

Aligners and orthodontics: friends or foes?



Francesco Garino

In the last 20 years the impact of digital technologies in orthodontics has become more and more evident, as a natural evolution of the era.

When digital technology was introduced in dental photography at least three decades ago, it was seen as a way of improving one aspect of the office workflow, despite its initial poor quality. Today, state-of-the-art software and cameras allow clinicians to take near-perfect pictures.

The same happened with radiographs, as digital became the standard in terms of both quality and also environmental aspects, removing the need for the liquids used to develop radiographic film. In recent years, three-dimensional (3D) volumetric imaging and cone beam computed tomography (CBCT) have been introduced in diagnosis and probably represent the future of imaging, providing more accurate information to the orthodontist, combined with low dose exposure, which is especially important for growing patients.

Finally, around the year 2000, digital models were introduced in orthodontics. For some years these were considered less accurate than stone casts, but this was mostly due to orthodontists feeling out of their comfort zone, and still wanting physical contact with stone casts. However, digital has now become the gold standard. It took many years, but we can now say that digital technologies in photography, radiography and model creation are friends of the orthodontic community. When aligners entered the orthodontic world in early 2000, they caused an earthquake

among clinicians. For almost 100 years, orthodontists had been used to conventional orthodontic appliances and analogue treatment planning tools. To begin with, aligners and 3D simulations were not really considered by the orthodontic community. Only a few pioneers viewed them with curiosity and as a vision for the future. I believe this is a natural process when a disruptive technology arrives.

With aligners, both the planning and treatment procedures challenge some of the habits of the orthodontist. There will be a change from an action–reaction style, which is common to all fixed appliance treatments, to a proactive format where everything has to be planned before starting the orthodontic treatment. This is not an easy change to digest.

During the last 20 years, we have gone from a single ‘player’ in aligner therapy to multiple aligner manufacturers, all with their own properties both in terms of materials and virtual planning procedures.

In 2019, each large bracket company has its own aligner system and this is a sign of the times, and also of the increasing demand by patients for aligner therapy. This aspect, associated with the number of clinicians using aligner therapies, can only increase the awareness and the quality of orthodontic treatment with aligners.

What will make the difference will be the ‘driver’ (the orthodontist), not only the ‘appliance’, which is just the tool. As in every environment, some systems are more sophisticated than others. I believe that what will change the game



is how accurate each clinician is in embedding his/her orthodontic skills in creating the best 3D planning, which has to be as predictable as possible, following orthodontic principles.

In aligner treatment, diagnosis and treatment planning is the first aspect considered. What is new are the tools used by the orthodontist, such as 3D virtual simulations. Visualisation of the outcome in 3D before starting treatment allows the clinician to evaluate whether or not a treatment plan is correct.

The clinician's role in the future will be to understand what each aligner system can deliver, the possibilities and also the limits of each system, and to become an excellent 'treatment planner in 3D', using his/her orthodontic knowledge.

In the end, I strongly believe that aligners and orthodontics, after an initial time as foes, will become good friends.

A handwritten signature in black ink, which appears to read 'Francesco Garino', is positioned above the printed name.

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