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Cairo University

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Table of Contents

Research Title Index

1-Basic Science Department

International Publication 2013: Basic Sciences

1-1-Long-term effect of high-intensity laser therapy in the treatment of patients with chronic low back pain: a randomized blinded placebo-controlled trial

Mohamed Salaheldien Mohamed Alayat & Azza Mohamed Atya & Mohamed Mohamed Ebrahim Ali & Tamer Mohamed Shosha

Lasers Med Sci DOI 10.1007/s10103-013-1472-5

The aim of this study was to compare the effect of high-intensity laser therapy (HILT), alone or combined with exercise, in the treatment of chronic low back pain (CLBP). A total of 72 male patients participated in this study, with a mean (SD) age of 32.81 (4.48) years. Patients were randomly assigned into three groups and treated with HILT plus exercise (HILT + EX), placebo laser plus exercise (PL + EX), and HILT alone in groups 1, 2, and 3, respectively. The outcomes measured were lumbar range of motion (ROM), pain level by visual analog scale (VAS), and functional disability by both the Roland Disability Questionnaire (RDQ) and the Modified Oswestry Disability Questionnaire (MODQ). Statistical analyses were performed to compare the differences between baseline and post-treatment measurements. The level of statistical significance was set as $P < 0.05$. ROM significantly increased after 4 weeks of treatment in all groups, then significantly decreased after 12 weeks of follow-up, but was still significantly more than the baseline value in groups 1 and 2. VAS, RDQ, and MODQ results showed significant decrease post-treatment in all groups, although the RDQ and MODQ results were not significantly different between groups 2 and 3. HILT combined with exercise appears to be more effective in patients with CLBP than either HLLT alone or placebo laser with exercise.

Keywords CLBP. HILT. Exercise. Pain .Functional disability

1-2-Efficacy of high and low level laser therapy in the treatment of Bell's palsy: A randomized double blind placebo controlled trial

Mohamed Salaheldien Mohamed Alayat & Ahmed Mohamed Elsodany & Amir Abdel Raouf El Fiky

Lasers Med Sci DOI 10.1007/s10103-0131352-Z

The aim of the present study was to investigate and compare the effects of high intensity laser therapy (HILT) and low level laser therapy (LLLT) on the treatment of patients with Bell's palsy. Forty-eight patients participated in and completed this study. The mean age was 43± 9.8 years. They were randomly assigned into three groups: HILT group, LLLT group, and exercise group. All patients were treated with facial massage and exercises, but the HILT and LLLT groups received the respective laser therapy. The grade of facial recovery was assessed by the facial disability scale (FDI) and the House–Brackmann scale (HBS). Evaluation was carried out 3 and 6 weeks after treatment for all patients. Laser treatments included eight points on the affected side of the face three times a week for 6 successive weeks. FDI and HBS were used to assess the grade of recovery. The scores of both FDI and HBS were taken before as well as 3 and 6 weeks after treatment. The Friedman test and Wilcoxon signed ranks test were used to compare the FDI and HBS scores within each group. The result showed that both HILT and LLLT significantly improved the recovery of patients with Bell's palsy. Moreover, HILT was the most effective treatment modality compared to LLLT and massage with exercises. Thus, both HILT and LLLT are effective physical therapy modalities for the recovery of patients with Bell's palsy, with HILT showing a slightly greater improvement than LLLT.

Keywords Bell's palsy. HILT. LLLT. FDI. HBS

1-3-Cross-cultural Adaptation, Reliability, and Validity of the Arabic Version of Neck Disability Index in Patients With Neck Pain

Afaf Ahmed Mohamed Shaheen , Mohammed Taher Ahmed Omar , and Howard Vernon

SPINE 2013;38, (10) : E609–E615

Study Design. Translation and psychometric testing. **Objective**. To adapt the neck disability index (NDI) cross-culturally to Arabic language and to investigate the reliability and validity of the Arabic version of NDI in an Arabic-speaking sample with neck pain. **Summary of Background Data.** Although largely used, no previous reports exist on the translation process or the testing of the psychometric properties of the Arabic version of the NDI. **Methods:** Cross-cultural adaptation of an outcome questionnaire. The English version of the NDI was translated into Arabic (NDI-Ar) and back-translated according to established guidelines. Sixty-five patients with neck pain completed the NDI -Ar twice during a 1-week period, to assess its test-retest reliability. Further psychometric testing was done by assessing internal consistency, construct validity (factor structure), and responsiveness. **Results** The internal consistency value (Cronbach α) for the NDI-Ar was 0.89. The test-retest reliability (intraclass correlation coeffi cient) was excellent at 0.96 (95% confidence interval from 0.93 to 0.97). There was a signifi cant correlation ($r = 0.92$, $P < 0.05$) between the scores obtained from the fi rst administration of the NDI Ar andthe second administration. Factor analysis demonstrated a 2-factor structure, explaining 67.58% of total variance. The analysis of responsiveness was calculated with an unpaired *t* test after 1 week of treatment and demonstrating a statically signifi cant difference between stable and improved patients ($P < 0.05$). The Spearman correlation coeffi cient (rS = 0.81; $P = 0.000$) revealed strong relation between the change in score in the NDI-Ar and global rating of change. No ceiling or fl oor effects were detected in the NDI-Ar. **Conclusion.** The Arabic version of the NDI has a 2-factor 10-item structure and is a reliable, valid, and responsive tool that can be used to assess neck pain in Arabic-speaking patients with neck pain. Therefore, it can be recommended for clinical and research purposes.

Keywords: neck pain and disability, neck disability index, reliability, validity, responsiveness.

