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Exercising the effect of wrist support with two different computer mouse types among healthy computer users

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Keywords: Ergonomic mouse; Wrist support; Posture; Surface electromyography; Perceived score

Introduction.– Excessive wrist extension and ulnar deviation are risk factors for computer users. The aim of study was to examine the effect of wrist support use on upper extremity performance during using conventional and ergonomic mouse.

Material and methods.– Twelve subjects performed aiming task for four conditions. Outcome measures included posture, electromyography, perceived ratings.

Results.– The ergonomic mouse significantly reduced forearm pronation and the range of wrist deviation, but it led to greater wrist extension and higher activity of anterior deltoid (AD). The wrist support significantly reduced wrist extension, ulnar deviation and activity of pronator teres (PT). Perceived ratings showed that subjects preferred conventional mouse due to usability and comfort.

Discussion.– Consistent with previous finding, the ergonomic mouse promoted a more neutral forearm posture and decreased ulnar deviation. However, forearm muscle activity did not improve and this mouse caused higher activity of AD. The differences might be explained by without offering instructions on how to correctly holding ergonomic mouse and the restricted movement of wrist changed the firing strategy of muscle. Only allowing the wrist on table reduced the effect of forearm support. Placement of wrist was restricted by wrist support so the movement of dragging mouse was compensated by upper arm.

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The stroke patients may be benefit from elastic taping on obstacle hip joints.

INTRODUCTION.– The stroke patients who regularly used AFO to correct foot drop participated in this study. Subjects stepped over a 4 cm height obstacle under three conditions:

– wearing an AFO (AFO);
– taping (KTP);
– without AFO and without taping (NON).

Preliminary data of successful rate and kinematics from four subjects were analyzed. More data are collecting.

RESULTS.– The average successful rate revealed the KTP condition was the highest (96.88 ± 6.25%), followed by the NON (93.75 ± 7.22%) and the AFO (84.38 ± 15.73%). Regarding toe clearance, three of four subjects had a similar pattern which showed lower toe clearance under the KTP condition (8.11 ± 1.72 cm) than AFO (9.36 ± 2.64 cm) and NON (9.26 ± 0.99 cm). The ankle joint variability across trials at the moment of crossing obstacle was greater for the KTP condition (3.46° ± 1.83°) than the other two conditions (AFO: 1.84° ± 0.99°; NON: 2.76° ± 1.05°). Similar patterns were found for the knee and hip joints.

DISCUSSION.– The stroke patients may benefit from elastic taping on obstacle crossing. The potential applications of elastic taping will be discussed.

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Comparison between laser and LED light therapy on injured rat muscle

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Keywords: Low level laser therapy (LLLT); Inflammation treatment; Cytokines; Coherent illumination

INTRODUCTION.– In low level laser therapy there is controversy on the use of non-coherent LED sources as replacement for laser light. Here we evaluated the effect of equivalent doses, of same wavelength laser and LED sources, on the treatment of muscle inflammation on rats.

Material and methods.– Twenty Wistar male rats were randomized in one control (10 animals) and two treatment groups (Laser and LED). Inflammation was induced by mechanical trauma in the gastrocnemius muscle. Equal light doses (40 mW, 1433 J/cm²) were applied daily in the treatment groups using laser (830 nm) and LED (850 nm) illumination, during 6 days. Blood was collected at days 0, 3 and 6. Animals were sacrificed at day 6. TNF-α, IL-1b, IL-2 and IL-2 cytokines were measured by ELISA.

RESULTS.– At days 3 and 6, the reduction in the concentration of all cytokines was significant higher for the Laser treated group.

DISCUSSION.– This study found a large difference in treatment effect between coherent and non-coherent sources providing equal doses of radiation with similar wavelength. This is in accordance with suggestions that the coherence longitudinal length of the light source has an important role when irradiating bulk tissue.

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Radial shock wave therapy in patients with plantar fasciitis: One-year follow-up study

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Keywords: Osteoporosis; Muscle strength; Medicament and physical spa therapy

INTRODUCTION.– Important parameters for functional assessment of muscles of the trunk are: quantification of muscle strength, range of motion and endurance.

Material and method.– One hundred and twenty-five postmenopausal women with lower bone mineral density were included and were treated with prescribed medicament and physical spa therapy for six months.

RESULTS.– In the group without therapy during six months with average T-score = -2.3, reduction in muscle strength and mobility in the LS part of the spinal column of 15.47% was noticed. The second group with average T-score = -2.4 was treated with physical spa therapy. After six months, muscle strength and mobility in the LS part was increased by 17.92%, especially in contraction of extensors by 28.43%. Third group with average T-score = -2.7 was treated with calcium and vitamin D3. In the last group with average T-score = -2.88 and the increase of muscle strength and mobility in the LS part was far more than 35%.

CONCLUSION.– With the application of the prescribed medicament and physical spa therapy in subjects with the lower bone mineral density, there is statistically significant increase of muscle strength and functional mobility in the LS part of the spinal column, independent of age, duration of disease and level of bone mineral density reduction.

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