

Abstracts on this page have been chosen and edited by Dr Trevor Watts

Orthodontics: adverse effects

The early reparative process of orthodontically induced root resorption in adolescents — location and type of tissue

Owman-Moll P, Kuroi J
Eur J Orthod 1998; 20: 727-732

When orthodontic forces producing root resorption were removed, most teeth showed evidence of satisfactory repair.

In 16 adolescents of mean age 13.8 years, maxillary first premolars scheduled for extraction in orthodontic treatment were moved buccally with a force of 0.5N which was renewed each week by reactivating the appliance. After 6 weeks, the appliance was inactivated and used as a retainer. Teeth were extracted 2, 3, 6 or 7 weeks later

After 2 weeks, 38% of root resorption lacunae showed some repair in the form of cemental deposition; this rose to 44% at 3 weeks and 82% at 6 and 7 weeks. Initial repair appeared in the bottom of resorption lacunae first, extending to lateral walls later, but never starting on the lateral walls. Initial cementum appeared to be acellular, but with further deposition, cells were incorporated in it. The authors reported considerable variation in healing between different subjects.

Periodontics

Generalizability of the added benefits of guided tissue regeneration in the treatment of deep intrabony defects. Evaluation in a multi-center randomized controlled clinical trial

Tonetti MS, Cortellini P et al.
J Periodontol 1998; 69: 1183-1192

In a large study carried out by numerous operators, guided tissue regeneration (GTR) produced an improvement over access flap surgery.

At 11 different centres in 7 countries, a single intrabony defect was treated with GTR (resorbable membrane) in a total of 72 patients, and with an access flap in 71 patients. Patients were randomly assigned to one of the two procedures. Constant force probes were used for measurements, and an attempt was made to calibrate all investigators beforehand.

In defects treated with GTR, initial mean probing depth of 8.3 mm reduced by 3.0 mm 1 year later; in control defects, initial 7.3 mm reduced by 2.2 mm. Mean gains in clinical attachment level were 3 mm

in GTR, and 2.2 mm in controls. Both these gains were statistically significant, but there was considerable variation between centres.

Because of the design of the study, operators did not appear to be blinded to the procedure up to the point of completing debridement, prior to knowing whether a membrane was required. This is a potential source of bias, and studies excluding it have produced lesser differences. Whilst the statistics showed a greater GTR effect despite baseline differences, somewhat less improvement might be expected in the significantly shallower control sites.

Orthodontics

Lower arch crowding in the third decade

Richardson ME, Gormley JS
Eur J Orthod 1998; 20: 597-607

Over the third decade of life, there was little change in crowding in a group of untreated subjects.

There is little evidence on whether lower arch crowding increases after the jaws reach adult dimensions, although the view has been expressed that various forces may have this effect. Crowding is known to increase between ages 12 and 18. Study models were made for 46 subjects who had a variety of occlusions, at ages 18, 21 and 28 years.

Models were measured to show spacing, arch length, and arch width at canine and first molar positions. These dimensions were compared at the three ages. From 18 to 21, mean crowding increased by 0.1 mm, and from 21 to 28, by 0.2 mm. Respective arch length decreases were 0.2 mm and 0.4 mm. Males ($n = 20$) and females (26) varied slightly. The authors compare these clinically almost imperceptible changes with an average 2 mm increase in crowding from 13–18 years in other studies.

Periodontics

Non-surgical periodontal treatment with and without adjunctive metronidazole in smokers and non-smokers

Palmer RM, Matthews JP et al.
J Clin Periodontol 1999; 26: 158-163

Adjunctive metronidazole added nothing to non-surgical treatment in smokers or non-smokers.

A randomized trial was completed by 28 smokers and 56 non-smokers with periodontitis, who were allocated to treatments of: scaling and root planing (SRP); SRP with 1 week of systemic metronidazole; and SRP with 2 subgingival applications of metronidazole gel to all sites where probing depth exceeded 4 mm.

At 6 months, there were no differences in outcome between the three treatments. Smokers had significantly less mean reduction in deep probing depths (> 4.5 mm) than non-smokers (1.23 mm versus 1.92 mm), and there was no significant difference in mean probing attachment level gains between groups. Statistical analysis showed that smoking was a significant factor in poor outcome, whilst metronidazole had no effect.