

Sudden Death in Young Competitive Athletes
Clinical, Demographic, and Pathological Profiles

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Abstract

Objective.

—To develop clinical, demographic, and pathological profiles of young competitive athletes who died suddenly.

Design.

—Systematic evaluation of clinical information and circumstances associated with sudden deaths; interviews with family members, witnesses, and coaches; and analyses of postmortem anatomic, microscopic, and toxicologic data.

Participants and Setting.

—A total of 158 sudden deaths that occurred in trained athletes throughout the United States from 1985 through 1995 were analyzed.

Main Outcome Measures.

—Characteristics and probable cause of death.

Results.

—Of 158 sudden deaths among athletes, 24 (15%) were explained by noncardiovascular causes. Among the 134 athletes who had cardiovascular causes of sudden death, the median age was 17 years (range, 12-40 years), 120 (90%) were male, 70 (52%) were white, and 59 (44%) were black. The most common competitive sports involved were basketball (47 cases) and football (45 cases), together accounting for 68% of sudden deaths. A total of 121 athletes (90%) collapsed during or immediately after a training session (78 cases) or a formal athletic contest (43 cases), with 80 deaths (63%) occurring between 3 PM and 9 PM. The most common structural cardiovascular diseases identified at autopsy as the primary cause of death were hypertrophic cardiomyopathy (48 athletes [36%]), which was disproportionately prevalent in black athletes compared with white athletes (48% vs 26% of deaths; $P=.01$), and malformations involving anomalous coronary artery origin (17 athletes [13%]). Of 115 athletes who had a standard preparticipation medical evaluation, only 4 (3%) were suspected of having cardiovascular

disease, and the cardiovascular abnormality responsible for sudden death was correctly identified in only 1 athlete (0.9%).

Conclusions.

—Sudden death in young competitive athletes usually is precipitated by physical activity and may be due to a heterogeneous spectrum of cardiovascular disease, most commonly hypertrophic cardiomyopathy. Preparticipation screening appeared to be of limited value in identification of underlying cardiovascular abnormalities.

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Footnotes

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