

# Deconditioning the athletic heart

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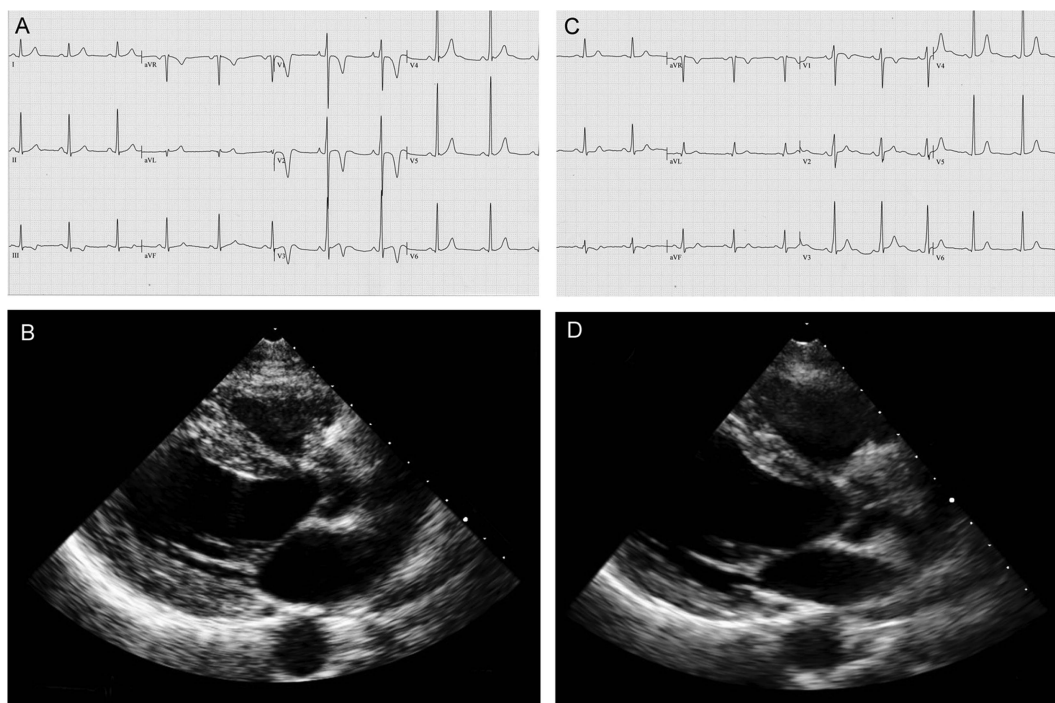
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## DESCRIPTION

A 42-year-old competitive runner was referred for cardiac screening following the death of one of his running partners from a cardiomyopathy. He had no significant cardiac symptoms and there was no family history of a cardiomyopathy. Baseline ECG and echocardiography were abnormal with deep T-wave inversion in leads V1–V3 (figure 1A), mild left ventricular septal hypertrophy (14 mm) with normal cavity dimensions (figure 1B and video 1). Hypertrophic cardiomyopathy was suspected. Cardiac MRI, however, showed no significant

abnormalities and genetic testing was negative for common mutations.

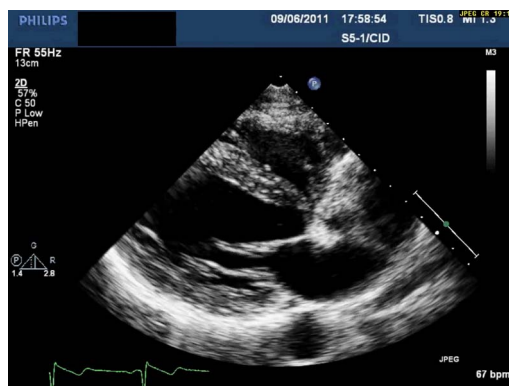
A period of detraining was recommended, during this time he did not take part in physical exercise. After 3 months the investigations were repeated. The ECG (figure 1C) and echocardiogram had now normalised (figure 1D and video 2) with no evidence of ventricular hypertrophy. A diagnosis of an athletic heart was made and he was permitted to continue competition. Repeat investigations 9 months later revealed a return to baseline findings.



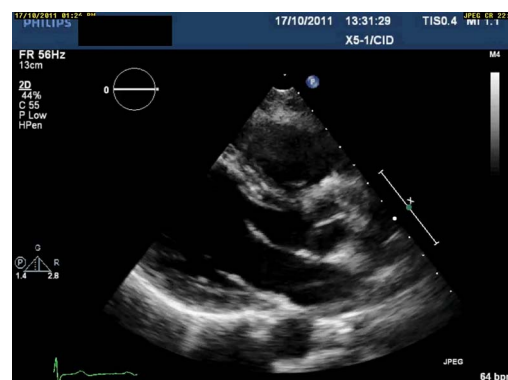
**Figure 1** (A) Baseline ECG. (B) Baseline echocardiogram. (C) ECG after detraining. (D) Echocardiogram after detraining.



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**Video 1** Baseline echocardiogram.



**Video 2** Echocardiogram after detraining.

## Learning points

- ▶ Cardiac changes from prolonged athletic training can appear similar to those of a cardiomyopathy.
- ▶ After a long period of de-training, these changes should revert to normal.
- ▶ There may also be an overlap state with training bringing out the phenotype of a cardiomyopathy - surveillance may be warranted.

Preparticipation heart screening will detect abnormalities in athletes that may be suggestive of an underlying cardiac abnormality. Detraining can be extremely helpful in borderline cases when differentiating between an athletic heart and a cardiomyopathy.

**Competing interests** None.

**Patient consent** Obtained.

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