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EFFECT OF WEIGHT TRAINING ON TRIGLYCERIDES AMONG MIDDLE AGED OVERWEIGHT MEN

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Abstract : The purpose of the study was to find out the effect of weight training on triglycerides among middle aged overweight men students. To achieve the purpose of the study, 24 subjects were randomly assigned to experimental group (12) and control group (12). Physical examination and medical checkup at the initiation of the study yielded normal results in all the subjects. The experimental group underwent a Weight Training Program for a period of 24 weeks, whereas the control group maintained their regular routine activities. The subjects of both the groups were tested on selected criterion variable such as triglycerides 24 hours before and after the period of experimentation. The analysis of covariance (ANCOVA) was used to find out the significant differences if any, between the experimental group and control group on selected criterion variable. In all cases, 0.05 level of significance was fixed to test the significance, which was considered as an appropriate. The result of the present study has revealed that there was significant difference among the experimental and control group on triglycerides.

IndexTerms **- weight training, triglycerides, middle aged, overweight men.**

I. INTRODUCTION

Man lives for happiness. Happiness offers him amusement and satisfaction, which relies upon on his bodily and intellectual cap potential. The primitive guy can also additionally because of the very nature of his each day sports, builds a sturdy body advanced to the civilized guy. In modem civilized equipment world, the hazard for the bodily sports is much less due to the discovery of pc and such a lot of different gadgets and the primary want of participation within side the bodily hobby to hold an excellent fitness is sort of forgotten. The Health is described as a country of whole bodily, intellectual and social nicely being and now no longer simply unfastened from sicknesses or infirmity. Everybody dreams a protracted and healthful lifestyles and workout has a high-quality element to play in this. In one factor the frame may be stated to begin growing old from the instant it's miles born, even though it is regular to mention it actually starts off evolved in approximately the mid-thirties. However distinct structures of the frame age at distinct rates, no question relying upon how they're used or now no longer used. Many humans hold completely lively lifestyles, each bodily and mentally, nicely in to their vintage age. The barrier of those sports frequently appears to be physiological instead of bodily, and whilst someone thinks he's too vintage to do something bodily he could be absolutely wrong, despite the fact that an excessive amount of of workout may want to do harm. The best manner to discover if you possibly can do something is to try. Physical Training implies participation in a application of everyday and full of life bodily hobby with the number one aim of enhancing both bodily overall performance or fitness thru the improvement of a few aspect of health together with cardio-vascular feature or muscle electricity. Physical hobby is described as "physical motion produced through skeletal muscular tissues that calls for power expenditure" and produces healthful benefits. Exercise, a form of bodily hobby, is described as a planned, structured, and repetitive physical motion completed to enhance or hold one or extra additives of bodily health. Physical inactiveness denotes a stage of hobby much less than that had to hold right fitness. Better performances are mostly the final results of green technique, the development of pace and the maturing aggressive mind-set on a valid foundation of fashionable endurance, all spherical electricity and fashionable mobility. The improvement of all spherical electricity is first-rate accomplished thru circuit schooling after which progressing this thru electricity schooling. Strength schooling is workout that makes use of weights to situation the muscular tissues through enhancing muscle tone, electricity and endurance. Strength schooling now no longer best tones muscular tissues, it reduces fats, speeds metabolism, will increase endurance, improves posture, strengthens bones, and cuts the danger of damage and combat the symptoms and symptoms of getting older. One can update muscle misplaced to getting older through electricity schooling. Studies display that to a few months of electricity schooling can update three kilos of muscle. By lifting weights, you furthermore may counter your frame's herbal metabolic decline of two to five percentage every decade. Weight schooling is essential to weight control, due to the fact people who've extra muscular tissues have a better metabolic rate. Muscle is lively tissue that consumes energy even as saved fats makes use of little or no power. Strength schooling can offer as much as a 15% growth in metabolic rate, that's especially beneficial for weight reduction and long-time period weight control. Strength schooling gives comparable upgrades

