

## Comment on: Acetabular index values in healthy Turkish children between 6 months and 8 years of age: a cross-sectional radiological study

Dear Editor,

The article published at your journal in Vol. 47, No 1 (2013) titled “*Acetabular index values in healthy Turkish children between 6 months and 8 years of age: a cross-sectional radiological study*” written by Akel et al.<sup>[1]</sup> aspires to be a valuable resource for our fellow orthopedists.

One of the important radiological parameters in diagnosing developmental dysplasia of the hip (DDH) is the measurement of the acetabular index (AI), defined by Hilgenreiner.<sup>[2]</sup> Tönnis’ study assessing the distribution of AI based on age groups is the most important study of its kind and has been referred to by several authors. Akel et al. reviewed 2767 pelvis and lower abdomen radiographs taken due to factors other than DDH in 19 cities and defined the normal values for the AI in the Turkish population. After comparing these values to those of Tönnis, the authors suggested that the standard values in the Turkish population were higher. They also mentioned about the possibility of making a diagnosis of moderate dysplasia or, for children under 2 years of age, unnecessary severe dysplasia and risk of surgery, based on Tönnis’ criteria.

Tönnis made measurements only on patients with pelvis radiographs and defined the values for the “obturator index” and “symphysis-os ischium angle” for an ideal pelvis radiograph, stating that the position of the pelvis might seriously affect the AI measurement.<sup>[3]</sup> In their study on postmortem child pelvises, Potinaro et al. showed that AI angles measured on the radiographs might vary based on the position of the pelvis.<sup>[4]</sup> Jacobsen et al. reported that pelvic disorientation may have an effect on the acetabular dysplasia measurements on the radiographs and acetabular dysplasia measurements performed via urograms and colonographies where the pelvic orientation is not significant may lead to wrong results, as they studied in a cadaver model.<sup>[5]</sup> Pelvic tilt and rotation of more than 4 degrees may also result in wrong AI measurements as shown in another study.<sup>[6]</sup> The case in the following figures seem to confirm this information (Figs. 1 and 2).



**Fig. 1.** The AI angles of an 8-month-old case treated for DDH were measured as 30 degrees on the right, and 28 degrees on the left.



**Fig. 2.** The AI measurements varied by 10 degrees on both sides on the repeat radiographs due to the case's attempt to sit up when on the table.



If the article is to be reviewed in this perspective, the AI values defined as a reference for the Turkish population need to be confirmed by further radiological studies. The pelvis radiographs which shall be taken to measure the AI in these studies need to conform with the radiological criteria that assess the position of the pelvis, defined by Tönnis.<sup>[3]</sup>

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### **References**

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## **Authors' reply**

Dear Editor,

Our major concern when referring to the data pool was to make evaluations on inappropriate radiographs. Therefore, we preferred to evaluate the symmetrical radiographs but failed to analyse the data of size proportions of the obturator foramen in real. Thus, we are unable to present a numerical data in this aspect. Following simultaneous, visual review of the radiographs

by all orthopedist authors, 2788 of 4956 radiographs were included in the study. We are aware of the fact that this preference is a limitation of our study.

Best regards,

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