

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ  
أَنْتَ الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم

(البقره ٣٢)

# **Efficacy Of Kinesio Tape On Lower Limb Edema In Patients With Chronic Hepatitis C.**

تأثير شريط الكينيسيو اللاصق على ورم الطرف  
السفلي لمرضى التهاب الكبد الفيروسي سي.

# ACKNOWLEDGMENT



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**GOD ALMIGHTY**  
with his blessings.



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Ahmed*
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THANKS EVERYONE

# *INTRODUCTION*



- Hepatitis is an inflammation of the liver that can be caused by a virus, by inherited disorders, and sometimes by certain medications or toxins such as alcohol and drugs *(Goldman et al., 2011)*

- Scientists have identified four main types of viral hepatitis: hepatitis A, hepatitis B, hepatitis C, and hepatitis D. *(Rothstein et al., 2011 )*.



- Hepatitis C (HCV) causes scarring of the liver. This affects liver function, which causes the secretion of hormones and fluid regulating chemicals to change *(Garcia et al., 2011)*
- People with (HCV) also have increased pressure within the portal vein. The problems can lead to fluid retention in the legs and ascites *(Ausiello et al., 2011)*.





- Edema is a chronic and progressive condition resulting from an abnormality or damage to the lymphatic system *(Clein and Pugachev, 2008 )*.
- It is caused by the accumulation of fluid in the interstitial space *(Fang and O’Gara, 2011 )*.



# **Purpose of the Study:**

The purpose of this study was to evaluate the effect of kinesio tape application on lower limb edema in patients with chronic hepatitis C (HCV).



# **SUBJECTS, MATERIALS, AND METHODS**



# A. Subject Selection

- 40 patients who had lower limb edema ranged age from 45-55 years.

**Group A (Kinesio Tape and traditional physical therapy group):** 20 patients received traditional physical therapy program:  
in form of (treadmill exercise, sand bags as mechanical weight active resisted exercise, compression garment and elastic bandage)


**\*\* in addition to kinesio tape.**

**Group B (traditional physical Therapy group):**  
20 patients received same traditional physical therapy program.

## **Inclusion criteria:**

- All patients had (HCV).
- All patients had bilateral lower limb edema.
- The duration of the edema was ranged from six months to one year.
- All patients were free from any other pathological conditions or histories except lower limb edema

## **Exclusion criteria:**

- Patients who had systemic diseases.
  - Un cooperative persons.
  - Patients who had skin diseases.
- 

**This study lasted 3 months,  
independent variables (\*edema,\* liver  
function: ALT, AST and Albumin) measured  
2 times pre and post treatment procedures.**

## **B. Procedures**

### **Measurement Procedures**

- *Water displacement method (volumeter).*
- *Tap measurement to assess limb contour.*
- *laboratory analysis of liver function (ALT, AST and Albumin ) in blood.*



***Volumetric assessment.***





*Point of patella.*



*Point above patella 5 cm.*



*Point below patella 5 cm.*






***Point of medial  
maleollus.***

***Point of mid foot.***



## 2. Therapeutic Procedures

### Phase (1) preparatory treatment application:

- Patients received full explanation regarding the purpose, the therapeutic and physiological benefits of the method of treatment.
  - Patients were placed at the most proper position.
- 

## Phase (2) Treatment application phase:

### Part 1: Kinesio tape application in addition to exercise program

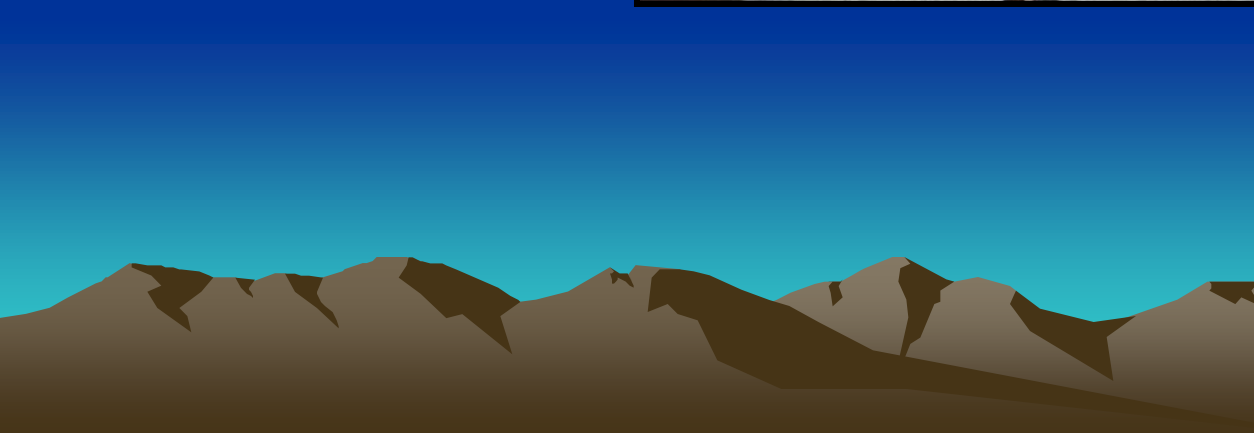
- Patients received ex. Program 2 times/ week
- Treatment duration was 12 weeks.
- Kinesio tape was worn 24 hours a day,



## Locations of Kinesio-tape:

- ✓ First site on the upper thigh: starts from the upper surface of the thigh fan shape towards the knee joint.
- ✓ Second site on the leg: starts on the lateral condyle of the knee joint fan shape towards the foot through ankle joint.
- ✓ According to lymphatic drainage *(Csapo and Alegre, 2014)*.







