

Scientific Summary – Latest news from science

Spinal orthosis for active relief leads to improvements in various strength-based parameters in men with osteoporosis

Genest F et al. Feasibility of simple exercise interventions for men with osteoporosis – A prospective randomized controlled pilot study. Bone Rep. 2021;15:101099.

#09

What's new?

It's the first prospective randomized controlled clinical trial evaluating the efficacy of three alternative, less demanding interventions for elderly men at risk for osteoporosis and comparing the results with resistance training as gold standard.

Authors' conclusions?

- ← “Even though improvements achieved with the three alternative interventions were not statistically significant regarding the primary endpoint, the extent of improvements and evaluation of secondary endpoints surely supports distinct beneficial effects for each of these concepts.”
- ← “Specifically, the improvement of trunk strength by 19.1% for extension and 27.5% for flexion by wearing a specific, flexible, customized off-the-shelf back brace is encouraging.”
- ← “Wearing the orthosis [was] associated with significant improvements regarding the time required to perform the CRT. [...] it is surely a novel and interesting finding with regards to the spinal orthosis that deserves further attention in forthcoming studies to see if this is due to an interventional effect extending further down the back including gluteal and / or ischiocrural musculature or if this is an indirect effect of encouraging subjects to be more active while wearing the brace.”



Implications for everyday care

Based on the increasing age of the population and a rather small motivation in elderly men to actively take part in training programs, wearing a spinal orthosis seems to be an appropriate alternative to improve trunk and leg muscle strength as well as usual gait speed.

Clinical trial confirms strengthening of the trunk and leg muscles resulting in by an increase in gait speed in men with osteoporosis by wearing a spinal orthosis

In recent years, the efficacy of spinal orthoses on clinical outcomes like pain, vital capacity, angle of kyphosis or quality of life in patients with osteoporosis has been proven sufficiently. Therefore, the German S3 guideline regarding the prophylaxis, diagnostic, and therapy of osteoporosis recommends the use of spinal orthoses in order to enable painless mobilisation.¹

A recent prospective randomised controlled clinical trial conducted by the university of Wuerzburg evaluated the effects of four different interventions on strength- and endurance-based parameters as well as gait speed in men with osteoporosis over a study period of six months.²

Study design			
 N = 47 men with osteoporosis	Age: ≥ 65 years	Inclusion criteria:	
Spinomed® active	n = 13	• Preexisting DXA-Scan with T-Score ≤ -2.5 at the hip or spine	
Vibration training	n = 13	• Previously diagnosed osteoporosis or	
Resistance training	n = 11	• Ongoing osteoporosis treatment or	
Qi Gong	n = 10	• 10-year fracture risk probability (according to applicable national guidelines ¹)	
Study visits		Primary endpoint:	
		• Change in isometric maximum trunk strength for flexion (TSF) and extension (TSE)	
		Secondary endpoints:	
		• Geriatric functional assessments, i. a. Chair-Rise-Test (CRT) and usual gait speed (UGS)	

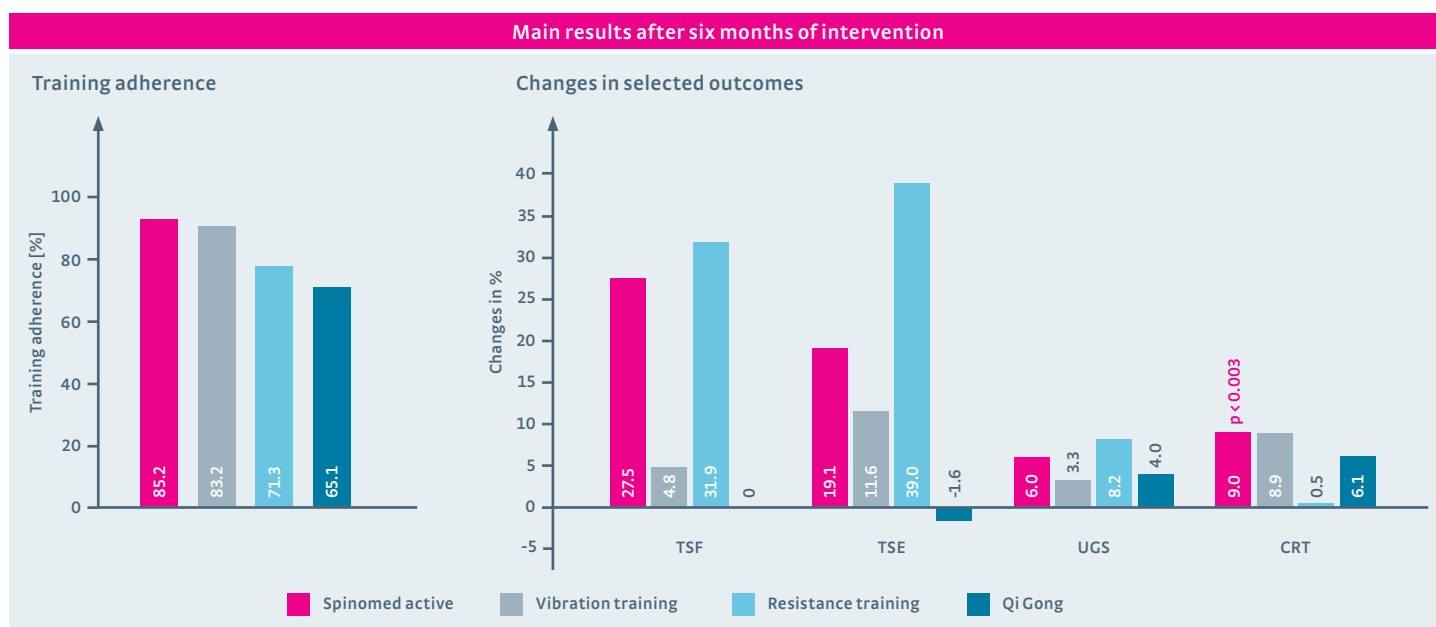


Fig. 1: Summary of the main study results.

- The **Spinomed active group** had the **highest training adherence** of all groups (85.2 %).
- Wearing the **Spinomed active** for a period of six months led to an increase in maximum trunk flexor strength of **27.5 %** and maximum trunk extensor strength of **19.1 %**. Only the professionally guided resistance training twice weekly (30 min) led to even higher strength gains. The other interventions obtained worse results.
- Wearing the **Spinomed active** led to an increase in usual gait speed by 6 %.
- The **Spinomed active group** improved significantly ($p < 0.003$) in the Chair-Rise-Test, an indicator for leg strength. Furthermore, the improvement in the **Spinomed active group** was highest among all groups regarding CRT performance.