1-4-The efficacy of lumbar extension traction for sagittal alignment in mechanical low back pain: A randomized trial

Aliaa Attiah Mohamed Diab∗ and Ibrahim Moustafa Moustafa

Journal of Back and Musculoskeletal Rehabilitation 213;26:213–220

BACKGROUND: There is growing interest in the role of abnormal asymmetrical posture, which is considered one of the most important etiological factors reported to be associated with mechanical low back pain. **OBJECTIVE:** This study was conducted to investigate the effect of lumbar extension traction on the pain, function and whole spine sagittal balance as represented in lumbar curvature, thoracic curvature, C7 plumb line, and sacral slope. **METHODS:** Eighty patients with chronic mechanical low back pain (CMLBP) and definite hypolordosis were randomly assigned to traction or a control group. The control group ($n = 40$) received stretching exercises and infrared radiation, whereas the traction group ($n = 40$) received lumbar extension traction in addition to stretching exercises and infrared radiation three times a week for 10 weeks. Back pain rating scale, Oswestry Disability Index, and radiological spine sagittal balance parameters in terms of lumbar lordosis, thoracic kyphosis, sacral slope, and positioning of C7 plumb line were measured for all patients at three intervals (before treatment, after 10 weeks of treatment, and at six months follow-up). **RESULTS:** There was a significant difference between the traction and control groups adjusted to baseline value of outcome at 10 weeks post treatment with respect to lumbar lordotic curve ($P = 0.000$), thoracic kyphosis ($P = 0.013$), sacral slope ($P = 0.001$), C7 plump line distance ($p = 0.001$), while there was no significant difference with respect to pain ($p = 0.29$) and Oswestry Disability Index (ODI) ($p = 0.1$). At 6-months follow-up, there were significant differences between both groups for all the previous variables ($p < 0.05$). **CONCLUSIONS:** Lumbar extension traction in addition to stretching exercises and infrared radiation improved the spine sagittal balance parameters and decreased the pain and disability in CMLBP.

Keywords: Traction, mechanical low back pain, randomized controlled trial

1-5-Extension traction treatment for patients with discogenic lumbosacral radiculopathy: a randomized controlled trial

Ibrahim Moustafa Moustafa and Aliaa Attiah Mohamed Diab

Clinical Rehabilitation2013;27(1):51–62

Objective: To investigate the effects of lumbar extension traction in patients with unilateral lumbosacral radiculopathy due to L5–S1 disc herniation. Design: A randomized controlled study with six-month follow-up. Setting: University research laboratory. Subjects: Sixty-four patients with confirmed unilateral lumbosacral radiculopathy due to L5–S1 disc herniation and a lumbar lordotic angle less than 39°, randomly assigned to traction or control group. Interventions: The control group (n = 32) received hot packs and interferential therapy, whereas the traction group (n = 32) received lumbar extension traction in addition to hot packs and interferential therapy. Main outcome measures: Absolute rotatory angle, back and leg pain rating scale, Oswestry Disability Index, Modified Schober test, H-reflex (latency and amplitude) and intervertebral movements were measured for all patients three times (before treatment, after 10 weeks of treatment and at six-month follow-up). Results: There was a significant difference between the traction group and the control group adjusted to baseline values at 10 weeks post treatment with respect to: absolute rotatory angle (P < 0.001), Oswestry Disability Index (P = 0.002), back and leg pain (P = 0.009, P = 0.005), Modified Schober test (P = 0.002), latency and amplitude of H-reflex (P = 0.01, P < 0.001), intervertebral movements (P < 0.05). At six-month follow-up there were statistically significant differences between the study and control groups for all the previous variables (P < 0.05). Conclusion: The traction group receiving lumbar extension traction in addition to hot packs and interferential therapy had better effects than the control group with regard to pain, disability, H-reflex parameters and segmental intervertebral movements.

Keywords: Assessment, lumbar radiculopathy, randomized controlled trial, rehabilitation, traction

1-6-Influence of second-degree flatfoot on spinal and pelvic mechanics in young females

Neveen Abdel-Raoof, Dalia Kamel, Sayed Tantawy

International Journal of Therapy and Rehabilitation, 2013, ;20 (9):429-434

Objective: To investigate the effect of bilateral, flexible, second-degree flatfoot on pelvic and spinal mechanics in young females. Methods: A case-control trial was conducted at the Faculty of Physical Therapy, Cairo University, Egypt, on 60 female participants who were assigned into two groups. Group A (the control group) included 31 healthy subjects, and group B (the study group) included 29 subjects with bilateral, flexible, second degree of flatfoot deformity. For each subject in both groups, using lateral weight-bearing radiographs, foot assessments were performed bilaterally to measure the talus–first metatarsal angle. Using the formetric-II device, 3D assessments of the pelvis were performed on the frontal and sagittal planes in addition to lumbar and thoracic curvatures on the sagittal plane. Outcome measures were pelvic inclination, pelvic tilt, and lumbar lordotic and thoracic kyphotic angles. Results: There was a significant difference in pelvic inclination and in lumbar and thoracic angles (P=0.012, 0.009, and 0.028, respectively) between both groups. There was no significant difference between both groups in pelvic tilt (P=0.688). Conclusion: Subjects with bilateral, flexible, second-degree flatfoot demonstrated increased pelvic inclination, lumbar lordotic and thoracic kyphotic angles than normal subjects. Foot assessments should be performed as an essential part of the evaluation of female patients with spine and pelvic problems. Bilateral, flexible second-degree flatfoot may act as a predictor for pelvic organs prolapse in their later lives.

Keywords: Flatfoot, Pelvic mechanics, Pelvic tilt n Pelvic inclination, Spinal curvatures. Pelvic organ prolapsed.

1-7-The validity of spinal mobility for prediction of functional disability in male patients with low back pain

Azza M. Atya

Journal of Advanced Research (2013) 4, 43–49

Clinical assessment of functional disability is an integral part of management in patients with low back pain (LBP). The range of spinal motion is one of LBP disability measure. The aim of this study was to investigate the validity of spinal range of motion as a predictable measure of disability and to analyze the intrarater reliability of back range of motion (BROM) instrument for measurement of active lumber spine range of motion. Forty men patients with chronic low back pain over 6 month's duration were participated in the study. Their ages ranged from 20 to 40 years. Lumber range of motion was measured with BROM device and disability was evaluated by self-reported Roland Morris disability questionnaire (RMDQ). Data were analyzed using Spearman's correlation, multiple regression analysis models and ICC. Statistical analysis revealed that there was a highly significant moderate to good relation between forward trunk flexion and RMDQ score (rho =_0.59, $p < 0.001$). While there was a weak correlation between trunk extensions, lateral trunk flexion and trunk rotation with the RMDQ scores ($p > 0.05$). The main predictors of disability were forward and lateral trunk flexion. Furthermore, intrarater reliability for forward trunk flexion was good (ICC, 0.84), for extension was high (ICC, 0.91), for rotation was good (ICC range, 0.86–0.88), and for lateral flexion was good (ICC range, 0.81–0.82). It was suggested that spinal ROM do not appear to be a valid measure for prediction of the functional disability in patients with chronic low back pain.

