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## **Effects of Exercise Training on Postmenopausal Hypertension: Implications on Nitric Oxide Levels**

Khalid Turkey, PhD\*, Nesreen Elnahas, PhD\*\*, Ramadhan Oruch, MD\*\*\*

\*Faculty of Physical Therapy, October 6 University, Egypt, \*\*Faculty of Physical Therapy, Cairo University, Egypt,

\*\*\*Department of Pharmacology and Toxicology, School of Pharmacy, Benghazi University, Benghazi, Libya

### **Abstract**

**Background:** Postmenopausal hypertension is one of the leading causes of morbidity and mortality in women. Exercise training has been proved to decrease its risk factors and cardiovascular events. Aerobic exercise training stimulates endothelial nitric oxide release that acts as an antithrombotic and is cardiovascular protective. The effect of aerobic exercise training on postmenopausal hypertension is not fully elucidated. The purpose of the study: to investigate the effects of moderate exercise training on nitric oxide levels in postmenopausal hypertension. **Methods:** A prospective, randomized, controlled trial was conducted on 30 postmenopausal women involved in this study. The participants had at least one year's history of postmenopausal hypertension. Their ages ranged (40-50) years. Their body mass index ranged (30-36 Kg/m<sup>2</sup>). They were divided into two equal groups (treatment and control). Nitric oxide levels and blood pressure were measured in both groups in the initial examination at the beginning of the study, and at the end of the study. The treatment group received moderate aerobic exercise training. This ranged from 60-70% of maximum heart rate by walking on a treadmill at an average speed of 4km/hour for at least 20 minutes, three sessions a week, for 8 weeks. **Results:** Body mass index, systolic and diastolic blood pressures were statistically significantly decreased. Nitric oxide levels were significantly increased in the treatment group. In this group the level of NO increased by 30.4% and systolic blood pressure decreased by 16.2%. Diastolic blood pressure decreased by 9.5% and body mass index decreased by 6%. In the control group the NO level increased by 8%. Systolic blood pressure decreased by 3% and diastolic blood pressure decreased by 3%.

**Conclusion:** Exercise performed at moderate intensity for two months had obvious benefits in improving NO levels and controlling the hypertension in obese postmenopausal women.

**KEY WORDS:** *Nitric oxide, Aerobic exercise, Postmenopausal hypertension*



## Moderate Versus Low Intensity Aerobic Exercise on Bone Mineral Density in Patients on Hemodialysis

Nesreen G. El-Nahas<sup>\*</sup>, Heba A. Bahey<sup>\*\*</sup>, Shimaa N.Aboelazm<sup>\*\*\*</sup>

\* Department of physical therapy for Cardiovascular \Respiratory Disorder and Geriatrics, Faculty of Physical Therapy, Cairo University. \*\* Ph.D of Physical Therapy for Surgery, Faculty of Physical Therapy, Misr University for Sciences and Technology ,.\*\*\* Department of Basic Sciences, Faculty of Physical Therapy, Misr University for sciences and technology.

### Abstract

Chronic kidney disease (CKD) is recognized as a major health problem reflecting the growing elderly population and increasing numbers of patients with diabetes and hypertension. Medical researches confronted with management of complex medical problems that are unique to patients with chronic renal impairment and renal dialysis where patients suffer from hypocalcemia that subjected them to osteoporosis. **Objective:** The aim of this study was to compare the effect of two different intensities of aerobic exercises on bone mass density in patients on haemodialysis **Subjects:** Thirty male patients underwent renal haemodialysis for 2 years ago with mean age (52.75±4.51) were recruited from Police hospital . **Methods:** They were assigned randomly into two groups, 15 patients in each group. Group (A) attended a program of moderate intensity aerobic treadmill exercise (60-70%MHR), where Group (B) attended a program of light intensity aerobic treadmill exercise (40-60%MHR), both for 6 months (3 sessions of exercise per week) prior to the dialysis session. Laboratory investigations for serum calcium and phosphorus level in addition to a dual X ray absorpimetry (DXA) were applied at baseline and after 6 months of training for both groups. **Results:** The study revealed a significant difference in bone mineral density in favor of group A with P- value 0.01 as well as a significant increase in serum calcium by **12.29 %**, **4.23 %** and significant decrease in serum phosphorus with **21.67 %**, **6.52 %** for group A and B respectively. **Conclusion:** Moderate intensity aerobic exercise is more effective than light intensity aerobic exercise in modulating serum calcium and phosphorus and thus improving BMD in patients with hemodialysis.

