



## *Research Summary Series*

### **Effects of chiropractic care on strength, balance, and endurance in active-duty U.S. military personnel with low back pain: A randomized controlled trial**

Low back pain is considered a high-priority area for research within the U.S. military due to a high prevalence and large morbidity burden. Reduced trunk muscle strength and endurance may be caused by altered movement and activities due to low back pain. Conversely, reduce trunk muscle strength and endurance may increase risk for low back pain. Altered neuromuscular activity affecting balance is also associated with low back pain.

A group of 110 active-duty U.S. Military personnel with low back pain were randomly allocated to 4 weeks of chiropractic care or a wait-list control group, which did not receive chiropractic care until after 4 weeks. Strength, balance, and endurance were measured at the beginning and after the 4 week trial period. Changes in strength, trunk muscle endurance, balance time, and pain-related function and intensity were compared between groups. Chiropractic care consisted of high velocity thrust spinal manipulation, education, and self-management advice. The number of visits were scheduled based on condition, severity, and scheduling availability.

- Strength was measured through isometric pulling on a handle while in a semi-squat position.
- Trunk muscle endurance was measured in a prone position. The upper body extended off a table while the lower extremities were held firmly with straps. The test measured the time participants maintained a neutral body position with the trunk unsupported (Biering-Sorensen test).
- Balance time with eyes open and closed was measured while participants stood on one foot with a raised heel. The hands rested on the waist while the opposite foot contacted the supporting leg.

Statistically significant improvements in pain severity, fear avoidance behavior, disability, isometric pulling strength, balance with eyes closed, and trunk muscle endurance were observed the chiropractic care group compared with the wait-list group.

#### **TAKE HOME MESSAGE**

Trunk muscle function tends to be compromised in people with low back pain. This study offers evidence that chiropractic care can influence potential biological and cognitive changes that collectively appear to facilitate a return to more normal trunk muscle function.

#### **PRACTICAL APPLICATION**

The combination of spinal manipulation, advice, and education can act synergistically to catalyze positive functional outcomes in people with low back pain.

#### **REFERENCE**

Vining R, Long C, Minkalis A, Gudavalli MR, Xia T, Walter J, Coulter I, Goertz C. [Effects of chiropractic care on strength, balance, and endurance in active-duty U.S. military personnel with low back pain: A randomized controlled trial.](#) *J Altern Complement Med.* 2020 Jun 12. doi: 10.1089/acm.2020.0107. PMID: 32348152 PMID: PMC7958661