Keywords: Low back pain; Spinal mobility, Functional disability

2. Biomechanics

2-Cardiovascular/Respiratory Disorders and Geriatrics

3.1.Effect of Aerobic Exercises on Serum IgE and Pulmonary Functions in Children with Bronchial Asthma

Hagag Aisha A, Zaky Naglaa A

Indian Journal of Physiotherapy and Occupational Therapy: 2013;7(3):15-19

Purpose: The aims of present study was to evaluate the effect of aerobic exercise training on serum IgE and pulmonary functions in asthma children before and after exercise program. **Subjects:** 60 children with asthma participated in this study and divided randomly to exercise and control groups. **Procedure:** Fasting serum IgE and some markers indicative of respiratory functions (FEV1, FVC, and FEV1/FVC) were measured before and after the study in both groups. Statistical analysis was performed with the SPSS software version 15.0 using an independent paired t-test. **Results:** Compared to pre-training, serum IgE decreased significantly and pulmonary function markers increased significantly (≥0.05) after exercise program. All variables remained without change in control group (≥0.05). **Conclusion:** Aerobic exercise program was associated with a significant decrease in serum level of IgE and improvement of pulmonary functions in asthmatic children.

Keywords: Immunoglobulin, E(IgE), pulmonary functions, Asthma, Aerobic exercise.

3.2.Effect of Aerobic Exercises on Plasma Lipid Profile and Cardiorespiratory Fitness in Obese Women

Hagag Aisha A,

Indian Journal of Physiotherapy and Occupational Therapy: 2013;7(3):104-108

Purpose: The present study was designed to evaluate the effects of aerobic training on metabolic parameters like cholesterol, high density lipoprotein (HDL)and triglycerides and cardiorespiratory fitness parameters including maximum oxygen consumption, minute ventilation, systolic and diastolic blood pressures in obese women. **Method:** This study was performed as an experimental study, in which subjects were randomly selected. There were sixty obese women, aged between 35-45yrs with body mass index (BMI) of above 30. Subjects were grouped into control (n=30) and aerobic training (n=30). Aerobic training was given for four days a week at 60–70% of maximum HR for 12weeks. blood lipids and cardiorespiratory fitness parameters were measured before and after study period in both groups.
Results: The findings of the study indicate statistically significant differences in lipid profile including total cholesterol, very low-density lipoprotein(VLDL), serum triglycerides(TG), and high density lipoproteins(HDL) levels in aerobic training group. body mass index (BMI) and cardio respiratory fitness parameters showed significant improvements in aerobic group. **Conclusion:** Aerobic training is an effective method in improving lipid profile and cardiovascular fitness in obese women and can be used as a preventive measure in patients who are at risk of developing cardiovascular diseases due to obesity.

Keywords: Obesity, Cardiorespiratory Fitness, Lipid Profile, Aerobic Exercises.

3.3.Correlation between changes in diastolic dysfunction and health-related quality of life after cardiac rehabilitation program in dilated cardiomyopathy

Sherin H.M. Mehani

Journal of Advanced Research (2013) 4, 189–200

Chronic heart failure (CHF) is a complex syndrome characterized by progressive decline in left ventricular function, low exercise tolerance and raised mortality and morbidity. Left ventricular diastolic dysfunction plays a major role in CHF and progression of most cardiac diseases. The current recommended goals can theoretically be accomplished via exercise and pharmacological therapy so the aim of the present study was to evaluate the impact of cardiac rehabilitation program on diastolic dysfunction and health related quality of life and to determine the correlation between changes in left ventricular diastolic dysfunction and domains of health-related quality of life (HRQoL). Forty patients with chronic heart failure were diagnosed as having dilated cardiomyopathy (DCM) with systolic and diastolic dysfunction. The patients were equally and randomly divided into training and control groups. Only 30 of them completed the study duration. The training group participated in rehabilitation program in the form of circuit-interval aerobic training adjusted according to 55–80% of heart rate reserve for a period of 7 months. Circuit training improved both diastolic and systolic dysfunction in the training group. On the other hand, only a significant correlation was found between improvement in diastolic dysfunction and health related quality of life measured by Kansas City Cardiomyopathy Questionnaire. It was concluded that improvement in diastolic dysfunction as a result of rehabilitation program is one of the important underlying mechanisms responsible for improvement in health-related quality of life in DCM patients.

Keywords: Cardiac rehabilitation; Dilated cardiomyopathy; Quality of life

3.4.Impact of Regular Physical Exercises on Body Mass Index and Ocular Health

Elnahas, Nesreen Ghareeb; Draz, Amira Hussin

Indian Journal of Public Health Research and Development 2013;4(1):5-9

The purpose of this study was designed to assess the relation of regular physical exercise program on body mass index (BMI) and its effect on ocular health represented as intraocular pressure (IOP). **Materials and Methods:** Fifteen subjects were enrolled in the study with mean age 41.7±3.4,who underwent a physical training program on stationary bicycle for 30 minutes, 3 times/week for 3months. Body mass index and intraocular pressure were measured before starting the program and 3months after.IOP was measured pre-exercise, Immediately after exercise, after 30 minutes and after each month also. **Result:** Statistical analysis of the results showed that, there were significant decrease in BMI, and IOP. For IOP the significant decrease was obvious after 30 minutes after exercise especially after 2-months and 3- months of training**. Conclusion:** Therefore exercise that causes reduction in BMI is associated with reduction in IOP declared the healthy ocular status and preservation of regular blood flow to the eye.

Keywords: Exercise, BMI (Body mass index), IOP (Intraocular pressure).

4-Musculoskeletal Disorders and its Surgery

4.1.Effect of Mechanical Low Back Pain on Postural Balance and Fall Risk

Ibrahim MM, Shousha TM, Alayat MS

Indian Journal of Physiotherapy and Occupational Therapy - An International Journal 2013; 7(3): 250-254.

Objective: To evaluate the effect of mechanical low back pain on postural balance and fall risk. **Materials and Method:** This study was conducted on 20 mechanical low back pain (MLBP) subjects compared with 20 norms using the Biodex Balance System to evaluate balance as the dependent variable including postural stability, fall risk and limits of stability. **Result:** There were significantly differences between both groups in the postural stability test (p=0.0008), fall risk test (p=0.0093) and limits of stability test (p= 0.0001) revealing the increase in fall risk with MLBP. **Conclusion:** It could be concluded that balance exercises are essential and should be considered during rehabilitation of LBP patients.

