

Association of Aerobic Fitness and Metabolic Syndrome in Male Firefighters

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Metabolic syndrome has been shown in numerous studies to be related to a higher incidence of coronary artery disease. A study by Jurca and coworkers (*Med. Sci. Sports Exerc* 36(8):1301-1307, 2004) found a relationship between aerobic fitness and the prevalence of metabolic syndrome in a group of men enrolled in the Aerobics Center Longitudinal Study (ACLS). In addition, recent work in our lab (*Int J Exerc Sci* 2(1): S43, 2009) has supported these findings. However, research exploring this relationship is still lacking in male firefighters, whose leading cause of line-of-duty deaths is heart attacks.

Purpose: To further evaluate the association of metabolic syndrome and aerobic fitness in male fire fighters. **Methods:** As part of an annual physical exam, 210 male fire fighters (average age = 36) underwent evaluation of risk factors associated with metabolic syndrome as defined by NCEP III. These include the presence of three or more of the following: Waist Circumference > 40", HDL Cholesterol < 40 mg/dL, Triglycerides > 150 mg/dL, Blood Glucose > 110 mg/dL, and Resting Blood Pressure > 130/85 mm Hg. Aerobic Fitness was determined by estimating VO₂max from time on treadmill during a Bruce protocol. **Results:** The subjects were ranked and divided into quartiles based on VO₂max. All data were analyzed using a Chi Square test ($p < 0.05$). Prevalence of metabolic syndrome increased significantly across quartiles as aerobic fitness declined. **Conclusion:** These data suggest that as aerobic fitness improves, the likelihood of male firefighters having metabolic syndrome decreases.

