

ORAL PRESENTATION

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Analysis of pelvic motion during gait with bivalve brace

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Background

In the literature many articles explain that it is essential to have a femoral brace to restricted pelvic motion during gait. However, two principles to restrict the movement of the trunk in a brace: contention (hydraulic structure of the trunk) and the balance of power (three points system). But we are unable to know how much.

Aim

The aim of this study is pelvis moves into the thoracolumbar brace during gait, compared to a gait without the brace.

Materials and methods

2 asymptomatic adults, with similar physical feature.

They wear a thoracolumbar bivalve brace, made with the same protocol (using CAD CAM) for reproducibility. We design the braces according to the principles of the brace immobilization:

- a good grip on the waist and overall tightening
- supports on the abdomen, thorax and lumbar.

We use the gait analysis system Vicon[®]. To use this system, we make holes in the brace at the location of the markers. Each person walks 6-8 trials in the gait analysis system with and without the brace.

Results

The kinematic curves of the pelvic motion compared to the laboratory standard show that there is a significant decrease in the movement of the pelvis. With the brace, the range of motion is negligible.

Conclusion

This preliminary experimentation allowed us to see that we could use the gait analysis system to evaluate the efficiency of brace. In a second step we have to consider a study on the patients who wear their braces on a longer time. So we will be able to objectify the efficiency of immobilization of the pelvis in a brace.

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