Keywords: Low Back Pain, Fall Risk, Balance, Biodex.

4.2.Mobilization versus massage therapy in the treatment of cervicogenic headache: A clinical study

Enas F. Youssefa,b,∗ and Al-Sayed A. Shanb

Journal of Back and Musculoskeletal Rehabilitation 2013;26: 17–24

BACKGROUND AND OBJECTIVE: Cervicogenic headache (CGH) is a common problem associated with neck pain. In this study the effect of cervical mobilizations was compared with that of massage therapy in the management of CGH. **DESIGN:** Thirty-six subjects with CGH, randomly assigned into two groups, participated in the study. The first group was treated with spinal mobilization techniques of the upper cervical spine, while the second group was treated with massage therapy of the neck region. All subjects underwent active neck range of motion, isometric and dynamic strengthening and endurance exercises in two sessions/week for 6 weeks. Pre- and post-treatment outcomes were assessed with means and standard error of the means of measured headache pain intensity, frequency and duration of headache attacks as well as via the functional Neck Disability Index (NDI) and active neck range of motion. **RESULTS:** The results of the study showed significant improvement in all measured variables in each treatment group. Comparison between the two groups showed significant differences in all measured variables after intervention in favor of mobilization techniques with the exception of the functional NDI. **CONCLUSION:** Upper cervical spine mobilization demonstrated more clinical benefits than massage therapy with regard to headache pain parameters and neck mobility for CGH subjects.

Keywords: Cervicogenic headache, manipulative techniques, spinal mobilizations, massage therapy, neck exercises

4.3.Effect of partial weight bearing program on functional ability and quadriceps muscle performance in hemophilic knee arthritis

Lilian A. Zaky *, Wageeh F. Hassan

The Egyptian Journal of Medical Human Genetics (2013) 14, 413–418

Recurrent joint bleeding in persons with hemophilia is known to lead to joint damage associated with pain, loss of range of motion and function. The researcher was motivated by the essence of the importance of partial weight bearing program in rehabilitation of lower limb conditions and the lack of literatures regarding these exercises in rehabilitation of hemophilic knee arthritis. The purpose of this study was to investigate the effect of partial weight bearing program on functional ability and quadriceps muscle strength in children with hemophilic knee arthritis. Thirty patients had participated in this study; with age ranged from eight to twelve years. They were randomly assigned into two equal groups. Patients were evaluated pre and post treatment for their functional walking, and isometric strength of quadriceps. The control group (group A) received quadriceps training exercise program, while the study group (group B) received a program of partial weight bearing added to the same exercise program of group A. Treatment was given 3 times/week, every other day, for six consecutive weeks. The results of the study revealed that both groups demonstrated a significant increase in function, as measured by the six minute walking test (6MWT), although there was no significant difference between both groups concerning improvement of function. Quadriceps isometric muscle strength was significantly improved in both groups, in favor of group B (study group). To conclude the partial weight bearing program may be used as a therapeutic intervention for improving functional ability, and muscle performance in children with hemophilic knee arthritis.

Keywords: Hemophilic knee arthritis; Partial weight bearing; Functional walking;, Quadriceps muscle isometric strength; Quadriceps training exercise program

5. Neuromuscular Disorders and its Surgery

5.1.Neuromuscular Electrical Stimulation Versus Intermittent Pneumatic Compression on Hand Edema in Stroke Patients

Fayez Eman S.M, Eldeen Hala Ezz

Indian Journal of Physiotherapy and Occupational Therapy -2013;7(1): 81-89.

Objectives: The purpose of this study was to evaluate and compare between the effect of application of neuromuscular electrical stimulation and intermittent pneumatic compression on reducing hand edema in stroke patients. **Subjects:** Thirty stroke patients of both sexes (18 females and 12 males).They assigned randomly into 2 study groups each one composed of 15 patients. **Method:** Group I received intermittent pneumatic compression therapy and group II received neuromuscular electrical stimulation three times per week for twelve weeks. The patients were assessed for hand volume by using the volumetric measurement and by hand held dynamometer to measure hand grip strength before and after the end of treatment period. **Results:** The results of this study revealed that application of intermittent pneumatic compression therapy had a significant effect on reducing hand edema in stroke patients than receiving neuromuscular electrical stimulation.While hand function measured by hand grip strength was improved more significantly with receiving neuromuscular electrical stimulation than the group who received intermittent compression therapy. **Conclusion:** Application of intermittent pneumatic compression therapy was more effective in reducing hand edema than neuromuscular electrical stimulation while application of neuromuscular electrical stimulation resulting in greater improvement in hand grip strength and hand function.

Keywords: Stroke, Hand Edema, Hand Function, Neuromuscular Electrical Stimulation, Intermittent Pneumatic Compression Therapy.

5.2.Effect of Locomotor Imagery Training Added to Physical Therapy Program on Gait Performance in Parkinson Patients: A Randomized Controlled Study

Abeer A. El-Wishy, Eman S. Fayez

Egypt J Neurol Psychiat Neurosurg. 2013; 50(1): 31-37]

Background: Motor imagery therapy is a promising new tool in neurological rehabilitation but studies on its application are still sparse and inconclusive. **Objective:** This study was designed to evaluate the effect of locomotor imagery training added to physical therapy program on gait kinematics and clinical measures for gait in Parkinson's patients. **Methods:** Twenty six Parkinson's patients were randomly assigned into two equal groups: control group (G1) which received physical therapy program and study group (G2) which received locomotor imagery training in addition to physical therapy program. The training program was three sessions per week for four weeks. G1 watched a video for ten minutes for documentary television program on topics related to health. G2 received locomotor imagery training through watching ten minutes videotape showed gait of a normal adult male. In addition G2 watched a second videotape that showed each patient from anterior, posterior and side view. Filming was carried out twice, before training and two weeks after training. Kinematic parameters measured were; step length, walking velocity and excursions in sagittal plane of the ankle, knee and hip joints before and after the intervention. Functional gait assessment (FGA) was also assessed. **Results:** both groups were similar in baseline characteristics. Data showed statistical significant increase in FGA scores step length, walking velocity and excursion in hip, knee and ankle joint angles after the training program for G2 in relation to G1. **Conclusions:** Locomotor imagery training sessions when added to physical therapy program can improve gait functions in Parkinson's patients.

Keywords: Parkinson's disease, locomotor imagery training, gait, three-dimensional gait analysis.

