بسم الله الرحمن الرحيم

[وَقُل رَّبِّ زِدْنِي عِلْمًا]

صدق الله العظيم

Title

Kinesio Tape Versus Resisted Training On Quadriceps Muscle Strength For Hemodialysis Patients

Al Hassan Ibrahim Mohamed

Supervised by:

Prof. Dr.Zakaria Mowafy Emam Mowafy

Professor of Physical Therapy in the Physical Therapy Department for Surgery

Prof. Dr.Abd Monem Abdallah El-Hagagy

Professor of Urology. Faculty of Medicine

شريط الكينيسيو مقابل تمارين المقاومه على قوه العضله الرباعيه لمرضى الغسيل الكلوى

الحسن ابراهيم محمد أحمد

أ.د/زكريا موافى امام موافى

أستاذ بقسم العلاج الطبيعى للجراحه

كليه العلاج الطبيعى- جامعه القاهره

ACKNOLEDGEMEN

First of all thanks are for Allah who provided me with essential power and patience for completion of this work.

I am deeply and greatly thankful to **Prof. Dr. Zakaria Mowafy Emam Mowafy**;**,** Professor of Physical Therapy in the Physical Therapy Department for Surgery. Without his encouragement, unlimited support, and guidance throughout this study ,this work would never have ended.

Warmest and deepest thanks to **Prof. Dr. Abd Monem Abdallah El-Hagagy**, Professor Of Urology Institute for his great help, supervision and guidance throughout the procedures of the study.

Words fail to express my deepest gratitude and warmest thanks to **Dr. Asmaa Fawzy El-Sayed,** Lecturer of Physical Therapy for Surgery, Faculty of Physical Therapy Cairo University.

ACKNOLEDGEMEN

Deepest thanks to **Prof. Dr. Adel Abdel Hamid Nossier** Professor of Physical Therapy in the Physical Therapy Department for Surgery and **Pro. Dr. Ahmed Abd Elatief** Professor of Urology for acceptance to discussing my study

Introduction

Hemodialysis:

Dialysis is defined were diffusion of molecules in solution across a semipermeable membrane along an electrochemical concentration gradient.

Introduction

Kinesio Tape is an elastic tape designed to facilitate the body's natural healing process and allowing support and stability to muscles and joints range of motion (**Kase et al., 2003).**

Introduction

Quadriceps Muscle Strength is the ability of a quadriceps muscle to exert force to overcome the most resistance in one effort **(Iwamoto et al., 2007)**

Introduction

Resisted Training Exercises

is any form of exercise that forces your skeletal muscles to contract and lead to increases in muscular mass, strength, endurance and tone (**Jankowska et al., 2008**)

Statement of the problem

Did Kinesiotape and resisted training have posture effect on quadriceps muscle strength for hemodialysis patients?

The Purposes of this study

To compare between therapeutic effect of Kinesiotape and resisted training exercise in improving quadriceps muscle strength for hemodialysis patients.

To establish aproper therapy protocol for quadriceps muscle strength for hemodialysis patients.

METHODOLOGY

Subjects:

Forty hemodialysis patients were participated in this study; their ages were ranged from 40 to 50 years of both sexes the patient were classified into two main groups(group A, B).

The patients were randomly selected from Nasr City Police Hospitals .

METHODOLOGY

Group (A) Kinesiotape group

included 20 hemodialysis patients received kinesiotape for quadriceps muscle for 8 weeks.

METHODOLOGY

Group (B)

Progressive resisted exercise group

included 20 hemodialysis patients received received progressive resisted exercise for quadriceps muscle for 8 weeks.

