

Commentaries on scientific papers

Extractions as a form of interception in the developing dentition: a randomized controlled trial**C. H. Kau, P. Durning, F. A. Miotti, W. Harzer and S. Richmond**

The decision of whether to extract deciduous canines in order to relieve incisor crowding in the mixed dentition has been debated for many years. The authors of this paper must, therefore, be congratulated on undertaking a very relevant randomized controlled trial (RCT) to address this question.

In this multi-centered RCT 97 patients, age of 8–9 years with ≥ 6 mm of crowding of the lower incisors, were recruited to assess, primarily, whether the extraction of lower canines had an effect on lower incisor crowding and arch length. Eighty-three participants (86%) completed the trial that found that extraction of the lower deciduous canines resulted in a statistically significant improvement in lower incisor crowding. However, this was associated with a statistically significant decrease in arch length. This suggests that, although the lower incisor crowding was improved by the extraction of the deciduous canines, the overall crowding of the lower arch had increased.

I thought the strengths of this trial were that it was multi-centered, which improved the generalizability of the results, and that it involved sufficient patients to have the power to detect a difference in outcome. I thought that the design could have been improved by stratifying the randomization by site so that differences between the populations could have been checked and accounted for in the data analysis. I was slightly concerned about the significant differences in the drop-out rate and follow-up time between the two groups, but it is difficult to assess the impact these would have on the results.

Overall, I thought the trial addressed a clinically important question, was well carried out and gave results that are very significant and, therefore, convincing. In summary, I think that, by extracting deciduous canines in 8–9 year-olds with moderate lower incisor crowding, you are probably robbing Peter to pay Paul.

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**Non-apneic snoring and the orthodontist: the effectiveness of mandibular advancement splints
Non-apneic snoring and the orthodontist: radiographic pharyngeal dimension changes with supine posture and mandibular protrusion****A. M. Smith, J. M. Battagel**

Non-apneic snoring is part of the same spectrum of disorders as obstructive sleep apnea (OSA), but is much more prevalent with more patients requesting treatment. However, snoring has received relatively little attention in the literature, probably due to its incorrect perception as a trivial disorder compared with the potentially more serious consequences of OSA.

The studies by Smith and Battagel are interesting as they examine non-apneic snoring, rather than OSA, and the appliance used is a Herbst design, rather than the more common activator design. Although their prospective study examining MAS treatment has a small sample, it is one of very few studies to assess snoring using an objective outcome measure. Snoring loudness was reduced in more than 90% of patients with almost all reporting that the advantages of the MAS outweighed the side effects. This success rate is similar to that reported in other studies using questionnaire-based outcomes and is substantially better than that reported in the literature for OSA. Together with the low incidence of minor side effects after 1 month, the reported success rate supports the routine use of MAS appliances as an alternative to palato-pharyngeal surgery in non-apneic snorers.

The second study demonstrates the reduction in pharyngeal dimensions in snorers when moving from an upright to supine posture. Previous similar research has almost exclusively examined OSA subjects. Mandibular protrusion significantly reduced the proportion of space occupied by the tongue. Although studies of OSA patients have shown increases in pharyngeal antero-posterior dimensions with protrusion, this was not found in the current sample of non-apneic snorers. The possible reasons for these differences are discussed. These differences may be a reflection of the less severe

pharyngeal abnormalities seen in snoring patients compared with OSA patients, which may explain the higher success rates of MAS appliances in non-apneic snorers.

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A randomized clinical trial comparing the accuracy of direct versus indirect bracket placement

**T. M. Hodge, A. A. Dhopatkar,
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As the title suggests this was a randomized clinical trial involving 26 consecutive patients who required treatment using the MBT™ pre-adjusted Edgewise appliance. Labial segment teeth, including the canines, were bonded either directly or indirectly using a randomized split mouth technique. By the use of photographs, differences in bracket placement using the two techniques were determined in the vertical and horizontal planes along with angular differences. The results showed there to be no significant differences in the position of brackets placed using either direct or indirect bonding. Interestingly, the greatest differences were in the vertical direction, followed by the horizontal and, finally, the angular positioning. This is explained by the fact that the mesio-distal dimension of the tooth is smaller than the vertical, making bracket placement more accurate. The authors used the MBT height gauge for placement of the brackets during the indirect technique, but it is not clear if it was used during direct placement, and whether its use or not in the latter technique would have had any effect. A significant effect on placement accuracy was mandibular versus maxillary teeth. No explanation was given for this effect, but presumably it may once again be related to the mesio-distal dimensions of the teeth.

On balance, this is a well designed and executed study on bracket placement. Its only real weakness being, perhaps, that it did not include premolar teeth, although

sound reasons were given for this in the paper. Nevertheless, accurate placement of second premolar brackets commonly poses problems, at least in my anecdotal hands.

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Local administration of IGF-I stimulates the growth of mandibular condyle in mature rats

S. Suzuki, K. Itoh, K. Ohyama

Have you ever wondered if you could induce a 'temporary' acromegalic state, whether you could correct your Class II cases with a bit of mandibular growth? This paper adds some credibility to the fantasy by showing that by injecting IGF-1 into the articular capsule of the condyle of a rat, condylar growth can be induced. Controls were injected with saline and differences were measured by looking at the amount of bone deposition. In order to assess the latter bone was labeled with a couple of bone markers (tetracycline and calcein). Cartilage thickness was also measured. Endochondral bone growth and cartilage thickness increased in the IGF-1 injected rats. It is interesting that this effect was seen in 'old' rats (15 weeks) because previously it had been observed that the effect of IGF-1 was not so great in young rats. This raises the exciting possibility of achieving Class II correction in adults by reactivating condylar growth. It is not surprising that IGF-1 has this effect; it is known that increased levels of IGF-1 in man result in a larger and longer mandible. In part, the increase in length is due to the reactivation of condylar growth. This paper adds weight to the concept of using growth hormones to modify local bone and cartilage growth. It may, however, be some time before the results can be extrapolated to clinical use in humans.

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