Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and Its Surgery Doctoral Degree 2019

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Title	:	**Effect of Repetitive Transcranial Magnetic Stimulation on upper limb motor function and cortical excitability in stroke patients.**
Dept.	:	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
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Degree	:	**Doctoral.**
Year	:	**2019.**
Abstract	:	

Background: Cortical reorganization after stroke has great impact upon the regain of the functional motor recovery in the affected upper extremity. The purpose: to investigate the effect of contralesional low frequency Repetitive Transcranial Magnetic Stimulation (LF-rTMS) on cortical excitability and consequently on upper limb motor performance, to determine the relationship between cortical excitability and upper limb motor function impairment after stroke. Also, to assess the sessional cortical excitability changes in response to contralesional LF-rTMS as an adjuvant to a selected physical therapy program in stroke patients. Methods: Forty right hemiparetic subacute ischemic stroke patients were randomly assigned into two equal groups [control (GA) & study (GB)]. Group A was treated with a selected physical therapy program for the upper limb; while group B was treated with contralesional LF-rTMS sessions in addition to the same program as in GA. Treatment was conducted daily for two consecutive weeks. Single pulse TMS was used to assess cortical excitability by measuring, contralesional active motor threshold (cAMT), ipsilesional active motor threshold (iAMT) and (iAMT/cAMT difference). Upper limb motor performance and grip strength were assessed using (FMA-UE), and hand grip dynamometer respectively. Pre and post treatment mean values for each variable were examined. Sequential cortical excitability changes were determined via recording cAMT and iAMT after the end of each treatment session. Results: Both groups revealed significant improvement in all the examined variables in relation to the pretreatment findings, however post treatment improvement was more significant in favor to (GB). A positive correlation was observed between FMA-UE scores and cAMT, and a negative correlation between FMA-UE scores and iAMT, iAMT/cAMT difference. Tracking the sessional changes in the cAMT and iAMT revealed that the beginning of the significant difference in favor to (GB) was observed at the Fourth session. Tracking the sequential rate of change of cAMT and iAMT showed significant difference between both groups for the first eight sessions, starting from the ninth session no significant difference could be detected. Conclusion: Contralesional Lf-rTMS improved the upper limb performance via enhancing cortical reorganization after stroke. The recommended minimum and maximum number of contralesional LF-rTMS sessions could be from four to eight sessions as an adjuvant to a selected physical therapy program in subacute hemiparetic ischemic stroke patients.

Key words	**1.**	**Cortical excitability.**
	2.	**Stimulation.**
	3.	**Upper limb motor performance**
	4.	**Single pulse TMS.**
	5.	**Cortical reorganization.**
	6.	**Transcranial Magnetic Stimulation.**
	7.	**Stroke.**
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Pagination	:	**205 p.**
Arabic Title Page	:	تأثير التنبيه المغناطيسى المتكرر عبر الجمجمه على الوظائف الحركيه للطرف العلوى و استثاره القشره الدماغيه فى مرضى السكته الدماغيه.
Library register number	:	**6641-6642.**

Author	**:**	**Fatma Shehata Mohammed Ahmed.**
Title	**:**	**Clinical prediction rules for using aerobic exercises on executive functions in Parkinson's patients.**
Dept.	**:**	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
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Degree	**:**	**Doctoral.**
Year	**:**	**2019.**
Abstract	**:**	

Background and Objective: Impaired executive functions can adversely affect motor performance and is closely related to fall risk in Parkinson's patients. Aerobic exercise improves executive function and prevents falling in healthy older adults. The aim of this study was to investigate the predictors for using aerobic exercise to improve executive functions and decrease fall in Parkinson patients. Methodology: Thirty six idiopathic fallers Parkinson's patients treated by aerobic treadmill exercise for two months day after day each session thirty minutes. Patients were assessed by screening part of rehacom, up and go test, faller diary pre and post treatment. Results: There was no significant difference in mean value of age between the successful and unsuccessful group (P = 0.0758). Patients in the successful group were significantly (P=0.0130) less severe (2.15±0.881) than patients in the unsuccessful group (3.20±1.033). Patients in the successful group had significantly (P=0.0012) shorter (less) disease duration (3.88±2.304 yr.) than patients in the unsuccessful group (7.200±3.084 yr.). According to ROC curve, the cutoff point for severity of illness was 4, the cutoff point for duration of illness was 5 years.In the successful group there were significant difference between TUG-Pre and TUG-Post (P=0.0001), dairy-Pre and dairy-Post (P=0.0001), and rehacom-Pre and rehacom-Post (P=0.0001).Conclusion: Duration and severity of illness are considered significant predictors for the use of aerobic exercises for improving the executive functions in PD patients. Improvement of executive functions is significantly correlated with improving the risk of falling in patients with PD.

Key words	**1.**	**Aerobic exercise.**
	2.	**Executive functions.**
	3.	**Rehacom.**
	4.	**Parkinson's patients.**
	5.	**clinical prediction rules.**
Classification number	**:**	**000.000.**
Pagination	**:**	**114 p.**
Arabic Title Page	**:**	**قواعد التنبؤ العملي لاستخدام التمرينات الهوائيه علي الوظائف التنفيذيه في مرضي الشلل الرعاش.**
Library register number	**:**	**6371-6372.**

Author	**:**	**Yasmine Sabry Radwan Gomaa**
Title	**:**	**Exercises Using Music Cues to Improve Gait in People with Progressive Supranuclear Palsy and Alzheimer's disease**
Dept.	**:**	**Physical Therapy Department for Neuromuscular and Neurosurgical Disorder and its Surgery.**
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Degree	**:**	**Doctoral.**
Year	**:**	**2019.**
Abstract	**:**	

Objectives: This study was constructed based on three main objectives: to investigate the effect of music-cued exercises on different motor and non-motor signs of dementia; to study the feasibility of music-cued exercise compared to standard music therapy in people with dementia living in residential cares; and explore the factors that hinder or facilitate conducting music-cued exercises in aged care facilities. Methods: in order to achieve study objectives, three sub studies were implemented: a systematic review, following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines; a feasibility pilot study conducted in a residential aged care in Melbourne, Australia; and a qualitative study through making an in-depth face to face interviews with the staff members who were involved in the feasibility study. Results: the systematic review study resulted in finding 12 trials that studied different effects of music-cued exercises on dementia, four Randomized controlled trials (RCTs) and eight studies with other designs. These studies were moderately low in quality and three RCTs were of high risk of bias. The pilot study showed that music-cued exercises are feasible and cost-effective, with some considerations need to be taken, such as the dosage and pathology related factors, to get more significant outcomes. The qualitative study detected a number of facilitators and barriers that accompany running music-cued exercises, and which should be considered when designing such program for people with dementia living in aged care facilities. Conclusion: in view of the study results, it could be concluded that exercises using music cues are feasible and beneficial modality, compared to music therapy alone. The degree of success and effectiveness of music-cued exercises in people with dementia depend on several factors that should be considered, especially dosage, barriers, facilitators and other factors related to the disease.

Key words	**1.**	**Dementia.**
	2.	**feasibility, barriers,**
	3.	**Facilitators.**
	4.	**music, exercise, motor, non-motor**
Classification number	**:**	**000.000.**
Pagination	**:**	**205 p.**
Arabic Title Page	**:**	**التمارين باستخدام الرموز الموسيقية وتأثيرها على تحسين المشى فى مرضى الشلل فوق النووى المتقدم ومرضى الزهايمر.**
Library register number	**:**	**6215-6216.**