

Follow the Chisum Fitness Trail - Moderate Exercise

RE: Moderate Exercise and Cholesterol

In the past three decades, there have been countless clinical research publications concerning exercise and the reduction of cardiovascular risks. Within this past decade, the medical and research professionals have designated aerobic exercise among the primary risk reducers.

The debate continues as to how much exercise, what type of exercise, how often, and at what intensity will provide the greatest benefits. This controversy hinges upon the last two words of the past sentence, “greatest benefits.”

The Blair and Paffenbarger studies of the early 1990’s found that the greatest change physiologically, occurred when a sedentary individual became active. The definition of the term “active,” was simply adding more movement. Their data indicated that washing the car, gardening, cleaning the house, and other short term activities were extremely beneficial.

This is not in conflict with other powerful research data, which reports conspicuous benefits with moderate to moderately high exercise bouts, for 30 minutes or longer, three times a week. A sedentary person must progress from the moderate activity levels into more sustained exercise, to reap the risk reduction rewards.

These statements are based upon the alterations within the plasma free fatty acids and cholesterol levels. The reduction of these, as well as other variables decreases the possibility of plaque forming in the arteries. This will in effect decrease the risk of cardiovascular episodes and stroke.

In a recent progressive, randomized study, authored by Kraus et al. (2002. N. Engl. J. Med.), further clarification was provided as to the questions concerning exercise and lipid levels. One hundred and eleven male and female subjects, aged 40 through 65, with diagnosed abnormal fat, elevated cholesterol levels, and moderately obese, were selected.

They were randomly chosen to one of three groups; high amount - high intensity exercise (HAHI), low amount - high intensity exercise (LAHI), and

low amount - moderate intensity exercise (LAMI). The HAMI levels were defined as jogging 20 miles, per week, between 65 and 80 percentage of maximal effort. The LAHI group had the same intensity levels, but only equivalent to 12 miles per week. The LAMI group walked 12 miles, per week, at 40 to 55% of max. The average exercise frequency in all three groups was three bouts, per week.

Dietary patterns were controlled to reduce the potential for error. The subjects consumed between 2137 Kcal. and 2059 Kcal. per day. Intake of carbohydrates, fats, and proteins were also stabilized.

Lipids and lipoprotein values were recorded through two scientific techniques. One was initiated during this study, and a second randomized study, using analysis methodology from Kulkarni et al. (1994. J. Lipid. Res.) was facilitated for the second correlative values. Both techniques were demonstrated to be correlated.

The overall lipid and lipoprotein measurements included six subclasses of VLDL-C, four subclasses of LDL-C, and five subclasses of HDL-C. The study also calculated the weighted average size changes for VLDL-C, HDL-C, and LDL-C (with concentration) particles. Absolute values for triglycerides, total cholesterol, LDL-C and HDL-C, were assessed.

It was interesting to note the lay literature description of this study's results. The Associated Press writer Daniel Q. Henry's headline read, "Modest Exercise May Help By Disarming Cholesterol." This statement has validity, but does not represent the overall findings of the research.

Most of the professionals within the exercise field, equate a higher trained effect with overall cardiovascular health. Among the parameters positively affected, would include plasma lipids and cholesterol.

The results from this study did not support this assumption. It was reported that there were no significant changes in both total neither LDL-C nor total cholesterol levels, nor trained state. The substantial findings were limited to the sub fractions of LDL-C, especially the size.

The following bullets are listed to assist the readers as to the pertinent findings of this study.

HAHI exercise group:

- * Significantly reduced the concentrations of small LDL-C particles and LDL-C, while increasing the size of the LDL-C particles.
- * Increased intensities had little effects upon total LDL-C.
- * Prominent beneficial effect upon the HDL-C concentrations.
- * Larger effect upon 10 of the 11 variables, within this study.
- * The higher intensity, the greater the effect on 21 of the 22 cases.
- * The HAHl results were superior to the other groups concerning lipoproteins.

LAHI exercise group:

- * LDL-C variables were slightly different from the control group.
- * Non significant effect upon HDL-C concentrations.
- * Greater effect upon plasma triglycerides than HAHl.
- * Higher concentration of large HDL-C.
- * Improvement in concentrations of VLDL-C triglycerides.
- * Enhancement of the size of VLDL particles.
- * Had a positive effect on all 11 variables within study.
- * Even though not as significant as the HAHl group, all 11 variables were ranked above the control group.

LAMI exercise group:

- * Effect upon LDL-C particles was significant.
- * Non significant effect upon HDL-C concentrations.
- * Greater effect upon plasma triglycerides than HAHl.
- * Higher concentration of large HDL-C.
- * Improvement in concentrations of VLDL-C triglycerides.
- * Enhancement of the size of VLDL particles.
- * Even though not as significant as the HAHl group, all 11 variables were ranked above the control group.

In conclusion: It is very difficult for me to agree with both Mr. Henry of the Associated Press and the authors, concerning a non discernible difference in exercise intensity and reduced cardiovascular risk benefits. It appears from their data, that in most cases, the effects were much superior in the HAHl group, than those recorded in lower intensity activities.

The most significant finding is that a person can reduce the cardiovascular risk factors, when employing low, moderate, and high intensity exercise. The bottom line, exercise is an effective tool in the fight against heart disease.

If you have any questions, please feel free to contact me.

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