Tooth movement: Health science or unhealthy cosmetics?

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Moving teeth with braces has long been considered a permanent 'cure' to crowded teeth. However, we now know that this traditional approach is neither permanent, nor a cure.

The literature now accepts that the only way to ensure satisfactory alignment is by use of fixed or removable retention for life.[1] Orthodontics has thus proven its reliance on these interventions.

When we graduate as dentists or specialists, we are all implicitly bound to honour the trust placed in us as medical professionals.

Despite this, traditional orthodontics may cause root resorption, enamel damage, exacerbate periodontal disease, increase the chance of caries and devitalize teeth.[2] After this begins the need for lifelong maintenance of permanent retainers, the burden of which is borne by both the patient and the dental practitioner.

Despite our status as medical professionals, has the orthodontic profession veered away from being a health science and moved towards the realm of cosmetics?

Premolar extractions

There is no better example than the prevalence of premolar extractions in private practice. Epidemiological data is sparse, but according to the most contemporary survey conducted of US private practices, 25-85% of our children have healthy teeth extracted in the name of orthodontics.[3]

The justification and rationale behind premolar extractions today rests with P.R. Begg's 1954 assertion that the low incidence of malocclusion in primitive dentitions was due to gritty diets causing interproximal attrition; Begg suggested that this amounted to a premolar's width in each quadrant.[4]

Begg's research has been roundly refuted in the literature,[5] not least because his own theory refutes his results: both crowding and attrition increased with age.

Do premolar extractions lead to more stability?

No. Little's definitive 1981 study showed satisfactory mandibular anterior alignment in less than 30% of extraction cases 10 years post-retention[6] and in less than 10% of cases 20 years post-retention.[7] Many other studies have corroborated this conclusion.

Although hygienists, dentists and all other specialists strive to preserve teeth, this principle seems outside the orthodontic profession's orbit of thinking.

What causes malocclusion?

"Whenever there is a struggle between muscle and bone, bone yields," wrote Graber in his seminal 1963 manifesto on the influence of muscles on malformation and malocclusion.[8] In their review of the orthodontic influence of mandibular muscles, Pepicelli et al. (2005) corroborate it is "well accepted" that the position and function of the facial and mandibular muscles are "critical influences" on alignment and stability.[9]

The weight of the literature rests with the fact that muscle function and posture (the way patients swallow and posture their tongue) is the most significant cause of malocclusion.[10]

A time for change?

The orthodontic tradition has been evolved by great minds throughout its 100-year history such as Angle, Frankel, Graber, Rickets, Garliner and Little.

However, if we aspire to be considered a scientific medical profession, then orthodontics must continue to evolve with the research. This means re-orientation towards a more evidence and health-based approach.

Are we going to continue to accept relapse or retention until the death of the patient or the Orthodontist? The science is there: the cause is muscle function and the solution is Myofunctional Orthodontics.

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