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The effects of electromyostimulation training and basketball practice on muscle strength and jumping ability.

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Abstract

The aim of this study was to investigate the influence of a 4-week electromyostimulation training program on the strength of the knee extensors and the vertical jump performance of 10 basketball players. Electromyostimulation sessions were carried out 3 times weekly; each session consisted of 48 contractions. Testing was carried out before and after the electromyostimulation training program (week 4) and once more after 4 weeks of normal basketball training (week 8). At week 4, isokinetic strength increased significantly ($p < 0.05$) at eccentric and high concentric velocities (between 180 and 360 $\times s^{-1}$); this was not the case for low concentric velocities (60 and 120 $\text{degrees} \times s^{-1}$). Electromyostimulation training increased also isometric strength at the two angles adjacent to the training angle ($p < 0.01$). Squat jump increased significantly by 14% at week 4 ($p < 0.01$), whereas counter movement-jump showed no change. At week 8, gains in isokinetic, isometric strength and squat-jump performance were maintained and the counter movement jump performance increased significantly by 17% ($p < 0.01$). Electromyostimulation as part of a short strength-training program enhanced knee extensor strength and squat jump performance of basketball players.

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