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Article : EFFECT OF SELECTED EXERCISE AND PRANAYAM ON CHOLESTEROL LEVEL OF AFFECTED INDIVIDUALS : Biochemistry

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Abstract:

The purpose of the Study is to analyze effect of selected exercise and pranayama on cholesterol level including Low Density Lipoproteins and High Density Lipoproteins. Of affected individuals, forty five men in Nagpur Municipal Corporation 50 person examined and declared 45 of them were medically fit for this study and they were selected by lot method and they were divided randomly in to three groups as one control and two experimental group. The selected forty five subjects were randomly divided in to three groups of fifteen each, out of which group I (N-15) Underwent running activity, and group II (N-15) Underwent Pranayama and group III (N-15) remained as control. Pre test were conducted for all three groups on Low Density Lipoproteins and High Density Lipoproteins. The experimental group participated in their respective Exercise for a period of six weeks. Post test were conducted on the above mentioned dependent variables after six weeks of the training period. The training programmed was scheduled at morning 6.00 a.m. to 7.00 a.m. and evening 6.00 p.m. to 7.00 p.m., Collection of data Blood sample was collected from individual's ear lobe in the morning with empty stomach to check the value of the individual Low Density Lipoproteins and High Density Lipoproteins in pre and post training session . The blood sample was analyzed in the biochemistry lab in Nagpur. The Analysis of co-variance statistical techniques was use to find out the effect of exercise and Pranayama on cholesterol level of affected individuals in society. The scheff's post hoc test was use to find out the paired mean significant difference. The results of the study indicate that the daily exercise and Pranayama activity done by those people indicate that there was higher level of HDL in blood than the sedentary men. Its indicates that heart related problems can be higher in the sedentary people than those who do daily exercise and Pranayama activity. It reasons are listed below. In short the Post test study clearly indicate that there is a significant difference of Low Density Lipoproteins and High Density Lipoproteins in blood than the pre test. It is finally concluded that the sedentary persons may get

Coronary Heart Disease or Heart related problems due to insufficient exercise and pranayama.

Keywords: Exercise, Pranayama, Low Density Lipoproteins and High Density Lipoproteins.

Article:

Introduction:-

The universal need and importance of daily exercise and Pranayama systematically planned and known as exercise and yoga cannot be ignored at least in the present modern high-tech artificial world. Because of the inventions of the man made machines the man himself has made its organs so weak that its survival has been in dangerous situation resulting less life span and many serious life killing diseases like Blood sugar, blood cholesterol, Heart Attack, Kidney failure Heart Disease etc. Heart Disease contains many type of disease like Angina pectoris, Arteriosclerosis, Cordial Arrest, Valvular Heart Disease and Coronary Heart Disease.

The present discussion is in relation to the Coronary Heart Disease only. Coronary Heart Disease can occur due to deformity from in heart vein. Increase in cholesterol level is one of the reasons of coronary obstruction through balloon treatment and bypass surgery this obstruction can destroy. Balloon treatment and bypass surgery are successful. But it is very expensive and middle class person cannot afford this. Due to this problem I made solution and found positive way to control cholesterol level without expenses and assess of the benefit of exercise and yoga on person suffering from abnormal cholesterol level.

What is cholesterol?

Cholesterol the fat like substance is the word that most people especially the middle age group and above hate to hear. The flipped side is that our body needs cholesterol for function such as making hormones. Besides being found in those products above, it is also produced in our body.

Type of cholesterol: - There are good and bad cholesterol. They cannot dissolve in the blood and have to be transported through the bloodstream in different carriers called lipoproteins. Low Density Lipoproteins (LDL or bad cholesterol) deliver cholesterol to the body, while High Density Lipoproteins (HDL or good cholesterol) take cholesterol out of the blood stream to the liver, which will then, passes them out of the body. Various studies sponsored by the U. S. government that high blood cholesterol level is a risk factor for coronary heart disease.

What is Pranayama?

According to ***Patanjali Yoga Sutras***, "Regulation of breath or the control of prana is the stoppage of inhalation and exhalation, which follows after securing that steadiness of posture or seat asana.

