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P-07: Assessment of The Effects of Ankle Fatigue on Proprioception in Young Individuals

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ABSTRACT

INTRODUCTION: Nowadays, with the rapid increase in the rate of participation in sports and physical activities, interests to carry out studies for the prevention of injuries has considerably increased. The purpose of this study, is to investigate the effect of the post-exercise ankle muscle groups' fatigue, on ankle proprioception in the target angles of eversion, inversion, plantar flexion and dorsal flexion.

MATERIAL-METHOD: 20 men who aged between 18-35 were included in the study who either are sedentary or maintain physical activity recreationally. In separate days with at least 4 days long from each other, using the Biodex Multi-Joint System-Pro dynamometer, ankle active and passive proprioception, were measured in angles of, in turn, 1st day; eversion (10°), 2nd day; Inversion (20°), 3rd day; plantar flexion (25°) and 4th day; dorsal flexion (15°). After proprioception testing isokinetic fatigue exercise was implemented. Then the proprioception measurements done before fatigue, was repeated after fatigue.

RESULTS: Active proprioception, is significantly affected by post-exercise fatigue at the angles of inversion 20° and plantar flexion 25° ($p < 0.05$). Active proprioception, was not affected at the angles of eversion 10° and dorsiflexion 15°, and passive proprioception is not affected by post-exercise fatigue at any angle.

CONCLUSION: Ankle invertor and plantar flexor muscles fatigue has led to impairment of the active proprioception. Therefore, the weakness and fatigue of the invertor and plantar flexor muscles is thought to be one of the leading factors for the most common ankle inversion sprain.

Mean Error and Standard Deviation (Std. Deviation) by Pre and Post Fatigue Target Scale, Effect of Fatigue Exercise on 4-angle Proprioception Test

		Target Angle	Pre Fatigue Error ± Std. Deviation	Post Fatigue Error ± Std. Deviation	P Value
Active Prop.	Eversion	10°	0,77 ± 1,34	1,90 ± 2,99	0,160
	Inversion	20°	0,42 ± 1,77	2,62 ± 2,45	0,002
	Plantar Flexion	25°	0,18 ± 1,62	2,74 ± 3,37	0,001
	Dorsal Flexion	15°	0,37 ± 1,18	0,32 ± 1,88	0,087
Passive Prop.	Eversion	10°	0,33 ± 1,61	0,11 ± 1,39	0,551
	Inversion	20°	1,42 ± 2,33	0,70 ± 2,73	0,062
	Plantar Flexion	25°	2,28 ± 2,04	1,51 ± 3,47	0,356
	Dorsal Flexion	15°	0,68 ± 1,10	0,02 ± 1,52	0,130

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