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Effectiveness of orthotic brace treatment: a question of quality not just quantity

Dear Editor,

I read with interest the article “Interface corrective force measurements in Boston brace treatment,” by van den Hout, van Rhijn, van den Munckhof and van Ooy [3]. The authors, unable to find a correlation between the magnitude of force applied by the corrective brace pads and the degree of correction of the major (scoliotic) curve, draw the conclusion that “apparently, the magnitude of the corrective force cannot explain the amount of correction achieved.” However, the authors are confusing the quantity of pressure applied by the pads with the quality of the brace’s corrective effect. To better understand the relationship between brace effects and the correction achieved, one must apply basic biomechanical principles of brace treatment.

The Boston brace leads mainly to compressive effects; specifically, the frontal abdominal plate creates abdominal pressure [4]. Many patients wearing a Boston brace present with low correction effects coupled with the discomfort of abdominal complaints such as nausea. To achieve a good corrective effect, it is necessary to create an open expansion area in

Fig. 1 Chêneau brace with pressure zones and the expansion areas opposite them in all three dimensions. This mode of construction promotes curvature corrections and eliminates compressive effects, which allows for greater wearer comfort while it produces a better end result than traditional braces

the space directly opposite to the pressure zone. This has the effect of lowering the pad pressure, but results in a much better correction as the spine is given room to derotate and elongate within the brace.

Landauer [2] has clearly found that the two factors which lead to a positive end result are (1) the best possible correction effect (not the greatest possible pressure) and (2) patient compliance with brace wear. Therefore, we should not press our adoles-

cent patients into uncomfortable orthoses with little correction effect when we have the means to apply a better corrective effect without undue discomfort. Under the latter circumstances, with the Chêneau brace (Fig. 1), we have demonstrated a significantly lower prevalence of surgery [5] than has been reported for the natural history of scoliosis [1], and for this reason we deem our, admittedly time-consuming and arduous, brace treatment to be a worthwhile endeavour.

References

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