The Changing Model

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Terrance J. Spahl, DDS

St. Paul, Minnesota

www.tjspahldds.com

If there is one word that would best describe the enormous revolution that is currently pending in what we now know to be the often intertwined clinical sciences of orthodontics and its not so distant companion discipline of TMD therapeutics, it would be the word "neuroscience"! In these enlightened times it is neuroscience that provides the highly technical and labyrinthian path of knowledge that finally exposes the petulant Ortho/TMJ/Migraine neuropathophysiologic continuum for the long elusive scientific specter that it has always been, and it does so to a totally disbelieving world. This changes everything!

Instead of the old, traditional, time-honored methodology of fixed appliance orthodontics continuing to monopolize the high therapeutic ground, a position which it has nervously dissociated recently from any allusion to an intimate role in TMD therapeutics, such customary wire and bracket operations are about to be relegated (for many types of ortho-TMJ cases) to the level of an ancillary, tooth-oriented finishing technique. By clinical necessity, fixed appliances are now becoming begrudgingly subservient to the newer and much broader discipline of Maxillofacial Orthopedics, the current prime mover throughout the modern and more global concepts of total Craniofacial Health. Neuroscience, especially the nimble and eclectic neuroscience of chronic nociceptive processing within the various encyclopedian members of the peripheral and central trigeminal tree, provides the blindsiding academic bullwhip that drives the entire movement. Traditional orthodontics, as a whole, has been lugubriously caught off guard and unawares by all this. Nature couldn't care less! It is what it is.

Stilted orthodontic efforts at wistfully trying to address the vagaries of severely deformed and/or orthopedically jaw-to-jaw misaligned malocclusions with mere fixed appliance techniques, which are essentially only capable of managing the tooth leg of the Teeth/Bone/Muscle triangular model of malocclusion, have been proven by their own proponents to be decidedly ineffective in resolving cases of malocclusion exhibiting concomitant TMJ internal derangements of a level sufficient to generate supra-threshold, TMD-initiated, cephalalgic symptomatology. Fixed appliances generally can't handle that. In such a scenario, the vascular migraine headache represents the neuropathophysiologic "end of the line" of the steady progression from the common, only slightly milder, chronic recurrent muscle contraction type (now designated as "muscle tension" or "T-type") headaches on to the far more sinister and neurologically expanded migraine type family of headaches; a conversion now recognized as a true continuum. This cumulatively degenerative pathologic march has its origins in the pernicious incubation of a malocclusion-driven chronic compression nerve damage model generated by the dysfunctional seating of the mandibular condyle up off the posterior band of the articular disc and on to the retro-discal bilaminar zone's neurovascular bundle at fully interdigitated dental occlusion. Such an occlusion then by default becomes a malocclusion, regardless of the traditional dental "classification" of the actual cuspal interdigitation. Only Functional Jaw Orthopedics (FJO) is capable of successfully managing that. As a result, the fixed appliance "little brother" orthodontic technique automatically gets demoted to the role of an ancillary supportive partner. Figuratively, the painfully long absent FJO "big brother" orthodontic technique has completed basic training and is now finally home from the military. Look out!

The new buzz word, or more correctly, "buzz-acronym" of this modern, more craniofacially global model, based on using expanded orthodontics to address major symptomatically TMD-involved combined orthopedic/orthodontic malocclusions, turns out to be the abbreviation "ACH." This is not meant to denote "acetylcholine," an important and ubiquitous neurotransmitter found throughout the brain, parasympathetic and peripheral motor nervous systems, but rather it stands for "Advance, Close and Hold." Not every minor dental malocclusion, or case exhibiting nascent TMD, requires such compound treatment. But many do, especially those cases associated with major TMD-generated chronic recurrent headache and facial pain issues. We can now manipulate mandibular (hence condylar) position at will. Mandibular anterior repositioning therapy (ART) is the key to breaking the more advanced forms of the TMD/Migraine neurological stranglehold. Yet one of the clarion occlusal sequelae that invariably accompanies such techniques (in all but certain types of anterior open bite cases) is the seemingly daunting appearance of a bilateral posterior open bite of one degree or another. This is not an orthodontic process but rather an orthopedic event. Converting such mid-treatment "sans interdigitation" circumstances into finished bilateral posterior quadrant full contact occlusion is now relatively rapidly and easily accomplished via SSV (Spahl Split Vertical) appliance technology, itself also a true orthopedic event. Stabilizing treatment-effected anteriorly repositioned lower jaw placement and increased vertical dimension of occlusion (VDO) is now also easily accomplished with the use, when needed, of the now famous, European-spawned, "miracle appliance"; that darling of the FJO world, the neutral Bionator night time "retainer." Thus, with the tandem employment of the treatment techniques of FJO, ART, and SSV-actively augmented VDO, clinically affecting the global principles of ACH is now a common reality. Subsequently, in its wake an entirely new paradigm is born. From this point on, there is no going back. The neuropathophysiologic model proves it, the appropriately produced verifying literature proves it, and the spectacular clinical success universally observed on a daily basis by advanced practioners around the world who employ these methods prove it. FJO technique explains just how we do it, and modern day neurological information explains just why it works; TMJ and facial pain expression principles, headache neuropathophysiologic symptomatology, heterotropic pain referral patterns, associated focal neurological phenomenae, and all. Done Deal! Now it is time for the rest of organized Dentistry, and organized Medicine as well, to catch up. But don't hold your breath. Both are going to have a hard time choking this one down. But as previously stated, Nature (and the seemingly miraculousy cured chronic migraineurs who have already universally benefited from these expanded orthopedic/orthodontic techniques) couldn't care less. They're just happy to be well. The long academically orphaned truth on all this precipitously now wins out at last. As previously stated, this changes everything!

"In questions of science the authority of a thousand is not worth the humble reasoning of a single individual."

Galileo Galilei, Italian Astronomer, 1564-1642

Dr. Spahl is the principle author of a trilogy of textbooks on orthodontics, maxillofacial orthopedics and TMJ therapeutics entitled The Clinical Management of Basic Maxillofacial Orthopedic Appliances. Dr. Spahl is a world-renowned lecturer on the subject of orthodontics and TMJ before both dental and medical groups. He has lectured for over three decades at seminars and dental conferences throughout the United States, Canada, Europe, South America, Australia and the Orient. Dr. Spahl is a Pioneer of Functional Jaw Orthopedics & TMJD Treatment in North America.