

Heart, Lung and Circulation (2018) xx, 1–10
 1443-9506/04/\$36.00
<https://doi.org/10.1016/j.hlc.2018.04.301>

Athlete's ECG – Simple Tips for Navigation

Q1 Maria J. Brosnan, MBBS, FRACP, PhD

Q2 Cardiology, St Vincent's Hospital, 41 Victoria Parade, Melbourne, Vic, Australia

Q3
Q5

Regular exercise training results in structural and electrical cardiac adaptations which are reflected in the resting 12-lead electrocardiograph (ECG), thus an athlete's ECG can be quite different to that of a sedentary person of the same age, gender and ethnicity. This has been recognised as an issue in the setting of pre-participation ECG screening of athletes in whom false positive findings are commonplace when using normative ECG values derived from sedentary populations. As such, athlete ECG interpretation guidelines have been devised and modified several times over the past decade, with the ultimate goal of reducing the number of athletes undergoing unnecessary secondary investigations to exclude cardiac pathology whilst maintaining the sensitivity of the ECG in detecting cardiac diseases associated with sudden cardiac death (SCD). By no means exhaustive, the following series of athlete ECG examples is aimed at providing the reader with a basic understanding of what ECG changes are considered normal for an athlete, and what changes should prompt further investigation to exclude cardiac pathology, even in the absence of symptoms.

Keywords

ECG • Screening • Sudden cardiac death • Athlete • Cardiomyopathy

Q6 Pre-participation screening inclusive of an electrocardiograph (ECG) has been endorsed by the European Society of Cardiology and an increasing number of national and international sporting organisations, in an effort to identify the small number of athletes who may be at increased risk of SCD due to a sub-clinical cardiomyopathy or channelopathy. It is largely in this context that athlete ECG interpretation guidelines have evolved, with the aim of differentiating ECG changes attributable to physiological adaptation to exercise from those ECG changes indicative of underlying cardiac pathology [1–3]. Most recently, the International Consensus Standards for ECG Interpretation in Athletes was published in the European Heart Journal, the Journal of the American College of Cardiology and the British Journal of Sports Medicine [4]. These recommendations, summarised in Figure 1, are a useful reference point for ECG interpretation in the context of asymptomatic

screening or in the evaluation of an athlete with cardiac symptoms or a family history of cardiac disease; however, it should always be remembered that a normal ECG should not offer false reassurance in the assessment of an athlete in whom suspicion of cardiac pathology is high. The following ECG cases are examples of some of the common, benign features seen on the athlete's ECG which, in isolation, should prompt no further investigation (cases 1 to 5). The final four ECGs (cases 6 to 9) are examples of distinctly abnormal athlete ECGs, along with a brief outline of how to further investigate such ECG findings.

