Clinical Evidence

Clinical Studies


Case Highlights


In Vivo Studies


In Vitro Studies

RCT

Cyclic loading (vibration) accelerates tooth movement in orthodontic patients: A double-blind, randomized controlled trial, 2015; Dubravko Pavlin et al.
Assess the effect of AcceleDent on the rate of orthodontic tooth movement.

- 45 patients treated with fixed appliances, mean age 21
- Retraction force of 180g applied with a coil spring between temporary anchorage device (TAD) and canine bracket
- Analyzed: monthly rate of maxillary canine retraction into an extraction space
  Average rate of movement: mm/month: AcceleDent: 1.16; Control: 0.79; mean difference 0.37 (= 46.8%)
  (Confidence Interval [CI]: 95%, P-value: 0.05) analysis referred to intent-to-treat (ITT)

The results showed that low-level cyclic loading of 0.25N (25g) at 30Hz increases the rate of tooth movement when applied as an adjunct to orthodontic treatment.

RCT

Pain control in orthodontics using a micropulse vibration, 2015; Wendy Lobre et al.
This peer-reviewed randomized controlled trial investigates the relationship between AcceleDent and pain / discomfort perception during orthodontic treatment.

- 4-month test period, monthly adjustments and wire changes, fixed appliance patients only: 58 patients
- use of pain medication restricted during study
- evaluation of overall pain and biting pain which were both significantly reduced with the use of AcceleDent

RCT

Accelerating aligner treatment using lowfrequency vibration: a single-centre, randomized controlled clinical trial; 2018 Luca Lombardo et al.

- Low-frequency vibrations have been proposed as a means of accelerating tooth movement and reducing orthodontic treatment times.
- Objective: To determine any differences in the accuracy of dental movement in patients treated with a low-frequency vibration aligner protocol and/or by reducing the aligner replacement interval with respect to a conventional protocol.

There was no difference in accuracy between replacing the aligners accompanied by low-frequency vibration every 7 days and replacing them every 14 days without vibration. Moreover, low-frequency vibration seemed to improve the accuracy of a conventional protocol in terms of upper incisor rotation.

Retrospective Study

The Effect of Vibration on the Rate of Leveling and Alignment, 2014; S. Jay Bowman

- retrospective evaluation of the effects of vibration on the time required for mandibular leveling and alignment with fixed appliances
- 117 consecutively treated Class II nonextraction patients; mean age: 13

Amount of time required to achieve both dental alignment and leveling in Class II nonextraction treatment was reduced. Overall 30% increase in the rate of tooth movement.

Case Report

Accelerated Extraction Treatment with Invisalign, 2014; Dr. Kenji Ojima, Dr. Werner Schupp
This report describes a patient (female, 26 yo) with severe anterior crowding who was treated with Invisalign appliances after the extraction of both upper canines and lower first premolars.

- Class II molar relationship with a 3mm overjet and 1mm overbite
- Shorted the interval between aligner changes to five days
- Final results in 18 rather than at least 30 months