30 and 30 + CO2 breaths/min respectively (P=0.006).
Conclusion: Hyperventilation during CPR in pigs is associated with lower coronary perfusion pressures, higher intrathoracic pressures, and decreased survival rates, despite supplemental CO2 to prevent hypoxacnia.

Nontraumatic Sudden Death During Military Basic Training, 1977-2001
Robert E. Eckert, Stephanie L. Scoville, Charles L. Campbell, Eric A. Shy, Karl C. Stajduhar, Robert Potter, Lisa Pearse, Renir Venmani, Brocky Medical Center, Fort Sam Houston, TX, Armed Forces Institute of Pathology, Washington, DC

Background: Sudden death among healthy, young military recruits is a rare but devastating occurrence. Because of the extensive medical data available on this young military population, the identification of the underlying etiology of sudden death may allow for extrapolation to the same-age civilian population. The purpose of this study was to determine the cardiovascular etiology of non-traumatic sudden recruit deaths from 1977 through 2001.

Methods: This study reviewed the autopsy data of non-traumatic sudden recruit deaths during United States Armed Forces enlisted basic training from 1977 through 2001. Demographic and autopsy data were obtained from the Department of Defense Recruit Mortality Registry.

Results: There were 126 non-traumatic sudden recruit deaths and 108 (86%) of those were exercise-related. Review of autopsy data reveals the most common causes of sudden death were an identifiable cardiac abnormality (64/126, 51%) and idiopathic (44/126, 35%). In recruits with cardiac modes of sudden death, the most common causes were coronary artery abnormalities (39/64, 61%), myocarditis (13/64, 20%), and hypertrophic cardiomyopathy/ventricular hypertrophy (8/64, 12%). Anomalous coronary arteries accounted for one-third (21/64) of sudden cardiac deaths and all of those were the left coronary arising from the right (anterior) sinus of Valsalva, with a course between the pulmonary artery and aorta.

Conclusions: Most non-traumatic sudden deaths in military recruits occur during exercise. The leading identifiable cause of sudden death in young military recruits is cardiac. Death associated with pathologic ventricular hypertrophy is much lower in this population than in prior reports. However, over one-third of sudden deaths remain unexplained, even after detailed medical investigation including autopsy. Preventive measures focusing on reducing heat stress during exercise, identifying coronary anomalies, and further evaluating idiopathic sudden death may be effective in reducing the rate of sudden death in this population.

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