METHODOLOGY

Equipment used

Measurement equipment

- **Cybex NORM isokinetic dynamometer.**

METHODOLOGY

Equipment used

Therapeutic equipment

- **Kinesio tape.**

METHODOLOGY

Equipment used

Therapeutic equipment

- **Sandbags.**

METHODOLOGY

Procedure of the study

Measurement procedures

- **Cybex NORM isokinetic dynamometer**
- **Muscular strength procedures**(Preparatory phase, Measurement of Quadriceps muscle KFT and KET)
  - **Subjective items** (diabetes,acute or chronic hepatitis,pacemaker)

METHODOLOGY

Procedure of the study

Therapeutic procedures

Procedures kinesiotape treatment

Procedures progressive resisted training

A- Quadriceps set exercise

B- Quadriceps straight leg raising exercise

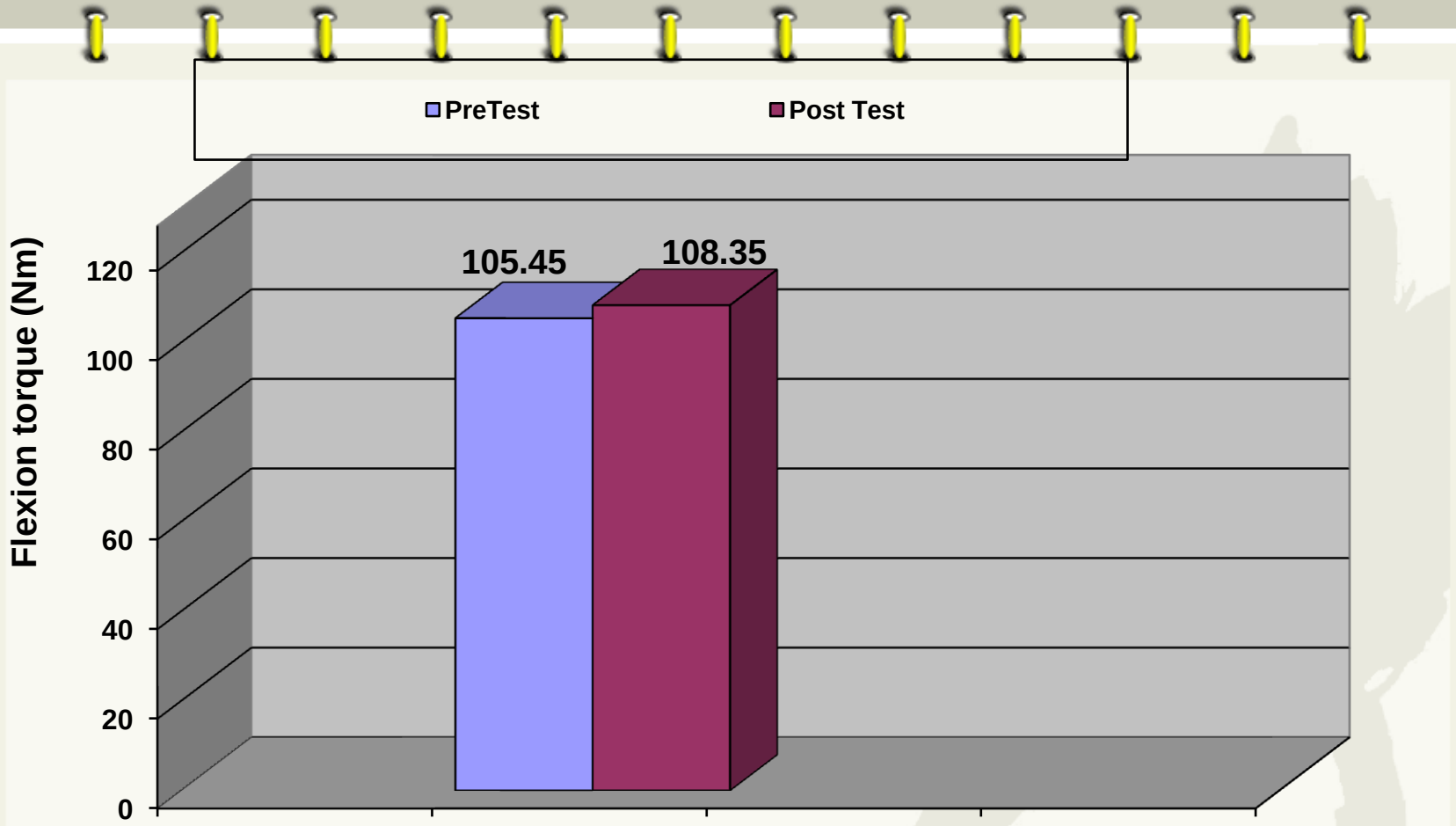
C- Quadriceps short arc exercise

RESULTS

Compare between 2 records of KFT between KFT (2) and KFT (1) in the study group (A) (Quadriceps muscle kinesiotape) in Nm.

