

**SCIENTIFIC  
SECTION**

## Commentaries on scientific papers published in this edition

### **Lay person's perception smile aesthetics in dental and facial views**

**C. Flores-Mir, E. Silva, M. I. Barriga, M. O. Lagravere, P. W. Major**

This paper serves as a reminder of the complexities of assessing dentofacial aesthetics. Like many others before it, the study involves the reaction of judges to static views of the dentition and face (in this case, frontal views), whereas in real life interaction, display of the teeth occurs with changes in expression, lip position and head position. As the authors note, a significant halo effect may also operate, wherein an attractive background face may alter the perceived attractiveness of the dentition. Yet another confounding factor in this and other studies conducted in a dental setting, is the respondent's awareness of the primary dental interest of the investigator.

The authors are not entirely correct in saying that theirs is the first study to simultaneously evaluate multiple cues that may influence lay perceptions, but their call for further research in the area is certainly justified. As well as studies concerning the perception of dental and facial appearance by strangers, more research is necessary on the perceptions of self, parents and professionals, as they are key to the entry into orthodontic treatment.

Emerging technologies, such as video clips and morphing, should extend the range and validity of research in this field with stimuli that are more life like, while allowing variables of interest to be manipulated by the researcher.

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### **How readable are orthodontic patient information leaflets?**

**A. Harwood, J. E. Harrison**

The aim of this paper was to assess the readability of orthodontic patient information leaflets and to determine whether any were eligible for the Plain English Campaign's Crystal Mark. In all, 26 leaflets were

assessed from both commercial and professional organizations, including the BOS and the AAO. Using Word 2000, readability statistics such as sentence length, percentage passive voice, along with Flesch reading ease, Flesch Kincaid Grade level and design percentage were obtained. For those readers like myself, who are unfamiliar with these assessment criteria, the appendices provide a very useful summary.

It is all too easy when immersed in orthodontics, day in and day out, to forget that terms familiar to the professional will be totally alien to the general public. As part of informed consent, it is important that patients have treatment explained to them in a way that is easily understood. This paper summarizes nicely why information leaflets are an important part of the consent and subsequent treatment process. Although it highlights some disappointing findings, such as the large percentage of the assessed leaflets being rated as 'difficult' or 'fairly difficult' to read, and the failure of any to gain the Plain English Campaign's Crystal Mark, it is also encouraging to see that those leaflets produced by the BOS were rated as 'standard' or 'fairly easy' to read, such that 70–80% of the UK population would be able understand them.

This paper can be recommended as an excellent starting point for any author planning to embark on the difficult task of writing patient information material.

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### **The development of a patient-centered measure of the process, and outcome of combined orthodontic and orthognathic treatment**

**H. C. Travess, J. T. Newton, J. R. Sandy,  
A. C. Williams**

This interesting study involved the development of a patient-centred measure of the process and outcomes of combined orthodontic/surgical treatment. This is a useful addition to the literature at a time when the Government is increasingly stressing the need for

patients to be involved in their care and to shape future health care within the UK. Although previous studies have looked at patients' views on the motivation for, and outcomes of, orthognathic treatment, this is one of the few studies that have looked at the actual process of delivery of care.

The questionnaire was developed initially through focus groups in the South-West of England, to which past patients were invited. Following these meetings the transcripts were analyzed and the key themes identified. The second phase involved designing an appropriate format and piloting the questionnaire on a small subgroup of patients. Finally, the questionnaire was tested on a further group of patients to ensure validity and reliability.

For any researcher who thinks that questionnaire development is easy, I do hope they think again when they have read this paper, as it clearly highlights the extremely complex and time-consuming process involved. In addition, it illustrates some of the problems we are faced with in undertaking clinical research. The relatively small number of patients who agreed to participate in these focus groups was particularly disappointing, despite the researchers' best efforts to encourage participation.

Nevertheless, the study produced some interesting and very useful findings—some of those related to the delivery of care should certainly provide 'food for thought'. Perhaps we will all spend a little more time in our explanations, particularly related to the actual surgical period, in-patient stay, etc.

The questionnaire has now been shown to have adequate reliability and validity to extend its' use, and I have little doubt that it will prove extremely useful in much larger research studies and audits. Future findings are certain to add to the useful body of evidence in this area.

Susan J. Cunningham  
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## White lesions after orthodontic treatment: does low fluoride make a difference?

**D. R. Willmot**

One of the most distressing things that I 'occasionally' come across is decalcification following removal of fixed appliances. When this occurs, we are faced with the problem of 'what do we do now, if anything'? Our clinical dilemma is to do nothing, carry out micro-abrasion or to apply fluoride to the areas of

decalcification. This paper describes a small study from which the investigator provided information on the resolution of decalcification and whether the use of a fluoride-containing toothpaste had an effect on any remineralization. The theory being that the application of fluoride actually inhibits remineralization.

This was a double blind, randomized controlled trial in which subjects with decalcification were assigned to receive either a low-dose fluoride or no fluoride toothpaste. The outcome measure was the lesion size and percentage reduction at debond, and at 12 and 26 weeks. This was measured from photographs of the teeth.

They found that the overall size of the lesions reduced with time, regardless of the toothpaste used. Importantly, the type of toothpaste had no effect on this reduction.

This was a well-reported clinical trial that answered an important orthodontic question. The use of the CONSORT guidelines for the reporting of clinical trials has made this a very readable and concise paper. My only reservation is the relatively high number of subjects who were lost to follow-up, but this is clearly reported. Overall, this study provides us with useful information that has been obtained in the real world of orthodontic practice and not collected from a trawl through sets of records that have been conveniently stored.

Kevin O'Brien  
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## A comparison of three light-curing units for bonding adhesive pre-coated brackets

**T. B. Ip, W. P. Rock**

High intensity light sources have made light curing an increasingly attractive option in orthodontics. However, clinicians looking to take advantage of the reduced curing times need evidence that the bond strength is not impaired. This article is, therefore, timely in examining bond strengths after curing with high intensity light sources.

The authors find that curing with a high intensity halogen light, or a conventional light at the manufacturers' recommended times of 10 and 20 seconds, respectively, gives mean bond strengths close to 12 MPa. However, with a plasma light, the manufacturer's recommended curing time of 2 seconds gives a bond strength of only 9.4 MPa. Doubling the curing time to 4 seconds brings the bond strength up to 11.2 Mpa, and by extension it seems likely that a time

of 5 or 6 seconds would probably be needed to match the figure of 12 MPa. Interestingly, this would mean that a comparison made on the basis of equivalent bond strengths (rather than manufacturer's recommendations) would show curing times to be more or less inversely proportional to light source intensity, the plasma lamp thereby losing some of its claimed advantage.

How to interpret these figures in practice makes for interesting debate. It might be argued that the recommended 2-second curing time for plasma lights is over-optimistic and a figure of around 5 seconds should really be employed to give comparability with other

systems. However, the authors point out that a bond strength of 9.4 MPa is still well above the minimum, which is thought to be needed for reliable orthodontic bonding so the manufacturer's recommended curing time can fairly be said to provide a clinically acceptable bond strength. If this point is accepted, it has to follow that the recommended curing times for both high intensity halogen and conventional lights are unnecessarily cautious, and could safely be halved. Ultimately, of course, the question can only be settled by a clinical trial.

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