Pranayama is made of two words "prana" and "yam". Prana means energy or vital force and yam means control. Breath and Pran are two different things altogether. But we cannot see them apart from each other. Breath is Sthula (gross) and Pran is Suksham (subtle). Breath is the external manifestation of Pran. Therefore, Pranayama is "Control of Breath". One can control the rhythms of pranic energy with Pranayama and achieve healthy body and mind.

Type of Pranayama

Breath is the life force that sustains life. Nobody can survive more than a few minutes without air. When the breath stops, life ends. The Forefathers of Yoga developed a special system 'Pranayama' to increase, develop and control this life force. Normal breathing uses only a fraction of our potential respiratory capacity. Pranayama helps to control this life force in a superior and extra ordinary way to reap maximum benefits

Pranayama is used in yoga to clear and cleanse the body and mind. It is also used in preparation for meditation, asana, postures and focusing of the mind. Pranayama create alertness, heat on both physical and subtle levels, and arouse body, mind and spirit or kundalini power. The purpose of Pranayama is to make the respiratory system function at its best. Pranayama is not as complex as it is thought to be. The ancient Sanskrit texts state that Pranayama properly done can cure all diseases, but wrongly done will only invite the same diseases.

The different types of Pranayama are the Bhastrika Pranayama, Anuloma-Viloma, Kapalbhati, Bhramri, Sitlee, Sitkari, Ujjayi, and Vedhene Bandh.

Exercise is one possible management strategy for addressing issues related to Coronary Heart Disease Exercise has the potential prophylactic benefits associated with increased cardiovascular fitness, Exercise has been shown to improve strength, cardiovascular function and psychological state in general population. Exercise include walking, skipping rope, jogging, bicycling and brisk walking

Purpose of the study: - The purpose of the study is to study the effect of exercise and Pranayama on cholesterol level Including Low Density Lipoproteins and High Density Lipoproteins of affected individuals in society and control general people cholesterol level without expenditure.

Significance of the study:- The present study would be important for national health as the results of this study will fight on the complicated disease as well as coronary Heart Disease and beneficial for control general people cholesterol level without expenditure be given a positive results for society.

Sources of data :- To execute this investigation the investigator randomly selected forty five men in Nagpur Municipal Corporation only belonging to the age group of 45-50 years They were divided in to three equal groups of fifteen subjects each and assigned as a Experimental Group-I, Experimental Group-II and Control Group.

Selection of variables: - for this study following variable were selected 1) Low Density Lipoproteins 2) High Density Lipoproteins

Dependent variables 1) Low Density Lipoproteins – Blood test

2) High Density Lipoproteins – Blood test

Independent variables 1) Experimental Group-I – Selected Exercise

2) Experimental Group-II – Pranayama

Experimental Design: The study was formulated as a true random group consisting of pre test and post test for this purpose in Nagpur Municipal Corporation 50 person examined and declared 45 of them were medically fit for this study and they were selected by lot method and they were divided randomly in to three groups as one control and two experimental group. The selected forty five subjects were randomly divided in to three groups of fifteen each, out of which group I (N-15) Underwent running activity, group II (N-15) Underwent Pranayama and group III (N-15) remained as control.pre test were conducted for all three

groups on Low Density Lipoproteins and High Density Lipoproteins. The experimental group participated in their respective Exercise for a period of six weeks. Post test were conducted on the above mentioned dependent variables after six weeks of the training period. The training programmed was scheduled at morning 6.00 a.m. to 7.00 a.m. and evening 6.00 p.m. to 7.00 p.m.

Collection of data Blood sample was collected from individual's ear lobe in the morning with empty stomach to check the value of the individual Low Density Lipoproteins and High Density Lipoproteins in pre and post training session. The blood sample was analyzed in the biochemistry lab in Nagpur.

Statistical technique: - The Analysis of co-variance statistical techniques was use to find out the the effect of exercise and Pranayama on cholesterol level of affected individuals in society. The scheff's post hoc test was use to find out the paired mean significant difference.

