

# Sudden Cardiac Death Among Firefighters ≤45 Years of Age in the United States<sup>☆</sup>

Justin Yang, MD, MPH<sup>a,b</sup>, Dennis Teehan, MD, MPH<sup>a,b</sup>, Andrea Farioli, MD<sup>a,b,c</sup>,  
Dorothee M. Baur, MD, MS<sup>a,d</sup>, Denise Smith, PhD<sup>e</sup>, and Stefanos N. Kales, MD, MPH<sup>a,b,\*</sup>

---

Sudden cardiac death (SCD) is the leading cause of death in firefighters. Although on-duty SCD usually occurs in older victims almost exclusively because of coronary heart disease, no studies have examined causation across the career span. In the present retrospective case-control study, cases of SCD in young (aged ≤45 years) firefighters from the National Institute for Occupational Safety and Health fatality investigations (n = 87) were compared with 2 age- and gender-matched control groups: occupationally active firefighters (n = 915) and noncardiac traumatic firefighter fatalities (n = 56). Of the SCD cases, 63% were obese and 67% had a coronary heart disease—related cause of death. The SCD victims had much heavier hearts ( $522 \pm 102$  g) than noncardiac fatality controls ( $400 \pm 91$  g,  $p < 0.001$ ). Cardiomegaly (heart weight >450 g) was found in 66% of the SCD victims and conveyed a fivefold increase (95% confidence interval [CI] 1.93 to 12.4) in SCD risk. Furthermore, hypertension, including cases with left ventricular hypertrophy, increased SCD risk by 12-fold (95% CI 6.23 to 22.3) after multivariate adjustment. A history of cardiovascular disease and smoking were also independently associated with elevated SCD risk (odds ratio 6.89, 95% CI 2.87 to 16.5; and odds ratio 3.53, 95% CI 1.87 to 6.65, respectively). In conclusion, SCD in young firefighters is primarily related to preventable lifestyle factors. Obesity entry standards, smoking bans, and improved screening and/or wellness program are potential strategies to reduce SCD in younger firefighters. © 2013 The Authors. Published by Elsevier Inc. All rights reserved. (Am J Cardiol 2013;112:1962–1967)

---