# Physical therapy application & exercise program.

- Kinesio tape was replaced 2 times weekly before starting physical therapy session.
- Treatment duration was 12 weeks.
- Treadmill exercise (warming up 5 min., active phase 20 min., cooling down 5 min.).



# Sand bag resistive exercise



# Elastic bandage application

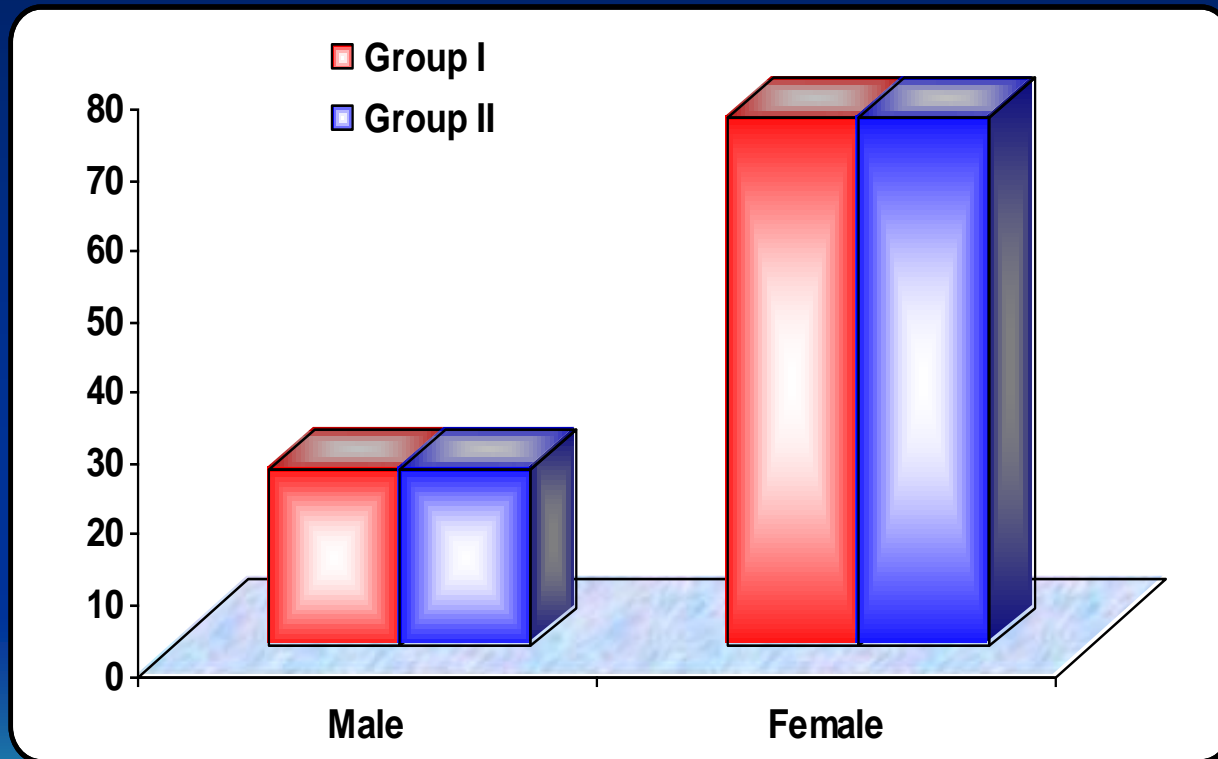


# Results

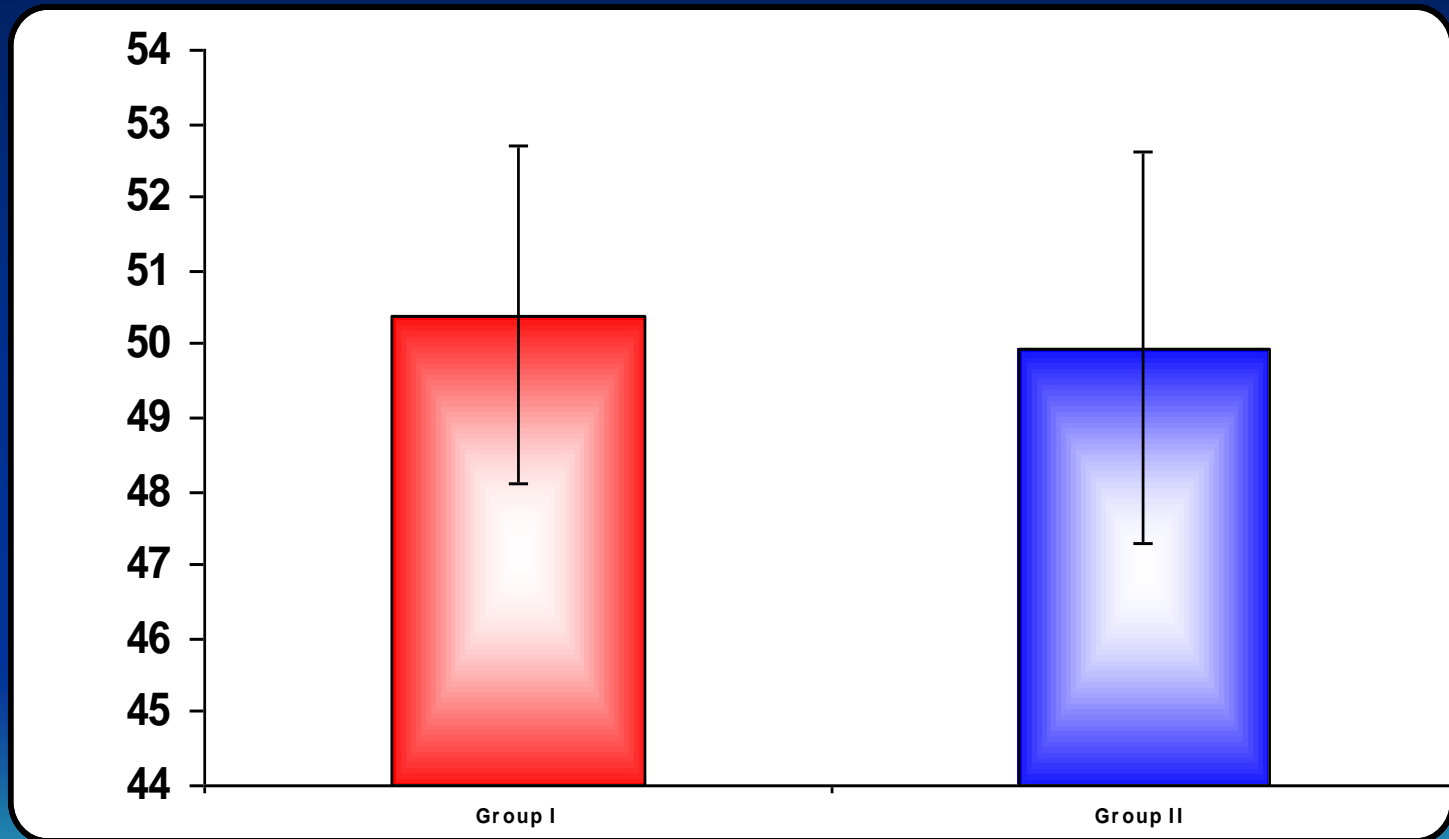




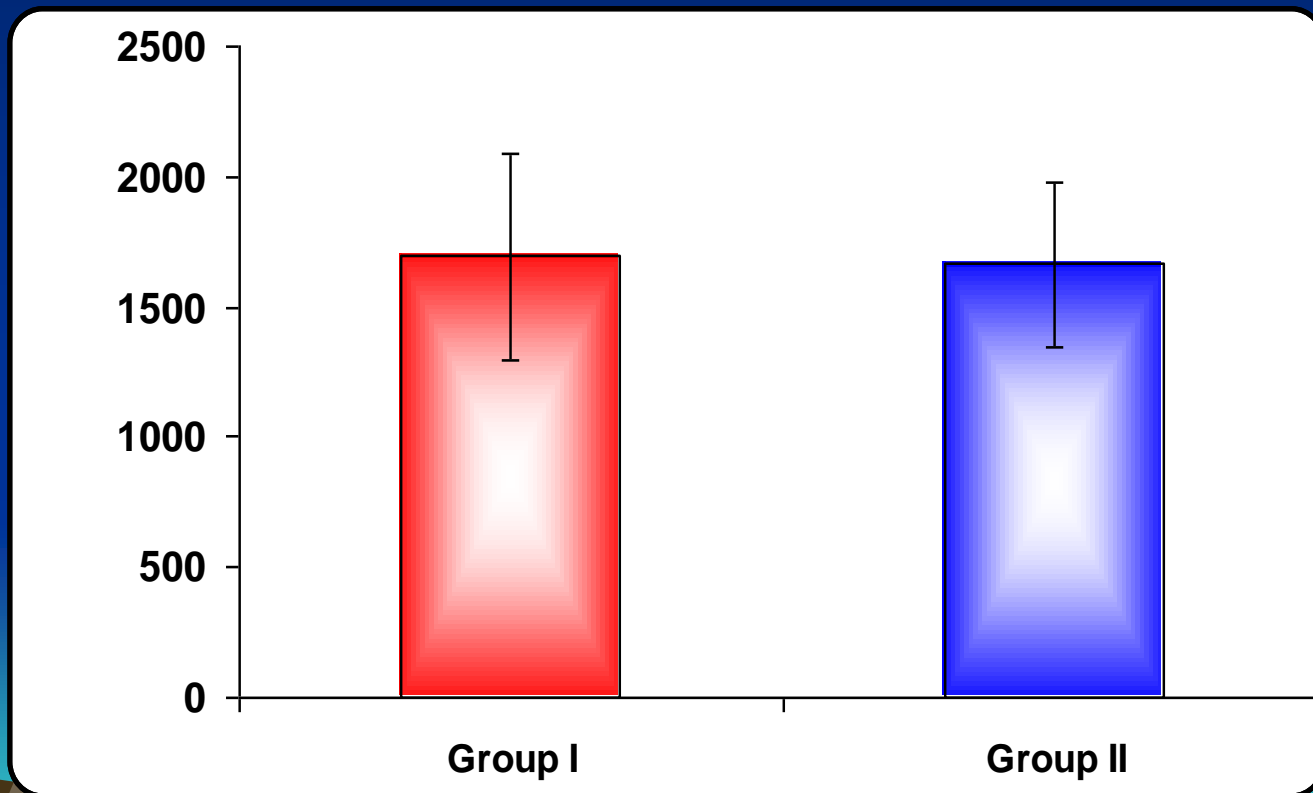
# The mean values of sex (year) in both groups (I and II)



