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THE EDITOR'S CORNER

Torque Talk

Built-in torque has undoubtedly made orthodontists' lives easier, but it would be a delusion to think that there is a formula that works for every case. A bracket prescription may work just right a percentage of the time; it might get you into the ballpark a large majority of the time, but it needs watching. That is part of the art of orthodontics, and it is in the eye of the beholder, the orthodontist. You can't put the brackets and wires in place and come back a year and a half or two years later and—voila! The resultant torque may not turn out to be what was built into the bracket.

Dr. P.R. Begg's treatment method has fallen on parlous times, but he handled torque well in the era prior to the advent of preadjusted brackets. "Pure Begg" mechanics routinely dished in the maxillary anterior teeth and required substantial anterior lingual torque. This he accomplished with torquing springs and round wires, and he stopped torquing when he was satisfied with the appearance of the teeth in the face. It was not how the teeth looked on the models or on the cephs, but how they looked in the face. Although I think Begg may have been influenced by Dr. Harold Kesling, this was part of his treatment protocol, and it is what he taught when he came to the United States. It is something to remember. Torque until you are satisfied with the tooth positions, not necessarily when the bracket prescription is satisfied.

Dr. Charles Tweed, also long before there were pre-torqued brackets, showed his students a gadget to demonstrate the amount of play between archwires and bracket slots. He simply made an L-shape bend in a piece of rectangular wire, tied it into a bracket slot, and illustrated the amount of play by the deflection of the protruding leg.

An .021" × .025" wire in an .022" slot has been shown to have about 4° of play. With that combination, if you are using a bracket with 10° of torque built in, 40% of the torque is lost to wire-slot play. Even an .018" × .022" wire in an .018" slot will lose close to 2.5° in play. "So attention must be paid."

Even with today's advanced engineering technolo-

gy, the manufacturing of wires and brackets can still be imprecise enough to contribute a percentage of play. This is especially noteworthy if one is mixing wires or brackets manufactured in the United States with those made in countries using the metric system, as Dr. Siatkowski points out in this issue of JCO.

When you consider that in addition to possible variations in wire and bracket dimensions, there are differences in the cant of the occlusal plane, differences in interbracket widths, differences in tooth and jaw morphology, differences in bone density, differences in treatment mechanics, and differences in individual reactions to applied forces, it becomes apparent that there is no automatic system for tooth positioning.

Every orthodontist should revisit Tom Creekmore's seminal article, "Where Teeth Should Be Positioned in the Face and Jaws and How to Get Them There" (JCO, September 1997). His conclusions are worth repeating here: "1. Cephalometric norms or averages should not be used for non-average patients. Plan treatment to optimize tooth positions within the existing skeletal pattern in a non-growing patient, or

within the skeletal pattern at the completion of treatment in a growing patient.

"2. Optimum positioning of the teeth in the face should be predicated on the position of the maxillary incisors rather than on the position of the mandibular incisors. Use the simplified Radney analysis, the modified Steiner analysis, or the modified Ricketts analysis.

"3. Extraction of strategically selected teeth can make treatment more successful and easier for both the orthodontist and the patient.

"4. Bracket prescriptions and bracket positions should be individualized. Use full-size archwires to minimize wire-bending and treatment time, and to achieve more predictable results. One preadjusted prescription will not produce the same finished results in different malocclusions."

These thoughts—along with considerations of play between wires and bracket slots and the possible imprecision in manufacturing that Dr. Siatkowski points out—should cause us to examine closely our dependence upon pretorqued systems for anything more than getting us into the ballpark in a significant number of cases.

ELG