Response to Dr. Belthur's letter to the editor on the article: "Talonavicular joint arthrodesis for the treatment of pes planus valgus in older children and adolescents with cerebral palsy"

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Received: 23 September 2009 / Accepted: 28 September 2009 / Published online: 17 October 2009
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Dear Editor,

We have read the letter by Dr. Mohan V. Belthur and we appreciate his interesting questions about our article entitled *Talonavicular joint arthrodesis for the treatment of pes planus valgus in older children and adolescents with cerebral palsy*, which was published in the June 2009 issue of the *Journal of Children's Orthopaedics* (pp. 179–183). We are happy to answer his questions:

1. We consider a foot valgus deformity to be severe when the deformity is rigid, does not allow the foot to be a stable support structure, and constitutes a lever arm dysfunction. These patients have a "midfoot break" that simulates a soleus insufficiency.
2. We did not consider brace intolerance to be a variable since most of our patients didn't use braces preoperatively. As a matter of fact, preoperatively many of them had a severe crouch gait and were unable to wear a brace. In the postoperative period all of them used braces and most tolerated them well. We have the same experience: when the foot is well corrected it is much easier to adapt and tolerate a brace.
3. Ankle valgus was diagnosed clinically postoperatively and then confirmed radiographically. We missed the diagnosis during the preoperative evaluation and attributed the valgus deformity only to the foot. We actually recommend ruling out associated ankle valgus

deformities with X rays in addition to the clinical examination.

4. Davis et al.'s measurements are useful when evaluating the preoperative foot, but once the head of the talus is surgically deformed for the fusion it is difficult to assess its original limits, and once the fusion is achieved it is even more difficult. For this reason we used the AP and lateral talo-first metatarsal angle to compare the pre- and postoperative alignments of the medial column.
5. We did not use kinematic data for the purposes of this paper since the values of the standard kinematic gait protocols are still not useful for assessing foot deformities. Additionally, the change in kinetics and kinematics of the foot can also depend on proximal surgical procedures, so isolating the single effect of the foot on gait is not always possible; e.g., derotational tibial osteotomies or hindfoot equinus correction will also modify the kinetics and kinematics of the ankle.
6. We used pedobarography at our gait lab, but during the course of the study our laboratory was updated, and we changed from a Novel® to a BTS® pedobarography system with a different capture system and output, so we were unable to compare the information.
7. We had the same bad results reported by others with conventional triple arthrodesis for spastic valgus foot deformities. We improved our results when we used an additional medial approach for the fusion of the talonavicular joint, and it was evident that the key to correcting the foot was the proper reduction of this joint. We began by fusing the talonavicular joint, and soon it was obvious that the foot deformity was nicely corrected and the other fusions seemed to be unnecessary. The talonavicular joint is the most mobile articulation of the foot, so instability is more likely to

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occur on it. Subluxation of this articulation is usually evident on weight-bearing AP X rays. When evaluating the foot instability, we try to be sure that the talonavicular joint is the only one that is unstable. Testing the foot mobility under anesthesia with the help of the image intensifier can be helpful. Once fusion is obtained, the mobility of the foot should be tested again.

We thank Dr. Belthur for his intelligent questions and we hope that we have clarified the issues that he raised.

Sincerely,

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