

echocardiography. These athletes participated in cricket (n=40), football (n=27), hockey (n=25) and racquet sports (n=8), and they trained on average 12 ± 6.6 h every week. The ECG findings were classified as Group-1 (training-related) or Group-2 (training-unrelated); and data on cardiac chamber size and wall thickness was obtained using standard echocardiogram. Results were compared with 80 CA and 40 AC athletes, and with 30 South Asian controls.

Results The group-1 and group-2 ECG changes were seen in 55% and 9% athletes respectively. Minor T-wave inversions were observed in only 3%, whereas none of the athletes had deep T-wave inversions. The mean LA and LV cavity dimensions were 33.2 ± 4 mm (range 20–42) and 49.5 ± 4.4 mm respectively. Only 2% athletes exhibited an LV dimension of ≥ 60 mm; an LA ≥ 40 mm was seen in 5% athletes. The mean LV wall thickness was 9.2 ± 1 mm. None of the athletes had LV wall thickness of >12 mm. A cardiomyopathy was not identified in any athlete. The ECG abnormalities, particularly T-wave inversions were less prevalent in SA athletes compared to AC athletes ($p<0.05$). The SA athletes had larger LV cavity dimensions and wall thickness compared to SA controls ($p<0.05$); however they demonstrated slightly smaller LV cavity size and wall thickness compared to Caucasian and Afro-Caribbean athletes.

Conclusions The South Asian male athletes demonstrate similar ECG changes to Caucasians, but fewer ECG anomalies compared to Afro-Caribbean athletes. However they exhibit a lesser degree of structural cardiac adaptation which may be influenced by body size and type of sport. The ESC criteria for interpretation of athletes' ECG may be applicable to South Asian athletes, and upper limits of cardiac cavity dimensions and wall thickness do not differ from Caucasian population. Larger studies are required in this ethnic group.

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CARDIOVASCULAR ADAPTATION IN ATHLETES OF SOUTH ASIAN ORIGIN: RELEVANCE TO UNIVERSAL IMPLEMENTATION OF PRE-PARTICIPATION CARDIOVASCULAR SCREENING

S Ghani,¹ Z Al-Khafaji,¹ M Reed,¹ A Zaidi,¹ N Sheikh,¹ R Narain,¹ S Gati,¹ M Papadakis,¹ S Cox,² S Sharma¹ ¹St George's University London; ²Cardiac Risk in the Young

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Introduction Regular physical exercise results in structural and electrophysiological cardiac changes, referred to as 'athletes' heart'. Ethnicity is an important determinant of such adaptation in athletes; it has been demonstrated that Afro-Caribbean (AC) athletes exhibit a greater degree of cardiac adaptation compared to Caucasian athletes (CA). However, there is conspicuous lack of data on cardiac adaptation in Asian athletes, particularly those of South Asian (SA) origin. This study describes the ECG and echocardiographic characteristics in competitive athletes of SA descent.

Methods Between 2011 and 2012, 100 male SA athletes (age 14–35) underwent pre-participation cardiovascular screening with ECG and