

**Project title:** Early Postoperative Exercise after Anterior Cervical Discectomy and Fusion: A Pilot, Randomized Controlled Trial

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### **Summary Abstract**

Anterior cervical discectomy and fusion (ACDF) is the most common surgery for cervical spine degenerative conditions. Poor outcomes after ACDF have been linked to impaired muscle functioning from postsurgical disuse and deconditioning. Postoperative exercise can counteract the effects of deconditioning and promote an increase in self-efficacy and participation in health-promoting behaviors. To date, no study has determined whether performance of an early home exercise program (HEP) is safe and efficacious for improving ACDF outcomes. The purpose of this randomized trial (N = 96) is to examine the efficacy and safety of an early HEP performed within the first six weeks after ACDF surgery. We hypothesize that the early HEP will improve disability, pain, and general physical health and reduce opioid use compared to usual care (standard physician recommendations and advice). We further hypothesize that these improvements will be mediated through changes in physical activity and self-efficacy. Primary outcomes include disability (Neck Disability Index), pain intensity (Numeric Rating Scale), and general physical health (SF-12), which will be measured at baseline (preoperatively), the completion of the HEP (6 weeks after surgery), and at 6 months after surgery. Treatment mediators include physical activity (accelerometers) and self-efficacy (Pain Self-Efficacy Questionnaire), which will also be measured preoperatively and 6 weeks and 6 months after surgery. The amount of opioid use will be measured at 6 months after surgery. The results of our randomized trial will advance research on postoperative management for patients after cervical spine surgery and provide evidence in line with a value-based healthcare approach for optimizing outcomes. This study is part of a current shift in rehabilitation towards low cost strategies that maximize recovery.