Coppeta, Luca, et al, 2019 Abstract

Neuromuscular Functional Assessment In Low Back Pain By SEMG

Objective
The aim of the study was to evaluate the procedures for detecting the **surface electromyographic** (**SEMG**) activity of the lumbar paravertebral muscles in order to compare electromyographical pattern in subjects aged 18-65 years with acute or chronic lower back pain (LBP).

Results
In all three groups involved in the study, differences were identified in the **surface electromyographic** activity between the healthy controls and the one affected by LBP. The study of normal and pathologic **electromyographic** patterns can be a valid means to support in an objective way the presence or absence of acute and chronic LBP.

Participants and Researchers
The study involved 40 symptomatic patients, aged from 25 to 65 years, 20 affected by acute LBP, eight female and 12 male (mean age 44) and 20 affected by chronic LBP, nine female and 11 male (mean age 53) and 20 healthy controls (age range from 18 to 65) ten female and ten male (mean age 50).

The researchers, all affiliates of the Department of Biomedicine and Prevention, University of Rome, Tor Vergata, Italy, were: Luca Coppeta; Sandro Gentili; Stefano Mugnaini; Ottavia Balbi; Stefano Massimiani; Gianluca Armieri; Antonio Pietroiusti; and Andrea Magrini.

Methods
For the purpose of the study, acute LBP was defined as acute when starting within the previous four weeks from the examination, and chronic when starting before. The researchers evaluated muscle activity in acute and chronic LBP and the usefulness of quick and reliable procedures to demonstrate abnormal **electromyographic** activity of the spine erector muscles.

For each participant, a clinical history regarding the presence of chronic or acute LBP was collected. Each subject was evaluated with **SEMG** measures of spine erector muscles during standing and prone position (for acute LBP), and flex-extension movement (for chronic LBP subjects). Superficial potential was recorded and compared between groups.

In all three groups, significant differences in the surface electromyographic activity between the healthy controls and the one with acute LBP were shown. Similarly, the recordings conducted in subjects with chronic LBP showed a significant difference in the side-specific FRP (Flexion-Relaxation Phenomenon) index. For the study, the PC-based **NeuroTrac MyoPlus 4** SEMG dual channel portable device from Verity Medical was used for **surface electromyography** (**SEMG**).

The full abstract can be found at https://openpublichealthjournal.com/VOLUME/12/PAGE/61/FULLTEXT/#:~:text=Surface%20Electromyography%20(SEMG)%20is%20a,rehabilitative%20medical%20field%20%5B7%5D.