	KFT (2)	KFT (1)
Mean (in Nm)	108.350	105.450
standard deviation ±	2.661	3.364
Standard error	0.595	0.752
Mean difference	2.90000	
t. value	3.02	
p. value	0.005	
Level of significance	Significant increase	

RESULTS

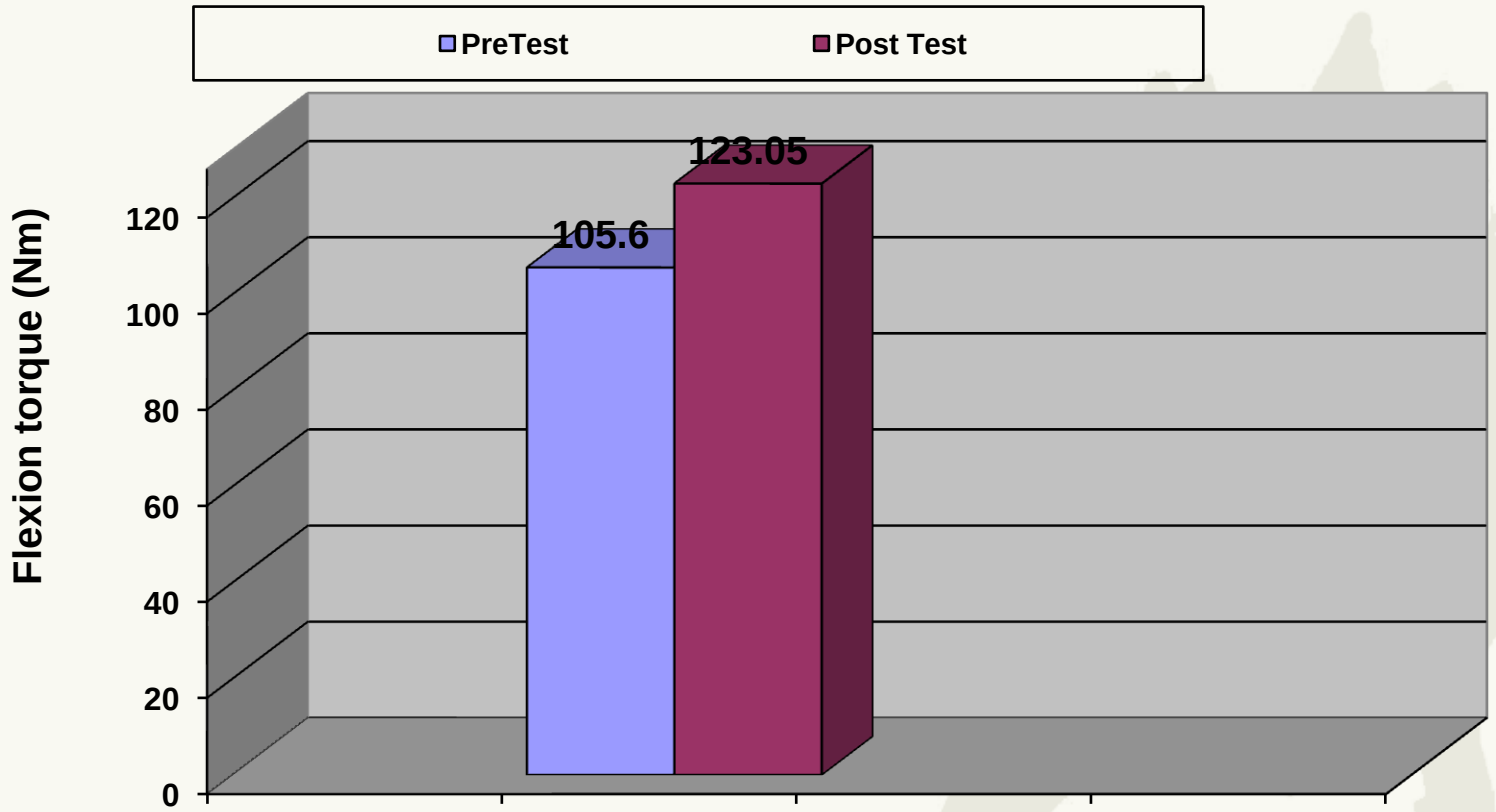

PreTest
Post Test
Flexion torque (Nm)
120
100
80
60
40
20
0
105.45
108.35

RESULTS

Compare between 2 records of KFT between KFT (2) and KFT (1) in the group (B) (Quadriceps muscle progressive resisted exercise group) in Nm.

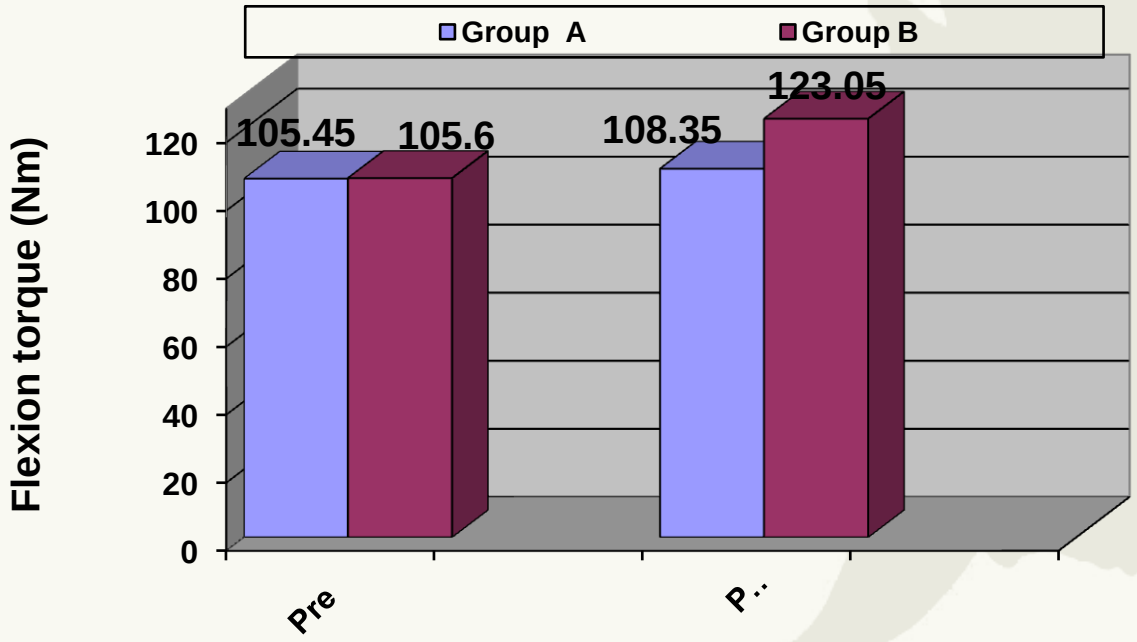
	KFT (2)	KFT (1)
Mean (in Nm)	123.050	105.600
standard deviation ±	2.481	3.619
Standard error	0.555	0.809
Mean difference	17.4500	
t. value	21.30	
p. value	0.0001	
Level of significance	significant increase	

RESULTS


PreTest
Post Test
Flexion torque (Nm)
120
100
80
60
40
20
0
105.6
123.05

RESULTS

Compare between the mean values of KFT in Nm of the 2 records in the study groups (A) and (B).



RESULTS

Compare between the means, standard deviation of the second records of the KFT in Nm of the two groups (A and B).

