

Effect of Lumbar Progressive Resistance Exercise on Lumbar Muscular Strength and Core Muscular Endurance in Soldiers

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Abstract

Objectives: Low back pain (LBP) is common, costly, and disabling for active duty military personnel and veterans. The evidence is unclear on which management approaches are most effective. The purpose of this study was to assess the effectiveness of lumbar extensor high intensity progressive resistance exercise (HIPRE) training versus control on improving lumbar extension muscular strength and core muscular endurance in soldiers.

Methods: A randomized controlled trial was conducted with active duty US Army Soldiers (n = 582) in combat medic training at Fort Sam Houston, TX. Soldiers were randomized by platoon to receive the experimental intervention (lumbar extensor HIPRE training, n = 298) or control intervention (core stabilization exercise training, n = 284) at 1 set, 1X/week, for 11 weeks. Lumbar extension muscular strength and core muscular endurance were assessed before and after the intervention period.

Results: At 11-week follow-up, lumbar extension muscular strength was 9.7% greater (p = 0.001) for HIPRE compared with control. No improvements in core muscular endurance were observed for HIPRE or control.

Conclusions: Lumbar extensor HIPRE training is effective to improve isometric lumbar extension muscular strength in US Army Soldiers. Research is needed to explore the clinical relevance of these gains.

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