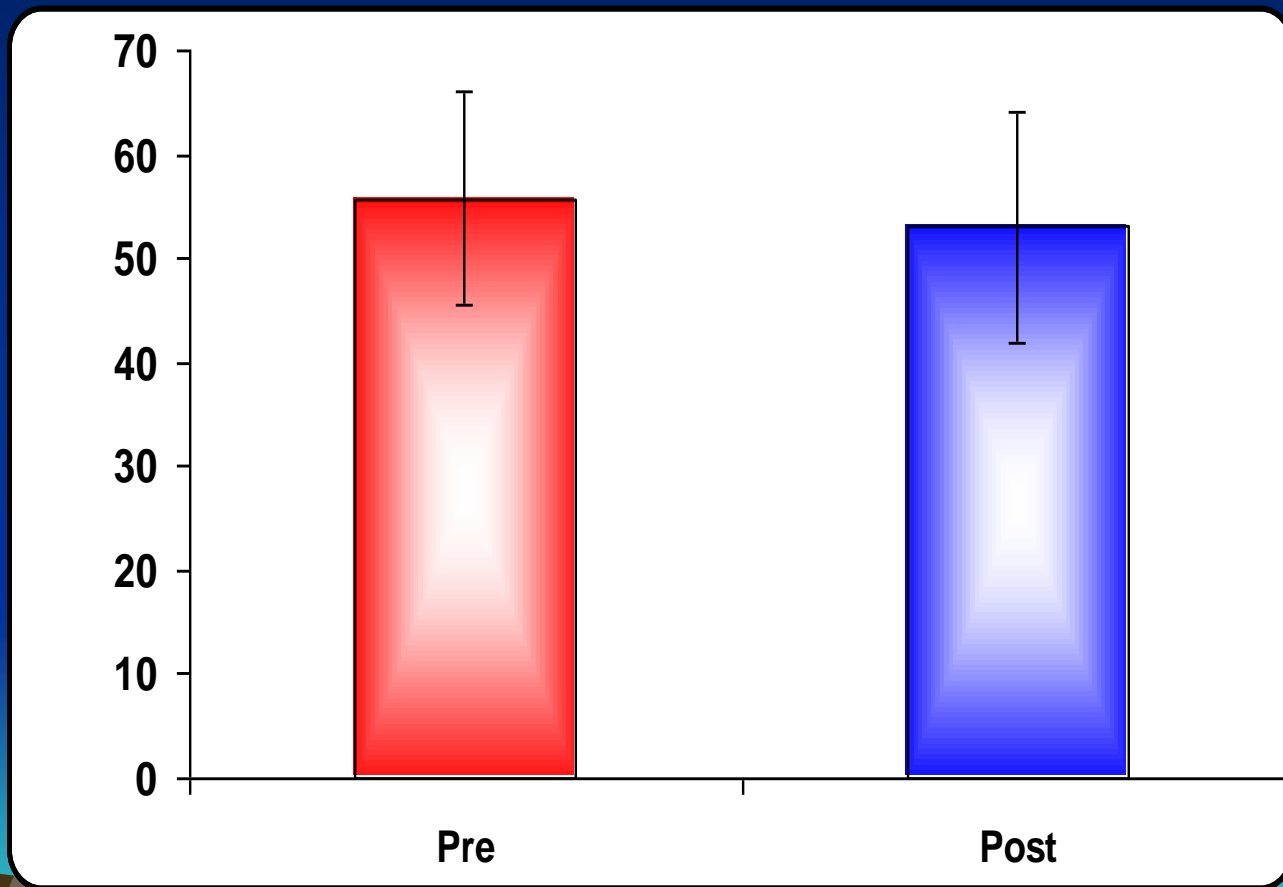
# The mean values of age (year) in both groups (I and II)