Key words: **Bone Mass Density /Osteoporosis/ Renal Haemodialysis/ Aerobic Exercises.**



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## The Impact of Low Frequency Ultrasound and Lymphatic Drainage on Triglycerides

Manar M. Badawy <sup>α</sup>, Nesreen G. Elnahas <sup>σ</sup>, Zahra M. H Serry <sup>ρ</sup> & Basem Alzareef Fouad <sup>ω</sup>

### Abstract-

The aim of this study is to evaluate the effect of low frequency ultrasound plus lymphatic drainage on blood triglycerides in cardiac patients chronic coronary atherosclerosis patients with high triglycerides and fat mass body composition. Forty female patients with age ranges from 40 to 50 years were selected from Palestine hospital and they were chronic atherosclerotic patients and were assigned into 2 groups according to their BMI based on the classification of the world health organization. Each patient in the two groups (Group A and Group B) was evaluated before and after 24 sessions treatment program by using the combination of ultrasound and lymphatic drainage machine. The assessment of blood serum triglycerides by UDICHEM-310 ANALYSER have been done before and after the end of 24 sessions and Re-assessment after 2 months from the last treatment session. The collected raw data of the current patients were statistically analyzed to evaluate the results of the two groups to investigate the effect of using the combination of ultrasound and lymphatic drainage machine on blood serum triglycerides. In this study, the results are revealed statistically significant improvement of blood serum triglycerides before and after the treatment with more improvement had been achieved after 2 months after last session. Furthermore, the low frequency ultrasound technique plus lymphatic drainage technique improve blood serum triglycerides of chronic coronary atherosclerosis patients with high triglycerides and fat mass composition.

*Keywords: low frequency ultrasound; lymphatic system; lymphatic drainage; triglycerides; coronary atherosclerosis*



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## Long Term Effect of Cardiac Rehabilitation Program on Patients with Percutaneous Coronary Intervention

Ali Mohammed Hassan, Prof. Dr. Zahra Mohammed Hassan Serry,  
Prof. Dr. Neseren Ghareeb El Nahas & Prof. Dr. Osama Al Sayed Abd El Moneem

### Abstract-

**Background:** Cardiovascular disease (CVD) is a major health problem worldwide. Cardiac rehabilitation (CR) is mainly involved with secondary prevention which relies on early detection of the disease process and application of interventions to prevent the progression of disease. These interventions include education; counseling and behavioral strategies to promote lifestyle change and modify risk factors. The aim of this study was to determine the long term effect of CR on patients with percutaneous coronary intervention (PCI). **Subjects and Methods:** Sixty patients of both sexes (41 men and 19 women) had been recruited from National Heart Institute, Cairo. All patients underwent PCI. They were randomly assigned to two equal groups in number. Study group was 30 patients (21 men and 9 women, mean age was  $52.6 \pm 5$  years) that had been received aerobic mild to moderate intensity exercise training on bicycle ergometer for 50 minutes, 3 times/week, for 6 months and educational program of secondary prevention, and was followed up after one year, while control group was 30 patients (20 men and 10 women, mean age was  $53.8 \pm 5$  years) that had been received instructions about risk factors after PCI once and followed up after one year. Functional capacity was evaluated by 6-minutes walking test (6MWT), quality of life (QoL) was assessed by 36-Item Short- Form Health Survey (SF-36) and different risk factors e.g. smoking status, body mass index(BMI), fasting blood glucose, blood pressure, blood lipid levels, were assessed before and after the CR for both groups. **Results:** After CR, a significant increase was observed in 6 MWT ( $P < 0.05$ ), significant improve in cardiovascular risk factors(smoking status, body mass index, fasting blood glucose, blood pressure, blood lipid levels) and QoL were increased in the study group ( $P < 0.05$ ) compared to control group. **Conclusion:** Cardiac rehabilitation significantly improves functional capacity and cardiovascular risk factors and QoL after percutaneous coronary intervention. It is recommended not to miss referral to rehabilitation units.

**Keywords:** *percutaneous coronary intervention, cardiac rehabilitation, functional capacity, cardiovascular risk factors, quality of life.*



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### Laser Versus Reflexology on Kidney Functions in Patients with Hypertension Enrolled under Dash Diet

Sally Mohamed<sup>1\*</sup>, Zahra Serry<sup>2</sup>, NesreenElnahas<sup>2</sup>, Sally Hakim<sup>3</sup>

<sup>1</sup>Physical Therapist at El Agouza Hospital, Cairo, Egypt

<sup>2</sup>Physical Therapy for Cardiovascular/ Respiratory Disorder and Geriatrics, Faculty of

Physical Therapy, EgyptCairo University

<sup>3</sup>Public Health, Ain Shams University, Egypt

#### Abstract:

**Background:** Kidney functions increased in hypertensive patients. **Objectives** of this study were to determine the difference between effect of reflexology and laser on kidney functions and blood pressure. **Methods:** Sixty patients (48 women and 12 men) aged from 45-55 years old participated in this study with moderate essential hypertension ranged from 150/170 for systolic blood pressure and 90/110 for diastolic blood pressure. The patients were assigned into two equal groups in number. Group A received foot reflexology for twenty minutes while group B received laser on reflexology points for eight minutes. The management for groups done three times/week for eight weeks in association with DASH diet and their regular medications according to their physicians. Systolic and diastolic blood pressure was measured. Also, serum creatinine and serum electrolytes (sodium, potassium and calcium) were used to measure kidney functions pre and post management. **Results:** The obtained data revealed a statistically significant decrease in systolic and diastolic blood pressure and serum creatinine in group A while a statistically significant decrease in systolic and diastolic blood pressure only in group B after treatment ( $P < 0.05$ ). There was no statistical significant difference between levels of Na, K and Ca pre and post management in both groups. **Conclusion:** Foot reflexology in addition to regular medications may be valuable to decrease blood pressure and kidney functions more effectively than laser therapy.

**Key Words:** laser/ reflexology/ kidney functions/ hypertension/ DASH.