

## LETTERS FROM OUR READERS

**To: Editor, *The Angle Orthodontist***

**Re: Amount and Direction of Temporomandibular Joint Growth Changes in Herbst Treatment: A Cephalometric Long-Term Investigation. *Angle Orthod.* 2003;73(5):493–501.**

There have been several publications examining the long-term effects of functional appliances and specifically the Herbst.<sup>1–3</sup> Ruf and Pancherz demonstrated through magnetic resonance imaging the adaptive TMJ changes that could account for increased mandibular prognathism during Herbst treatment.<sup>4</sup> They included increased condylar growth, anterior displacement of the glenoid fossa, and anterior positioning of the condyle within the fossa. In the September 2003 issue of *The Angle Orthodontist* Pancherz et al published an article titled “Amount and Direction of Temporomandibular Joint Growth Changes in Herbst Treatment: A Cephalometric Long-Term Investigation.”<sup>5</sup> It concluded: “During Herbst treatment, the amount and direction of TMJ changes (condylar growth, fossa displacement, and effective TMJ changes) were only temporarily affected favorably by Herbst treatment.” Reading the article, I found the conclusion rather misleading.

The glenoid fossa is physiologically displaced inferiorly and posteriorly during normal growth and development.<sup>6</sup> Pancherz et al<sup>5</sup> demonstrated that during Herbst treatment the glenoid fossa was displaced in an anterior and inferior direction, and these favorable changes were significantly greater than those of the controls. Posttreatment, the fossa on average resumed its inferior and posterior displacement with a net inferior and posterior displacement. However, this doesn't prove that the favorable effects of the Herbst were temporary. In order for them to make that conclusion, they would have had to compare the net change in the position of the fossa (T4-T1) in the experimental group to that of their controls, which is information they simply didn't have. They only took control records at T1 and T2, which defeats the purpose of the title of this study. One could argue that the fossa would have ended up in position even further inferior and posterior at T4 if it weren't for the Herbst. Without T4 controls I don't think they can make any long-term conclusions on the amount of change produced by the Herbst.

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3. Paulsen HU. Morphological changes of the TMJ condyles of 100 patients treated with the Herbst appliance in the period of puberty to adulthood: A long-term radiographic study. *Eur J Orthod.* 1997;19:657–668.
4. Ruf S, Pancherz H. Temporomandibular joint remodeling in adolescents and young adults during Herbst treatment: A prospective longitudinal magnetic resonance imaging and cephalometric radiographic investigation. *Am J Orthod Dentofacial Orthop.* 1999;115:607–618.
5. Pancherz H, Fischer S. Amount and direction of temporomandibular joint growth changes in Herbst treatment: A cephalometric long-term investigation. *Angle Orthod.* 2003;73:493–501.
6. Bjork A, Skieller V. Facial development and tooth eruption. An implant study at the age of puberty. *Am J Orthod.* 1972;62:339–383.

### Re: Response from Drs Pancherz and Fischer

We would like to thank the Editor for the opportunity to respond to Dr Masoud's letter commenting on our article, “Amount and Direction of Temporomandibular Joint Growth Changes in Herbst Treatment” published in *The Angle Orthodontist* 2003;73:493–501.

We completely agree with Dr Masoud that we don't know if the fossa would have ended up in a position even further inferior and posterior at T4 (3 years after treatment) if it weren't for the Herbst appliance. To know this we would have needed a T4 control group, which we, regrettably, did not have. Our control group did only cover the active Herbst treatment period (T1-T2).

But still we think that our conclusion is valid when saying: “The amount and direction of TMJ changes (condylar growth, glenoid fossa displacement, and effective TMJ changes) were affected favorably, although only temporarily, in an anterior direction by Herbst treatment.” Thus, we don't say anything about the final (long-term) outcome of therapy on condylar growth and fossa position.

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