improvement of muscular strength, improvement of subjective state. Quality of life has improved in all working group with slogan “Be Active Live The Life”.

http://dx.doi.org/10.1016/j.rehab.2014.03.1184

P319-e
Development of continuous passive motion (CPM) devices using air pressure system

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Keywords: Continuous passive motion (CPM) device; Pneumatic pump

Introduction.– There were many continuous passive motion (CPM) devices for upper extremity using mechanical motor, which have applied forceful range of motion (ROM) exercise without sensing the patient’s compliance. It could raise the problem of excess movement over the safety range. The aim of our study was to develop CPM device using air pressure system, which has advantages of gentle, gradual movements and biofeedback between the patient and device.

Material and methods.– We reviewed the treatment protocol of ROM exercise in the wrist and finger, especially in patients with increased spasticity. For gradual increment of angle and movement, we decided to use multi-air bag system at each joint. In addition, we developed to make the device sense the angle and pressure in patients, not to exceed the safety range and pressure.

Results.– We developed the CPM device for the wrist and finger using multi-air bag system with pneumatic solenoid valves. It could exercise the wrists and fingers progressively with bi-directional biofeedback between the patient and the device for the safety ROM and pressure.

Discussion.– Further studies for clinical implementation should be needed in the patients with spasticity or contracture for evaluating the efficacy and safety.

http://dx.doi.org/10.1016/j.rehab.2014.03.1185

P320-e
The effects of electrical stimulation on selected anthropometric trunk parameters

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Keywords: Electrical stimulation; Obesity; Anthropometric parameters

Introduction.– Two methods are used for decreasing body mass. Firstly, active methods in which the person takes part in physical activities. Second, inactive methods in which there is no requires physical activities, e.g. usage electrical stimulation.

Materials and methods.– In this clinical trial, 50 subjects were randomly put in two groups of case & control. Although both groups received similar diet, subjects in case group had true electrical stimulations, while controls had sham stimulations. After intervention and also follow up period which last four weeks, parameters of body weight, BMI, fat thickness in umbilicus and supra-iliac levels were measured in two groups of study.

Results.– There was a significant difference between the mean values of body weights in case group before and after electrical stimulation (P < 0.001). There was a significant difference between the mean values of abdomen circumference in case group before and after electrical stimulation (P < 0.001).

Discussion.– This study showed that electrical stimulation does not prefer than diet recommendations to reduce abdominal circumference, fat thickness in umbilical and supra-iliac levels in obese subjects. It seems that electric stimulations have most effects immediately after using this stimulation & in short term manners in abdominal circumference.

http://dx.doi.org/10.1016/j.rehab.2014.03.1186

P321-e
Low-level laser therapy as a possible resource to improve muscle regeneration in rats

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Introduction.– The effects of LLLT were studied during muscle regeneration through gene expression.

Methods.– It was evaluated 10 and 50 J/cm² doses during 7, 14 and 21 days post-cryoinjury, through histopathological analysis and mRNA MyoD, Myogenin, VEGF and Cox-2 expression.

Results.– Irradiated groups presented less inflammatory process than control group after 14 and 21 days. Cox-2 levels were downregulated in all irradiated groups after 7, 14 and 21 days. On day 7, both treated groups had a downregulation of VEGF levels, and an upregulation after 14 and 21 days, mainly with 50 J/cm². The MyoD levels were upregulated with high dose in all periods and with low dose after 21 days. Myogenin expression was downregulated in both treated groups after 7 days, and was upregulated with 10 J/cm² after 21 days.

Conclusion.– These responses suggest that LLLT can improve the skeletal muscle regeneration through the gene expression stimulation.

http://dx.doi.org/10.1016/j.rehab.2014.03.1187

P322-e
Uni- or bilateral vibration effect during postural control for young adults

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Keywords: Posture; Vibration; Proprioceptive cues; Center of pression

Objective.– Proprioceptive inputs from legs provide the most sensitive means of perceiving postural sway. The vibration of muscle tendons has become a frequent tool for studying the relative role of muscle proprioception in human postural control. Our objective is to determine how proprioceptive inputs from these muscles influence the entire postural control.

Methods.– We applied bilateral or unilateral vibration on Achilles or Peroneus tendons to 21 young adults in standing position. The center of pressure and the covered length were computed (we analyze on periods of 4 s).

Results.– In all conditions, we observed a backward shift of the CoP. The extreme backward position was reached before the suspension of vibration at around 12–16 seconds after displacement didn’t evolve any more. Y-min position was always more posterior for BiVib compared to UniVib but was reached at a similar time for all conditions.

Conclusions.– The dependence of the magnitude of CoP shift on duration of vibration appears not true after 16 s of vibration. We highlight phenomena of cerebral saturation of proprioceptive inputs, depending on time and not on amplitude of the displacement, with a new position of reference. The return to the initial state is longer when both hemispheres were stimulated.

http://dx.doi.org/10.1016/j.rehab.2014.03.1188

P323-e
Effect of elastic taping on obstacle crossing for the stroke patients with foot drop

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Keywords: Foot drop; Taping; Obstacle crossing; Stroke

Introduction.– Several treatment methods for motor performance after stroke have been reported, such as functional electrical stimulation and elastic therapeutic taping. Elastic taping may increase muscle strength and reduce muscle tone. Elastic therapeutic taping has been used for patients with foot drop. It is not well known whether elastic taping could improve obstacle crossing in stroke patients with foot drop.

Methods.– This study included 20 adults with stroke, who had difficulty with obstacle crossing. The participants were randomly assigned to two groups (elastic therapeutic taping group and control group). The treatment was given over 4 weeks after the stroke, and the effect of elastic taping was assessed by measuring the time taken to cross the obstacle.

Results.– The elastic therapeutic taping group showed a significant improvement in the time taken to cross the obstacle compared to the control group.

Conclusion.– Elastic therapeutic taping can improve obstacle crossing in stroke patients with foot drop.

http://dx.doi.org/10.1016/j.rehab.2014.03.1189