Table –I

Computation of Analysis of covariance of HDL

Mean	Control G	Exp.-I G	Exp.-I I G	S.V.	S.S.	D.F.	M.S.	O.F.
Pre test Mean	15.77	15.71	15.74	B	0.29	2	0.01	0.01
				W	49.34	42	1.2	
Post test Mean	15.71	15.52	15.59	B	0.42	2	1.21	0.26
				W	32.33	42	0.78	
Adu. post test Mean	15.75	15.58	15.57	B	0.03	2	0.16	0.55
				W	49.34	41	0.28	

Results of HDL: - Table –I Shows the analyzed on HDL. The pre test mean of HDL were 15.71 for Experimental Group-I, 15.74 for Experimental Group-II, 15.7 7for Control Group. The obtained 'F' ratio 0.01 was lesser than the table 'F' ratio 3.23. Hence the pre test was not significant at 0.05 level of confidence for the degrees of freedom 2 and 42. The post test test mean were 15.52 for Experimental Group-I, 15.59 for Experimental Group-II, 15.7 1for Control Group. The obtained 'F' ratio 0.26 was lesser than the table 'F' ratio 3.23. Hence, the post test was not significant at 0.05 level of confidence for the degrees of freedom 2 and 42. The obtained 'F' ratio 0.55 was less than the table 'F' ratio 3.23. Hence, the post test was not significant.

Findings of HDL result: - This good cholesterol carries LDL back to the liver, where it is converted to single lipoprotein and helps to prevent cholesterol buildup in blood vessels. Low HDL level increases the heart disease risk. The result surprisingly indicated that the sedentary person having (19.00) low HDL than the physically active person (21.00). In trained person, the result clearly indicated that there was optimum level of HDL in the blood than the sedentary men.

Table –II

Computation of Analysis of covariance of LDL

Mean	Control G	Exp.-I G	Exp.-I I G	S.V.	S.S.	D.F.	M.S.	O.F.
Pre test Mean	90.19	90.26	90.26	B	0.29	2	0.01	0.01
				W	49.34	42	1.2	
Post test Mean	89.66	81.26	85.73	B	0.42	2	1.21	0.26
				W	32.33	42	0.78	
Adu. post test Mean	89.73	81.69	85.69	B	0.03	2	0.16	0.55
				W	49.34	41	0.28	

Results of LDL: - Table –II Shows the analyzed on LDL. The pre test mean of LDL were 90.26 for Experimental Group-I , 90.26 for Experimental Group-II , 90.19 for Control Group. The obtained 'F' ratio 0.001 was lesser than the table 'F' ratio 3.23. Hence the pre test was not significant at 0.05 level of confidence for the degrees of freedom 2 and 42. The post test test mean were 81.26 for Experimental Group-I , 85.73 for Experimental Group-II , 89.66for Control Group. The obtained

'F' ratio 6.53 was higher than the table 'F' ratio 3.23. Hence, the post test was significant.

Findings of LDL result: - There was a significant difference between pre and post training. The Experimental Groups LDL level is decreased because they are physically more active and their endocrine secretion is more suitable. As the sedentary person is physically less active their secretion of endocrine gland is less, automatically the chances are more for the cholesterol to get deposited in blood and arteries and leads of block the blood vessels. The higher the LDL cholesterol levels in the blood, the greater the heart disease risk.

Findings of the research: - Finding indicated that heart related problems can be higher in the sedentary people than the trained person and the reasons are listed below. Within the limitation of the study the following conclusion were drawn

1. Result shows that there was significant reduction in LDL due to training.
2. Study indicates the duration of training and changes in HDL level are directly proportional.
3. Study indicates the HDL level and LDL level are indirectly proportional.

Conclusions: - It was concluded that the Pranayama and exercise can improve HDL level and at the same time the LDL level will decrease significantly. If the sedentary person follows the Pranayama and exercise training will improve the good and reduce bad cholesterol.

1. Regular exercise can help improve your cholesterol levels
2. Change of lifestyle also can help in improving your HDL cholesterol levels
3. Eat a healthy diet, get regular physical activity and avoid smoking
4. Lifestyle changes are the first line of defense against high cholesterol.

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