

General and cardiovascular mortality of Croatian olympic athletes

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Introduction: While the benefits of moderate physical activity on overall and cardiovascular health are well known, impacts of competitive sport are not clear. Objective of this research is to perform the general and cardiovascular mortality comparison of Croatian athletes who represented Yugoslavia or Croatia in the Olympic Games from 1948 to 2016 and the general Croatian population standardized by age, gender, and time period.¹

Methods: Total of 652 male athletes were included for general mortality analysis. Among them, 642 athletes were eligible for cardiovascular mortality analysis. General mortality analysis included 158 female athletes. Due to small sample size, cardiovascular mortality analysis could not be performed for female gender. If available, data on athletes' causes of death were obtained from the official registers of countries where deaths occurred. Alternative method to obtain athletes' causes of death was interview with family members or acquaintances of the deceased. The interviews were conducted on World Health Organisation (WHO) verbal autopsy principles. Data on general population mortality were obtained from Croatian Bureau of Statistics' and WHO databases. General and cardiovascular standardized mortality ratios (SMR) with 95% confidence intervals (CI) were used for the Olympians' and general population mortality rates comparison.

Results: During the follow-up, 142 male and 2 female Olympic athletes died. Expected numbers of deaths in the Croatian general population were 255.37 for male and 8.96 for female gender. Olympians' general mortality was lower for both males (SMR 0.56; CI 0.47–0.66; $p < 0.001$) and females (SMR 0.23; CI 0.03–0.81; $p = 0.013$) compared to the Croatian general population. Among 142 deceased male athletes, 132 had known cause of death. Total of 52 male athletes died from cardiovascular causes of death, while the expected number of cardiovascular deaths in the Croatian general male population was 102.93. Hence, athletes' cardiovascular mortality was significantly reduced (SMR 0.51; CI 0.38–0.66; $p < 0.001$).

Conclusion: Croatian male and female Olympic athletes have lower general mortality in comparison to the Croatian general population. Croatian male Olympic athletes have lower cardiovascular mortality in comparison to the Croatian general population.

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LITERATURE

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