Role of Shatkarma & Panchakarma on Low Density Lipoprotein

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Abstract
Low-density lipoprotein (LDL) is one of the five major groups of lipoproteins, which, in order of molecular size, largest to smallest, are chylomicrons, very low-density lipoprotein (VLDL), intermediate-density lipoprotein (IDL), LDL, and high-density lipoprotein (HDL). Studies have shown that higher levels of LDL particles are associated with health problems, including cardiovascular disease**(LDL, 2008)**.Although the nickname is overly simplistic and thus misleading, LDL molecules are often informally called bad cholesterol because they can transport their content of many fat molecules into artery walls, attract macrophages, and thus drive atherosclerosis. Present study is aimed at finding out the effects of practice of Shatkarma (Vaman, Jalneti&Kapalbhati) and Panchakarma (Vaman & Nasya) on low density lipoprotein in subjects. The result revealed that post-experiment low density lipoprotein was lower than that of pre-experiment.

Key Words: Shatkarma, Panchakarma, Low Density Lipoprotein

Introduction

Lipoprotein molecules enable the transportation of lipids (fats), such as cholesterol, phospholipids, and triglycerides, within the water around cells (extracellular fluid), includingthe bloodstream.Because cholesterol is insoluble in water, it cannot be carried in complex molecule composed of protein and lipid**(**Lipid, 2009). Scientists have identified three forms of cholesterol-carrying proteins in the blood: high-density lipoproteins (HDL), low-density lipoproteins (LDL), and very low-density lipoproteins (VLDL). LDL and VLDL appear to promote atherosclerosis, and they are often referred to as "bad cholesterol." By contrast, HDL appears to retard atherosclerosis, earning it the nickname of the "good cholesterol." In 1984, the United States National Heart, Lung, and Blood Institute reported results of a study indicating that high levels of bad cholesterol also increased the risk of heart attacks and heart disease **(**LDL and HDL Cholesterol…, 2014**).** Some studies in the context of Shatkarma and low density lipoprotein as well as Panchakarma and low density lipoprotein have reported that Shatkarma and Panchakarma arebeneficial in reducing low density lipoprotein.Tells, S.; Nagrathna, R.; Nagendra, H. R. and T. Desai, Raju (1993)andGarrete, M.L.(1977) stated that significant change has been observed on blood pressure, body weight, obesity and pulse rate due to practice of Shatkarma.Hankey, Alex(2002)observed that lipophilic toxicants lowered by Panchakarma.Herron, Robert and John(1988)stated that 14 different types' soluble fats are lowered by Panchakarma.The results indicate the importance of Shatkarma and Panchakarma as integral techniques for lowering the low density lipoprotein.

Materials and Method

Twenty male and twenty femalepatients were selected from Polyclinic of Dev Sanskriti University, Hardwar (India) on the basis of quota sampling techniques and they were divided in four groups 10 subjects each; in which first and second group of male, third and fourth group of female. Thereafter first and third group were made to practice Shatkarma (Vaman, Jalneti and Kapalbhati)& second and fourth group were made to practice Panchakarma (Vaman and Nasya). Low density lipoprotein levels of each subject were measured by Friedewald equation, before starting the experiment and after complication of experiment. The duration of experimentation was 19 days.

Result

Table–1(Shatkarma) Low Density Lipoprotein of Male (Mean Value)

Condition	Mean	S.D.	t-value	Level of Significance
Pre Test	96.36	7.30	2.19	0.05
Post Test	88.37	13.02		

Table–2 (Panchakarma) Low Density Lipoprotein of Male (Mean Value)

Condition	Mean	S.D.	t-value	Level of Significance
Pre Test	90.42	10.20	2.78	0.05
Post Test	80.89	6.60		

Table–3 (Shatkarma) Low Density Lipoprotein of Female (Mean Value)

Condition	Mean	S.D.	t-value	Level of Significance
Pre Test	95.4	12.29	2.78	0.05
Post Test	85.87	9.91		

Table–4 (Panchakarma) Low Density Lipoprotein of Female (Mean Value)

Condition	Mean	S.D.	t-value	Level of Significance
Pre Test	96.06	7.71	2.61	0.05
Post Test	89.62	5.71		

The mean low density lipoprotein level in the males in the present study was found to be 96.36 (±7.30) and 88.37(±13.02) in pre-test and post-test respectively (Table 1). It is obvious that the mean value is lower in post-test than that in pre-test. The values of pre-test and post-test varied at 0.05 significant levels.

The mean low density lipoprotein level in the males in the present study was found to be 90.42 (±10.20) and 80.89(±6.60) in pre-test and post-test respectively (Table 2). It is obvious that the mean value is lower in post-test than that in pre-test. The values of pre-test and post-test varied at 0.05 significant levels.