in melancholy as anti-depressant medications. Weight schooling is critical for cardiac fitness due to the fact coronary heart disorder danger is decrease whilst the frame is leaner. Studies have observed that cardiac sufferers received now no longer best electricity and versatility however additionally cardio ability once they did electricity schooling 3 instances every week as a part of their rehabilitation application. All those research have induced the American Heart Association to propose electricity schooling as a manner to lessen danger of coronary heart disorder and as a remedy for sufferers in cardiac rehabilitation programs. Weight schooling is likewise referred to as resistance schooling or electricity schooling. Strength is the cap potential to triumph over resistance or to behave towards resistance. Strength must now no longer be taken into consideration as a fabricated from best muscular contractions. Strength is a conditional cap potential that relies upon more often than not upon the power liberalization method within side the muscular tissues. Strength schooling is critical for cardiac fitness due to the fact coronary heart disorder danger is decrease whilst the frame is leaner. Studies have observed that cardiac sufferers received now no longer best electricity and versatility however additionally cardio ability once they did electricity schooling 3 instances every week as a part of their rehabilitation application. All those research have induced the American Heart Association to propose electricity schooling as a manner to lessen danger of coronary heart disorder and as a remedy for sufferers in cardiac rehabilitation programs. Resistance schooling is likewise referred to as electricity schooling or weight schooling. Strength is the cap potential to triumph over resistance or to behave towards resistance. Strength must now no longer be taken into consideration as a fabricated from best muscular contractions. Strength is a conditional cap potential that relies upon more often than not upon the power liberalization method within side the muscular tissues..

Cardiovascular illnesses are the primary motive of loss of life accounting for geriatric mortality, this money owed for almost one 0.33 of the loss of life within side the aged especially from coronary coronary heart ailment, stroke and congestive coronary heart failure. The elements related to an expanded threat for untimely improvement of coronary heart ailment may be grouped into the ones over which the character has no manipulate and people that may be altered thru simple adjustments in lifestyles styles. Those elements that may be altered consist of accelerated blood fats (Cholesterol and Triglycerides), accelerated blood pressure (Hypertension), cigarette smoking, weight problems, diabetes mellitus and bodily inactivity. Physical exercising and avoidance of weight problems are each presently cautioned as measures to save you cardiovascular illnesses. The globalization of meals manufacturing and advertising has led to significantly expanded availability of reasonably-priced vegetable oils and fats, and expanded intake of energy-dense meals which can be bad in nutritional fiber and numerous micro-nutrients. The idea that a sedentary way of life ends in an growth within side the scientific manifestations of coronary coronary heart ailment (CHD), particularly myocardial infarction and unexpected loss of life, has emerge as commonly widely wide-spread through the general public and plenty of fitness professionals. Most often, the concept has been expressed that ordinary exercising, along with different threat-lowering behaviors, will assist shield in opposition to an preliminary cardiac episode (number one prevention); will useful resource within side the restoration of sufferers following myocardial infarction, coronary artery pass surgery, or coronary angioplasty (cardiac rehabilitation); and could lessen the threat of recurrent cardiac events (secondary prevention). Lipids and Lipoprotein ldl cholesterol are associated with each threat of growing coronary coronary heart illnesses and the price of development of arteriosclerosis in sufferers with recognized CHD. The dating among lipid stages and CHD has been studied at period and has contributed distinctly to the literature. Current questioning is that overall ldl cholesterol (TC), Low Density Lipoprotein Cholesterol (LDL C), High Density Lipoprotein Cholesterol (HDLC), are applicable and Triglycerides (TG) are gaining significance as contributory elements. Low stages of High Density Lipoprotein Cholesterol , Maximum Oxygen uptake(V02 max), and excessive stages of Low Density Lipoprotein Cholesterol, Total Cholesterol , Triglycerides and weight problems had been lengthy being taken into consideration as threat elements for coronary coronary heart ailment.