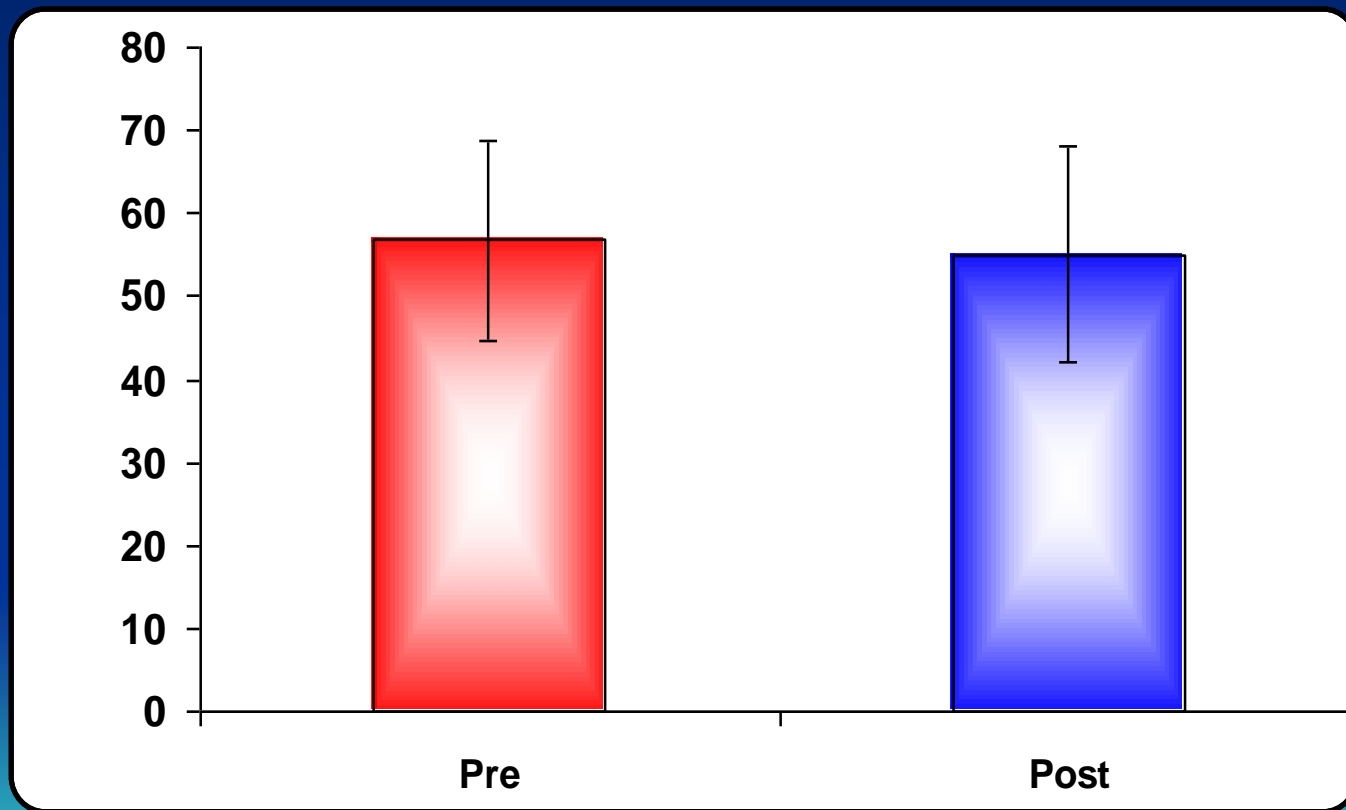
# Mean values and percentage of volumeter assessment post treatment in both groups of the study (I and II).