5.3.Somatosensory and Motor Systems Affect Postural Stability in Parkinson's Disease Patients

Moshera H. Darwish1, Mohammed S. El-Tamawy, Sandra M. Ahmed, Hager Rasmy

Egypt J Neurol Psychiat Neurosurg. 2013; 50(1): 1-4.

Background: Postural instability refers to a multi-system dysfunction in Parkinson's Disease (PD) patients. Posturography is an objective, non-invasive specialized clinical assessment technique to assess such problems. **Objective:** Evaluate and analyze objectively dynamic balance during functional activity performance in patients with Parkinson's Disease (PD). **Methods:** Twenty Egyptian PD patients and 20 controls were included. Different tests were done using posturography; sensory organization, sit to stand, tandem walk and Step/quick test. **Results:** Comparison of both groups showed a statistically significant difference between both groups with PD patients showing signs of postural instability in all tests. Different testing protocols proved that this instability was due to deficit in many functional systems (somatosensory, visual, vestibular and motor) **Conclusion:** PD patients suffers of postural instability due to deficits in sensory and neuromuscular systems

Keywords: Postural stability, Parkinson's disease, posturography.

5.4.Pulsed Electromagnetic Therapy Improves Functional Recovery in Children with Erb's Palsy

Sarhan Reda, Elsayed Enas, Fayez Eman Samir

Indian Journal of Physiotherapy and Occupational Therapy 2013;7(1): 42- 44

Purpose: The purpose of the study was to evaluate the influence of pulsed electromagnetic field therapy (PEMFT) on functional recovery in Erb' palsy. **Design:** Randomized controlled trial. **Subjects:** Thirty patients were included (16 males and 14 females) with age ranged from six to twelve months (mean=7.3±1.1). **Methods:** Children were divided randomly into two equal groups, control and experimental. Both groups received a physiotherapy training program; in addition, the study group received PEMFT for 30 min. Treatment regimen was once a day, three times/week for three months. Measurements of the affected upper extremity (length, girth and width, muscle strength and range of motion) were carried out before and after treatment. **Results:** There was significant improvement in most of the measured test parameters in the study group compared to those of the control group. **Conclusion:** Pulsed electromagnetic therapy, in conjunction with conventional therapy program, was effective in improving functional recovery in children with Erb's palsy.

Keywords: Pulsed electromagnetic therapy, Brachial plexus injuries, Erb's palsy

5.5.Influence of different Types of Hand Splints on Flexor Spasticity in Stroke Patients

Fayez Eman Samir, Sayed Hayam Mahmoud

Indian Journal of Physiotherapy and Occupational Therapy 2013;7(1): 65-69

Objectives: The aim of this study is to evaluate the efficacy of each static and dynamic splint on hand flexor spasticity and to compare between their effectiveness on hemiplegic patients. **Design:** Randomized controlled trial. Subject: 29 hemiplegic (stroke) patients (45–65 Y/o) with mild to moderate spasticity of upper limb. The onset of stroke was from 6 month to one year before starting the study. **Intervention:** The patients were randomly assigned into two equal study groups of 15 (A and B). The assessment were performed pre and post application of static splint for group A and dynamic splint for group B. The duration of splint application was one hour for both groups. All participants were receiving designed program of treatment of hemiplegia after application of splint. **Outcome measures:** 1) The mean of active and passive range of motion for wrist extension using goniometer, and 2) Grip strength by using digital hand dynamometer**.**

K**eywords:** Stroke, Spasticity, Static, Splint, Dynamic Splint.

6-Obstetrics and Gynecology

International Publication 2013: Obstetrics and Gynecology

6.1.Effect of abdominal versus pelvic floor muscle exercises in obese Egyptian women with mild stress urinary incontinence: A randomised controlled trial

Dalia M. Kamel, Ali A. Thabet,, Sayed A. Tantawy, Mohamed M. Radwan,

Hong Kong Physiotherapy Journal (2013) 31, 12e18

The aim of this study was to compare the benefits of a 12-week abdominal and pelvic floor muscle strength training programme for the treatment of mild stress urinary incontinence (SUI) in obese women. Thirty obese female patients with mild SUI were randomly divided into two groups: the abdominal exercise (ABD) group and the pelvic floor exercise (PF) group. The participants were evaluated for vaginal pressure, leak point pressure (LPP) and waistehip ratio (WHR) before, immediately after and at a 12-week follow-up after the termination of treatment. The ABD group showed a significant increase in vaginal pressure immediately after the intervention and at follow-up ($p< 0.001$),while the PF group showed no significant change in this variable. The ABD group also showed a significant increase in LPP after 12 weeks of treatment (pZ0.008), while the PF group demonstrated no significant change in the same variable (p Z 0.030). At 24 weeks, the LPP remained significantly different from the baseline only for the ABD group (pZ0.005). The results showed that the 12-week abdominal muscle strength training programme is superior to pelvic floor strength training for the treatment of mild SUI in obese patients.

Keywords: abdominal; exercise; obesity; pelvic floor; urinary incontinence

7. Pediatric and Pediatric Surgery

7.1.Evaluation of isometric muscle strength and magnitude of hand dominance in right-handed school-age boys

Alaa I. Ibrahima, Mohammed S. Abdelsalam, Qassim I. Muaidi and Ziad M. Hawamdeh

International Journal of Rehabilitation Research 2013;36:118–126

The aim of this study was to examine bilateral isometric muscle strength (IMS) in right-handed boys. To determine the association between the magnitudes of right handedness (MRH) and (a) the interside difference indexes of IMS of certain muscle categories, (b) age, and (c) some anthropometric characteristics. This was a cross-sectional study. A convenience sample of 94 right-handed boys between 6 and 10 years of age was investigated. The Edinburgh Handedness Inventory was used to evaluate hand dominance and its magnitude. IMS of eight muscle groups was measured and the interside difference was determined. Five interside difference indexes were calculated for the upper limb, lower limb, hand grip, key pinch, and total side. All interside difference indexes of IMS were less than 5%, in favor of the dominant right side. The majority (86.1%) of our boys scored high to moderate MRH, whereas the minority (13.8%) scored low MRH. The hand grip interside difference index (b = 0.40, P= 0.000), the key pinch interside difference index (b= 0.23, P = 0.003), age (b =0.24, P = 0.034), and height (b= 0.33, P = 0.039) are the best set of predictors of the dominance score and in turn the MRH. The results of this study, carried out on right-handed boys aged 6–10 years, indicated a standard difference in IMS between dominant and nondominant sides of all studied muscle strength categories. Furthermore, it was found that the hand grip interside difference index, the key pinch interside difference index, age, and height could influence the MRH.

