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Practical Practice Pearls

For Dental and Medical Professionals

This newsletter is published sometimes monthly and contains useful information about current pharmacology and therapeutics, pathology, techniques, and procedures used for the management of diseases and conditions of the hard and soft tissues of the face and mouth. Please contact us to be added or removed from our fax list, and/or with your comments and suggestions for "Pearl Topics". Copyright 2005 by Dale M. Gallagher, D.D.S., P.A., 12210 Pecan Street, Austin, Texas 78727 phone: 512 258-1636; fax: 512 258-6352; email: dgallagher@jawpain.com

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The TMJ Trinity

The upper and lower jaw bones, the teeth, and the temporomandibular joints (TMJ's) are the TMJ Trinity. These three structures have their unique characteristics, and are interrelated and dependent upon each other. As the word "trinity" implies, all three structures are equally important. This is not a "trilogy" of sequential or linear importance, but a trinity of three equally interrelated dimensions of form and function. Let me explain...

The Door. Look at a door. It has three basic functional, structural parts: The hinges, the frame, and the lock (or door knob). When all the parts are properly aligned and working well, it can easily be closed with the gentle push of a finger. We all know of doors that do not work that way. You probably have a door that you must lift the knob a little to make it close into its hasp, or a door that has a "sticky frame" that requires a tug/push to open or close, or a door with noisy hinges that rattle or squeak when they move. Would you expect a door with rusty or loose hinges to work better if you changed the lock or trimmed the frame? Of course not! Unless the hinges are stable, then who knows where the correct position of the lock and frame should be? Likewise, if the lock and/or frame are misaligned or "sticky", then what will happen to the hinges? The hinges will become stressed and strained until they bend, break, or become loose. The problem door remains a nuisance because it does not correctly open, shut, or lock.

So how is a door fixed so it will work well for a long time?...by correcting one variable at a time. First, evaluate the hinges to make sure they are strong, stable, and well aligned. Next, check the door in its frame. Plane it or adjust the trim so there are no "catches", it is "squared", and it closes evenly within the frame. Lastly, place the lock/door knob so it is centered and aligned within its hasp. You should now be able to open and close the door with only a finger or two.

Just like the body, age will take its toll on a door. With time and use the door may sag and become less easy to close or lock. The door becomes a slight nuisance because it must be lifted a little to properly close it. This does not seem of great importance because it can still open and close, it just requires a little extra effort. But what happens over time? The hinges become stressed, the lock seems to get a bit worse, and the frame sticks. Sometimes when the weather is hot and humid the door (especially wooden and fiberboard ones) will swell and become problematic, requiring an extra tug to open or close. Next season, when the air is dry again, the door may work "better" but not seem to have fully returned to what it used to be. The point here is that the door may require minor maintenance to keep it working well, but if you neglect it, then future repairs become more complicated and expensive.

Also, and most important, each of the three parts of the door have their own individual qualities, and unless all three parts work harmoniously, there will be problems in one, two, or all three parts.

The Face. Remembering the door analogy, consider the TMJ's as the hinges, the bite (meshing of the teeth) as the lock/door knob, and the alignment between the upper and lower jaws equal to the way the door fits within its frame. Yes, there are other parts of the face such as the muscles, nerves, gums, tongue, etc. These structures are also important, but they usually have a secondary role relative to the TMJ Trinity.

Long term facial and jaw functional stability depends upon proper alignment and structural health within the TMJ Trinity.

The overwhelming majority of TMJ disorders (dislocated discs, condylar degeneration, limited jaw opening, and joint noises) originate from dental malocclusions (bad bites) and misalignment (growth discrepancies) between the upper and lower jaws. In fact, a large percentage of malocclusions (what appears to be only a bad bite) are due to a combination of both irregular tooth position within bone *and* growth problems between the upper and lower jaws. The first symptoms that motivate persons to seek help from a doctor are usually pain within the face, head, and jaws, or locking of the jaw. (Pain is a great motivator!)

As a surgeon, I am frequently consulted by persons requesting that I evaluate their facial pain and jaw movement problems. I often tell these people that, as a surgeon, I am a good diagnostician and I can fix their TMJ's so that their jaws can open, but that is not the total solution to their problem. Like the door, long term success (function and stability) depends upon identifying and correcting the source(s) of their TMJ disorders: Problems within their bones and bite. Indeed, most TMJ surgery would not be needed if there was proper bite and bone alignment/function. And again like the door, fixing the bite and bony problems cannot be expected to improve severe TMJ disorders. Instead, correction begins with fixing the hinges, then reevaluating and correcting the problems within the bite and bones.

As you now must realize, diagnosis and correcting problems and disorders in the face may be complicated and time consuming. Long term success is predicated upon controlling one variable at a time with the goal of attaining stable TMJ function, bone alignment, and tooth position. This usually requires the combined skills and excellent communication between several dental specialists including the restorative dentist, orthodontist, and oral and maxillofacial surgeon. Each specialist provides a unique role in providing optimal health of the TMJ Trinity.