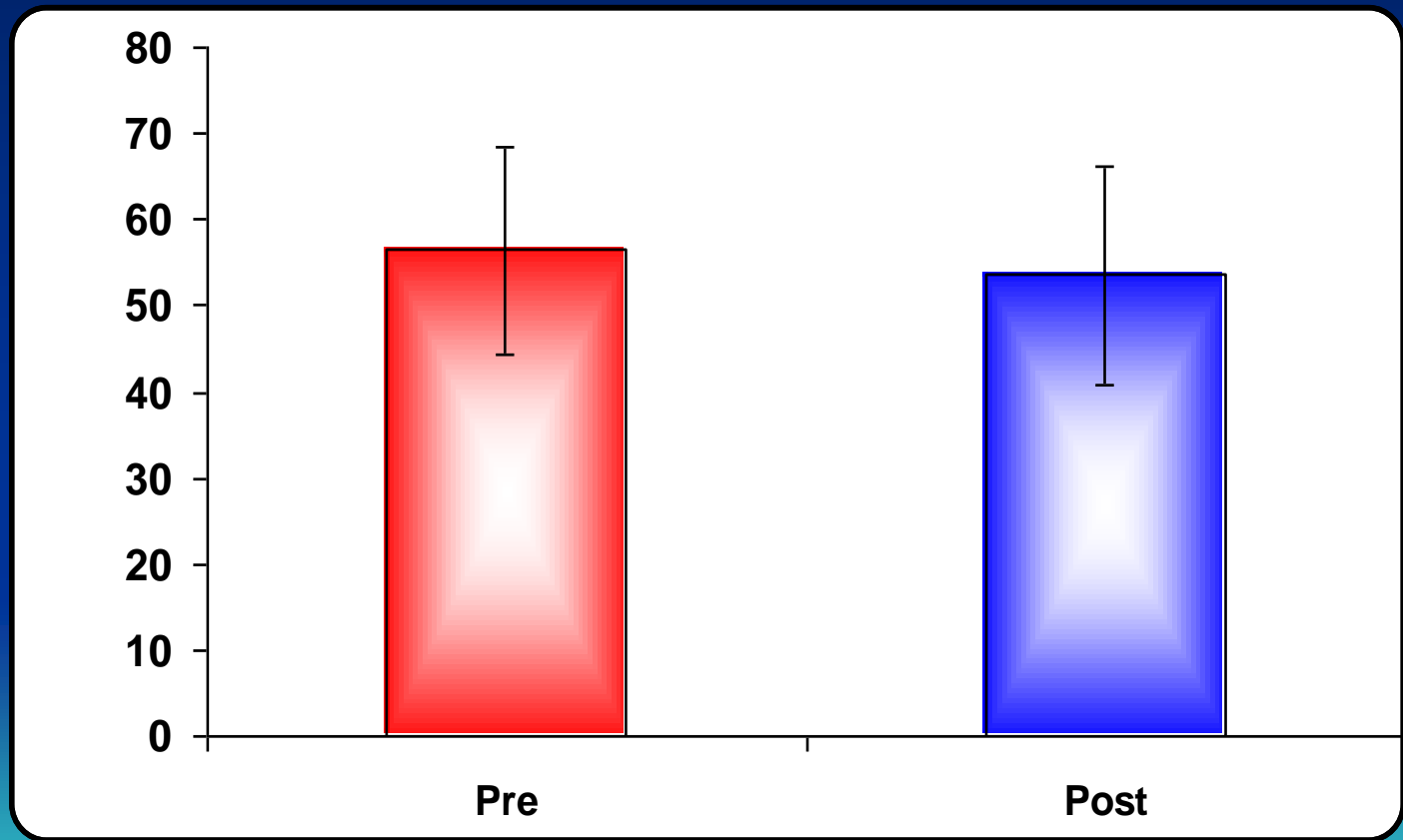
## Mean values of AST pretreatment data and AST post treatment data in group (I)



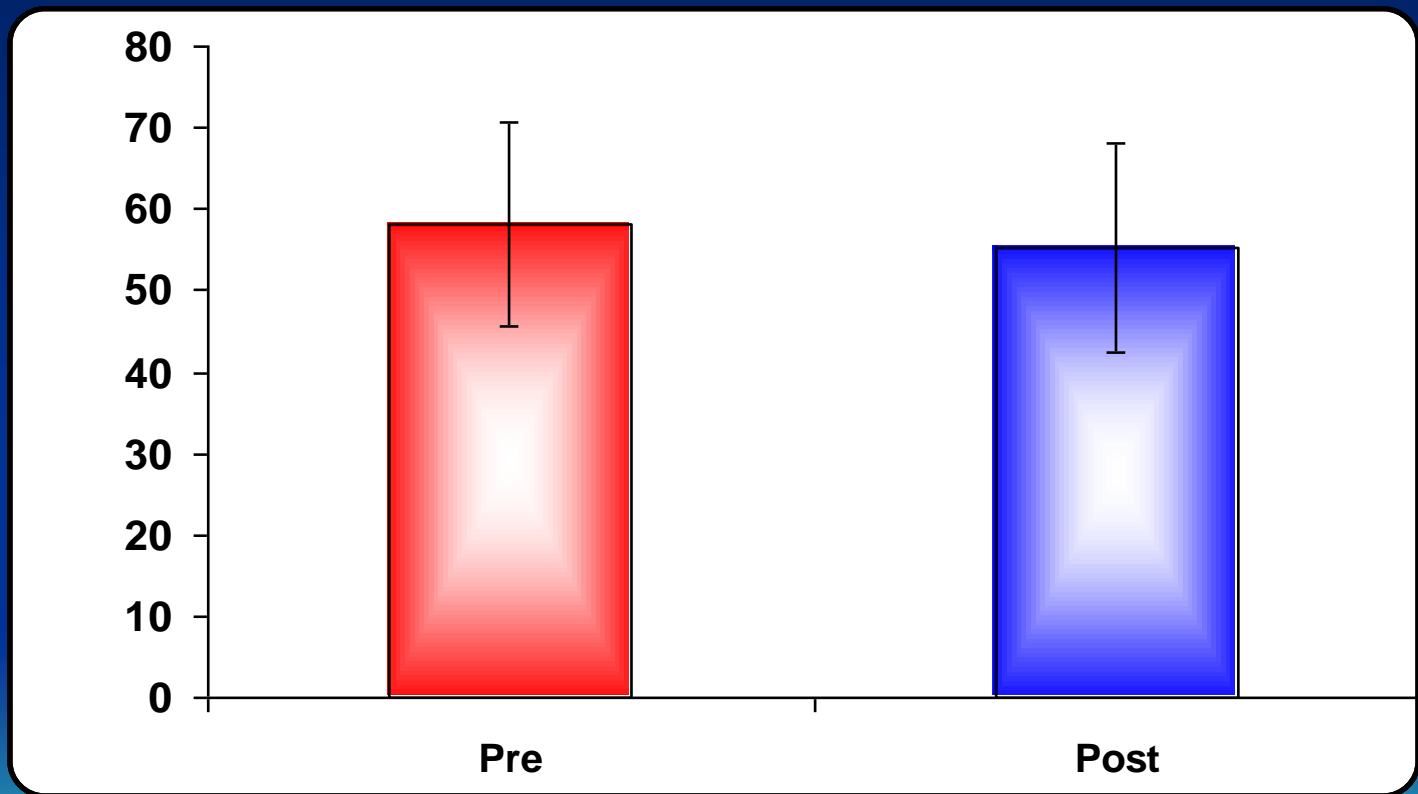
## Mean values of AST pretreatment data and AST post treatment data in group (II)



