

Study examines heart structure, function of NBA players

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An analysis of the cardiac structure and function of more than 500 National Basketball Association (NBA) players provides information that can be incorporated into clinical assessments for the prevention of cardiac emergencies in basketball players and the athletic community at large, according to a study published online by *JAMA Cardiology*.

A detailed understanding of normal and expected cardiac remodeling (structural and functional myocardial adaptation in response to sustained exercise) in U.S. [basketball players](#) has significant clinical importance, given that the incidence of sports-related [sudden cardiac death](#) (SCD) in the United States is highest among basketball players, and that the most common cause of SCD in this population is hypertrophic cardiomyopathy (HCM; a heart defect characterized by increased thickness of the wall of the [left ventricle](#)). The recognition of the risk for SCD among basketball players is challenging because little is known regarding athletic cardiac remodeling in these [athletes](#) or athletes of similarly increased size.

David J. Engel, M.D., of New York-Presbyterian/Columbia University Medical Center, New York, and colleagues conducted a comprehensive cardiac structural analysis of 526 NBA players on the active rosters for the 2013-2014 and 2014-2015 seasons. The policy of the NBA mandates annual preseason stress echocardiograms for each player. The NBA has sanctioned Columbia University Medical Center to conduct annual health and safety reviews of these echocardiograms.

Of the 526 athletes included in the study, 406 (77 percent) were African American and 107 (20 percent) were white, with an average age of 26 years. Average athlete height was 6 feet, 7 inches. Among the findings of the researchers, left ventricular (LV) cavity sizes in NBA players were larger than in normal adults, but LV size was proportional to body size, reinforcing "the concept that scaling LV size to body size is vitally important in the cardiac evaluation of basketball players."

There was a modest degree of LV hypertrophy, with 27 percent of athletes having an increased LV mass index. African American athletes had increased LV wall thickness and mass compared with white athletes. Most NBA athletes had a normal left ventricular ejection fraction (a measure of how well the left ventricle of the heart pumps with each contraction).

"Conclusions about an athlete's heart should not be based on echocardiographic measurements in isolation. Instead, such conclusions require placement in full medical context, including a complete medical evaluation with incorporation of all other pertinent clinical information. We hope that the present data will help to focus decision making and improve clinical acumen for the purpose of primary prevention of cardiac emergencies in U.S. basketball players and in the athletic community at large," the authors write.

"Physicians who care for professional basketball players now have a valuable resource at their fingertips," writes Aaron L. Baggish, M.D., of Massachusetts General Hospital, Boston, in an accompanying commentary.

"Ideally, this study will set the stage for future longitudinal efforts in this population and similarly visionary cross-sectional work in other distinct athlete populations. The absence of definitive normative data is at the core of many passionately debated sports cardiology topics, including the

role of preparticipation screening. For now, we must remember that we cannot act in the best interest of the individual patient or the society at large until we understand what is normal and what is not."

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