II. MATERIALS AND METHODS

An absolute wide variety of forty one probably obese guys chipped in for the overview. In the primary level each one in all them have been knowledgeable exhaustively the concept of the overview and what their dedication will be. Out of which nine topics cease. In the second one level the tallness, weight and heartbeat tempo of the multitude of 32 topics in fasting kingdom without footwear and with least get dressed have been estimated. Every one of the estimations have been acted within side the erect state of affairs with the aid of using the scientist. The Body Mass Index (BMI) become processed because the weight (Kgs) partitioned with the aid of using stature square (m2). Out of the 32 topics 29, who have been having BMI over 27 have been selected for the 1/3 level. In the 1/3 level a composed rationalization of the take a look at approach and ability hazard elements have been given to every topics. Five of them cease the listen due to man or woman reasons. The extensive variety of diverse 24 chipped in as topics for the overview and their knowledgeable assent become gotten.

	Exp. Group		Control Group		Total	
	Mean	SD	Mean	SD	Mean	SD
Age	39.17	2.29	41.75	2.45	40.45	2.67
Height	168.42	6.14	166.92	5.70	167.67	5.84
Weight	88.00	9.02	87.83	7.80	86.10	8.79
BMI	30.96	2.07	31.52	1.89	31.24	1.96

The 24 topics have been haphazardly allocated to both Experimental accumulating ('EXP', No: 12) or Control bunch ('CON', No: 12). Actual Examination and Medical take a look at on the inception of the overview yielded usual effects in each one of the topics and not one of the topics were given any time of the overview. The benchmark traits of the prescription at some stage in the topics have been given in Table-I They selected topics have been haphazardly separated into 3 gatherings of 12 topics every accumulating. Gathering one went approximately as trial accumulating, and accumulating II went approximately as manipulate bunch. The take a look at bunch topics have been went via everyday weight making ready exercise for twenty-four weeks. The topics have been attempted on selected rule variable, for example, absolute ldl cholesterol earlier than and following the education time frame. Investigation of covariance (ANCOVA) become implemented for dissect the information. The 0.05 stage become applied to check this importance.

Estimation of Triglycerides (GPO method)

Triglyceride is formulated using GPO and peroxidase for quantitative estimation of plasma triglycerides. This method is more specific due to use of lipase to liberate glycerol which is estimated. This method is sensitive mainly because of higher molar extinction coefficient of the final color complex with the result that the sample volume needed for the assay is less.

Principle

Lipase hydrolyses plasma triglycerides to glycerol and free fatty acids. The liberated glycerol is converted to glycerol 3-phosphate in the presence of ATP and glycerokinase Glycerol 3-phosphate is oxidized by glycerol 3 phosphate oxidase to yield hydrogen peroxide. Hydrogen peroxide thus generated reacts with ESPAS (N-ethyl. N-Sulfopropyl m-anisidine) and 4 aminoantipyrine in the presence of peroxidase to form a coloured complex. The intensity of the colour so developed is proportional to triglycerides concentration and is measured photometrically at 546 nm (530-570 nm or Green filter).

Triglyceride = H_2O _____ Glycerol + Fatty Acids

Glycerol + ATP_____ Glycerol 3 - phosphate + ADP

Glycerol 3 phosphate + O_2 _____GK_____ Dihydroxyacetone phosphate + H_2O_2

H_2O_2+4 Aminoantipyrine + ESPAS _____Quinonenimine + $3H_20$

GK : Glycerolinase

GPO : Glycerol 3- phosphate Oxidase

The kit contains 1 Triglycerides (Enzymes & Chromogen) 3 bottles, 2 Triglycerides (Buffer) 1 Bottle and Triglycerides standard (200 mg/dl).

Preparation of working reagent

The content of 1 triglycerides (Enzymal chromogen) were dissolved in 10 ml of 2 triglycerides. The resulted mixer was transferred into a new container. The bottle which contained 1 triglyceride was rinsed repeatedly using the mixture.

