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The comparison of quadriceps muscle strength between sprint runner and normal un-trained individuals (Determined by Kin-Com)

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Abstract:

Introduction: It is suggested that quadriceps muscle has an important role in stability & mobility of Knee joint in athletics and normal individuals; therefore, the purpose of this study was evaluation of the strength in Power Athletics (PA) and Normal Un-trained Individuals (NUI) groups. Methods and Materials: 31 Females (20 NUI & 11 PA) participated in this study. For measuring the strength, each individual performed 5 continuous concentric-eccentric maximal contraction at angular velocities of 90°/s, 135°/s. Twenty five percent of each individual (Maximum Voluntary Isometric Contraction) MVIC was determined and used as Pre-load force. Results: Averages concentric & eccentric torques were greater in PA group in comparison with NUI group. The significant difference (P<0.02) existed between PA and NUI groups. Average concentric torques of quadriceps muscle decreased (with increasing of speed from 90°/s to 135°/s) and average eccentric torques increased. Average eccentric torques were greater (P<0.01) in PA & NUI groups in comparison with average concentric torques. Conclusion: PA group strength was greater in comparison with NUI group. This is possibly due to the type of muscle fibers in this group have (greater type II fibers). Accordingly, it is critical to consider the role of eccentric exercise in PA group for preventing sport injury.

Keywords:

Isokinetic dynamometer . Sprint runners . Normal un-trained individuals . Maximum torque quadriceps concentric . Maximum torque quadriceps eccentric

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