Medical Xpress

High BMI, low aerobic capacity in late teens Linked with hypertension in adults

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Body-mass index (BMI) and aerobic capacity in late adolescence were important factors associated with the long-term of risk of hypertension in adulthood for military conscripts in Sweden, according to an article published online by *JAMA Internal Medicine*.

Hypertension is a common medical disorder that affects 1 in 4 adults in the United States and worldwide. Its prevalence has increased during the past 20 years along with increased rates of obesity and a sedentary lifestyle.

Casey Crump, M.D., Ph.D., of Stanford University, California, and coauthors examined the interactive effects of physical fitness (both aerobic capacity and muscular strength) and BMI in late adolescence in association with the risk of hypertension in adulthood. Aerobic capacity, muscular strength and BMI were assessed for about 1.5 million 18-year-old military conscripts in Sweden who were observed up to a maximum age of 62.

Among the 1.5 million men, 93,035 (6 percent) were subsequently diagnosed with hypertension with an average follow-up of nearly 26 years. The median age of participants at hypertension diagnosis was nearly 50.

Aerobic capacity was measured in watts (low was less than 240 watts) and muscular strength was measured in newtons (low was less than 1,900 newtons). Median aerobic capacity among men diagnosed with

hypertension was 231.8 watts and 264 watts among men not diagnosed with hypertension. Median muscle strength among men diagnosed with hypertension was 2,000 newtons and 2,020 newtons among those men not diagnosed with hypertension.

The authors report high BMI and low aerobic capacity (but not muscular strength) were associated with an increased risk of hypertension that was independent of family history and socioeconomic factors. The combination of high BMI (overweight or obese vs. normal) and low aerobic capacity was associated with the highest risk of hypertension.

According to the study, a combination of low aerobic capacity and high BMI was associated with a risk of hypertension that was 3.5 times higher relative to the group of men with high aerobic capacity and normal BMI. Low aerobic capacity was associated with an increased risk of hypertension even among men with normal BMI, the results indicate.

Muscle strength appeared to have little effect on the risk of hypertension, the study notes.

The authors note study limitations, including the measurement of physical fitness and BMI at only one age and a study group that consisted only of men.

"If confirmed, these findings suggest that interventions to prevent hypertension should begin early in life and include not only weight control but also aerobic fitness, even among those with a normal BMI," the study concludes.

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