Physical Therapy Department for Growth and Development Disorder in children and Its Surgery

Doctoral Degree
2017

Author	**:**	**Ahmed Gaber EL-Nahry**
Title	**:**	**Role of Zinc supplementation on metallothionine system and cognitive motor performance in children with autism**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Amira EL-Tohamy**
	2.	**Nagwa Abdel-Meguid Mohammed**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	

The study was carried out on 30 children with autism, their ages ranged between 3-8 years. Aim of this study was to evaluate the effect of zinc supplement for 12 weeks firstly on the level of plasma MT-1and secondary on the severity of the disease symptoms specifically cognitive motor performance in addition thirdly to screen for the presence of genetic polymorphism in the MT1A isoform encoding gene that may affect the response to zinc supplement. Our data revealed a significant improvement in cognitive motor performance, plasma metallothione in addition to significant decrease in plasma level of copper after zinc supplement .The expression of MT-1 polymorphism was high in autistic children before taking zinc supplement which would be related to decreased baseline of zinc levels in those children, significant decrease was observed after zinc supplements. We concluded that zinc supplement may be an important component of a treatment protocol for children with ASD and that it requires attention to motivators and facilitators of exercise adherence.

Key words	**1.**	**Autism spectrum disorder**
	2.	**Cognitive motor performance**
	3.	**Zinc**
	4.	**Metallothionine**
	5.	**children with autism**
Classification number	**:**	**000.000.**
Pagination	**:**	**75 p.**
Arabic Title Page	**:**	**دور مكملات الزنك علي نظام الميتالوثيونين والاداء المعرفي الحركي عند الاطفال المصابين بالتوحد.**
Library register number	**:**	**5447-5448.**

Author	**:**	**Ahmed Hussein Mashaal**
Title	**:**	**Effect of vestibular stimulation on balance in obese children**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Emam Hassan El-Negmy**
	2.	**Hoda Abd El- Azim Al-Talawy**
	3.	**Suzette Ibrahim Helal**
	4.	**Hebatallah Sherrif Abd-Elhady**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	

Aim: To investigate the effect of vestibular stimulation on balance in obese children. Subject and Methods: Fifty obese children of both genders with age ranging from 6 to 10 years participated in this study. They were selected from outpatient clinic, center of clinical research excellence, National research Center. They were allocated randomly into two groups of equal numbers, control and study groups. Children in both groups received treadmill gait training for 45 minutes. Moreover, children in control group received a designed balance exercises for 60 minutes. While those in the study group received vestibular stimulation exercises for 20 minutes in addition to the same designed balance program given to the control group for 40 minutes. The treatment programs for both groups were conducted every other day for 6 successive months. Pre and post assessment of dynamic balance was conducted by using the Biodex balance system and the body weight was measured in kilograms. Results: Comparing pre and post-treatment mean values of stability indexes showed a statistically significant improvement of all measured variables in the two groups. Moreover, post-treatment comparison between the two groups showed significant difference in all variables in favor of the study group. Conclusion: Vestibular stimulation in conjunction with a selected balance program is effective in improving dynamic balance in obese children.

Key words	**1.**	**Vestibular stimulation exercise**
	2.	**dynamic balance**
	3.	**whole body vibration.**
	4.	**childhood obesity**
	5.	**balance in obese children**
Classification number	**:**	**000.000.**
Pagination	**:**	**108 p.**
Arabic Title Page	**:**	**تأثير الاجهاد العضلى الموضعى على التحكم فى قوام البالغين الاصحاء.**
Library register number	**:**	**5721-5722.**

Author	**:**	**Ahmed Mohamed Saad Awad**
Title	**:**	**Correlation Between Muscle Architecture Spasticity And Functional Abilities In Spastic Children**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Amira Mohamed El Tohamy**
	2.	**Hatem Mohamed El Azizi**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	

Background: Spasticity is a widespread problem in cerebral palsy (CP) as it affects function and can lead to structural changes in the muscle which can be detected by ultrasonography. The purpose of this study was to determine the relationship between muscle architecture, spasticity and functional abilities in spastic diplegic children. Subjects and procedures: Thirty five (20 spastic diplegic and 15 normal) children (boys and girls) with age ranged from 2-5 years were selected to participate in this study. The spastic children were able to stand holding on momentarily (level III of GMFCS) and their grading of spasticity was from 1-2 according to MAS. Muscle architecture parameters (pennation angle and muscle thickness) were measured by ultrasonography, spasticity was measured by MAS and functional abilities were measured by GMFM-88. Results: The results of this study revealed that there was a positive significant correlation between function GMFM and muscle thickness of right adductors in the spastic group. In comparison between normal and spastic groups there was a significant increase in pennation angle of left adductors in normal group, also a significant increase in muscle thickness of left adductors in normal group. In conclusion: It can be concluded that there is a positive relation between functional abilities and muscle thickness of right adductors.

