

Attentional Demands of Walking in Athletes with and without Functional Ankle Instability

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Receive date: 22/5/2009

Accept date: 19/12/2009

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Abstract

Objective: By mentioning this fact that the athletes have to be multi-tasking in the field in spite of injury, it seems vital to investigate the attentional demands of walking in these subjects.

Materials & Methods: In this cross-sectional and case-control study, sixteen functionally unstable ankle athletes and sixteen healthy matched athletes were selected conveniently. The three factors mixed, dual task study was conducted using Motion Analysis System. Stride time and length, step time, length and width, stance and swing time and also cadence were measured while subjects experiencing 2 walking task difficulties (speed: 2.1 and 3.6 Km/h barefoot walking on a treadmill) and 2 cognitive loadings (with and without backward counting). Data were analyzed by statistical tests such as: Chi-Square, 3-way mixed ANOVA and Independent T-test.

Results: 2×2×2 (2 groups, 2 walking task difficulties and 2 cognitive loadings) mixed ANOVA showed significant group×condition interaction for stride length. Patients had significantly more increase in stride length without cognitive task than healthy subjects ($P=0.03$). Also the simple main effect of cadence was significant in the group with functional ankle instability ($P=0.049$).

Conclusion: It seems that FAI is associated with increased attentional demands to dynamic postural control (Walking). Cognitive loading may be considered in any exercise program for FAI patients as an effective strategy.

Keywords: Functional ankle instability / Attention / Gait / Motion analysis system