
Physical Activity and Cardiovascular Disease

The Preventive Benefits of Regular Exercise
on the development of CAD

by

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Cardiovascular Disease

- ◉ All diseases that affect the heart and/or circulatory system
- ◉ The leading cause of death in the U.S... for men and women (1 death every 33 seconds)

Types of CVD

- ⌚ Coronary Heart Disease
- ⌚ Cerebrovascular Disease
- ⌚ Congestive Heart Failure
- ⌚ Peripheral Vascular Disease
- ⌚ Others

Coronary Heart Disease

- ◉ Buildup of fatty plaque in the coronary arteries (process begins during childhood)
- ◉ Plaque rupture, followed by blood clot formation causes complete blockage of coronary artery
- ◉ Myocardial Infarction results

Coronary Heart Disease

- ◉ 1.5 million heart attacks each year in U.S...
- ◉ 1/3 of these are fatal
- ◉ 50% decrease in CHD death rate since 1965

8 Major CHD Risk Factors

- ⦿ Elevated Blood Cholesterol
- ⦿ Hypertension
- ⦿ Cigarette Smoking
- ⦿ Diabetes Mellitus
- ⦿ Family History
- ⦿ Sedentary Lifestyle
- ⦿ Age
- ⦿ Obesity

Effects of Exercise on CHD Risk Factors

- ◉ Regular exercise can positively affect most of the CHD risk factors with the exception of Age and Family History.
- ◉ Regular exercise is a key factor to the prevention of CHD.
- ◉ Regular exercise can also protect against the development of CHD.

Physical Fitness and All-Cause Mortality (Blair et. al., 1989, JAMA)

- 10,224 men and 3120 women studied.
- Physical Fitness by a Max. trdm test.
- Average follow-up of about 8 yrs.
- Fitness Categories : inactive to highly fit.

Results.....

- ☉ Death rates from all causes for the least -fit men were 3.4 times higher than the most-fit men.
- ☉ Death rates for the least fit women were 4.6 times higher than the most-fit women.
- ☉ Higher levels of physical fitness were beneficial even in those with other risk factors such as high BP, high Chol., smoking, and a family history of CHD.
- ☉ Thus, unfit people without these factors had higher death rate than fit people with them.
- ☉ Dr. Blair says.... "Fitness appears to compensate even for other risk factors that might shorten life".

Sedentary Lifestyle

- ◉ It is considered a major risk factor for CHD.
- ◉ Aerobics Center Longitudinal Study is the largest study of cardiovascular fitness levels and mortality.

ACLS (Jama, 1996)

- 25,341 men and 7,080 women all underwent max. trdm exercise testing.
- Followed for 8.4 yrs after trdm test.
- Low fit men 70% or more likely to die from CVD compared with similar but moderately to highly fit men.
- Low fit women 142% more likely to die from CVD compared with similar but moderately to highly fit women.

Exercise x Cholesterol

- ◉ Duncan, et.al., (JAMA, 1991): Women Walking for Health and Fitness. How much is enough?
- ◉ Williams, (NEJM, 1996): High-density lipoprotein cholesterol and other risk factors for coronary heart disease in female runners.

Exercise x Diabetes x Body Composition x Lipids

- ◌ Katzel, et.al., (JAMA, 1995). Effects of weight loss vs Aerobic Exercise training on risk factors for coronary disease in healthy, obese, middle-aged and older men.
- ◌ Gutin, et.al., (Med,Sci,Sports Exerc., 1996). Physical Trng, lifestyle education, and coronary risk factors in obese girls.

In conclusion, Regular Physical Activity will help.....

- ☉ To improve total Cholesterol (increase in HDL and decrease in LDL).
- ☉ To decrease total triglycerides.
- ☉ To decrease total glucose levels.
- ☉ To decrease hypertension.
- ☉ To decrease body fat.
- ☉ To decrease the risk of developing CHD

NIH Consensus Conference (JAMA, 1996): Physical Activity and Cardiovascular Health

- ◉ Children and adults should engage in at least 30 minutes or more of moderate-intensity physical activity on most, or preferably all, days of the week.
- ◉ However this is **not** a recommendation for weight loss or to improve high levels of fitness, but, it will promote moderate levels of fitness and significantly decrease the risk of chronic disease.

Exercise for Fitness: ACSM Guidelines

- ◉ Duration: 30 to 60 min.
- ◉ Intensity: 50 to 85% of HRR.
- ◉ Frequency: 3 to 5 times per week.
- ◉ Activity: Large muscles; continu.
- ◉ **Moderate Fitness:** Women: walk 2 miles in <30min. at least 3 x/wk, or walk 2 miles in 30-40min. 5-6 x/wk.
- ◉ Men: walk 2 mi. in <27 min. at least 3 x/wk, or walk 2 mi. in 30-40 min. 6-7 x/wk.
- ◉ **High Fitness:** Women- walk 2mi.in <30min., 5-6 x/wk, or run 2mi. in 20-24 min. 4 x/wk.
- ◉ Men:walk 2.5mi in <37.5 min. 6-7 x/wk, or run 2mi in <20min. 4-5 x/wk.

Conclusions

- ◉ Regular Physical Activity will have a major impact on the prevention of Cardiovascular Disease.
- ◉ Thus, just getting out of the least-fit category into the moderate-fitness category will provide health benefits.
- ◉ It is best to do a little than not to do anything at all!