Key words	**1.**	**Ultrasonography.**
	2.	**Spasticity.**
	3.	**Diplegia.**
	4.	**Functional abilities.**
	5.	**Muscle architecture.**
	6.	**Children in Spastic**
Classification number	**:**	**000.000.**
Pagination	**:**	**82 p.**
Arabic Title Page	**:**	**العلاقه بين الشكل الهندسي للعضله والتشنج العضلى والقدرات الوظيفيه عند الأطفال المصابين بالتقلص العضلي.**
Library register number	**:**	**5333-5334.**

Author	**:**	**Alaa Fahmy Hassan Al-Nemr**
Title	**:**	**Correlation Between Cognitive And Motor Abilities In Children With Spastic Diplegia**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Faten Hassan Abd El Azim**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	

The Purpose of this study was to investigate if cognitive functions are affected in children with spastic diplegic Cerebral Palsy (CP). In addition, identify effect of age on their cognitive functions and determine the relationship between cognitive functions and gross motor abilities in those children at different ages. Subjects and Methods: Fifty children with spastic diplegic CP and sixty normally developing with age ranging from six up to twelve years were randomly collected to participate in the study. Children were divided into three groups according to their age; six up to eight years, eight up to ten years and ten up to twelve years. All participants were evaluated using Rehacom software to assess cognitive functions and the Gross Motor Function Measure scale to assess gross motor function. Results: showed significant cognitive difference between diplegic and normal children at different age groups. There was no significant impact of age on most of cognitive outcomes among diplegic age groups. A relation between the four assessed cognitive functions and the gross motor abilities was observed in diplegic children reaching significance in two cognitive domains; attention/concentration and reaction behavior with consistent results across diplegic age groups. Conclusion: children with spastic diplegic CP have impairment and delayed development of their cognitive functions in addition to their gross motor impairment. Also, there is a relationship between cognitive functions and gross motor abilities in those children. This relation showed consistent results with increasing age, suggesting close and stable links between cognitive function and gross motor ability throughout the period of middle childhood.

Key words	**1.**	**Cerebral palsy**
	2.	**Gross Motor Function**
	3.	**Diplegia**
	4.	**Cognition**
	5.	**Children With Spastic Diplegia**
	6.	**Motor Abilities**
Classification number	**:**	**000.000.**
Pagination	**:**	**170 p.**
Arabic Title Page	**:**	**تأثير التنبيه الكهربائي لعضلات البطن والظهر على الاتزان في الأطفال المصابين بالشلل التقلصي المزدوج.**
Library register number	**:**	**5591-5592.**

Author	**:**	**Amira Bekheet Abdel-Sabour Mohamed.**
Title	**:**	**Assessment of postural deviationas in school girls.**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Gehan Hassan Elmeniawy**
	2.	**Asmaa osama sayed**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	

Background :Postural abnormalities are often found in children. At school age , posture undergoes many adjustments and adaptations due to body changes.Purpose: The main objectives of this study were to identify which postural deviations occur most frequently in girls school students between age 7 to 9 years old and to provide information to parents as well as teachers about the problem of poor posture. Methods: Three hundred thirty seven normal girl students , aged from 7 to 9 years old in governmental schools in western educational district in Alexandria. They were photographed in the sagittal and frontal planes (Anterior , posterior and lateral views) detecting certain bony landmarks using markers from standing position, Then images were analyzed by Posture Zone software program to analyze and document postural findings . The variables which analyzed were : 1) Head antepulsion (foreward head) , 2) Postural scliosis , 3) Postural kyphosis , 4) Sway back (Excessive lumbar hyperlordosis).Results : Screening showed that the most common postural deviations recorded were moderate mild head antepulsion (33.23%) , postural kyphosis (44%), and mild postural excessive hyperlordosis (45%) , But the least common postural deviations were moderate forward head posture (14.55 %), postural scliosis (right scliosis = 12.17%) and (left scliosis = 15.43 %), flattened upper back (13%) and flattened lumber curve (9%). Conclusion:High incidences of postural alterations occur in children of school age. Some of these reflect normal postural development, and get corrected during the child's growth. On the other hand, some alterations can result in negative impacts on the quality of life during childhood and adulthood. So it is a must to emphasize the importance of providing information to parents and teachers about the problem of bad posture.

