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An investigation into two modes of eccentric hamstring training on parameters of strength and fatigue resistance

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Purpose: Despite the high incidence of hamstring strain injuries in several popular sports, definitive research on their causation and prevention is limited. Studies show fatigue and also hamstring eccentric weakness as causes for hamstring injuries. It begs the question “which way may be the best to train hamstrings to prevent injury”.

Methods: Eccentric hamstring peak torque and angle of peak torque were measured using the Kin Com dynamometer at 60° s-1/s (type, 125 AP, Chattanooga, TN, USA) before and after a modified L.I.S.T fatigue protocol. Participants were divided into two groups and underwent four weeks of eccentric hamstring training, then retested. The strength group used Nordic Hamstring Curls and the endurance group used Assisted Nordic Hamstring Curls.

Results: The results showed a significant difference in peak torque in both groups (strength: 0.00, Endurance: 0.01). Both groups did not show a significant difference in angle of peak torque; however the results showed an increase to longer muscle lengths of 18.28% and 26.95% for endurance and strength groups respectively.

Conclusions: The strength training intervention shows the greatest improvement on both peak torque and angle of peak torque.

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