

## Radiographic Evaluation of the Effect of Orthotics on the Unlevel Pelvis

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The purpose of this study was to determine if there was an effect on pelvic unleveling with the use of custom-made flexible orthotics in subjects with asymmetrical flexible pes planus.

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1st-trimester students with pelvic unleveling of at least 4 mm and asymmetrical pes planus were identified and signed informed consent. Anteroposterior (AP) and lateral full-spine radiographs were taken on the subjects without the orthotics in place. The subjects then wore their orthotics for a minimum of 2 weeks. After this interval, the subjects underwent a second radiographic examination consisting of AP and lateral full-spine views. Iliac crest height measurements were obtained from the first and second AP radiographic examinations. The researchers then analyzed the percentage of the subject population that improved, were unchanged, and those whose measurements worsened. A comparison of the results was also performed using a *t* test analysis.

### RESULTS

The use of custom-made orthotics demonstrated a normalizing effect on pelvic measurements in 20/35 subjects. In 10/35 the values remained the same and worsened in 5/35. The average unleveling before the insertion of the orthotics was 10 mm and the average unleveling after the insertion of the orthotics was 8.9 mm. Of the subject population who

### METHODS

Approval for the study was sought and obtained from the Logan institutional review board. Thirty-five asymptomatic

improved, there was a preorthotic measurement average of 8.8 mm and a postorthotic measurement average of 6.5 mm. The *t* test did not reach statistical significance ( $p = .09$ ).

### DISCUSSION AND CONCLUSION

The data clearly show a qualitative trend to more pelvic leveling after wearing the orthotics, although without achieving statistical significance. Potential confounding variables such as other impacts on pelvic unleveling, brevity of the study, use of asymptomatic subjects, and uncontrolled subject compliance with wearing the orthotics may have biased the data. More work on larger patient populations should be done to assess the exact magnitude of the efficacious effect that orthotics could have on patients with unlevelled pelvis.

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