

Two Day International E-Conference on
“Trends Issues and Development of Physical Education and Sports”
All Round Development of Human Personality

**30 – 31 July, 2020 at Department of Physical Education and sports Science,
Fit India Campaign Committee and Fit India Club, Manipur University, India**

**ANALYSIS ON THE EFFECTS OF ENDURANCE EXERCISE
TRAINING ON PLASMA HDL CHOLESTEROL LEVELS DEPEND
ON LEVELS OF TRIGLYCERIDES**

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Abstract:

The present examination thought about the reactions of various lipoprotein-lipid factors to a 16-week perseverance practice preparing program in men arranged based on benchmark TG and HDL cholesterol focuses: (1) low TG and high HDL cholesterol (normolipidemia), (2) low TG and low HDL cholesterol (segregated low HDL cholesterol), (3) high TG and high HDL cholesterol (separated high TGs), and (4) high TGs and low HDL cholesterol (high TG/low HDL cholesterol). A progression of physical and metabolic factors was estimated when the preparation program in an example of 200 men selected the Health, Risk Factors, Exercise Training. At pattern, men with high TG/low HDL cholesterol had more instinctive fat tissue than did men with segregated low HDL cholesterol and men with normolipidemia. The 0.4% (not huge) work out actuated increment in HDL cholesterol levels in men with secluded low HDL cholesterol recommends that they didn't profit by the "HDL-raising" impact of activity. Interestingly, men with high TG/low HDL cholesterol indicated a critical increment in HDL cholesterol levels (4.9%, $P < 0.005$). Though the two subgroups of men with raised TG levels demonstrated decreases in plasma TGs ($\approx -15.0\%$, $P < 0.005$), just those with high TG/low HDL cholesterol indicated altogether diminished apolipoprotein B levels toward the finish of the examination (-6.0% , $P < 0.005$). Various relapse investigations uncovered that the activity actuated change in stomach subcutaneous fat tissue (10.6%, $P < 0.01$) was the main noteworthy connect of the expansion in plasma HDL cholesterol with preparing in men with high TG/low HDL cholesterol. Aftereffects of the present examination propose that normal continuance practice preparing might be especially useful in men with low HDL cholesterol, raised TGs, what's more, stomach stoutness.

1. INTRODUCTION:

Regular continuance practice is a broadly perceived methodology to raise plasma HDL cholesterol levels,^{1,2,3} which is one of the metabolic adjustments adding to the diminished danger of coronary illness (CHD) saw among physically dynamic and fit individuals.^{4,5,6} Although a low plasma HDL cholesterol fixation is frequently joined by a raised triglyceride (TG) level related with stomach corpulence and an insulin obstruction hyperinsulinemic state,^{7,8} a few people are described by low HDL cholesterol levels without heftiness or hypertriglyceridemia, a condition that has been alluded to as disengaged hypoalphalipoproteinemia.^{9,10,11} Previous investigations from our research center have demonstrated that subjects with separated low HDL cholesterol were neither portrayed by hyperinsulinemia nor by instinctive obesity.¹² Although examines have recommended that patients with disconnected low HDL cholesterol disorder might be at expanded CHD risk,^{9,10} it shows up extremely hard to build HDL cholesterol levels in these people by diet, weight reduction, or pharmacotherapy. Since subjects with secluded low HDL cholesterol have ordinary body weight and fat substance, we have conjectured that they might be less receptive to perseverance work out incited enhancements of the lipoprotein-lipid profile than are subjects with low HDL cholesterol, raised TG focuses, stomach stoutness, and hyperinsulinemia. In this way, the point of the present examination was to contrast the lipoprotein-lipid reactions with a 20-week perseverance practice preparing program in men with low HDL cholesterol levels however with or without high TG fixation.

2. METHGODOLOGY:

2.1. Endurance Exercise Training Program:

The preparation program has just been widely depicted. Members prepared undersupervision in the clinical focuses on a cycle hence meter (Universal Aerobic cycle) for 60 sessions by utilizing the equivalent institutionalized preparing convention. They were required to finish the 60 sessions inside 21 weeks. They couldn't practice >1 session every day, >4 sessions every week, or <1 session every week. Also, they couldn't excel by >2 sessions or fall behind by >2 sessions. Members who realized that they may miss a couple of sessions were urged to prepare 4 times each week for about fourteen days to develop a save. Program adherence was observed a few times each week. Members were reached when they gave off an impression of being falling behind, and an arrangement was created to bring them back on plan at the earliest opportunity. To decide every individual's preparation force, pulse (HR), control yield, and oxygen admission (VO₂) got during the 3 benchmark cycle hence meter tests were plotted to decide the normal HR and power yield related with 55%, 65%, 70%, and 75% of his/her greatest VO₂ (VO₂max) before preparing. These HR and power yield esteems were then utilized all through the preparation program. Instructional courses during the initial 2 weeks started at a HR related with 55% VO₂max for 30 minutes. Either length or force was then expanded every 2 weeks until the fourteenth seven day stretch of preparing, when members practiced at the HR related with 75% of their underlying VO₂max for 50 minutes. This was then kept up for the following a month and a half.

2.2. Statistical Analysis:

Pearson product moment correlation coefficients were utilized to measure relationship between factors. Men were separated into 4 subgroups as indicated by benchmark fasting plasma TG and HDL cholesterol focuses: (1) normolipidemia (n=62), (2) disengaged low HDL cholesterol (n=38), (3) confined high TGs (n=38), and (4) high TG/low HDL cholesterol (n=62). Cutoff esteems were 1.34 and 0.92 mmol/L for TG and HDL cholesterol, individually, which compared to the 50th percentiles of their separate disseminations. Contrasts among men with different gauge fasting lipoprotein-lipid phenotypes were tried for importance by utilizing ANOVA with the Duncan various range test. Combined t tests were utilized to inspect the centrality of the progressions in physical and metabolic factors inside every subgroup of men. In all investigations, P<0.05 was viewed as noteworthy. Investigations were directed with the SAS factual bundle.