Key words	**1.**	**Assessment**
	2.	**postural deviations girl**
	3.	**School girls.**
	4.	**photometric analysis**
Classification number	**:**	**000.000.**
Pagination	**:**	**78 p.**
Arabic Title Page	**:**	**تقييم إنحرافات القوام لطالبات المدارس.**
Library register number	**:**	**5363-5364.**

Author	**:**	**Hanaa Mohsen Abd El-Fattah EL-Mehrezy**
Title	**:**	**Influence Of Vestibular Stimulation From Selected Head Positions On Hand Functions In Children With Hemiparesis**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Kamal El-Sayed Shoukry**
	2.	**Samah Attia Tolba El Shemy.**
	3.	**Aziza Khalil Omar**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	
Objective: To determine the effect of vestibular stimulation from selected head positions on hand functions in children with hemiparesis. Design: Sixty hemiparetic cerebral palsied children of both sexes, ranged in age from 4 to 6 years participated in this study. They randomly assigned into three groups of equal number; control group (A), study group (B) and study group (C). The three groups received the same conventional physical therapy program. Children in group A received especially designed occupational therapy program from sitting. Children in group B and group C received the same occupational therapy program given to group A while the head was in 45 and 60 degrees from prone position respectively. Fine motor skills, including visual motor integration, grasp and fine motor quotient evaluated using Peabody Developmental Motor Scale (PDMS-2) while pinch strength measured using Jamar hydraulic pinch gauge before and after treatment. Results: This study showed a statistically significant improvement in the three groups when comparing their pre and post treatment mean values of all measured variables. When comparing the post-treatment results, there was non-significant difference between group A and group C while there were significant differences between groups A and B, and groups B and C in favor of group B regarding all measured variables. Conclusion: Vestibular stimulation from selected head positions is effective for hemiparetic children to improve their hand functions.		
Key words	**1.**	**Hemiparesis.**
	2.	**vestibular stimulation.**
	3.	**hand functions.**
	4.	**Children With Hemiparesis**
Classification number	**:**	**000.000.**
Pagination	**:**	**138 p.**
Arabic Title Page	**:**	**تأثير تنبية الجهاز الدهليزى من اوضاع مختارة للرأس على وظائف اليد عند الأطفال المصابين بالخدل الشقى.**
Library register number	**:**	**5367-5368.**

Author	**:**	**Hanady Abd Allah Mouhmed**
Title	**:**	**Effect of aerobic exercise on executive functions on primary school children**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Amira Mohamed EL Tohamy**
	2.	**Mohamed Ahmed Arafa**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	

The aim of this study was to evaluate the effect of acute bout of aerobic exercises on selected executive functions. Counterbalanced, crossover, randomized trial was performed. Subjects were thirty two children (18 boys and 14 girls) children ranged in age between 6 to 11 years old with a mean (±SD)= 9.56 ± 1.34 years . they were randomly assinged to two different groups : (1) aerobic exercise session, included 15 minutes of jumping on a trampoline at 60% of target heart rate (2) control(resting) session group included 15 minutes of seating without any physical or mental activity. Before and after each session, executive functions were measured by the Eriksen Flanker test ,the color word Stroop Test and the Tower of Hanoi task Results: indicated that there is a significant increase in accuracy in both Eriksen Flanker test and Stroop test and there is a significant decrease in reaction time (congruent and incongurent) in both Stroop test in Eriksen Flanker test and there significant improvement in the solving time of theTower of Hanoi task in the aerobic exercise group and there is no significant chang in accuracy in both Eriksen Flanker test and Stroop test and there is no significant chang in reaction time (congurant and incongurent) in both Stroop test in Eriksen Flanker test and there no significant chang in the solving time of the Tower of Hanoi task in the control(resting) group. conclusion; these findings suggest that acute bouts of aerobic exercise on trampoline have passive effect on executive functions(inhibitory control and problem solving, planning) in primary school children.

