

EPIGENETIC ORTHODONTICS



Co-written by Prof David Singh and Dr Leanne Malisano (pictured)

Professor Dave Singh DDSc PhD BDS - the pioneer of a new approach to craniofacial dentistry, called epigenetic orthodontics, was in Sydney this February to present a paper at the World Federation of Orthodontists, and to train neuromuscular dentists how to play their role in epigenetic orthodontics. Dr

Malisano was privileged to be one of the 15 allocated for this course.

Epigenetic orthodontics, using the patented DNA Appliance™ system, is thought to allow a dentist to harness the body's natural ability for self-correction through gene-environmental interactions, using developmental mechanisms that are encoded at the level of the human genome. To trigger these mechanisms, the epigenetic orthodontic protocol changes the oral environment by wearing DNA appliances in the evening and night time (but not during the day), resulting in the necessary signalling for renewed genetic expression and further development, even in the adult patient. The principles are based on sutural homeostasis and biological muscular balance to encourage osteogenesis. In other words, the biodynamic flux produced by the DNA appliance provides an adaptive environment in which the functional and growth potential of craniofacial structures can be optimized. This treatment protocol aims to specifically change the craniofacial architecture; in which the teeth, the jaws, the jaw joints, the face, and the upper airway are found. The treatment outcomes include enhanced airway form and function, and positional movements of the teeth into a more integrative, functional location within the context of the bony matrix and optimized neuromuscular feedback. The result is improved structural form and physiological function referred to as craniofacial homeostasis.

For the patient, epigenetic orthodontics is a comfortable, practical, painless therapy. It involves no surgery, drugs or injections, relying instead on natural, physiologic processes, such as swallowing during sleep.

A common application of this phenomenon is the treatment of relapsed orthodontic cases. The three dimensional bony components of the facial skeleton are important for tooth positional stability, functional spaces (such as the upper airway) and surface, soft-tissue facial contours (e.g. symmetry). The DNA Appliance therapy can enhance midfacial bone volume by remodelling the maxilla and the mandible to increase in size and change in shape. In other words, this process can provide a solution as a non-surgical facial enhancement procedure, arresting and/or reversing the ageing of the face.



However, above and beyond cosmetic considerations, dentists can use these concepts in diagnosing and helping patients with sleep apnoea, which is a serious medical condition with restricted airway issues. Thus, for sleep apnoea the neuromuscular dentist's role is screening and providing a possible exit strategy without surgery. Sleep apnoea can be treated with several options.

A patient with severe to moderate sleep apnoea may benefit from a CPAP machine, while an oral appliance that is designed to open the oropharyngeal airway by bringing the mandible forward can sometimes relieve snoring as well as mild to moderate sleep apnoea. However, both of these treatment options are provided without an exit strategy and are lifetime therapies for the patient. In addition, if the upper airway is extremely reduced in size or volume, a CPAP machine with or without or bimaxillary surgery might be the only alternatives. These options can maintain the airway, however, preliminary data is beginning to emerge that suggests that the underlying etiology of sleep apnoea may be corrected by the use of a modified epigenetic orthodontic protocol referred to as Pneumopedics™ or non-surgical airway remodeling. If in fact these early results prove to be reliable, new solutions lie within the grasp of the medical and dental professions for the amelioration or elimination of obstructive sleep apnoea in the 21st century.

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