## Electrical stimulation versus voluntary exercise in strengthening thigh musculature after anterior cruciate ligament surgery.

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Twenty patients who had undergone anterior cruciate ligament reconstructive surgery were placed randomly and independently in an Electrical Stimulation Group (n = 10) or Voluntary Exercise Group (n = 10) to compare the effectiveness of these two muscle-strengthening protocols. Patients in both groups used simultaneous contraction of quadriceps femoris and hamstring muscles during a training regimen that consisted of either voluntary exercise or electrical stimulation trials five days a week for a three-week period within the first six postoperative weeks. After patients completed the training regimen, bilateral maximal isometric measurements of gravity-corrected knee extension and flexion torque were obtained for both groups and percentages were calculated. Results showed that patients in the Electrical Stimulation Group finished the three-week training regimen with higher percentages of both extension and flexion torque when compared with patients in the Voluntary Exercise Group (extension: t = 4.35, p less than .05; flexion; t = 6.64, p less than .05). These results indicate that patients in an electrical stimulation regimen can achieve higher individual thigh musculature strength gains than patients in a voluntary exercise regimen when simultaneous contraction of thigh muscles is prescribed during an early phase of postoperative rehabilitation.

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