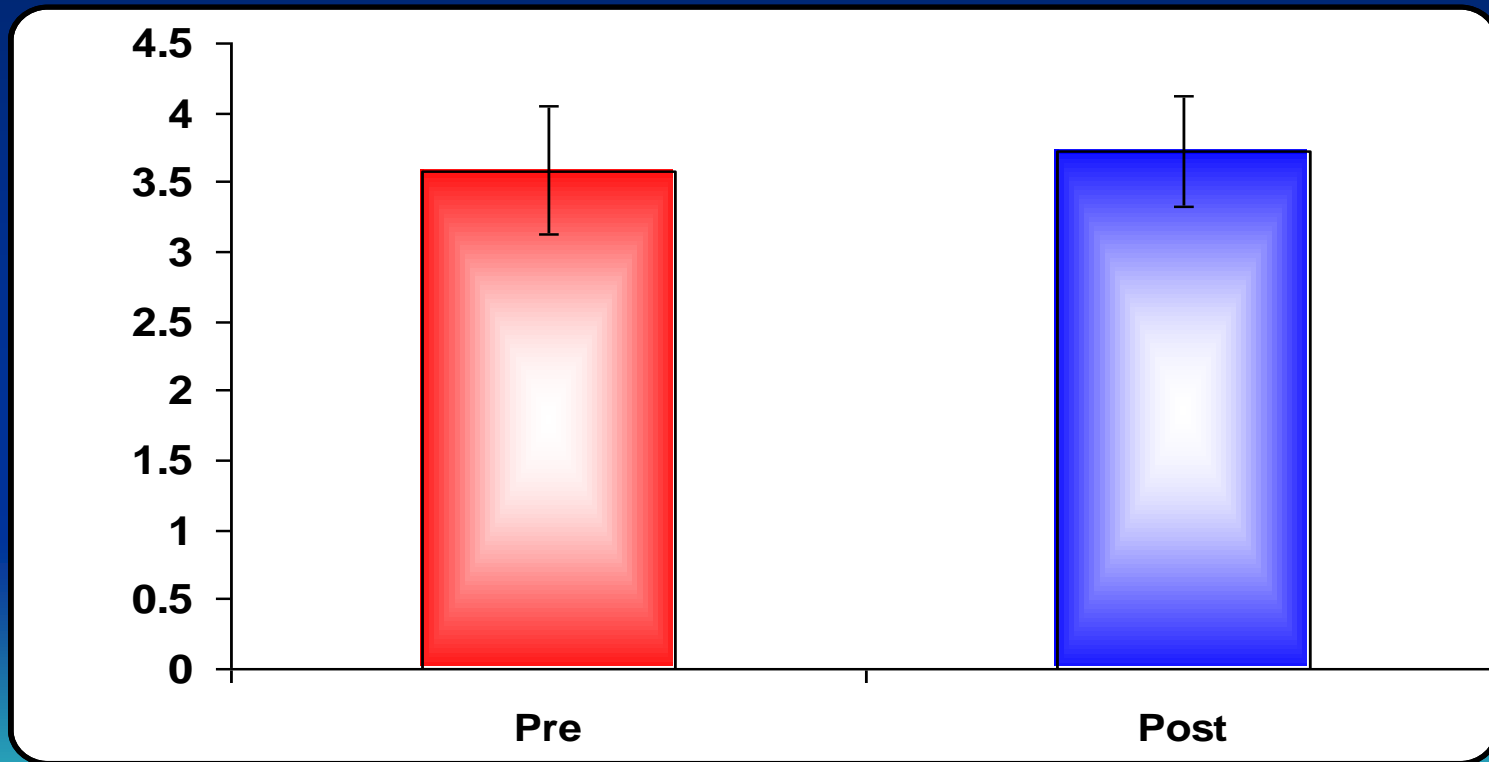
# Mean values of ALT pretreatment data and ALT post treatment data in group (I)



