Original Paper

Comparison of the effects of closed and open kinematic chain and target angle on Knee joint position sense in healthy men and women

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Abstract

Background and Objective: Weight bearing position is considered as a functional condition. However, available data about it and also knee position sense is little. This study aimed to compare knee joint position sense in weight bearing and non weight bearing positions in men and women, and to determine the effect of target angle on knee joint position sense.

Materials and Methods: This interventional study was performed in Zahedan University of medical sciences, Zahedan, Iran in 2006. Forty-four healthy subjects (22 women, 22 men) participated in this study through simple non-probability sampling. Subjects were asked to flex their knees in prone or in standing position, while their eyes closed. Three target angles (45, 60, 90 degrees of knee flexion) were reproduced by each subject. Angle matching errors were measured using an electrogoniometer. Outcomes were collected in form of relative, absolute and variable errors. Data were analyzed using MANOVA test.

Results: There was significant difference between weight bearing and non weight bearing positions in terms of angle matching error ($P<0.05$), while no significant difference was seen between women and men, and also in three target positions.

Conclusion: This study showed that subjects are more capable of recognition and identification of the angles during weight bearing position. A larger amount of proprioceptive afferent data may result from sources other than examined knee and lower extremity.

Keywords: Knee Joint Position Sense, Weight Bearing, Non-Weight Bearing, Angle Matching Error, Target Angle

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