

Letters

The CR-CO interchange

I particularly enjoyed the interchange in the Letters section about the CR-CO—it's a dandy (1995;65(1):4-8.) Unfortunately, a great many dentists believe what they are taught/told by the guru of the moment. Equally unfortunately, these gurus usually sincerely believe what they are saying. And the poor practicing guy has no way of judging. I can't begin to tell all the things that I once accepted as gospel and then found out later that the prophet had second thoughts. There was a perfectly wonderful play many, many years ago entitled "Of Thee I Sing," about the life and times of Franklin D. Roosevelt. In the play, FDR utters an absolutely unforgettable line: "I may not be right, but I am positive!" Around my house, my wife tells me I am like that lots of times.

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Editors Note: If you liked the CR-CO interchange, please read on. Two other readers were prompted to write.

CR-CO study well done

I found the research report by Drs. Shildkraut, Wood, and Hunter to be an excellently-conceived investigation. Its premise—that a lateral cephalogram corrected from CO to CR will show a significant difference in cephalometric values traditionally used to diagnose an orthodontic case, and that this difference will alter the subsequent treatment plan in a significant percentage of cases—was crystal clear and supported by hard scientific data. Dr. Wood and his coauthors were the first to illustrate it in such simple terms. I found Dr. Rinchuse's commentary on the research to be somewhat curious, both in its intent and its message. He states that the terms CR and CO are not comparable. We all know that a sig-

nificant difference exists between the relationship of the teeth in centric relation occlusion and centric occlusion/maximum intercuspation. He also argues that the definition of CR has changed. But the definition of CR that is in vogue is not important. Over the years it has only attempted to describe a consistent condyle-disc relationship and a repeatable condylar position. The relationship of the condyle to the disc has not changed, just the definition of this relationship. And it is not Dr. Wood who has changed the definition, rather he has correctly assumed that most orthodontists are astute enough to know the currently-accepted definition.

An excellent source of articles on this general topic is the book "TM Disorders: Guidelines for classification, assessment, and management," by The American Academy of Orofacial Pain, edited by Dr. Charles McNeill (Mosby). This book cites more than 700 articles on TM disorders. If one wants to play the literature game, there is plenty of material on both sides of the issue.

Although it is accepted that intraoral and radiographic measurements related to condylar position are inaccurate, there is an alarming paucity of scientific investigations. McNeill et al. claim that "Corrected tomography detects gross bony changes at various sections and is preferred to transcranial projection...Radiographs to assess condyle position by means of joint space measurements are contra-indicated for diagnostic purposes," and cite nine references. The AAOP goes on to say, "Mandibular position measurement devices that allow for the comparison of articulator condylar differences in various occlusal positions are an adjunct to mounted casts. They provide measurements between the condylar positions in the intercuspal position and the retruded contact position in all three planes of space." They are referring to the Condylar Position Indicator (CPI) of the Panadent articulator system, the Mandibular Position Indicator (formerly the Vericheck) of the Denar system. Dr.

Wood, et al., used the MPI system in their current and previous investigations.

The indications for treating to a comfortable, stable, repeatable centric relations condylar position are as follows:

1. Complete denture prosthetics.
2. Full mouth reconstruction/rehabilitation.
3. Occlusal adjustment/equilibration.
4. When treating mandibular dysfunction.
5. Orthodontic treatment.
6. When positioning the condyle in orthognathic surgery.

Few in the dental profession would argue with these guidelines.

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Purpose of CR-CO study clear

In their article, "The CR-CO discrepancy and its effect on cephalometric measurements," (1994;64(5):333-342) Drs. Schildkraut, Wood, and Hunter state very clearly that the purpose of their study was to determine if there was a significant difference in cephalometric measurements of mandibular position between a CO headfilm and a converted CR headfilm. I can tell you that after 15 years of evaluating all of my cases after doing a conversion of the headfilm, there are significant differences in many cases and treatment plans change in consideration of those differences. Dr. Rinchuse, in his letter to the editor (1995;65:(1)4-6), attempted to discredit the article by getting into a discussion of the history of CR and CO definitions. It does not take a rocket scientist to know what Wood et al. meant by the term CO; most headfilms are taken in CO (maximum intercuspation).

Dr. Rinchuse admits to the need to look for "Sunday bites." But if you can successfully treat to any condylar position, why does that need exist? It is true that patients are adaptable—thank goodness—or most orthodontic treatment would fail. The problem is, what is that range of adaptability?

In the late 1970s we had instrumentation (Sam MPI, and later, Panadent CPI) that permitted us to measure the discrepancy between CR (superior anterior) and CO (maximum intercuspation). Fourteen years later we can say the range of "safe" adaptability is less than 1 mm difference between CR and CO vertically and horizontally and less than 0.5 mm in the transverse plane. You cannot determine accurate condylar position from a tomogram or an MRI. They are gross guidelines to condylar position. I and many of my colleagues have used tomograms on a large number of patients for years and tried to coordinate them with the MPI or CPI readings. The patient may have a shift of 1 or 2 mm that will not be detectable on a tomogram. Also, different cuts at different levels on a tomogram appear to place the condyle in a different position in the fossa. A two-dimensional medium will not accurately measure for a three-dimensional object. Tomograms are only a guide, they certainly do not give any information regarding a transverse problem.

I would like to encourage academicians to spend less time trying to stop progress and more time learning the new diagnostic skills to achieve better treatment results. During the past 15 years I have had the opportunity to work with orthodontists from all parts of this country and from around the world. I have seen the good and the bad. From these experiences it is apparent we need to set more clear treatment goals and we need to improve the diagnostic and clinical skills

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being taught to our orthodontic residents. Teaching them how to be researchers should be secondary to teaching them how to diagnose and treat patients.

A paradigm shift can be frustrating at first, but learning new methods that benefit your patients is always a rewarding experience.

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The Electronic Study Club

The Electronic Study Club is a free service operated on the Internet by Dr. Joseph Zernik from the University of Southern California. It is intended for the free exchange of information and opinions by members of the orthodontic profession. The ESC is a way of providing some of the functions of a traditional study club for orthodontists. The *Angle Orthodontist*, the *American Journal of Orthodontics*, and the *Journal of Clinical Orthodontics* will post their tables of contents on the bulletin board, with some accompanying information.

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Correction

The article "Deformation of metal brackets: a comparative study" (*Angle Orthod* 1994; 64(4):283-290) contained several minor errors. Drs. Tomlinson and Scott are listed as having both DDS and PhD degrees, but they only have PhD degrees and are not dentists. Some of the brackets in Figure 2 were labeled incorrectly. The caption for Figure 2C should have read: 9, 10, 12, and 11; and the caption for Figure 2D should have read: 13 top view, 14. The authors and *The Angle Orthodontist* regret the errors.