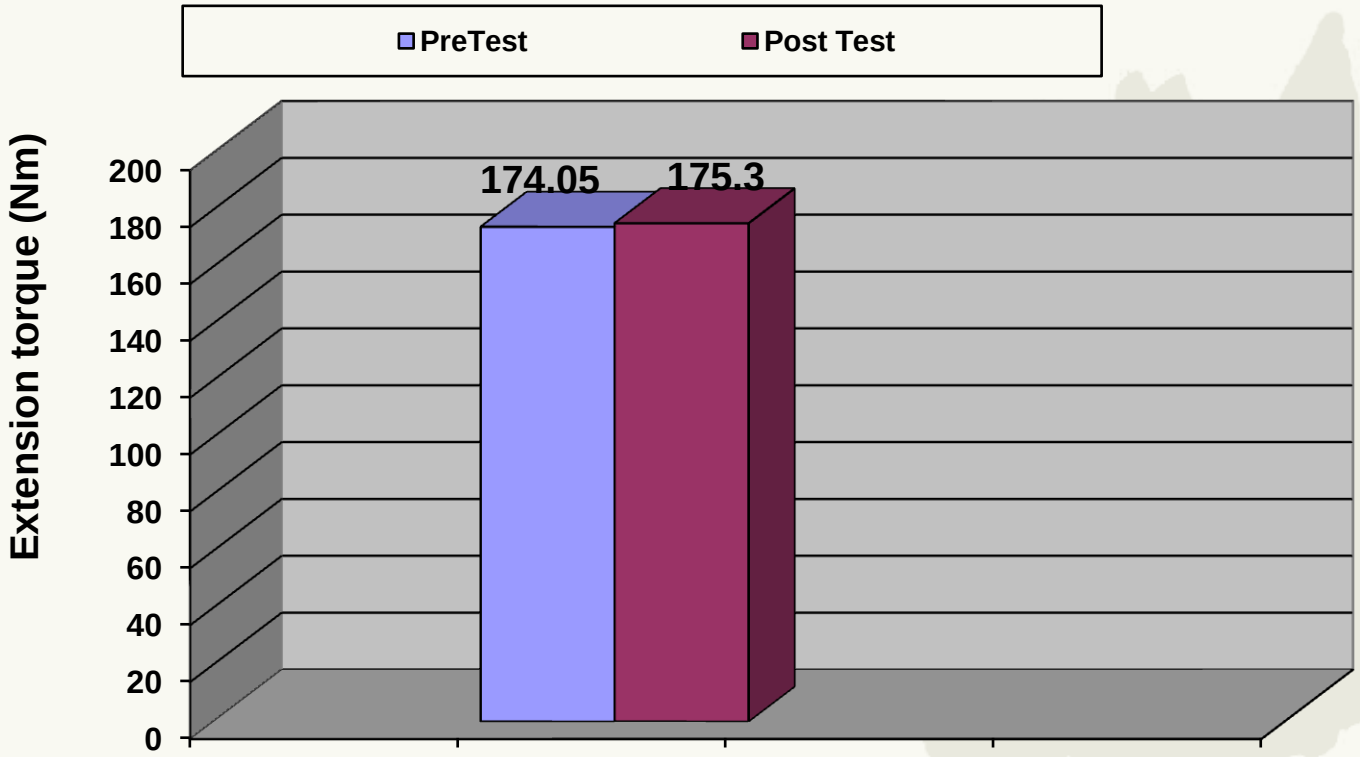
Item	The second records of KFT	
	Group (A) (Quadriceps muscle kinesiotape).	Group (B) (Quadriceps muscle progressive resisted exercise group).
Mean (in Nm)	108.35	123.05
Standard deviation ±	2.66	2.48
Standard error	0.595	0.555
Mean difference	-14.7000	
t. value	-18.08	
p. value	0.0001	
Level of	significant increase	

RESULTS

Compare between 2 records of KET between KET (2) and KET (1) in the study group (A) (Quadriceps muscle kinesiotape) in Nm.

