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### Basic Study

Neuromuscular trunk activation patterns in back pain patients during one-handed lifting

Juliane Mueller, Tilman Engel, Stephan Kopinski, Frank Mayer, Steffen Mueller

### Abstract

**AIM:** To analyze neuromuscular activity patterns of the trunk in healthy controls (H) and back pain patients (BPP) during one-handed lifting of light to heavy loads.

**METHODS:** After assessment of back pain (graded chronic pain scale according to von Korff) all subjects (n=43) performed a warm-up (treadmill walking). Next,

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Electromyography pattern recognition Asymmetrical lifting Trunk muscles Amplitude ... 24 trunk muscle sites) during a one-handed asymmetrical lift were altered by different ..... co-activation strategies to understand how the neuromuscular response .... healthy subjects and patients with sub-acute and chronic low back pain,

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limb movements to determine 1) if there is any decrement to pattern ... However, its impact during dynamic activation is still doubtful in patients with knee ..... hand opening while lifting the weight of the limb is expected to be compromised more in ... rehabilitation of back pain, but has not yet been studied



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While the results showed no handedness effect for back muscles, the external ... 24 trunk muscle sites) during a one-handed asymmetrical lift were altered by different ... index  $23.5 \pm 3.6 \text{ kg/m}^2$  with no history of low back pain were included in this study. .... Co-activation is well documented to be an important neuromuscular ...

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