Department of Basic Science

Master Degree
2003

Author	**:**	**Amir Nazih Wadee Maawad.**
Title	**:**	**Efficacy of laser pulse frequencies on blood flow in normal subjects.**
Dept.	**:**	**Department of Basic Science.**
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Degree	**:**	**Master.**
Year	**:**	**2003.**
Abstract	**:**	

This study was to investigate the effective laser pulse frequency either that could be used to improve blood flow thirty normal inhale subjects randomly selected from students of faculty of physical therapy , Cairo university (x age18.92±1.5)assigned randomly to equal two groups the blood flow volume , mean blood flow velocity and caliper of the blood vessel were evaluated before and after laser using duplex Doppler ultrasound combined He-Ne and infrared laser was administered three a week for twelve sessions at intensity 2 J/cm2 , power 15 mw , duration 15 min and pulse frequency 200 Hz for group Land 2000 Hz for II on the surreal artery at posterior aspect of dominant leg the results revealed that low pulse frequency (2000 Hz)of LILT product significant improvement in blood flow volume and blood flow velocity (48.2%, and 40.6%)respectively (p< 0.05)with significant difference between the two frequencies (p<0.005) but there was no change in caliper of the blood vessel of group I , blood flow volume , blood flow velocity or caliper of the blood vessel of group ll.0.

Key words	**1.**	**Lilt.**
	2.	**blood flow.**
	3.	**pulse frequencies.**
	4.	**Lasers.**
Arabic Title Page	**:**	**كفاءة ترددات نبض اشعة الليزر على سريان الدم فى الاشخاص الاصحاء.**
Library register number	**:**	**978-979.**

Author	**:**	**Manal Mahmoud Mota.**
Title	**:**	**Median frequency changes during Para spinal isometric contraction in different age groups.**
Dept.	**:**	**Department of Basic Science.**
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Degree	**:**	**Master.**
Year	**:**	**2003.**
Abstract	**:**	

Background : muscle endurance is an important variable to measure in the assessment of back muscle function and despite the widespread use of electromyography in to monitor muscle fatigue it's relationship with age is not been well investigated . the purpose : this study was conducted to investigate the relationship between electromyography manifestations of fatigue and age during isometric contraction of Para spinal muscles up to the level of fatigue . Subjects: eighty healthy, back pain-free individuals. Their ages ranged from 15 to 55 years . they were divided into four groups according to their ages each group of 10 years , each group included 20 subjects . Methods: using skin-surface electrodes, electromyographic signals were recorded from 3rd lumbar (L3) region of Para spinal muscle during an isometric endurance test , the rate of change in median frequency (MFS), and initial median frequency (IMF)of the electromyographic power spectrum were calculated for all groups . Results: the results showed that MFS decreased with increasing age from -0.8322 Hz / sec to -0.4405 Hz / sec up to the age of 45 , at the same time IMF increased with age from 134 Hz to 118.06Hz , on other hand MFS correlated with endurance time , as endurance time increased with increasing age from 68.7 sec in group I to 84.5 sec in group III and decreased slightly in group IV to 72.1 sec . Discussion and conclusion: the finding revealed that age has significant influence on Para spinal muscle fatigability and this fatigability was greater in younger than older subjects. in addition to that endurance time increased slightly with age up to age of 45 then decreased .

Key words	**1.**	**Age.**
	2.	**Endurance.**
	3.	**EMG power spectrum.**
	4.	**Fatigue.**
	5.	**median frequency.**
	6.	**Para spinal isometric contraction**
Arabic Title Page	**:**	التغيرات في التردد المتوسط اثناء الانقباض الساكن للعضلات المجاورة للعمود الفقرى في فترات العمر المختلفة.
Library register number	**:**	**1004-1005.**

Author	**:**	**Mohamed Salah El-Dien Mohamed.**
Title	**:**	**Efficacy of high and low tens frequencies on motoneuron excitability in normal subjects.**
Dept.	**:**	**Department of Basic Science.**
Supervisors	**1.**	**Awatef Mohamed Labib.**
	2.	**Omaima Mohamed Aly Katabei.**
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Degree	**:**	**Master.**
Year	**:**	**2003.**
Abstract	**:**	

Background: Transcutaneous electrical nerve stimulation (TENS) is a modality used to control pain; it was reported to influence the flexion reflex to reduce clinical spasticity, to delay the onset and decrease the magnitude of the soleus stretch reflex, as well as to improve the control of motor functions in hemiparetic subjects. Although many attempts were done, the effect of TENS and the effect of both high and low frequency on motoneuron excitability is still unclear. the purpose of this study was to investigate the effect of high and low TENS frequencies on motoneuron excitability in normal subjects. Subjects: thirty normal male physical therapy of the staff and students with mean age (920.37 + 3.16), height (170.0 ± 4.49) and weight (75.6 ± 8.4). they assigned randomly into three equal groups. methods : the peak to peak amplitude of H-reflex and H/M ration was measured before, after application of 30 minutes of TENS on common peroneal nerve at (100 Hz-2Hz)for group l and group ll respectively , 5 minutes after and 10 minutes after stimulation. for control group H-reflex and H/M ration was measured and at baseline, after 30, 35, 40, minutes. one way ANOVA with repeated measurement was done to determine the significance differences in the H-amplitude and H/M ration. post hoc test and t-test was performed to distinguish between the effects of the high and low frequency. Results: revealed that high TENS frequency produced significant decrease in H-amplitude (-25.10 %)($p<0.0001$)and H/M ration (-30.76 %)($p<0.005$)as well as low frequency ($p=0.0003$)for H-amplitude (-27.50 %)and ($p=0.0016$)for H/M ration (-40.56 %)and a non significant change in H-amplitude (($p=0.6913$)and H/Mm ration (p-0.4744)for control group . there was no significant difference between high and low frequency ($p>0.05$)with higher tendency in decreasing the motor neuron excitability using low TENS frequency than high TENS frequency . discussion and conclusion: the finding revealed that high and low TENS frequencies can decrease the motoneuron excitability with a higher tendency in decreasing the motoneuron excitability using low TENS frequency than high TENS frequency, providing physiotherapists with a modality that could be used for treatment of many neurological disorders.