Item	KET in group (A)	
	KET (2)	KET (1)
Mean (in Nm)	175.300	174.050
standard deviation ±	3.063	3.120
Standard error	0.685	0.698
Mean difference	1.04208	
t. value	1.28	
p. value	0.209	
Level of significance	Non-significant	

RESULTS

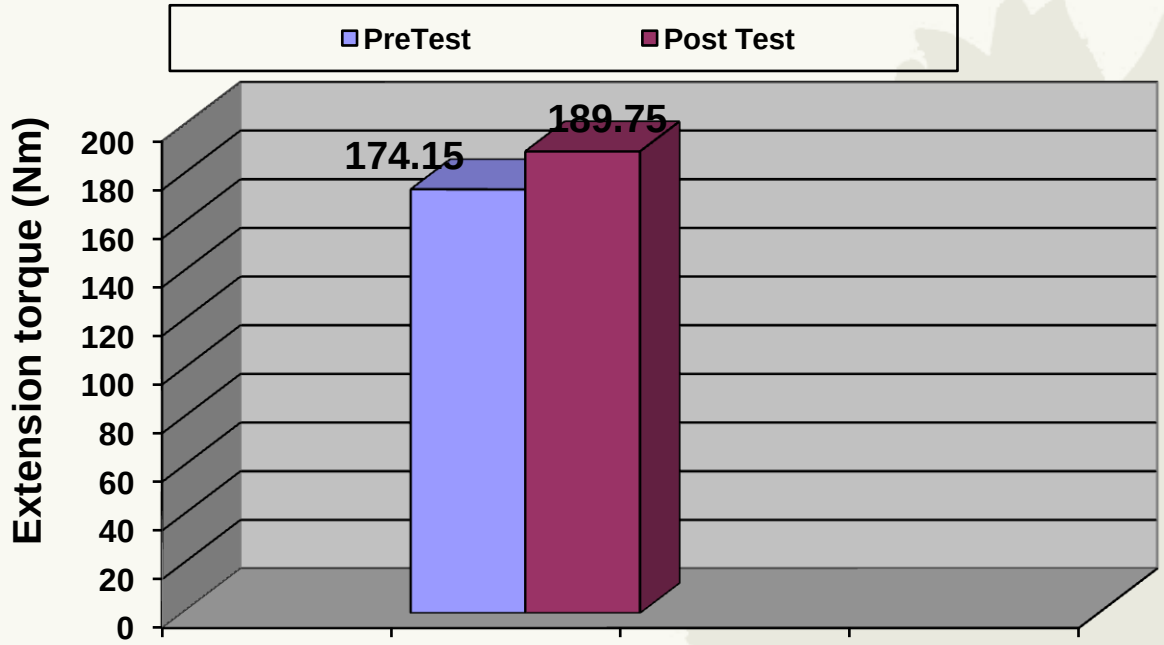

PreTest
Post Test
Extension torque (Nm)
200
180
160
140
120
100
80
60
40
20
0
174.05
175.3

RESULTS

Compare between 2 records of KET between KET (2) and KFT (1) in the group (B) (Quadriceps muscle progressive resisted exercise group) in Nm.