# Mean values of ALT pretreatment data and ALT post treatment data in group (II)

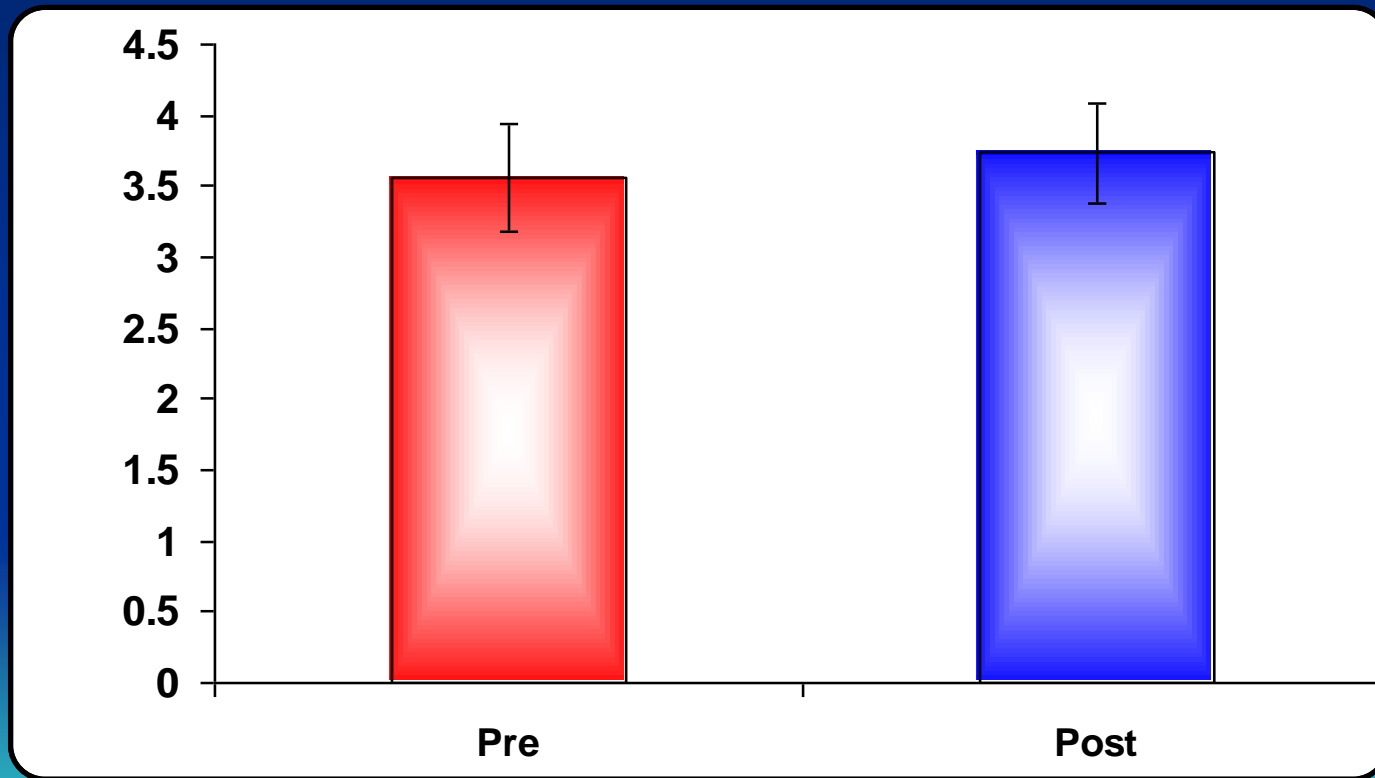


## Mean values of Albumin pretreatment data and Albumin post treatment data in group (I)





## Mean values of Albumin pretreatment data and Albumin post treatment data in group (II)



*findings*



- The first findings of the current study showed non significant decrease in lower limb edema measurement (pre and post treatment application) in both groups (I and II).
- The second finding was non significant decrease in liver function (ALT ,AST) while there was significant increase (Albumin) pre and post treatment in both groups.



# CONCLUSION

A combination of (kinesio tape and standard physical therapy program) had a non significant effect on edema reduction and improvement of liver function



# THANK YOU

