. Movement from the proper position no more than the thickness of a piece of paper is often sufficient to cause a problem. If you have a clenching or grinding habit related to stress, you can induce a traumatic occlusion.

Treatment

Once the problem has been diagnosed, it should be treated quickly. Treatment can be simple or complex. It will involve determining which teeth are not meeting correctly when you close your teeth together. If only one tooth is in a poor position, it may be able to be corrected with one appointment. If more than one tooth is involved or if teeth are looser, several appointments may be needed to correct the problem. Your teeth may be slightly sensitive to temperature changes for a time after the occlusal adjustment is completed.

Occlusal (Bite) Guards

Making a Bite Guard Appliance

The appliance constructed to eliminate or reduce the adverse effects of a bruxing and/or grinding habit(s) is made of a rigid plastic. It is custom-made to fit your mouth exactly. It will take two visits to complete. It can only be inserted one way; it will not stay in place if it is inserted improperly. At the first visit we will make impressions of your upper and lower teeth and record the occlusal (bite) relation of your jaws. After the bite guard is made, you will return for a second visit a week or two later for adjustments and delivery. At the second appointment, the appliance will be adjusted so that your teeth properly meet the plastic. The appliance fits just around the biting surfaces of the teeth of the top jaw. It will not cover the roof of your mouth.

After the appliance has been delivered, you will be expected to return in a few weeks with the appliance for observation and possible further adjustments. You should at no time have any pain or soreness in muscles or joints around your face or ears, whether or not you are wearing the bite guard. It is meant to protect your natural teeth (enamel and dentin) from unnatural, pathologic wear caused by the bruxing or grinding habit. Since the plastic of the appliance is “softer” than your remaining enamel, the plastic will wear when you brux or grind. Expect the plastic to last about 2 years—longer if you do not have a severe problem, shorter if the habits are very abusive.

Wearing Your Appliance

After you receive the protective guard, please wear it as instructed. If you grind or brux at night while sleeping (very common), wear the guard while you sleep. If you brux or grind during the day, try to identify when during the day you have the problem (stuck in traffic, talking on the phone, working at a desk) and wear the guard at that time. Becoming aware of the times of day or stresses that cause you to clench or grind may help you to break the habit.

If at any time, you develop soreness of the muscles around the temporomandibular joint or TMJ (jaw joint), stop wearing the bite guard and call the office. The TMJ is the hinge joint in front of each ear; you can feel them when you open and close your mouth. Do not wear the bite guard again until we have had a chance to evaluate your situation.

Length of Treatment

How long must you wear the protective appliance? It all depends on the nature of your problem. If this application is being used to prevent stress-related abnormal wear of your teeth, then you will need to wear it until you are no longer burdened by heavy stress. When the source of the problem is eliminated or resolved, the problem may disappear and you will no longer need to wear the appliance. We will periodically evaluate your condition.

When you are not wearing your bite guard, it should be cleaned with a soft toothbrush and water to remove any plaque and stored in a moist place, never let the acrylic dry out as it may change shape and the bite guard may not fit properly.

Please bring your bite guard with you when you come in for your routine dental hygiene prophylaxis appointment so that we can check the appliance and make sure that it is functioning well. Always stay on the recare interval that we have designated for you. When dental problems are diagnosed in the very early stages, the treatment is usually easier (and less expensive).

Keep the bite guard clean. When you are finished wearing the appliance, brush it with a toothbrush and toothpaste, rinse it, dry it, and store it in water in the provided container. If it cannot be brushed immediately, at least rinse it under clean water to remove any saliva or debris.

**If you have any questions about the connection between headaches and your teeth,
please feel free to ask us.**