

## Exercise and Risk Factor Management – What is Endothelial Function

Regular exercise training reduces the risk of premature death. The research to support this is irrefutable. Moreover, regular exercise training is effective in the secondary prevention of cardiovascular disease. No wonder your doctors and the cardiac rehab team are always encouraging you to integrate more exercise into your daily routine!

But you are possibly wondering why exercising regularly has such a profound effect in reducing one's risk? Lets start by looking at the modifiable or manageable risk factors for heart disease:

- Smoking
- Physical Inactivity
- Overweight / Obesity
- High Cholesterol
- High Blood Pressure
- Diabetes
- Depression.

Regular exercise training can assist in the management of all of these risk factors. However the effect of regular exercise on these risk factors cannot account for the level of risk reduction alone, because the relationship with reduced mortality is independent of these risk factors. What else could account for the risk reduction?

When we view the bigger picture and assess the cardio-protective effects of regular exercise, the function of the endothelium becomes apparent. So much so it has been proposed that through exercise training and optimal medical management the improvement in the function of the endothelium (which is impaired in people with coronary artery disease) can have anti-atherosclerotic effects.

The endothelium is comprised of a single layer of cells that line the inside of the blood vessels. These cells have a number of functions. One function of these cells is to promote vasodilation of the vessel; they assist in increasing the diameter of the vessel to promote blood flow. In people with coronary artery disease and heart disease risk factors, the function of these cells is impaired (endothelial dysfunction). Current research suggests that regular exercise training improves the function of these cells due to an increase in blood flow. The increased blood flow through the vessel enhances shear stress, which stimulates the production of nitric oxide (NO). NO is a potent vasodilator and is thought to have anti-atherosclerotic properties. So keep up the regular exercise!

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