



# Extreme sacrifice: sudden cardiac death in the US Fire Service

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## Abstract

Firefighting is a hazardous profession which has claimed on average the lives of 105 US firefighters per year for the past decade. The leading cause of line-of-duty mortality is sudden cardiac death, which accounts for approximately 45% of all firefighter duty-related fatalities. Strenuous physical activity, emotional stress, and environmental pollutants all strain the cardiovascular system, and each can increase the risk of sudden cardiac events in susceptible individuals. Sudden cardiac death is more likely to occur during or shortly after emergency duties such as fire suppression, despite the fact that these duties comprise a relatively small proportion of firefighters' annual duties. Additionally, cardiac events are more likely to occur in firefighters who possess an excess of traditional risk factors for cardiovascular disease along with underlying atherosclerosis and/or structural heart disease. In this review, we propose a theoretical model for the interaction between underlying cardiovascular disease in firefighters and the multifactorial physiological strain of firefighting.

Keywords: Firefighting, Cardiovascular disease, Sudden cardiac death