

## Effect of Selected Trunk and Abdominal Exercises on Risk Factors for Cardiovascular Diseases

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(Received 05 January 2014 – Accepted & Published 19 January 2014)

### Abstract:

**Background:** The purpose of the study was to determine the effect of selected trunk and abdominal exercises on risk factors for cardiovascular diseases.

**Method:** seven male corporate employees who were suffering from high level of Cholesterol served as subjects. The criterion variable was assessment of risk factors for cardiovascular diseases i.e. cholesterol (HDL, LDL and VLDL). The procedure for selection of the subjects was based on purposive sampling technique and there was only one group for the treatment for three month called as experimental group. In order to study the effect of trunk and abdominal exercise on Cholesterol, paired “t” test was applied.

**Results:** It was found that there is significant effect of selected trunk and abdominal exercises on risk factors for cardiovascular diseases.

**Key Words:** Lipid profile, Cholesterol, HDL, LDL, VLDL.

### INTRODUCTION:

Cholesterol is a fatty substance (Lipid), which is essential for healthy life. It is found in the organs such as Brain, Nervous Tissue, Skin & Adrenal Gland etc. Cholesterol manufactures mainly in the liver. There are many different types of cholesterol some of the types are LDL, HDL, & Triglycerides. Excess cholesterol in blood stream can build up the walls of blood vessels, like lime scale furring up a water pipe, narrowing the flow. It can also interfere with clotting mechanism & allow a clot to develop within the blood vessels. It clogs up the arteries and causes atherosclerosis which causes cardiovascular disease & also irritates the pancreas.

Whether people try to prevent high cholesterol, or have already been diagnosed with it, exercise can be an important weapon in the fight against high cholesterol and its related causes because fat (visceral) is stored around the liver which impacts its function.

### Objective

The aim of the study was to investigate the Effect of selected trunk and abdominal exercises on risk factors for cardiovascular diseases.

### METHODOLOGY

The study has been made on seven male corporate employees who were suffering from high level of Cholesterol. The procedure for selection of the subjects was based on purposive sampling technique and there was only one group for the treatment called as experimental group. The average age of the subjects was 40 year ranging between 35 to 45 years? In order to test the hypothesis of the study the criterion variables selected for the study was assessment of exercise training programme Only trunk and abdominal twisting exercise was administered to the experimental groups which is related to core, side oblique and back all around the abdominal area using a abdominal crunches, back hyper extension, sideward bending exercises and

combination of all with different intensity and volume. The subjects were exposed for trunk and abdominal exercise in the morning for an hour and the training was conducted in the morning between 8:00 am to 9:00 am five days in a week for three months. The exercise was prepared in such a manner that core muscle with back and side of abdominal area was involved except warming up and cooling down exercise. The subjects were exposed to 15 minutes walking on treadmill/ark/cross trainer in gradually increasing intensity, then Standing, lying (prone, supine & sideward) seven to twelve exercises every day with the help of dumbbell, bamboo stick, cruncher, medicine ball followed by cooling down exercise, subject inhaled, exhaled slowly and steadily during the exercise. During the first month exercise, intensity & repetition varies from individual to individual & for the next two months, subjects have repeated almost same number of sets & equal intensity exercise. The blood samples of the subjects were being taken before the starting of the treatment and again after the three months blood samples were taken and tested to record their total Cholesterol, HDL, LDL, and VLDL from the same Lab in same condition of twelve hour fasting. In order to find out the comparison between pre-test and post test, 't'- test was used. For testing the hypothesis, the level of significance was set at 0.05. Test was administered in the Fitness centre of GE in Health & Fitness General Electric Company, Gurgaon, Haryana. For collection of the data, the following tests such as Lipid Profile, Total cholesterol, HDL-cholesterol, LDL- cholesterol, VLDL- cholesterol were taken by experts professionals in Diagnostic & research centre ISO 9001 :2000 Certified lab. The blood sample has been taken after 12 hour fasting in the state of rest for two times before & after three months of exercise training treatment. The effect of training programme on cholesterol was analyzed by using t – ratio at level of significance was set at 0.01.

**RESULTS:**

In order to study the effect of trunk and abdominal exercise on Cholesterol, paired “t” test was applied at 0.05 level of significance.

**Table-I: Comparison of Pre-Test and Post Test Means of Total Cholesterol of Subjects**

Total	Mean	Standard Deviation	t-Ratio(Cal.)
Cholesterol(Pre) - Cholesterol(Post)	5.416	15.01	8.38*

t-Ratio (Tab.) = 2.447 df=6

Table -I reveals that there was significant difference found between pre-test mean and post-test mean of total cholesterol of subjects because calculated value t =8.38 is greater than tabulated value T=2.447 at 6 d.f.

As per the study, the above remark can be given at 95% confidence. Since calculated t is greater than tabulated t, at 0.5 level of significance, null hypothesis may be rejected at .05 level of significance.

**Table-II: Comparison of Pre-Test and Post Test Means of High Density Lipoprotein of Subjects**

Total	Mean	Standard Deviation	t-Ratio
High Density Lipoprotein (Pre) - High Density Lipoprotein (Post)	3.66	6.68	1.344

t-Ratio (Tab.) = 2.447 df=6

Table -II reveals that there was no significant difference found between pre-test mean and post-test mean of high density lipoprotein of subject because calculated value  $T = 1.344$  is less than tabulated value  $T = 2.447$  at 6 d. f.

