

ABSTRACT

Thesis title: Conduction of low frequency current - TENS - through human tissues

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The aim of the thesis: The aim of this study is to determine, whether applying low frequency TENS cause the conduction of electrical potential to muscle groups outlying from the point of irritation. And if the frequency has an influence on the conduction.

Subjects and Methods: Application of low-frequency current, namely transcutaneous electrical neurostimulation, in the frequencies of 45 Hz, 121 Hz and 235 Hz – on the paravertebral muscles, on the left side of the body. It's a pilot study involving 6 probands (1 man, 5 women) aged 20-30 years. Electrical activity was measured by surface electromyography. Spectral analysis carried out in the Master MyoResearch XP program was used to evaluate the measured data. Results are graphed for clarity.

Results: It was confirmed that the conduction of electrical potential in the organism exceeds the site of stimulated muscle. However, these are a very low values to be used in clinical practice. This conduction varies according to the applied frequency. With higher frequencies, electrical current gets more to outlying muscle groups. Furthermore, it was found that the frequency of applied current doesn't appears in the used frequency, but in its multiples.

Keywords: conduction of electric potential – transcutaneous electric neurostimulation – surface electromyography