

FEATURES SECTION

Letters to the Editor

Dear Sir,

We would like to offer some comments on your recently published paper 'Does articulating study casts make a difference to treatment planning?' by Ellis and Benson.

Although mounted casts were used, the mountings were not checked using a split cast technique or CPI data (condylar position indicator). If articulated study casts are to be used for treatment planning, CPI data should be available in order to give an indication of how much the condyles need to move from centric relation to centric occlusion. It has been shown that 80–85 per cent of the population is not significantly out of CR when measured at the condyles (Utt *et al.*, 1995)¹ and, therefore, for these people, hand-held casts will not yield a significantly different diagnosis from mounted casts. It would have been useful to know how many of the patients in the study fell outside the 'acceptable range' of 1 mm in an AP and vertical direction, and 0.6 mm in the transverse plane for the CO–CR discrepancy, when measured at the condylar level using the CPI. Patients in this group would merit further study.

When articulated study casts are used for diagnosis and treatment planning, the information from the articulated casts is not used in isolation. When taking the CR wax record, the clinician can gauge the amount of muscle guarding by feeling the stiffness of the jaw muscles during manipulation. One also uses information from the TMJ history, examination, tomograms and, if indicated, MRIs. The CPI data is used to convert the lateral cephalograms to centric relation before undertaking the cephalometric analysis.

It would be more meaningful if all this information was provided in any future study. In addition, the orthodontists who participate in the study need to be trained in the use of all the above information and how to apply it to treatment planning.

Where the articulated casts, CPI data and TMJ signs and symptoms indicate that the patient has an occlusal or TMJ problem, these patients need to wear a gnathological splint in order to stabilize the position of the mandible prior to diagnosis and treatment planning. In

patients who wear full time splints, the occlusion changes significantly, as does the treatment plan. Therefore, to use only the articulated study casts by themselves is not making use of all the potential information required to make a complete diagnosis. Any orthodontist who has been working for a number of years will know that occlusal stability is not guaranteed, and as the lower teeth are connected to the condyles, it only seems logical to have some knowledge of the state and position of the condyles before starting treatment. Crawford (1999),² using CPI data, showed that the more a patient is out of CR the more prone they are to TMD.

The conclusion that routine articulation of study casts for all orthodontic patients is not supported by the results of the study should carry the rider 'if the state and position of the condyles is not an issue in the treatment planning process or the final result'.

The orthodontic profession needs to decide whether it wishes to treat patients leaving their condyles seated in the fossae or whether it doesn't make any difference. If it does make a difference, then orthodontists need to mount their study casts and obtain CPI data, but if they feel it is a time wasting and costly irrelevance then we would recommend orthodontists stay with hand-held casts.

J. D. HOLMGREN

Consultant Orthodontist,
Barnsley District General Hospital, UK

W. L. YAP

Consultant Orthodontist,
Rotherham District General Hospital, UK

References

1. Utt TW, Meyers CE Jr., Wierzbica TF, Hodrom SO. A three dimensional comparison of condylar position changes between centric relation and centric occlusion using the mandibular position indicator. *Am J Orthod Dentofac Orthop* 1995; 107(3): 298–308.
2. Crawford S. Condylar axis position, as determined by the occlusion and measured by the CPI instrument, and signs and symptoms of temporomandibular dysfunction. *Angle Orthod* 1999; 69(2): 103–114. Letters to the editor