7.2. Effectiveness of foot wedge and carrying weighted bag on loading the paretic lower limb in children with hemiparetic cerebral palsy

Alaa I. Ibrahima, Adel A. Alhusainic, Fatma A. Hegazy and Ziad M. Hawamdehe

NeuroRehabilitation 2013;32: 563–571

AIMS: To investigate the effect of foot wedge and carrying weighted bag on loading the paretic lower limb in children with hemiparetic CP. **DESIGN:** Cross-sectional study. **Participants:** A convenient sample of 18 ambulant children with spastic hemiparetic CP was evaluated. Fifteen matched normal children acted as a control group. **METHODS:** Using two calibrated scales, measurements of weight supported on each lower limb were obtained under four different standing conditions. **RESULTS:** During quiet standing, the percentage of weight supported on the paretic limbwas 35.59% with symmetry index equals 0.57. Standing with the non-paretic foot is placed on a lateral foot wedge, was the best condition that increased the percentage of weight supported on the paretic limb to 47.18% and improved the symmetry index to 0.90. Non-significant improvement of symmetry index 0.61 was recorded when carrying a weighted bag with the paretic hand, but carrying with the non-paretic hand unnecessarily loads the non-paretic limb and further decreases the symmetry index to 0.49. **CONCLUSIONS:** Using a lateral foot wedge beneath the non-paretic foot and carrying a weighted bag with the paretic hand improve the loading function of the paretic limb and relief the non-paretic limb from overloading.

Keywords: Weight bearing, asymmetry, hemiparetic CP, foot wedge, carrying weight, paretic limb

7.3. Kinesio arm taping as prophylaxis against the development of Erb's Engram

Radwa S. ElKhatib, Emam H. ElNegmy, Amina H. Salem, AbdelAziz A. Sherief

Journal of Advanced Research (2013) 4, 485–491

An Erb's Engram is a common debility that develops in recovering children with Erb's palsy. The purpose of this study was to investigate the effect of kinesiotaping over the deltoid and the forearm on the development of proper upper extremity function in children recovering from Erb's palsy. Thirty patients with Erb's palsy participated for 3 months in this study and were equally divided into two groups; control group A and study group B. The two groups received the same designed physical therapy program, while group B along the program, received kinesiotaping over the deltoid and the forearm. The subjects were evaluated, pre and posttreatment, and scored functionally, using the Toronto Active Motion Scale, and objectively, using an EMG device utilized to obtain the percentages of degeneration of the deltoid and the biceps muscles. Post-treatment values of six out of nine measured variables, between the two groups, revealed significant difference in favor of group B. The obtained results strongly support the introduction of kinesiotaping of the deltoid and the forearm as an adjunct to the treatment program of Erb's palsied children.

Keywords: Erb's palsy; Erb's Engram; Toronto Active Motion, Scale; Electroneurography; Kinesiotaping

7.4. Efficacy of adhesive taping in controlling genu recurvatum in diplegic children: A pilot study

Asmaa M. Ghalwash, Shorouk A.W. El-Shennawy *, Manal S. Abd-Elwahab

The Egyptian Journal of Medical Human Genetics 2013; 1: 183–188

Adhesive taping has been commonly used to improve the performance through supporting joint structure and reducing pain. Restoring knee alignment in diplegic children is critical in an effective treatment program. The purpose of this article is to investigate whether adhesive taping is effective in controlling genu recurvatum in diplegic cerebral palsy children. Fourteen children with diplegic cerebral palsy (8 boys and 6 girls with a mean age of 6.22 years), participated in a 12-week program. Children were assigned randomly to one of two groups: therapeutic taping + physical therapy or knee cage +physical therapy. Therapeutic taping was applied for periods of up to 60 h over knee. The effects were assessed with the Gross Motor Function Measure (GMFM-88), Auto CAD, Screen protractor at baseline and 12 weeks after treatment. The primary outcome measure was knee angulations, using Auto CAD and screen protractor software. The Gross Motor Function Measure-88 (GMFM-88) standing and walking subsections were the secondary outcome measures. No significant differences were found between groups over time. Adhesive taping does not evoke a positive change in controlling genu recurvatum in children with diplegic cerebral palsy.

Keywords: Adhesive taping; Cerebral palsy; Spastic diplegia; Genu recurvatum; Auto CAD; Screen protractor

7.5.Effect of High Frequency, Low Magnitude Vibration on Bone Density and Lean Content in Children with Down Syndrome

Zaky Naglaa, Elbagalaty Amira

Indian Journal of Physiotherapy and Occupational Therapy 2013; 7 (3): 134-139

Purpose: To examine the effects of high frequency, low magnitude vibration on bone density and muscle content in children with Down syndrome. **Design:** Experimental study (randomized control trial) **Subjects:** Thirty children with DS from both sexes, ranging in age from 4 to 7 years. They were divided randomly into two groups of equal number A (control) and B (study). **Procedure:** Evaluation before and after three months of treatment for each child of the two groups was conducted via using dual X-ray absorptiometry (DXA). Group A received a selected exercise program, while group B received the same exercise program given to group A in addition to proprioceptive stimulation in the form of whole body vibration (WBV) training. **Results:** Significant improvement was observed in the two groups when comparing their pre and post-treatment mean values. The mean ± SD of BMD post treatment for control group was 0.75 ± 0.03 and that for study group was 0.79 ± 0.03. The mean difference between both groups was -0.04. There was a significant difference between control and study groups in BMD post treatment. **Conclusion:** mechanical vibration seems to improve BMD and muscular content in DS children making the treatment of osteoporosis possible.