Procedure

0.0 ml of sample (in as many test tubes) and 0.01 ml of standard were pipetted out into test tubes to which 1,0 ml of working reagent was added. One separate test tube with 1.0 ml of working reagent is kept as blank. The contents were mixed and incubated at 37°C for 15 min. The absorbance of the test and the standard against reagent blank at 546 nm (540-570 nm or with Green filter) was recorded.

The amount of Triglycerides (mg/dl) was calculated using the formula.

$$T.G = \frac{\text{Absorbance of the test}}{\text{Absorbance of the standard}} \times 200 \text{ (mg/dl)}$$

III. RESULTS AND FINDINGS

The data collected prior to and after the experimentation period on Triglycerides among experimental and control groups were statistically analyzed and presented in table II.

Analysis of Covariance for Triglycerides among Experimental & Control Groups.

		Con. Group	Exp. Group	SOV	SS	df	MS	F ratio
PRE TEST	Mean	236.25	247.50	**B**	759.37	1	759.37	**0.185**
	SD	65.51	62.42	W	90069.25	22	4094.06	
POST TEST	Mean	240.91	216.66	**B**	3528.37	1	3528.37	**0.995**
	SD	66.35	51.84	W	77993.58	22	3545.16	
ADJUSTED POST TEST	Mean	260.43	223.32	**B**	7906.68	1	7906.68	**122.71***
				W	1353.15	21	64.44	

The Table value for 0.05 level of confidence with degree of freedom for 1&22 and 1&21 are 4.30 and 4.32 respectively

Table II shows that the Pre Test means of Triglycerides among Experimental group (247.50 ±62.42) and Control group (236.25 ± 65.51) resulted in F - ratio of 0.185 which indicates no significant difference between Pre Test means at .05 level of confidence. The Post Test means of Triglycerides among Experimental group (216.66 ± 51.84) and Control group (240.91 ± 66.35) resulted in a F - ratio of 0.995 which is not significant at .05 level of confidence, whereas the adjusted post is means of Experimental (223.32) and Control groups (260.43) resulted in a F - ratio of 122.71 which was significant at .05 level of confidence (Fig 5).This indicates that there is a significant change in Triglycerides among experimental group when compared with the control group. After going through the results, it was concluded that Weight Training Program has significantly reduced Triglycerides among over weight middle aged men.

IV. DISCUSSION ON FINDINGS

The Pre Test means and Post Test means of Triglycerides among Control group (236.25 ± 65.51 vs 240.91 ± 66.35) shows an increase of 4.66(1.97%), While the Pre Test means and Post Test means of Triglycerides among Experimental group (247.50 ±62.42vs 216.66 ± 51.84) shows an decrease of 30.84 (12.46%). Furtherer more when the adjusted post test means of Experimental (223.32) and Control groups(260.43) were analyzed by means of Analysis of Covariance, The obtained results

indicates a significant decrease in Triglycerides in the Experimental group when compared with the Control Group (P > 0.05).

On the basis of the results obtained it was concluded that Weight Training Program resulted in a significant decrease in Triglycerides among Overweight middle aged men. Additional fat oxidized during exercise training is developed primarily from intramuscular triglyceride stores (Hurley et al., 1989). It is also assumed that physical activity reduces clearance of TG by enhancing Lipoprotein lipase activity, thus increasing the peripheral clearance of TG rich particles (Saddy et al.,1986). The obtained results were in conformation with the findings of Goldberg L. et al.(1984), Fripp RR, and Hodson JL(1987), Shaw BS, and Shaw 1.(2005), Hurley BF, et al.(1988), Boyden TW, et al.(1993), and in contradiction to the findings of Hurley BF,(1989), Kokkions et al.(1991,1998) and Manning JM, et al.(1991).

V. DISCUSSION ON HYPOTHESIS

On the basis of the results obtained it was concluded that Weight Training Program resulted in a significant decrease in Triglycerides among Overweight middle aged men. In hypothesis it was stated that there will be a significant reduction in Triglycerides. The results of the study show no such reduction and hence the hypothesis is accepted.

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