

Even in aligner orthodontics, the only constant in life is change



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To quote Heraclitus, “the only constant in life is change”. There have been huge changes in society, from those of the industrial era to the digital revolution in a now globalized world. Above all, change in industrial society is always marked by innovation, such as the development of the steam engine and the invention of the computer. This is followed by further innovations and continuous further development. It is not only the industrialized world that continues to evolve, but every aspect of human life.

Currently, orthodontics is experiencing its digital revolution, even though digital setups are nothing new in aligner therapy. Impressions were already digitized towards the end of the 1990s, when the simulated result was presented to the patient.

For a long time, there were few players on the world market in aligner therapy. But here, too, a change is taking place. Well-known companies that were not previously active in the field of aligner therapy are now fully committed to this treatment method. Some of them see no future at all in classic fixed orthodontics and are abandoning this business field altogether. Disruptive start-ups sell aligner therapies online, in their own stores or with selected dental

practitioners. An orthodontist may no longer even be needed.

As orthodontists, we can counteract and offer the production of in-house aligners and thus offer competitive price structures. In addition, appointment intervals can be shortened by using state-of-the-art telemonitoring technologies. Still, these are all areas where a disruptive start-up with its financial resources will outpace us in the long run. Aligner companies will find better algorithms and use artificial intelligence to improve patient care.

There is a progressive change in our profession and concerns amongst orthodontists are on the rise. But how is this development possible at all?

We orthodontists have laid the foundation ourselves, with dental clinics that advertise pure non-extraction therapies, and research showing that the temporomandibular joint plays no role in the field of orthodontics – but is that so? Is it even anatomically possible, that there is no connection between the temporomandibular joint and teeth? Do teeth and surrounding structures really have no influence on other structures? Is it simply enough to expand any crowding and simply to procline teeth as much as needed? Are there no recessions or long-term consequences? In orthodontic literature it is difficult to find an answer to all these questions. As a simplified example, one study showed an apical migration of the gingival zenith of mandibular incisors when teeth were proclined to a certain degree, whereas another study could not find any correlation between gingival recessions and mandibular incisor proclina-

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tion.^{1,2} We have tools to assess the quality of studies and to judge accordingly, but both studies missed the influence of the gingival biotype.

Very recently, Mheissen et al³ showed that in most longitudinal orthodontic trials optimal statistical analyses were not utilized and that the interpretation of the results might be compromised. It is important in our field to ask ourselves the right research questions and to see if they were answered with correctly performed studies.

Orthodontics is not just about straightening teeth and being profit-oriented, regardless of whether you are a dental practitioner or a disruptive start-up company. It is about respecting the biological limits and not disregarding the musculature and the joints. The influence of tooth position on surrounding structures and vice versa should be the

focus not only of research but also in the clinical setting. To ignore these factors takes away the complexity of our profession.

References

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