Key words	**1.**	**H-reflex.**
	2.	**H/M ration.**
	3.	**motor neuron excitability.**
	4.	**transcutaneous electrical nerve stimulation (TENS).**
Arabic Title Page	**:**	فاعلية التنبيه الكهربي العصبي عبر الجلد ذو التردد العالي والمنخفض علي استجابة الخلية العصبية الحركية للاشخاص الاصحاء.
Library register number	**:**	**970-971.**

Author	**:**	**Nabil Mahmoud Ismaeel.**
Title	**:**	**Muscle torque responses to different waveforms of neuromuscular electrical stimulation.**
Dept.	**:**	**Department of Basic Science.**
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	3.	**Mohamed Hussien El-Gendy.**
Degree	**:**	**Master.**
Year	**:**	**2003.**
Abstract	**:**	

The purpose of this study was to investigate the effective waveform shape (rectangular, trapezoidal or saw tooth) biphasic symmetric of neuromuscular electrical stimulation that could be used to increase the torque of the quadriceps muscle . Subjects: thirty healthy male physical therapy students and employees with mean age (21.2 ± 3.7), weight (75.6±8.4)and height (174.3±6.2)assigned randomly to three equal groups . Methods : the isometric torque of the dominant quadriceps was evaluated at 60 degrees of knee flexion , using biodex II isokinetic dynamometer before electrical stimulation then after the second and fourth weeks of electrical stimulation. Neuromuscular electrical stimulation was administered three times a week for 4 weeks at rectangular biphasic symmetric waveform shape for group I, trapezoidal biphasic symmetric for group II and saw tooth biphasic symmetric for group III . the subjects were stimulated at the maximum tolerated intensity for 15 minutes per session with frequency of 50 Hz and 200 us pulse duration . on way ANOVA was done to determine the significance differences in the quadriceps torques. Conferring post hoc test was performed to distinguish between the effects of the 3 waveform shapes . results: the results revealed that neuromuscular electrical stimulation produced significant increase in the quadriceps muscle torque after 4 weeks (38.25%, 28.57% and 23.86%) respectively (P<0.0001)there was no significance difference among the 3 waveform shapes (P>0.05)discussion and conclusion : the finding revealed that neuromuscuscular electrical stimulation can improve the strength of normal innervated muscles and the rectangular waveform shape have an advantage over the (trapezoidal and sawthooth)in terms of strength gained .

Key words	**1.**	**electrical stimulation.**
	2.	**waveform shapes.**
	3.	**muscle torque.**
	4.	**neuromuscular electrical stimulation.**
Arabic Title Page	**:**	**استجابة عزم العضلة لاشكال المختلفة للتنبية الكهربائى العصبيى العضلى.**
Library register number	**:**	**962-963.**

Author	**:**	**Soheir Shehata Rezk Allah.**
Title	**:**	**Effect of neurodynamic tension on carpal tunnel syndrome.**
Dept.	**:**	**Department of Basic Science.**
Supervisors	**1.**	**Wadida Hassan Abdel Kader El-Sayed.**
	2.	**Mohamed Hussein El-Gendy.**
	3.	**Amal Fawzy Ahmed.**
Degree	**:**	**Master.**
Year	**:**	**2003.**
Abstract	**:**	

Background : carpal tunnel syndrome (CTS) is a well-known condition in many societies and different levels this problem gives symptoms such as numbness and pain in fingers supplied by median nerve this leads to weakness and disabling of the hand As the hand is essential in performing functions to saustain life, treatment of this problem is of great concern . the purpose : this study was conducted to investigate the effect of neurodynamic mobilization (NDM)on median motor distal latency (MMDL)and median motor forearm conduction velocity (MMFCV)in patients with CTS . these parameters reflect the degree of severity of CTS . Subjects: lt was conducted on 30 patients suffering from CTS . their ages ranged from 30 to 60 years patients were divided into three groups, each group included 10 patients all groups received conservative treatment ln addition to ULTTI for ULTTI group and ULTT2a for ULTT2a group results : the results showed that NDM (ULTTI and ULTT2alad to significant reduction in MMDL and significant increase in MMFCV. for ULTTI , MMDL decreased significantly from 5.77 to 4.93 m sec , and for ULTT2a group , it decreased from 5057 m sec. for ULTT1 group , MMFCV increased significantly from 45.39 to 51.06 m / sec. for ULTT2a , it increased from 46.11 to 51.86 m / sec. Discussion: it was suggested that dynamic mobilization of the median nerve might affect the vascular dynamics via improving blood supply to the hypoxic nerve tissues and normalizing the pressure gradient around the nerve. thus , the axonal transport mechanism and the mechanical features of the nerve fibers and connective tissue improved. conclusion: it was concluded that NDM is a beneficial conservative way in treating CTS. other NDM alternatives and combinations are suggested for future studies.

Key words	**1.**	**Neurodynamic.**
	2.	**CTS (carpal tunnel syndrome).**
	3.	**Tension.**
	4.	**Disrallatenay.**
	5.	**Corductionveloity. Physical Therapy.**
Arabic Title Page	**:**	**مدى تاثير الشد على العصب الاوسط المحتبس عند رسغ اليد.**
Library register number	**:**	**968-969.**