The mean low density lipoprotein level in the females in the present study was found to be 95.4 (±12.29) and 85.87(±9.91) in pre-test and post-test respectively (Table 3). It is obvious that the mean value is lower in post-test than that in pre-test. The values of pre-test and post-test varied at 0.05 significant levels.

The mean low density lipoprotein level in the females in the present study was found to be 96.06 (±7.71) and 89.62(±5.71) in pre-test and post-test respectively (Table 4). It is obvious that the mean value is lower in post-test than that in pre-test. The values of pre-test and post-test varied at 0.05 significant levels.

Discussion

Post data for group 1, 2, 3, 4 is shown in result table 1, 2, 3 and 4 respectively. These data confirms that post mean low density lipoprotein values are lower than pre mean low density lipoprotein values due to Shatkarma and Panchakarma. The mode of action *i.e.* how Shatkarma and Panchakarma lower the level of low density lipoprotein is discussed below.

The plasma concentration of these highcholesterollow-density lipoproteins is increased byseveral factors, including eating highly saturated fat inthe daily diet, obesity, and physical inactivity.To a lesserextent, eating excess cholesterol may also raise plasmalevels of low-density lipoproteins. In addition any type of stress, whether physical or neurogenic, causes an immediate and marked increasein ACTH secretion by the anterior pituitary gland,followed within minutes by greatly increased adrenocorticalsecretion of cortisol. Due to increased level of cortisol low density lipoprotein becomes higher than normal level **(Guyton & Hall, 2006)**.

Jalneti able to regulate the Basal Metabolic Rate (BMR) by thyroid gland and relieves from obesity. It induces a state of harmony and balance throughout the entire Central Nervous System **(Muktibodhanand, 2009)**.Practice of VamanDhauti cleanses the inner cavities of stomach and esophagus. It also helps in developing voluntary mastery over involuntary reflex of vomiting. Mastery over basic reflex of digestive tract helps in delaying the gastric emptying time. When there is control over the out let of the stomach, through the Vaman, the stomach contents can empty in to the small intestine in a controlled slow manner. It will greatly regulate the intensity of hunger **(Tiwari, 2008).**In addition, due to strong vomiting reflex a type vacuum generates in thorax region **(Niranjananand, 2011)**. Hence it removes the mucous and coughs from trachea and lungs and relaxes the respiratory tract, cures the sleep apnea as well as activates the Parasympathetic Nervous System. Hence, it establishes the homeostasis and relieves from stress.

The mode of action of Panchakarma (Nasya and Vaman) is similar to Shatkarma (Jalneti and VamanDhauti); because in Panchakarma herbals are used and Shatkarma lukewarm saline water. Therefore results are also equivalent of both Shatkarma and Panchakarma.VatkramaKapalbhati lowers the *vat*from the body due to which lowers the stress along with it provides the

exercise to the abdominal muscles due to which whole digestion process regulated**(Niranjananand, 2011)**. Hence the combined effect of these practices lower level of low density lipoprotein.

Conclusion

This study shows that Shatkarma and Panchakarma are useful for lowering the low density lipoprotein.

Reference

1. Garrete, M.L. (1977). Yoga Mimansa. Vol. XI:1. Page. 13-37.
2. Guyton, Arthur C. and Hall, John E. (2006). Textbook of Medical Physiology. New Delhi: Elsevier India Private Limited.
3. Hankey, Dr. Alex (2002).Transcendental Meditation News, October.
4. Herron, Dr. Robert and John (2002). Fagan/Maharishi University Management Alternative Therapies in Health and Medicine in Sep /Oct.
5. LDL and HDL Cholesterol: What's Bad and What's Good? Retrieved on 2nd February from2014 http://www.americanheart.org/presenter.jhtml?identifier=180.
6. (LDL, 2008). EncyclopædiaEncarta. Microsoft Encarta Student 2008 Edition.
7. Lipid. (2009).Encyclopædia Britannica. Encyclopædia Britannica 2009 Student and Home Edition. Chicago: Encyclopædia Britannica.
8. Muktibodhananand,Sarawati (2009). Hath Yoga Pradipika. Bihar: Yoga Publication Trust.
9. Niranjananand, Sarawati (2011).GherandSamhita. Bihar: Yoga Publication Trust.
10. Tells, S.; Nagrathna, R.; Nagendra, H. R. and T. Desai, Raju (1993). Indian Journal of Medical Sciences Vol. 97, Ovy. 10:235-238.
11. Tiwari, Satyarth Prakash (2008). Role of Some Yogic Practices on Diabetes Mellitus (Published Master Degree Dissertation). Dev Sanskriti University, Haridwar.