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Metabolic Syndrome Among Police Officers Influenced by Sleep Patterns, Duration

A new study published in the [Archives of Environmental & Occupational Health](#) shows that the combination of night work, overtime, and shortened sleep can contribute to the development of metabolic syndrome among police officers. Metabolic syndrome is defined as abnormalities in any three of five important clinical measures: abdominal obesity, triglycerides, high-density lipoproteins (HDL), blood pressure, and fasting glucose level.

"These findings reinforce the scientific value of studying the effects of occupation on cardiovascular risk factors," said author John M. Violanti, PhD, research associate professor in the University at Buffalo's Department of Social and Preventive Medicine in the School of Public Health and Health Professions. "This is especially important in first responders, who are selected on initial good overall physical and mental health. Exploring specific job-related associations, such as shift work, adds to the benefit of such investigations."

The baseline study involved 98 police officers who were selected randomly from a total of 934 officers. Clinic personnel in UB's Center for Preventive Medicine obtained a fasting blood sample, and measured systolic and diastolic blood pressure and waist circumference. Participants also completed an extensive questionnaire on demographics and lifestyle choices. Researchers obtained day-by-day data on shift-work and overtime hours from payroll records.

Overall, 30% of officers working the night shift had metabolic syndrome, compared to 21% in the National Health and Nutrition Examination Survey (NHANES III), which is based on data collected from the overall general population.

"One potential explanation for this unusual finding is that midnight-shift officers were most likely to be sleep deprived because of difficulties associated with day sleeping. Sleep debt has been shown to have a harmful impact on carbohydrate metabolism and endocrine function, which could contribute to metabolic disorders," said Violanti.

However, officers working the night shift were younger on average than those working the day shift—36.5 years versus 42.6 years—but despite their younger age, the percentage with metabolic syndrome (30%) was higher than the 24% average for the 30 to 39 years age group in the general population.

"This slightly higher prevalence at a younger age coincides with police mortality cohort studies, which found a higher risk of CVD [cardiovascular disease] among younger officers," said Violanti. "This finding is in contrast to that in the general population, in which CVD risk increases with age."

Officers who worked midnight shifts and had less than 6 hours of sleep had a significantly higher average of metabolic syndrome components than those who worked day shifts.

"Information from this study could help guide further investigation into health of first responders," Violanti said. "Not only of police officers, but firefighters, emergency medical technicians, nurses, physicians, air traffic controllers, and the military."



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