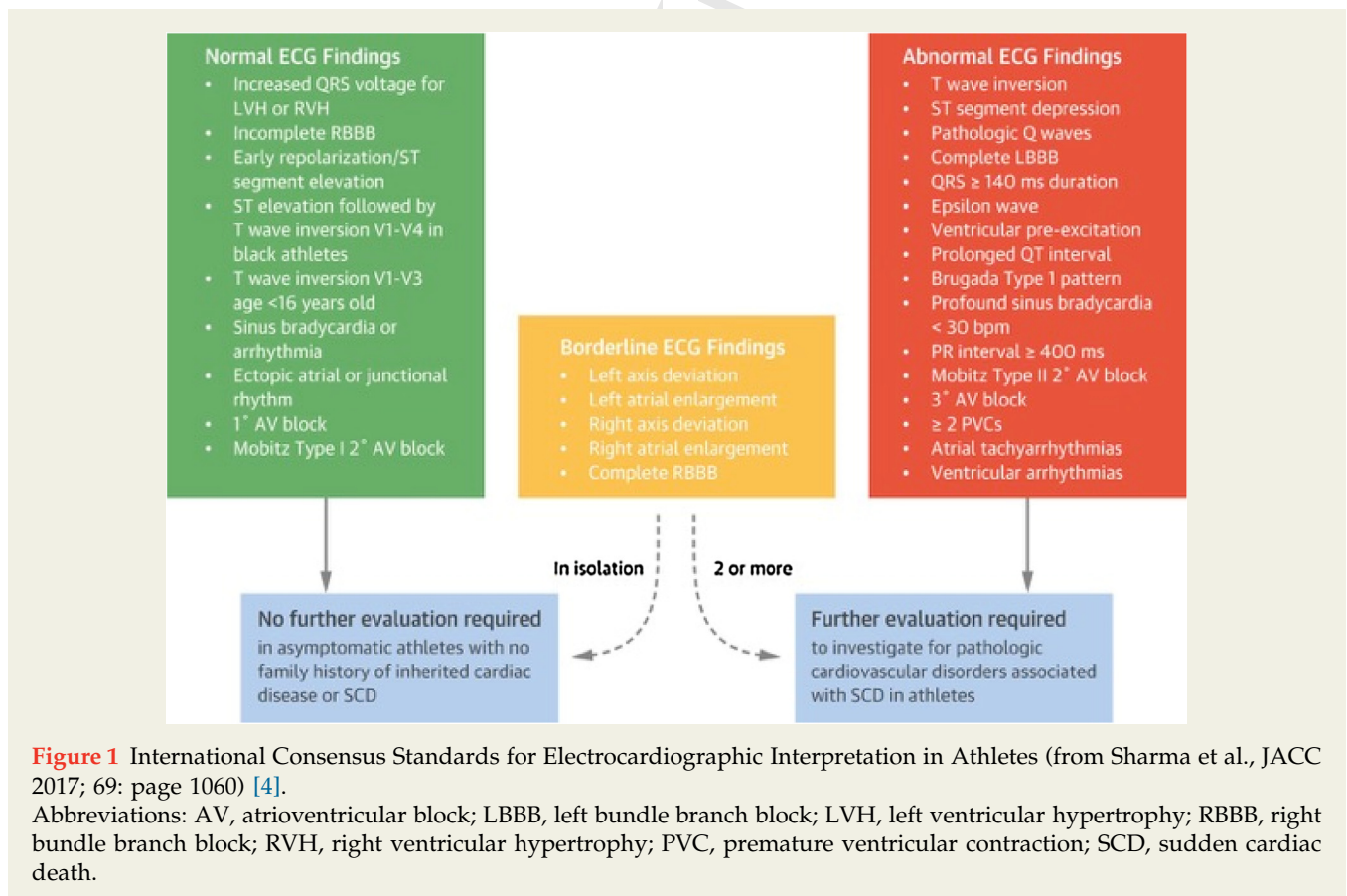
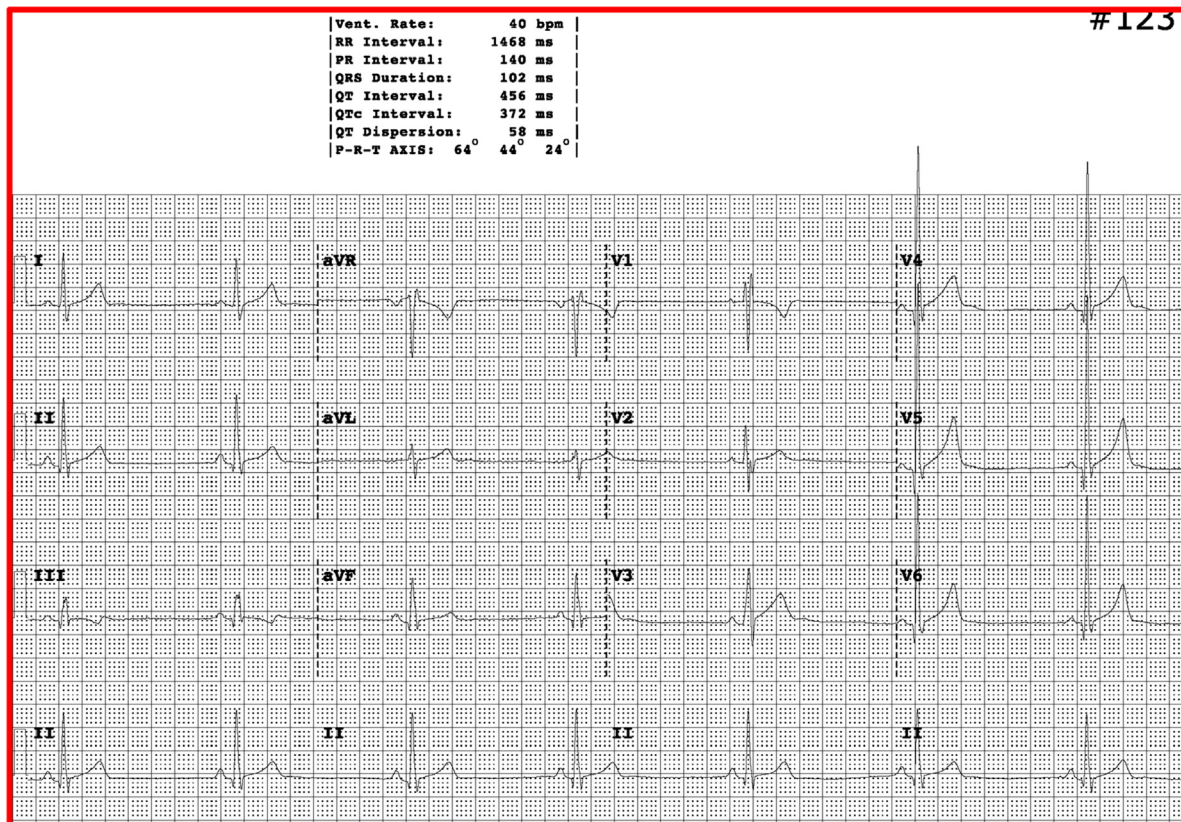
Normal ECG findings in athletes

Example 1. Sinus bradycardia with incomplete RBBB and LVH on voltage criteria

Email: maria.brosnan@svha.org.au

© 2018 Australian and New Zealand Society of Cardiac and Thoracic Surgeons (ANZSCTS) and the Cardiac Society of Australia and New Zealand (CSANZ).
 Published by Elsevier B.V. All rights reserved.

Please cite this article in press as: , et al. Athlete's ECG – Simple Tips for Navigation. Heart, Lung and Circulation (2018), <https://doi.org/10.1016/j.hlc.2018.04.301>



Q1 **Figure 1** International Consensus Standards for Electrocardiographic Interpretation in Athletes (from Sharma et al., JACC 2017; 69: page 1060) [4].

Abbreviations: AV, atrioventricular block; LBBB, left bundle branch block; LVH, left ventricular hypertrophy; RBBB, right bundle branch block; RVH, right ventricular hypertrophy; PVC, premature ventricular contraction; SCD, sudden cardiac death.

Download English Version:

<https://daneshyari.com/en/article/8659653>

Download Persian Version:

<https://daneshyari.com/article/8659653>

[Daneshyari.com](https://daneshyari.com)