

## Publication

Analyse der Veränderungen von Wavelet-transformierten elektromyographischen Signalen, wie sie beim Tragen einer Kniebandage entstehen = Analysis of wavelet transformed electromyographic signals that were altered by wearing a knee brace

### **JournalItem (Reviews, Editorials, Rezensionen, Urteilsanmerkungen etc. in einer wissenschaftlichen Zeitschrift)**

**ID** 462384

**Author(s)** Friederich, N. F.

**Author(s) at UniBasel** [Göpfert, Beat](#) ;

**Year** 2004

**Title** Analyse der Veränderungen von Wavelet-transformierten elektromyographischen Signalen, wie sie beim Tragen einer Kniebandage entstehen = Analysis of wavelet transformed electromyographic signals that were altered by wearing a knee brace

**Journal** Biomedizinische Technik

**Volume** 49

**Number** 3

**Pages** 43-8

**Keywords** electromyogram, wavelet analysis, intensity pattern, muscle, kinesiology

The comparison of electromyograms represents a challenge for data analysis. The aim of the project was to present a method that uses a minimal computational effort to resolve small but significant changes in the muscular activity that occur while walking with and without a knee brace. The wavelet transformed electromyograms were represented as intensity patterns that resolve the power of the signal in time and frequency. The intensity pattern of each electromyogram defines single points in a pattern space. The distance between these points in pattern space were used to detect and show the separation between the groups of electromyograms that were recorded while walking with and without a knee brace. The method proposes a distance versus angle representation to visually discriminate the intensity patterns. Once it has been shown that the differences are statistically significant, one can visualize the result in a difference intensity pattern that indicates at what time and at what frequency the electromyograms vary between the two conditions tested. It is to be expected that interventions that are more intrusive than a knee brace will reveal even more distinct differences

**Publisher** Schiele und Schön

**ISSN/ISBN** 0013-5585

**edoc-URL** <http://edoc.unibas.ch/dok/A5249164>

**Full Text on edoc** No;

**Digital Object Identifier DOI** 10.1515/BMT.2004.009

**PubMed ID** <http://www.ncbi.nlm.nih.gov/pubmed/15106897>

**ISI-Number** WOS:000220867000002

**Document type (ISI)** Journal Article