ECHOCARDIOGRAPHIC STUDIES IN SAUDI ATHLETES

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M-mode and two-dimensional echocardiograms were carried out on 334 Saudi athletes in different sporting activities during the peak of their training seasons. They were compared with 25 age-matched controls comprised of men who were not involved in any systematic sporting activities. The findings of this study indicate that, while controlling for body surface area, the athletes had, in general, higher mean values in all of the measured cardiac parameters when compared with the controls. The differences were especially significant for the thickness of the left ventricular posterior wall and the interventricular septum. However, athletes such as tennis players and high jumpers who were known not to train vigorously did not have values higher than the controls. The results showed that the septal hypertrophy observed was not of that nature as to obstruct the left ventricular outflow tract as found in obstructive cardiomyopathy and is therefore not likely to contribute to sudden death in athletes. The data obtained in this study were compared with those found in athletes of some other countries.

ATHLETES ENGAGED in prolonged training may show some cardiac changes such as bradycardia and hypertrophy or dilatation of the cardiac chambers.[1,2] Several echocardiographic studies conducted in athletes and non-athletes have shown that the athletes who perform dynamic exercises such as long- or short-distance running appear to possess large ventricular cavities. On the other hand, athletes who perform static or strength exercises appear to have thicker left ventricular walls and normal or slightly larger than normal left ventricular cavities.[3,4] However, many questions concerning the effects of physical training remain unanswered and conflicting reports about them have been published.[3,5-7]

Echocardiography is probably the best available noninvasive method to determine cardiac structure. Measurements made in the echocardiogram of the left ventricular structure closely correspond to measurements determined by left ventriculography[7-9] and by autopsy,[10] at least in cardiac patients. It is also reasonable to assume that echocardiography provides a good estimate of left ventricular structures in athletes.[3,6,11-13] Since there is a paucity of data about Saudi athletes in this regard, this paper therefore, presents some echocardiographic evaluations of Saudi athletes. To our knowledge, there has been no extensive study of this nature in Saudi athletes.

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Materials and Methods

Subjects in this study were 334 national athletes and 25 aged-matched controls. The athletes were referred to the General Presidency of Youth Welfare Hospital for medical and physiological evaluations. The results of the ergospirometry tests have been published elsewhere.[14] The athletes in this study represent various individual and team sports. The control subjects were not engaged in any systematic physical exercise. Table 1 presents the physical characteristics of the subjects.

Echocardiographic examination was done using the Siemens Sonoline SL2 ultrasound compound scanner using a 3.5 MHz 8 cm focused transducer.