As per the study, the above remark can be given at 95% confidence. Since calculated  $t$  is less than tabulated  $t_{.05}$ , null hypothesis may be selected at .05 level of significance.

**Table-III: Comparison of Pre-Test and Post-Test Means of Low Density Lipoprotein of Subjects**

Total	Mean	Standard Deviation	t-Ratio
Low Density Lipoprotein (Pre) - Low Density Lipoprotein (Post)	3.80	5.366	17.35

$t\text{-Ratio (Tab.)} = 2.447$   $df=6$

Table -III reveals that there was significant difference found between pre- test means and post- test means of low density lipoprotein of subjects because calculated value  $t = 17.345$  is greater than tabulated value  $T = 2.447$  at 6 degree of freedom .

As per the study, the above remark can be given at 95% confidence. Since calculated  $t$  is greater than tabulated  $t_{.05}$ , null hypothesis may be rejected at .05 level of significance.

**Table-IV: Comparison of Pre-Test and Post Test Means of Very Low Density Lipoprotein of Subjects**

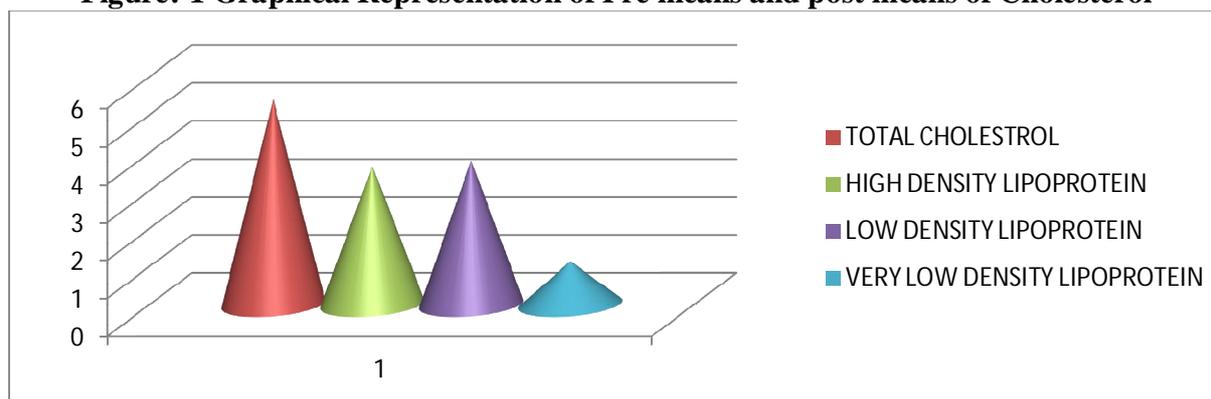
Total	Mean	Standard Deviation	t-Ratio(Cal.)
Lowdensity Lipoprotein (Pre) - Low Density Lipoprotein (Post)	1.14	3.644	8.296

$t\text{-Ratio (Tab.)} = 2.447$   $df=6$

Table -IV reveals that there was significant difference found between pre-test mean and post-test mean of very low density lipoprotein of subjects because calculated value  $t = 8.296$  is greater than tabulated value  $t = 2.447$  at 6 degree of freedom.

As per the study, the above remark can be given at 95% confidence. Since calculated  $t$  is greater than tabulated  $t_{.05}$ , null hypothesis may be rejected at .05 level of significance.

**Figure:-1 Graphical Representation of Pre means and post means of Cholesterol**



### Discussion on findings

Exercise related to core muscles like crunches, back hyper-extension, bending with combinations of various intensity and volume exercise had significant effect on the total Cholesterol.

There are few conditions which researchers have found during the treatment that might affect the result:

1. A patient having high cholesterol more than 226 is more effective in throw exercise training programme.
2. A patient having high cholesterol and leads a very inactive or sedentary life-style reduces very effectively with less amount of exercise training programme.
3. A patient who is involved once or twice a week in any sports and game activity, but has high cholesterol because of high cholesterol diet needs long duration exercise 3-4 days in a week to manage cholesterol.

The exercises of abdomen and waist area will be more effective because of main source of energy and visceral fat stored around the liver which processes a lot of LDL or bad cholesterol and is a chronic condition that can be controlled through good metabolic rate. Exercise helps to increase HDL or good cholesterol which automatically compress LDL. So it will have significant effects of twisting & crunchers exercise on the total cholesterol of an individual. Therefore, proposed hypothesis has been accepted in case of cholesterol. The study revealed that trunk and abdominal exercise resulted into significant improvement of cholesterol.

## CONCLUSIONS

1. Research has shown a positive relationship between twisting exercise and cholesterol - Trunk and Abdominal exercises can help to lower cholesterol levels.
2. In any case, exercise has many benefits – besides lowering your cholesterol. Exercise can also strengthen heart; reduce trunk and abdomen area, and relative muscles of the body, in addition to helps in losing fat.
3. Exercise increases HDL Cholesterol levels.
4. Exercise decrease LDL Cholesterol levels.
5. Exercise manages VLDL Cholesterol levels.
6. The duration of exercise sessions with frequency & intensity of exercise co-related the best with rises in HDL levels.
7. Exercise at least three to four times per week, may help to increase HDL Cholesterol levels.

It can be concluded that regular exercise may be particularly helpful in men to maintain good Cholesterol level and control abdominal obesity.

The results of this study will be helpful in preparation of training schedules of exercise of patients suffering from high cholesterol and cardiovascular diseases.

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