Keywords: Down Syndrome (DS), Bone Mineral Density (BMD), Vibration

8. Surgery

International Publication 2013: Surgery

8.1. Effect of isokinetic training on muscle strength, size and gait after healed pediatric burn: A randomized controlled study

Anwar Abdelgayed Ebid, Shamekh Mohamed El-Shamy, Amira Hussin Draz

Burns 2013doi.org/10.1016/j.burns.2013.05.022

Objective: The aim of this study was to investigate the effects of isokinetic training program on muscle strength, muscle size and gait parameters after healed pediatric burn. **Design:** Randomized controlled trial. **Subjects:** Thirty three pediatric burned patients with circumferential lower extremity burn with total body surface area (TBSA) ranging from 36 to 45%, and ages from 10 to 15 years participated in the study and were randomized into isokinetic group and a control group. Non-burned healthy pediatric subjects were assessed similarly to burned subjects and served as matched healthy controls. **Methods:** Patients in the isokinetic group (n=16) participated in the isokinetic training program for 12 weeks for quadriceps dominant limb, 3 times per week, at angular velocity 1508/s, concentric mode of contraction, time rest between each set for 3 min,3sets/day and control group(n=17) participated in home based physical therapy exercise program without isokinetic. Main measures: Assessment of quadriceps strength by isokinetic dynamometer, quadriceps size and gait parameters were performed at baseline and at the end of the training period for both groups**. Results:** Patients in isokinetic group showed a significant improvement in quadriceps strength, quadriceps size and gait parameters as compared with those in the control group. Quadriceps strength and percentage of improvement was 79.25±0.93 Nm (68.40%) for iso- kinetic group and 51.88 ±1.31 Nm (9.84%) for the control group. Quadriceps size and percent- age of improvement was 31.50±0.89 cm (7.47%) for isokinetic group and 29.26 ± 1.02 cm (1.02%) for the control group. Stride length, step length, velocity and cadence and percentage of improvement for isokinetic group was 135.50±2.82 (53.97%), 63.25±2.97 (63.77%), 135.94 ± 1.65 (81.42%), 137.63±1.36 (66.96%) and for the control group was 94.00 ±2.69 (6.68%), 43.76 ± 1.34 (15.15%), 81.11 ± 1.91 (8.6%), 90.35±1.32(9.01%) respectively. **Conclusions:** Participation in the isokinetic training program resulted in a greater

Keywords: Pediatric burn, Isokinetic strength, Gait Rehabilitation

8.2. Effect of low-level laser therapy in patients with chronic knee osteoarthritis: a single-blinded randomized clinical study

Ahmad Alghadir, Mohammed Taher Ahmed Omar ,Abeer Bashier Al-Askar , Naser Khwietm Al-Muteri

Lasers Med Sci DOI 10.1007/s10103-013-1393-3

The aim of this study was to investigate the effect of low-level laser therapy (LLLT) on pain relief and functional performance in patients with chronic knee osteoarthritis (OA). Forty patients with knee OA were randomly assigned into active laser group (n=20) and placebo laser group (n=20). The LLLT device used was a Ga–As diode laser with a power output of 50 mW, a wavelength of 850 nm, and a diameter beam of 1 mm. Eight points were irradiated and received dosage of 6 J/point for 60 s, with a total dosage of 48 J/cm2 in each session. The placebo group was identical but treated without emission of energy. LLLT was applied two times per week over the period of 4 weeks. Outcome measurements included pain intensity at rest and at movement on visual analog scale, knee function using Western Ontario McMaster Universities Osteoarthritis Index scale, and ambulation duration. These measurements were collected at baseline and post-intervention. The results showed significant improvements in all assessment parameters in both groups compared to baseline. Active laser group showed significant differences in pain intensity at rest and movement,
knee function, and ambulation duration when compared with the placebo group. Therefore, LLLT seemed to be an effective modality for short-term pain relief and function improvement in patients with chronic knee OA.

Keywords: Low-level laser therapy. Knee Osteoarthritis. Pain

8.3. Interferential Current Therapy versus Narrow Band Ultraviolet B Radiation in the Treatment of Post Herpetic Neuralgia

Waked Intsar Salim.

Indian Journal of Physiotherapy and Occupational Therapy 2013;7(1):70- 75

Objectives: To compare the efficacy of interferential current therapy versus narrow band ultraviolet B radiation in the treatment of post herpetic neuralgia. **Subjects:** Forty nine patients suffering from distressing post herpetic neuralgia. assigned randomly into 2 groups; interferential group and narrow band ultraviolet B group. Intensity of pain was recorded before and after therapy using numerical rating scale. **Results:** The results of this study showed no significant difference in pain intensity post treatment between both groups in acute and subacute neuralgia as p value > 0.05 while there was significant difference between both groups in established neuralgia as p value< 0.05. **Conclusion:** The study concluded that interferential current and narrow band ultraviolet B were effective in acute and subacute neuralgia, while only interferential is effective in established neuralgia.

Keywords: Interferential Current Therapy, Narrow Band Ultraviolet B Radiation, Numerical Rating Scale, Post herpetic neuralgia.

8.4. The effects of Therapeutic Application of Heat or Cold Followed by Static Stretch on Hamstring Flexibility Post Burn Contracture

Emad T Ahmed, Safa S Abdelkarim

Indian Journal of Physiotherapy and Occupational Therapy 2013;7(1):37- 41

Objective: The purpose of this study was to determine the best warming up modality prior to static stretching exercises to increase flexibility in post burn contracture of the hamstring muscle, as measured by knee extension range of motion. **Materials and Methods:** Thirty male patients ranging in age from 18 to 27 years and who had decreased hamstring muscle flexibility as a result of partial thickness burn were classified into 3 equal groups 10 of each, Group (1): received 1 minutes of stretching exercise in addition to ultrasound, Group (2): received 1 minutes of stretching exercise in addition to cold application. And Group (3): received 1 minutes of sating stretching only. All groups received stretching exercises 5 days per week for 8 weeks. Measurements of knee extension range of motion were conducted before treatment, post 2 weeks of treatment, and after 4 weeks of treatment. **Results:** The one way analysis of variance was used to compare knee extension range of motion which revealed that both treatment group (ultrasound and cold application) had significant (P< 0.05) gains in knee extension ROM after 2 and 4 weeks post stretching exercises.

Conclusion: The results of this study suggest that either deep hot or cold application in addition to stretching exercise is more effective than static stretching alone to improve a hamstring muscle.

Keywords: Burn, Contracture, Range of motion, Ultrasound, Cold application, Flexibility.

7.5. Single Blinded Randomized Controlled Clinical Trial on the Efficacy of Ozone Therapy on Breast Cancer-Related Lymphedema

Intsar S. Waked, Samah H. Nagib & Mohammed T. A. Omar

Cancer and Clinical Oncology; 2013;2(2);93-106.

