



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



# شبكة المعلومات الجامعية

## التوثيق الالكتروني والميكرو فيلم

# جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
على هذه الأفلام قد اعدت دون أية تغيرات



## يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of  
15 – 25c and relative humidity 20-40 %



شبكة المعلومات الجامعية



# بعض الوثائق الأصلية تالفة



شبكة المعلومات الجامعية



بالرسالة صفحات  
لم ترد بالأصل

**Effect of Selected Physical Therapy Program  
on Bone Mineral Density  
in Myelomeningocele**

**A Thesis Submitted to Department of Physical Therapy  
for Growth and Development Disorders in Children  
and its Surgery in Partial Fulfillment  
of Doctoral Degree**

**By**

**Naglaa Ahmed Zaky Aly  
Msc., in Physical Therapy**

**Faculty of Physical Therapy  
Cairo University  
2008**

B  
9402



# **SUPERVISORS**

**Prof. Dr. Kamal Shoukry**

Dean, Faculty of Physical Therapy,  
and Professor of Growth and Developmental  
Disorders in Children and Its Surgery

**Prof. Dr. Mohammed Tawfik Mahmoud**

Professor of Growth and Developmental  
Disorders in Children and Its Surgery,  
Faculty of Physical Therapy

**Prof. Dr. Hatem Abd El-Rahman**

Dean, of National Institute of Neuro-motor system



# အထွေထွေအချက်အလက်

ပုဂ္ဂိုလ်

အသက်

အမျိုး

အရင်း

အိမ်

အလုပ်

အိမ်

အလုပ်

အိမ်

အလုပ်

အိမ်

အိမ်

အလုပ်

အိမ်

အိမ်

အိမ်

## *Acknowledgement*

*Fist of all, I would like to kneel thanking "God" for helping and giving me the ability to accomplish this work.*

*It is a great pleasure for me to express my deepest thanks and sincere appreciation to Prof. Dr. Kamal El-Sayed Shoukry for his great efforts and valuable time. I really consider him my father.*

*I'm sincerely grateful to Prof. Dr. Mohamed Tawfik Mahmoud , for his valuable supervision and continuous encouragements during accomplishing this work.*

*I would like to express my deepest thanks and gratitude to Prof. Dr. Hatem Abdel Rahman for his real help, continuous counseling and valuable comments during the whole work.*

*I would like to express may deep thanks to Dr. Magdy Helmy for helping in accomplishing the practical part of this work. Thanks also should be extended to my patients and their parents for their participation and commitment during the whole study.*

*I would like to thank my colleagues and professors in the physical therapy Department of Growth and Developmental Disorders and its surgery in pediatrics, Faculty of Physical Therapy, Cairo University.*

*I'm so grateful to my parents and my dear husband who assisted me and gave me the support to complete this work.*

*Nagla Ahmed Zaky*

*2008*

RECEIVED

1941

1942

1943

1944

1945

1946

1947

1948

1949

1950

1951

1952

1953

1954

1955

1956

1957

1958

1959

1960

1961

1962

1963

1964

1965

1966

1967

1968

1969

1970

## LIST OF FIGURES

<u>No. of Fig.</u>		<u>Page</u>
1	Cross-section of myelomeningocele .....	8
2	Lunar prodigy advance-direct digital densitometry apparatus .....	46
3	Standing frame .....	47
4	Mats, rolls, wedges and medical balls .....	47
5	Child lying on the scan table.....	48
6	Total body cuts placements.....	51
7	Child supported in standing position .....	53
8	Child performing rocking movements .....	55
9	Child making bicycling movements.....	56
10	The child performing hip extension.....	56
11	Pre treatment mean values of bone mineral density of the head (g/cm <sup>2</sup> ) for group A and B.....	61
12	Pre and post treatment mean values of bone mineral density of the head in group A.....	62
13	Pre and post treatment mean values of bone mineral density of the head in group B. ....	63
14	Post treatment mean values of bone mineral density of the head for both groups (A and B) .....	64
15	Pre treatment mean values of bone mineral density of the arms (g/cm <sup>2</sup> ) for group A and B.....	65
16	Pre and post treatment mean values of bone mineral density of the arms in group A.....	66
17	Pre and post treatment mean values of bone mineral density of the arms in group B .....	67
18	Post treatment mean values of bone mineral density of the arms for both groups (A and B) .....	68



<u>No. of</u> <u>Fig.</u>		<u>Page</u>
19	Pre treatment mean values of bone mineral density of the ribs (g/cm <sup>2</sup> ) for group A and B .....	69
20	Pre and post treatment mean values of BMD of the ribs in group A .....	70
21	Pre and post treatment mean values of BMD of ribs in group B.....	71
22	Post treatment mean values of BMD of ribs for both groups (A and B).....	72
23	Pre treatment mean values of bone mineral density of the spine (g/cm <sup>2</sup> ) for group A and B .....	73
24	Pre and post treatment mean values of bone mineral density of the spine in group A .....	74
25	Pre and post treatment mean values of bone mineral density of the spine in group B .....	75
26	Post treatment mean values of bone mineral density of the spine for both groups (A and B) .....	76
27	Pre treatment mean values of bone mineral density of the pelvis (g/cm <sup>2</sup> ) for group A and B .....	77
28	Pre and post treatment mean values of bone mineral density of the pelvis in group A.....	78
29	Pre and post treatment mean values of bone mineral density of the pelvis in group B .....	79
30	Post treatment mean values of bone mineral density of the pelvis for both groups (A and B) .....	80
31	Pre treatment mean values of bone mineral density of the legs (g/cm <sup>2</sup> ) for group A and B .....	81
32	Pre and post treatment mean values of bone mineral density of the legs in group A .....	82
33	Pre and post treatment mean values of bone mineral density of the legs in group B .....	83

2011

2012