Key words	**1.**	**Executive functions.**
	2.	**Aerobic exercise for children.**
	3.	**executive functions**
	4.	**primary school children**
	5.	**Children - aerobic exercise**
Classification number	**:**	**000.000.**
Pagination	**:**	**89 p.**
Arabic Title Page	**:**	**تأثير التمرينات الهوائية علي المهام التنفيذية في أطفال المدارس الابتدائية.**
Library register number	**:**	**5469-5470.**

Author	**:**	**Hazem Atyea Ali Ali**
Title	**:**	**Prevelance of Developmental Coordination Disorder in Egyptian Children**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Amira Mohamed Eltohamy**
	2.	**Amany Mousa Mohamed**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	
Aim: To investigate the prevalence of developmental coordination disorder (DCD) in Egyptian children. Subjects: 1025 normal children of both genders with age ranged from 5 to 15 years (IQ > 70) participated in this study. They were selected randomly from different school levels. Methods: The subsamples size was based on a stratified random sample proportion to the subpopulation size according to Central Agency of Public Mobilization and Statistics (CAMPS). The assessment was carried out by the developmental coordination disorder questionnaire'07. Results: According to our study, the prevalence of DCD in Egyptian children is estimated to range between 5.88% and 5.925%. This range has 95% chance to be true. The girls represented 38.3%, while boys were 61.7%. In addition, the higher percentage was found in younger children (48.3 %). Finally, 60% showed lower scores in fine motor/ handwriting, 10% in control during movement, while 30 % had lower scores in general coordination. Conclusion: Our data indicate that developmental coordination disorder is a prevalent disorder that requires more attention and clear diagnosis.		
Key words	**1.**	**Developmental coordination disorder**
	2.	**developmental coordination disorder questionnaire'07**
	3.	**postural control**
	4.	**Children in Egyptian**
Classification number	**:**	**000.000.**
Pagination	**:**	**92 p.**
Arabic Title Page	**:**	**إنتشار اضطراب التوافق النمو ى لدي الأطفال المصريين.**
Library register number	**:**	**4651-4652.**

Author	**:**	**Hoda Mohammed Abd El Fattah**
Title	**:**	**Influence of Physical Fatigue on proprioception, muscle activity and cognitive functions in children**
Dept.	**:**	**Physical Therapy Department for Surgery.**
Supervisors	**1.**	**Faten Hassan Abd elAziem**
	2.	**Shorouk Ahmed Wagdy Elshennawy**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	

Background, Fatigue is a common worrying complaint among people performing physical activities on the basis of training or rehabilitation, and it is becoming a common symptom in pediatric health conditions. Purpose, This study was conducted in order to investigate the effect of fatigue induced physical activity on proprioception, muscle activity and cognitive functions among adolescents. Methods Fifty adolescents aged 16-18 years old from different secondary schools and students of the first year of the faculty of physical therapy, Cairo University was included in this study. They all went through assessment for proprioceptive acuity changes (active joint repositioning sense), muscle activity changes and cognitive functions changes pre and post fatiguing exercising on an electronically braked ergometer. Assessments were done using the Biodex system 3 pro Isokinetic dynamometer for proprioception assessment, applied on the knee joint in three different angles (0-30, 0-60 and 0-90). The Digital Surface EMG system, was used to assess the muscle activity of the vastus lateralis, tibialis anterior vastus medialis and rectus femoris muscles, measuring both mean amplitude value and mean frequency value for each muscle. The cognitive assessment was conducted using the Determination Test battery of the Vienna Test System to assess the stress tolerance, attention concentration function and reaction time pre and post fatigue. Results, The results of this study revealed significant decrease of the proprioceptive functions in active repositioning joint sense post fatigue in both angles (0-30 and 0-90) degree while no significant changes were detected at (0-60) angle. Also the study results regarding changes post fatigue in muscle activity parameters assessed by EMG declared significant decline of mean amplitude and mean frequency values in all assessed muscles. On the other hand the cognitive function were significantly improved post fatiguing exercise in domains of stress tolerance ,concentration and reaction time while the attention function was significantly decreased post fatigue.

