UNIVERSITI TEKNOLOGI MARA

THE EFFECT OF TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS) AND THERAPEUTIC ULTRASOUND (US) ON PAIN LEVEL AND FLEXIBILITY AMONG CHRONIC LOW BACK PAIN PATIENTS

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Faculty of Sports Science and Recreation

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AUTHOR'S DECLARATION

I declare that the work in this research was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicates or acknowledge as references work. This research project has not been submitted to any to any other academic institution or non-academic institution for any degree of qualification.

I, hereby, acknowledge that have been applied with Academic Rules and Regulation for Under Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The effect of TENS and US therapy on pain level and flexibility were lack and not clearly discussed in the previous literature, therefore purpose of this study was to compare the effects of TENS and US on pain level and flexibility among chronic low back pain patients. There were 12 participants and they were divided into two groups which is TENS group (n=6) and US group (n=6). Participants were involved in 5 weeks treatment duration to determine the effect of both therapies. For TENS group, the electrode will be placed securely at the center of the painful area of the back and it will be applied for 20 minutes with 4 to 8 Hz while for ultrasound group, put acoustic gel at the back area then apply ultrasound at the paravertebral low back region in circular movements for 8 minutes with 1 MHz, 1 W/cm2. The participants' pain level and flexibility were measured at week 1 and week 5 of treatment. The results were determined by using Paired T-Test to identify the effect of TENS and US and Independent T-Test to compare TENS and US group. For Paired T-Test, there was a significant effect on pain level for TENS (P=0.002) and US (P=0.000). For lumbar flexibility, there was no significant effect of TENS on lumbar flexion (0.065) however there was significant effect of US on lumbar flexion (P=0.025), TENS on lumbar extension (P=0.025), and US on lumbar extension (P=0.001*)*. However, there was no significant difference between TENS and US on pain level (*P=1.000),* lumbar flexion (*P=0.609)*, and lumbar extension (P=0.959). The mean value showed that pain level is the same between both treatment but TENS has greater value compared to US so it can be proposed that TENS has better effect than US therapy. It can be concluded that both TENS and US promote improvement in treating low back pain but when compared to each other, TENS provided better effect.

Keywords*: TENS, US, Pain Level, Lumbar Flexibility, Chronic Low Back Pain*

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