

Bieler T, Sobol NA, Andersen LL, and et al. The Effects of High-Intensity versus Low-Intensity Resistance Training on Leg Extensor Power and Recovery of Knee Function after ACL-Reconstruction. BioMed Research International 2014; Epub April 27, 2014:Article ID 278512, 11 pages.

Reviewer: Linda Metzger 7-13-15

Design: Randomized Clinical Trial

Objective: To investigate the effects of high-intensity (HRT) versus low-intensity (LRT) resistance training on leg extensor power and recovery of knee function after ACL-reconstruction.

Summary of Results:

- Main outcomes were leg extensor power, joint laxity, and self-reported knee function measured before and 7, 14, and 20 weeks after surgery.
- Leg extensor power was regained more with high intensity resistance training (HRT) compared to low intensity resistance training (LRT) at week 14 (84% versus 73%; $P = 0.027$) and at week 20 (98% versus 83; $P = 0.006$).
- No other between-group differences were found.
- High-intensity resistance training during rehabilitation after ACL-reconstruction can improve leg extensor muscle power without adverse effects on joint laxity.

Reasons not to Cite as Evidence:

- Extra leg extensor muscle power did not translate into changes that were important. Even though muscle power was improved, there were no gains in function, no reductions in pain, and no improvements in ADL's. There were no significant differences in function, pain, or ADL's 20 weeks after surgery between the HRT and LRT groups.
- The relevant outcomes of function and pain did not correlate with leg extensor muscle power. Pain and function did not improve when leg extensor muscle power improved.
- The primary outcome of leg extensor muscle power was of secondary importance and irrelevant. The outcomes of interest remained unchanged.
- There is no evidence that HRT after ACL-reconstruction is effective in improving function or reducing pain 20 weeks after surgery.
- There were a high number of dropouts, which means that the study did not reach the desired number of patients in each group. The smaller than optimal sample size weakened the study's statistical power and ability to find significant results.
- While a potential benefit of improved leg extensor muscle power from HRT for rehabilitation after ACL-reconstruction is evident, the evidence from this study is insufficient to support the routine use of this intervention in clinical practice, since it does not improve function or reduce pain.

Assessment: Inadequate for evidence of the effect of high intensity resistance training (HRT) as part of the rehabilitation after ACL-reconstruction to improve function or reduce pain 20 weeks after surgery.