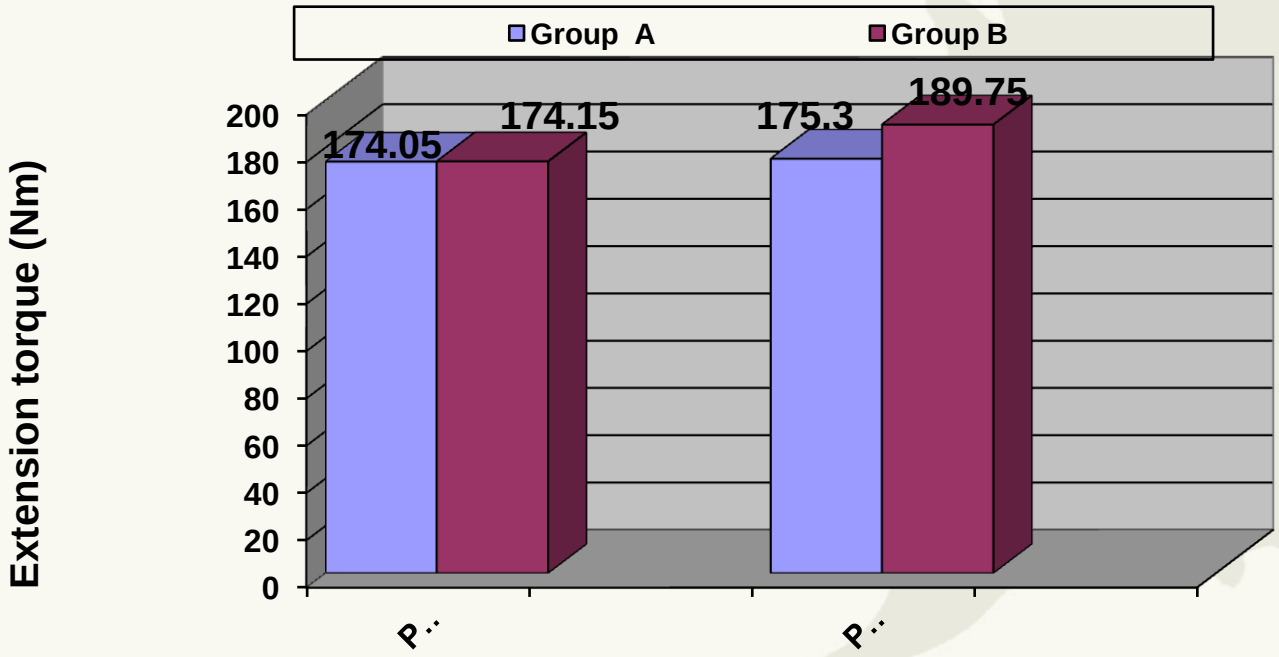
Item	KET of group (B)	
	KET (2)	KET (1)
Mean in Nm	189.750	174.150
± standard deviation	5.330	2.277
Standard error	1.192	0.509
Mean difference	15.6000	
t. value	12.93	
p. value	0.0001	
Level of significance	significant increase	

RESULTS


PreTest
Post Test
Extension torque (Nm)
200
180
160
140
120
100
80
60
40
20
0
174.15
189.75

RESULTS

Compare between values of KET in Nm of the 2 records in the study groups (A) and (B).



RESULTS

Compare between The means, standard deviation of the second records of the KET in Nm of the two groups (A and B) .

Item	The second records of the KET	
	Group (A) (Quadriceps muscle kinesiotape).	Group (B) (Quadriceps muscle progressive resisted exercise group).
Mean in Nm	175.30	189.75
Standard deviation ±	3.06	5.33
Standard error	0.685	5.33
Mean difference	-14.4500	
t. value	-10.51	
p. value	0.0001	
Level of significance	Significant increase	

DiSCUSSION

The level of improvement in both modalities kinesiotape and progressive resisted exercises in (KFT) and (KET) was significant but progressive resisted exerecises group (B) more significant than kinesotape group (A)

SUMMARY

1 -There was significant difference between both groups (A&B) in Quadriceps knee flexion torque(KFT).

2-There was significant difference between both groups (A&B) in Quadriceps knee extension torque (KET) with more improvement in Group (B).

Conclusion

(1) **Kinesiotape has a significant improvement on quadriceps muscle strength and it could be recommended for hemodialysis patients.**

(2) **Progressive resisted exercises have significant contribution to improve muscle strengh of quadriceps muscles for hemodialysis patients.**

Conclusion

(3) The percentage of improvement in both modalities (kinesiotape and progressive resisted exercises) was significant but progressive resisted exerecises more significant than kinesotape.

(4) The levels of improvement are due to improve patients quality of life

Recommendation

(1) It is recommended to apply Kinesiotape , progressive resisted ex. for quadriceps muscle should be recommended for hemodialysis patients.

(2) Further studies should be undertaken to a large number of patients to allow better statistical analysis of data.

Recommendation

(3) Further studies should be conducted researches should be extented for a longer number of patients more than 8 weeks.

(4) Similar studies should be conducted on muscular strength areas with other types of hemodialysis patients.

Thanks

Discussion??