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RESPONSE OF FATTY LIVER PATIENTS TO MODERATE VERSUS HIGH INTENSITY AEROBIC EXERCISE

A Thesis

Submitted in Partial Fulfillment for the Requirement of Doctoral
Degree in Physical Therapy.

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**THIS WORK
IS DEDICATED
TO MY PARENTS,
MY HUSBAND
AND MY DAUGHTERS**

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Abstract

The aim of this study was to compare the response of fatty Liver patients to moderate versus high intensity aerobic exercise. Forty NAFLD patients participated in the study, their age ranged from 30 to 45 years. They were divided randomly into three groups.(A) moderate intensity aerobic exercise group (n=15) ; (B) high intensity aerobic exercise group (n=15) and (c) control group (n=10) didn't receive any training. The program continued for 10 weeks (three sessions per week). Anthropometric indices, biochemical data (AST, ALT, TG, HDL, LDL and total cholesterol), liver fat on ultrasound, BMI and waist circumference were recorded at the beginning and after the end of the study for all groups. The results of this study showed a significant improvement in AST, ALT, TG, HDL, LDL and total cholesterol, liver fat on ultrasound, BMI and waist circumference in both study groups as compared to the control group. So it is recommended to use both moderate and high intensity aerobic exercise in order to improve liver enzyme and liver fat in NAFLD as each of them has higher effect on liver enzyme or liver fat.

Key words: fatty liver , aerobic exercise intensity , liver enzyme and liver fat .

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LIST OF ABBREVIATIONS

AC	Abdominal circumference.
AMPK	Adenosine monophosphate activated protein kinase.
ALT	Alanine aminotransferase.
AST	Aspartate Aminotransferase.
BMI	Body Mass Index.
B.P	Blood Pressure.
CHOL	Cholesterol.
CHO	Carbohydrate.
cm	Centimeter.
CT	Computerized tomography.
CVD	Cardiovascular Disease.
EDTA	Ethylene diamine tetraacetic acid.
FFA	Free Fatty Acids.
Fig.	Figure.
FL	Fatty liver.
g.	Gram.
HDL	High-density Lipoproteins
HIAE	High Intensity Aerobic Exercise.
HOMA-IR	Homeostasis Model Assessment of Insulin Resistance.
HRQL	Health Related Quality of Life.
HS	Hepatic steatosis.
IU/L	International Unit per Liter.
Kg	Kilogram.
LCFA	long chain fatty acid.
LDL	Low-density Lipoproteins.
m	Meter.
m ²	Meter square.
Mg.	Milligram.
mg/dl.	Milligram per deciliter.
MHR	Maximum Heart Rate.
MIAE	Moderate Intensity Aerobic Exercise.
Min.	Minimum.
min.	Minute.
ml.	Milliliter.
mmHg.	Millimeter mercury.
MRI	Magnetic resonance imaging.
MS	Metabolic syndrome.
NAFLD	Nonalcoholic fatty liver disease.
NEFAs	Non-esterified Fatty Acids.
OVX	Animal rats.

SD	Standard Deviation.
SF	Subcutaneous Fat.
SHS	simple hepatic steatosis.
TC	Total Cholesterol.
TG	Triglyceride.
TNF	Tumor Necrosis Factor.
VF	Visceral fat.
vs.	Versus.
$V_{O_{2max}}$	Maximum oxygen consumption.
VLDL	Very Low-density Lipoproteins
WC	Waist Circumferences
WHO	World Health Organization.
%	Percent.
μ L	Micro liter.
U/L	Units per Liter
US	Ultrasound.

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