

## A biomechanical investigation of center of pressure velocity characteristics for scoliosis during walking

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*Abstract:* Background This study aimed to measure the spatial-temporal gait parameters characteristics of scoliosis subjects (I-observation and II-brace), including joint motion, Methods COP velocity and percentage of stance phase (heel strike, mid-stance, terminal stance). We measured spines of six subjects by using DIERS Formetric 4D, and divided them into two groups averagely, three for observation, and three for brace. The joint angle of ankle and hip was collected by VICON, and the COP velocity was calculated at each period of stance phase. Results We found II showed greater ankle dorsiflexion, hip extension and abduction than I. COP velocity of I presented larger than II during the mid-stance phase, but less during the heel strike phase. Conclusion Comparing to I, II showed greater ankle dorsiflexion, which was associated with ankle stability. Greater hip abduction may also cause low back pain, it could be a risk to obtain worse deformation of spine.

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