

Adding speed to orthodontic treatment

Orthodontic specialist, **Asif Chatoo** writes about his experience of AcceleDent, the new oscillating device which speeds up orthodontic treatment

A year ago I was invited to become one of a small group of Orthodontists in the UK to offer AcceleDent to my patients. At the time, AcceleDent (OrthoAccel Technologies, Houston, Texas), had received its CE mark for use in Europe and a Randomized Controlled Trial (RCT) was underway at the University of Texas Health Science Center – San Antonio, Texas.

Although AcceleDent was still awaiting the results of the RCT my feeling was that it would have a positive impact on patients. When I gave my patients the option of using AcceleDent, I explained the background as well as pointing out that the RCT was still underway.

The device consists of a mouthpiece which comes in different sizes to match the patient's arch width. The working part of the unit is the activator which provides a vibratory force of 25g at a frequency of 30Hz. The activator slots into a charging port.

In order to be effective, AcceleDent should ideally be applied to the teeth for 20 minutes a day, every day. As it is hands free, it can be used by the patient at any time – when working at the computer, relaxing, watching TV or reading.

One of its most attractive features from my point of view is that you can check compliance. The device provides feedback on extent of use so that you can tell whether the patient has used AcceleDent for the recommended 20 minutes a day.

Last year I started treating 18 patients with AcceleDent. They were given the system and instructions on how, when and where to use it. At each subsequent review appointment I was able to check the compliance by plugging the activator into the surgery charging port. This allowed me to see how much the device had been used and help me evaluate its impact on the rate of tooth movement.

In my patient sample, one patient stopped using the appliance, one did not re-attend for six months and the remaining 16 used AcceleDent with at least 80 per cent. All of those who used the device diligently enjoyed good treatment progress. In many cases a visible and favorable difference was noted within 12 weeks.

In the practice-based mini survey we received 16 responses (see box below). The questions related to ease of use, satisfaction, comfort, disruption, reliability and noise from the appliance. We were delighted that noise was not a problem and all but one found there to be no disruption to their daily routine. Most watched TV while using AcceleDent and two carried out

household chores. Only two people had problems – one with the base which required its contacts to be cleaned and the other wiped their data. Neither problem stopped the two patients from using AcceleDent.

More recently, the results of the RCT have become available¹ and they corroborate my experience – that AcceleDent can safely accelerate the rate of tooth movement when used in conjunction with fixed appliances. The study showed that the rate of tooth movement may be increased by 38-50 per cent. This result was statistically significant.

In the space closure phase of treatment there was a reduction in treatment time by up to 15 weeks. Additionally, the San Antonio RCT showed that the benefit can be delivered with minimal adverse events. For example, use of AcceleDent did not increase root resorption, one of the major risk factors associated with orthodontics treatment.

I have continued to make AcceleDent available to my patients as I believe it does reduce treatment time. On the basis of my experience and the outcome of the RCT, I believe that AcceleDent is an option which will increasingly be recommended by specialist orthodontists. For patients who want straighter teeth, lingual appliances supported by AcceleDent makes the treatment invisible and of shorter duration – the perfect plan.

Survey results based on 16 AcceleDent using respondents

- **Ease of use** – 15 out of 16 respondents agreed it was easy to use.
- **Discomfort** – No discomfort was reported by users.
- **Schedule disruption** – Only one out of 16 respondents felt it disrupted their daily routine.
- **Activity whilst using AcceleDent** – TV 10/16; email 3/16; house chores 2/16; not specific 1/16.
- **Reliability** – 15 out of 16 respondents said it was reliable.
- **Problems** – Noise was not a problem for any of the respondents.

Reference

1. Pavlin, D Does AcceleDent Increase Rate of Orthodontic Tooth Movement? A Prospective Randomized Clinical Trial. (2011) Personal communication awaiting publication.



Asif case study: This female patient presented with crowding in the region of the upper left canine. She opted for upper and lower lingual braces. In a lingual orthodontic case I would assume the treatment time would be about 20 months. At 11 months the space on the left is nearly closed and the molar occlusion has been maintained. I feel the treatment time will be a further four months to completion. This may represent a saving of nearly 5-6 months on the overall treatment time.

Before AcceleDent treatment:



Results at 11 months with the use of AcceleDent:



About the author

Asif Chatoo established the London Lingual Orthodontics Clinic in 2005 as the UK's first orthodontic centre dedicated to the lingual technique. A tutor in the Masters Programme in Lingual orthodontics at Warwick University, Asif was a founder member of the British Lingual Orthodontic Society. He is the only orthodontist accredited by both the European and World Societies of Lingual Orthodontics.

