

Effect of Training Frequency and Specificity on Isometric Lumbar Extension Strength

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Abstract

To investigate the effects of training frequency and specificity of training on isolated lumbar extension strength, 72 men (age = 31 ± 9 years) and 42 women (age = 28 ± 9 years) were tested before and after 12 weeks of training. Each test involved the measurement of maximum voluntary isometric torque at 72, 60, 48, 36, 24, 12, and 0 degrees of lumbar flexion. After the pretraining tests, subjects were randomly stratified to groups that trained with variable resistance dynamic exercise every other week (1x/2 weeks, n = 19), once per week (1x/week, n = 22), twice per week (2x/week, n = 23) or three times per week (3x/week, n = 14); or a control group that did not train (n = 15). Analysis of covariance showed that all training groups improved their ability to generate isometric torque at each angle measured when compared with controls ($P \leq 0.05$). There was no statistical difference in adjusted posttraining isometric torques among the groups that trained ($P \leq 0.05$), but dynamic training weight increased to a lesser extent ($P \leq 0.08$) for the 1x/2 weeks group (26.6%) than for the groups that trained 1x/week, 2x/week, and 3x/week (37.2 to 41.4%). These data indicate that a training frequency as low as 1x/week provides an effective training stimulus for the development of lumbar extension strength. Improvements in strength noted after isometric training suggest that isometric exercise provides an effective alternative for developing lumbar strength. (Key words: lumbar extension training, frequency of training, specificity of training, variable resistance exercise, isometric exercise)