3. RESULT AND ANALYSIS:

Variables	Normolipidemia Isolated Low	HDL Cholesterol	Isolated High	TGs
Subjects	62	38	38	62
TGs,mmol/L	0.94±0.22	0.93±0.22	1.77±0.39	2.45±1.09
HDL C mmol/L	1.12±0.14	0.81±0.07**	1.05±0.21	0.75±0.10
Apo A-1 g/L	1.23±0.12	1.01±0.10	1.28±0.12	1.07±0.12
ApoB,g/L	0.77±0.20	0.73±0.19	1.05±0.20	1.06±0.22

Table shows the gauge pre preparing plasma lipoprotein profile of the 4 subgroups of men. Despite the fact that men with high TG/low HDL cholesterol had higher plasma TG (by plan), cholesterol, and apo B focuses than did normolipidemic men, men with separated low HDL cholesterol levels had lower plasma cholesterol and apoA-I levels however comparative apoB levels contrasted and the levels in normolipidemic men. In this manner, the higher all out cholesterol/HDL cholesterol proportion noted among subjects with disconnected low HDL cholesterol came about exclusively from the exceptionally low HDL cholesterol focuses. In any case, high plasma cholesterol and low HDL cholesterol levels added to the high all out cholesterol/HDL cholesterol proportion saw in men with high TG/low HDL cholesterol contrasted and normolipidemic men. Men with high TG/low HDL cholesterol were likewise obviously hyperinsulinemic and, apparently, more insulin safe at pattern than were different subgroups of subjects.

4. DISCUSSION:

It is settled that low plasma HDL cholesterol levels are related with an expanded danger of CHD. Without a doubt, a low HDL cholesterol fixation has been demonstrated to be the most pervasive variation from the norm of the Lipoprotein-lipid profile revealed among men with recorded CHD.21 in such manner, the as of late distributed aftereffects of the Veterans Affairs High-Density Lipoprotein Intervention Trail (VAHIT) Study36 plainly show that pharmacotherapy planned for expanding plasma HDL cholesterol levels decreases the danger of CHD, even without any adjustment in plasma LDL cholesterol levels; this last discovering is regularly seen when CHD patients with low HDL cholesterol levels are treated with a fibrate, for example, gemfibrozil.

5. SUMMARY:

In synopsis, consequences of the present investigation propose that normal perseverance practice is especially useful to improve the lipid lipoprotein profile of men with low HDL cholesterol levels alongside stomach weight and raised TG fixations. In any case, apparently subjects with low HDL cholesterol levels as a separated characteristic are substantially less receptive to perseverance practice preparing; in any event to the extent their plasma lipoprotein profile is concerned. This discovering is concordant with the regular perception that it is troublesome in clinical practice to expand the cholesterol substance of HDL among subjects with low HDL cholesterol fixations, when the last is a separated lipoprotein trademark.

REFERENCES:

1. Després JP, Pouliot MC, Moorjani S, Nadeau A, Tremblay A, Lupien PJ, Thériault G, Bouchard C. Loss of abdominal fat and metabolic response to exercise training in obese women. *Am J Physiol.* 1991;261: E159–E167.
2. Durstine JL, Haskell WL. Effects of exercise training on plasma lipids and lipoproteins. *Exerc SportSci Rev.* 1994;22: 477–521.
3. Hardman AE. Physical activity, obesity and blood lipids. *Int J Obes.* 1999;23(suppl 3):S64–S71.
4. Leon AS, Connett J, Jacobs DR Jr, Rauramaa R. Leisure-time physical activity levels and risk of coronary heart disease and death: the Multiple Risk Factor Intervention Trial. *JAMA.* 1987;258: 2388–2395.
5. Blair SN, Kohl HW III, Paffenbarger RS Jr, Clark DG, Cooper KH, Gibbons LW. Physical fitness and all-cause mortality: a prospective study of healthy men and women. *JAMA.* 1989;262: 2395–2401.
6. Folsom AR, Arnett DK, Hutchinson RG, Liao F, Clegg LX, Cooper LS. Physical activity and incidence of coronary heart disease in middle-aged women and men. *Med Sci Sports Exerc.* 1997; 29: 901–909.
7. Després JP. Obesity and lipid metabolism: relevance of body fat distribution. *Curr Opin Lipidol.* 1991;2:5–15.
8. Després JP. Dyslipidaemia and obesity. *Baillieres Clin Endocrinol Metab.* 1994; 8:629–660.
9. Ginsburg GS, Safran C, Pasternak RC. Frequency of low serum high-density lipoprotein cholesterol levels in hospitalized patients with desirable total cholesterol levels. *Am J Cardiol.* 1991; 68:187–192.
10. Goldbourt U, Yaari S, Medalie JH. Isolated low HDL cholesterol as a risk factor for coronary heart disease mortality: a 21-year follow-up of 8000 men. *Arterioscler Thromb Vasc Biol.* 1997;17: 107–113.
11. Lavie CJ, Mailander L, Milani RV. Marked benefit with sustained-release niacin therapy in patients with isolated very low levels of high-density lipoprotein cholesterol and coronary artery disease. *Am J Cardiol.* 1992; 69:1083–1085.
12. Lamarche B, Després et. al., Metabolic heterogeneity associated with high plasma triglyceride or low HDL cholesterol levels in men. *Arterioscler Thromb.* 1993; 13:33–40.