Key words	**1.**	**Fatigue**
	2.	**cognitive functions**
	3.	**adolescents**
	4.	**muscle activity**
	5.	**proprioception**
	6.	**Children - muscle activity**
Classification number	**:**	**000.000.**
Pagination	**:**	**104 p.**
Arabic Title Page	**:**	**تأثير الاجهاد العضلى على الأدراك الحسى والنشاط العضلى والوظائف المعرفيه فى الاطفال.**
Library register number	**:**	**5659-5660.**

Author	**:**	**Saly Said Abd El-Hady**
Title	**:**	**Correlation between cognitive abilities and health – related quality of life in Down' syndrome children**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Faten Hassan Abd El-Azim**
	2.	**Hoda Abd El- Aziem Mohamed El-Talawy**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	

Objective: The aim of this study is to investigate the correlation between cognitive abilities, health-related quality of life (HRQOL), gross motor skills; standing and walking, running, jumping domains and to compare between both age groups and sexes on previous variables in children with Down syndrome (DS). Subjects and Methods: Seventy children with DS of both sexes (37 boys and 33girls) were selected to be ranged in age from 8 up to 12 years, their IQ score was up to 70, able to understand and follow orders given during assessment, able to walk independently and to be free from visual, hearing or perceptual problems. They were divided into two age groups, group A (8 <10 years), and group B (10 < 12 years). The Rehacom was used to evaluate the cognitive abilities, the Pediatric quality of life inventory parent-proxy report (PedsQL ™) was used to evaluate HRQOL and the Gross Motor Function Measure-88(GMFM-88) was used to evaluate the gross motor skills. Results: There was a weak to moderate correlation between the cognitive abilities, HRQOL and GMFM in both age groups. The level of difficulty of attention / concentration was moderate, positively, significantly correlated with GMFM; standing and walking, running, jumping domains in both age groups. There was a moderate, positive, significant correlation between the physical score of HRQOL and walking, running, jumping domain in age group B, between the psychosocial score of HRQOL and standing domain in age group A. The results also showed that there was no age and sex difference on cognitive abilities, HRQOL and GMFM except the maximum reaction time, there was a significant decrease in boys, there was a significant increase in value of difficulty level in age group B. Conclusions: The cognitive abilities and HRQOL should be considered in the evaluation of children with DS in addition to gross motor skills as there was a correlation between them.

Key words	**1.**	**Cognitive abilities**
	2.	**Gross motor skills**
	3.	**Children**
	4.	**Down syndrome.**
	5.	**Health related quality of life**
Classification number	**:**	**00.0.**
Pagination	**:**	**108 p.**
Arabic Title Page	**:**	**العلاقة بين القدرات المعرفية و الجودة الصحية ذات الصلة الحياتية في الاطفال المصابين بمتلازمة داون.**

Library register number	**:**	**5631-5632.**

Author	**:**	**Sara Samir Saad El-Dien**
Title	**:**	**Influence of Selective Training On Oro-motor Skills in Children with Spastic Diplegia**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Kamal El-Sayed Shoukry**
	2.	**Gehan Mosaad Abd El-Maksoud,**
	3.	**Maha Saad Ali Zaki**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	

Background: Oro-motor problems are prevalent among children with cerebral palsy including problem in chewing, drooling, sucking and swallowing. Objective: To investigate the influence of selective training program on oro-motor skills in children with spastic diplegia. Subjects: Thirty children with spastic diplegia with age ranged from two to four years participated in the current study. They were selected from the outpatient clinic , Faculty of Physical Therapy, Cairo University. Children were assigned randomly into two groups (control and study) of equal numbers. Children in the control group received selected physical therapy program for 90 minutes/session. While children in study group received the same program given to control group for 60 minutes/session in addition to a designed oro-motor training for 30 minutes/session. The treatment was conducted three sessions per week for six successive months for both groups. Material and methods: Gross Motor Function Measure, Drooling Impact Scale, Oro-motor Assessment Scale and weight scale were used for assessment before and after six months of treatment. Results: This study showed a statistically significant improvement of gross motor function, drooling, oro-motor skills and body mass in both groups. Moreover, a significant difference was observed between the two groups (P<0.05), in favor of the study group in all measured variables except gross motor function. Conclusion: Oro-motor training in conjunction with a designed physical therapy program is effective in improving oro-motor skills in children with spastic diplegia.

