

# Police work undermines cardiovascular health, comparison to general population shows

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It is well documented that police officers have a higher risk of developing heart disease: The question is why.

In the most recent results coming out of one of the few long-term studies being conducted within this tightly knit society, University at Buffalo researchers have determined that underlying the higher incidence of subclinical atherosclerosis -- arterial thickening that precedes a heart attack or stroke -- may be the stress of police work.

"We took lifestyle factors that generally are associated with atherosclerosis, such as exercise, smoking, diet, etc., into account in our comparison between citizens and the [police officers](#)," said John Violanti, Ph.D., UB associate professor of social and preventive medicine, who has been studying the police force in Buffalo, N.Y., for 10 years.

"These lifestyle factors were statistically controlled for in the analysis. This led to the conclusion that it is not the 'usual' heart-disease-related risk factors that increase the risk in police officers. It is something else. We believe that 'something else' is the occupation of policing."

Results of the study appear in the June issue of the *Journal of Occupational and Environmental Medicine*.

Violanti and colleagues have been studying the role of cortisol, known as

the "stress hormone," in these police officers to determine if stress is associated with physiological risk factors that can lead to serious health problems such as diabetes and cardiovascular disease.

In a study accepted for publication in *Psychiatry Research* that looked at the male-female differences in stress and signs of heart disease, Violanti found that female police officers had higher levels of cortisol when they awoke, and the levels remained high throughout the day. Cortisol normally is highest in the morning and decreases to its lowest point in the evening. The constantly high cortisol levels were associated with less arterial elasticity, a risk factor for heart disease, Violanti noted.

"When cortisol becomes dysregulated due to chronic stress, it opens a person to disease," he said. "The body becomes physiologically unbalanced, organs are attacked and the immune system is compromised as well. It's unfortunate, but that's what stress does to us."

In the current study, the researchers used carotid artery thickness to assess heart disease risk. Participants were 322 clinically healthy active-duty police officers from the Buffalo Cardio-Metabolic Occupational Police Stress (BCOPS) study and 318 healthy persons from the ongoing UB Western New York Health Study matched to the officers by age.

All measurements were taken in the morning after a 12-hour fast. In addition to testing carotid thickness via ultrasound, investigators measured blood pressure, body size, cholesterol (both total and HDL) and glucose. They collected information on physical activity, symptoms of depression, alcohol consumption and smoking history. These are the factors that typically cause heart disease.

Results showed that police work was associated with increased subclinical cardiovascular disease -- there was more plaque build-up in the carotid artery -- compared to the general population that could not be

explained by those conventional [heart disease](#) risk factors.

Subclinical atherosclerosis means that the disease shows progression but does not qualify yet as overt [heart disease](#).

"In this case we examined the thickness of the carotid artery as an indicator of increasing risk for atherosclerosis," noted Violanti. "The plaque buildup was greater in police than the citizen population.

"In future work, we will measure the [carotid artery](#) thickness again to see how much it has increased. At some point in time, the thickness may reach a stage of possible blockage, which will require medical intervention and treatment. We think that police officers will likely reach that stage quicker than the general population."

Source: University at Buffalo ([news](#) : [web](#))

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