Purpose: The purpose of this study was to evaluate the efficacy of ozone therapy in breast cancer-related Lymphedema (BCRL). **Methods:** Sixty patients with BCRL were participated in this study and were randomly assigned to one of two groups. Ozone group received ozone therapy in addition to complex physical therapy for lymphedema consisted of pressure garment, remedial exercise, and skin care, while the control group received complex physical therapy only. Limb volume was measured using water displacement and limb circumference. Skin and subcutaneous thickness were measured using Doppler ultrasound. All measurements were carried out at baseline (0wk) and after 12 weeks (12wk) of intervention. **Results:** The clinical and demographic characteristics of both groups were comparable at baseline. The reduction of limb volume tended to decline in both groups. The trend was more significantly pronounced in ozone group than control at 12 wk ($P < 0.05$). There was significant reduction in skin and subcutis thickness in both groups. The rate of thickness reduction was more observable in the ozone group than the control group. **Conclusion:** Ozone therapy was found to be an effective adjunctive modality for reducing limb volume and thickness in the women with BCRL.

Keywords: ozone, breast cancer- related lymphedema, doppler ultrasound

Appendix-1

List of Journals (Publishers and Impact Factors)

N	Journal Name	Publisher	ISI(If)	N. of publication
1	Burn	**Elsevier**	**1.799***	**1***
2	Cancer and Clinical Oncology	**Canadian Center of Science and Education**	**---**	**1**
3	Clinical Rehabilitation	**SAGE**	**2.191***	**1***
4	Egypt Journal of Psychiatric and Neurosurgery	**Elsevier**	**----**	**2**
5	Egyptian Journal of Medical Human Genetic	**Elsevier**	**---**	**2**
6	Hong Kong Physiotherapy Journal	**Elsevier**	**---**	**1**
7	Indian Journal of Public Health Research and Development		**-----**	**1**
8	Indian Journal of Physiotherapy and Occupational Therapy	**Devtech Publisher^printer Pvt,Ltd., Fardbad**	**---**	**9**
9	International Journal of Rehabilitation Research	**Lippincott Wiliams &Wilkins**	**1.055***	**1***
10	International Journal of Therapy And Rehabilitation	**MA Healthcare Ltd. London**	**----**	**1**
11	Journal of Advanced Research	**Elsevier**	**---**	**3**
12	Journal of Back and Muscloskeletal Rehabilitation	**IOSpress**	**0.613***	**2***
13	Laser Medical Science	**Springer**	**2.402***	**3***
14	Neurorehabilitation	**IOSpress**	**1.417***	**1***
15	Spine	**Lippincott Wiliams &Wilkins**	**2.159***	**1***

Total number of publication (2013) =30

Total number of Publications in ISI journals = 10 (33%)

Total numbers of Publication Internationally journals (non-ISI) =20(67%)

***ISI journals**

Appendix -2

List of Publications According to the Department

N	Departments	Number* N(%)	ISI journals N(%)	International (Non-ISI) N(%)	Ranke	Number¶ N(%)
1	**Basic Sciences**	**7(23)**	**5(17)**	**2(6)**	**1¥**	**8**
2	**Biomechanics**	**---**	**---**	**---**		**----**
3	**Cardiovascular/Respiratory Disorders and geriatric**	**4(13)**	**---**	**4(13)**		**6**
4	**Musculoskeletal Disorders and its Surgery**	**(10)**	**1(6)**	**1(3)**	**4¥**	**4**
5	**Neuromuscular Disorders and its Surgery**	**5(17)**	**---**	**5**		**6**
6	**Obstetrics and gynecology**	**1(3)**	**---**	**1(3)**		**2**
7	**Pediatric and pediatric surgery**	**5(17)**	**2(6)**	**3(10)**	**3¥**	**7**
8	**Surgery**	**5(17)**	**2(6)**	**3(10)**	**2¥**	**6**
Total		**30(100)**	**10(33%)**	**20(67%)**		**39**

***Numbers** **According to the Initial Author**

¥Ranke (Number of ISI Publications + Impact Factors)

¶Number According to Repetition of Authors

Appendix -3

List of Top Five Authors According to the Number of their Publications

N	Name	Department	ISI Journals
1	**Mohamed Salaheldine Alayat**	**Basic sciences**	**2**
2	**Mohammed Taher Ahmed Omar**	**Surgery**	**2**
3	**Aliaa Attiah Mohamed Diab**	**Basic Sciences**	**2**
4	**Ibrahim Moustafa Moustafa**	**Basic Sciences**	**2**
5	**Alaa Ibrahim**	**Pediatric and Pediatric Surgery**	**2**

Ranke According Number of Publication in ISI and their Impact Factors (IF)

Appendix-4

List of Top 10 Authors According to Highest Single Impact Factors

N	Name	Department	Single IF
1	**Mohammed Taher Ahmed Omar**	**Surgery**	**2.402**
2	**Mohamed Salaheldine Alayat**	**Basic sciences**	**2.402**
3	**Azza Mohamed Atya**	**Basic sciences**	**2.402**
4	**Mohammed Mohamed Ebrahim Ali**	**Musculoskeletal**	**2.402**
5	**Amir Abdel Rouf El Fiky**	**Neuromuscular**	**2.402**
6	**Tamer Mohamed Shosha**	**Musculoskeletal**	**2.402**
7	**Aliaa Attiah Mohamed Diab**	**Basic Sciences**	**2.191**
8	**Ibrahim Moustafa Moustafa**	**Basic Sciences**	**2.191**
9	**Afaf Ahmed Shaheen**	**Basic Sciences**	**2.159**
10	**Anwar Abdelgayed**	**Surgery**	**1.799**

Appendix 5

List of Top 10 Authors According Sum of Their Impact Factors

N	Name	Department	Sum IF
1	Mohamed Salaheldine Alayat	Basic sciences	2.402
2	Azza Mohamed Atya	Basic sciences	2.402
3	Mohammed Mohamed Ebrahim Ali	Musculoskeletal	2.402
4	Amir Abdel Rouf El Fiky	Neuromuscular	2.402
5	Tamer Mohamed Shosha	Musculoskeletal	2.402
6	Mohammed Taher Ahmed Omar	Surgery	2.28
7	Afaf Ahmed Shaheen	Basic Sciences	2.159
8	Anwar Abdelgayed	Surgery	1.779
9	Shamekh Mohamed El-Shamy	Pediatric	1.779
10	Amira Hussin Draz	Basic Science	1.779