Key words	**1.**	**body mass.**
	2.	**Oro-motor skills**
	3.	**cerebral palsy**
	4.	**spastic dilpegia**
	5.	**Children with Spastic Diplegia**
Classification number	**:**	**000.000.**
Pagination	**:**	**110 p.**
Arabic Title Page	**:**	**تأثير تدريبات مختارة على المهارات الحركية للفم عند الأطفال المصابين بالشلل الدماغي التقلصي المزدوج.**
Library register number	**:**	**5547-5548.**

Author	**:**	**Walaa Mahfouz Ali Bahr**
Title	**:**	**Standardization of gross motor development in egyptian children.**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Faten Hassan Abd El-Azeim**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	

Background: Peabody developmental motor scale is one of the most commonly used scales for assessment of motor developmental domain in preschool children. Objectives: to establish norms for the Egyptian children in gross motor developmental skills based on PDMS-2 through cross-sectional study design and comparing the results with the normative sample given in the PDMS-2 manual to find a method of evaluation that might be suitable for Egyptian children. Methods: 1584 of normal healthy Egyptian children, ranged in age from two to six years old participated in this study and collected from kinder gardens and nurseries of Greater Cairo Area to represent Egypt. The participants divided into eight groups according to their chronological age after screening by Portage Scale and the evaluation was applied once monthly to each group using PDMS-2 for six successive months in gross motor area of development in longitudinal pattern. Results: The present study revealed statistical significant difference for measured subtest items of gross motor development for tested Egyptian children when compared to the normative data of PDMS-2 using Z-scores. Conclusion: The results of the present study revealed a significant difference between the Egyptian and the normative PDMS-2 sample in the eight groups and also between boys and girls. This reflects the importance to have norms for the Egyptian children development to be used in a standardized scale for the gross motor development in the Egyptian children.

Key words	**1.**	**Egyptian children.**
	2.	**portage scale.**
	3.	**Peabody Developmental motor scale-2.**
	4.	**gross Motor development**
	5.	**Children in Egypt.**
Classification number	**:**	**000.000.**
Pagination	**:**	**168 p.**
Arabic Title Page	**:**	**معايرة النمو الحركى فى الأطفال المصريين.**
Library register number	**:**	**5411-5412.**

Author	**:**	**Wessam Ali Saied Saied**
Title	**:**	**Normative hand grip strength of healthy children at different school grades and its correlation to anthropometric measures**
Dept.	**:**	**Physical Therapy Department for Growth and Developmental Disorder in Children and its Surgery.**
Supervisors	**1.**	**Manal Salah El Dein**
	2.	**Shorouk Ahmed Wagdi ElShennawy**
Degree	**:**	**Doctoral.**
Year	**:**	**2017.**
Abstract	**:**	

The purpose of this study was to provide a normative data for hand grip strength in different school grades and its correlation to anthropometric measures. Seven hundred and fifty seven healthy children of both sexes were selected from different schools at Shoubra City (Egypt) with the age range between 7 to18 years. They were selected from the three school stages: primary stage (7 to12 years), preparatory stage (13 to15 years), and secondary stage (16 to18 years).Anthropometric measures were taken including (upper arm, forearm. whole arm length and hand width for both hands). Hand grip strength was measured by hydraulic hand dynamometer. Subjects were asked to create maximal force on the dynamometer three trials for both right and left hand. The highest value of three trials was recorded. Results of this study revealed a statistically significant difference in hand grip strength in both genders for dominant and non- dominant hands with boys showed higher grip strength than girls. Conclusions, a positive correlation was found between anthropometric variables and hand grip strength.

Key words	**1.**	**Grip strength**
	2.	**anthropometric variables.**
	3.	**Children - healthy**
	4.	**adolescence**
	5.	**hand grip strength.**
	6.	**healthy children.**
	7.	**school grades - hand grip**
	8.	**anthropometric measures**
Classification number	**:**	**000.000.**
Pagination	**:**	**111 p.**
Arabic Title Page	**:**	**القوة المعيارية لقبضة اليد عند الأطفال الأصحاء في الصفوف الدراسية المختلفة وارتباطها بالمعاير القياسية البشرية.**
Library register number	**:**	**5703-5704.**