

Poster presentation

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Regional myocardial strain at rest as assessed by velocity-encoded CMR remain unchanged in endurance trained athletes compared to normal subjects

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Introduction

It has previously been shown that left ventricle dimensions and mass as well as maximal cardiac output increase with prolonged endurance training. It is, however, less well known how regional left ventricular function at rest is influenced by prolonged endurance training.

Purpose

The aim of this study was, therefore, to determine the regional left ventricular strain in endurance trained athletes in comparison to normal subjects using velocity-encoded cardiac magnetic resonance (VE-CMR).

Methods

Seventeen professional soccer and handball players competing on elite level (7 females) and 17 age- and gender-matched control subjects were included in the study. All subjects underwent CMR imaging at rest. Regional left ventricular function was assessed using VE-CMR and expressed as peak, longitudinal and radial strain for each of the standard 17 left ventricular segments. Left ventricular mass (LVM), left ventricular end-diastolic volume (EDV), left ventricular stroke volume (SV), left ventricular ejection fraction (EF) were determined by CMR cine imaging.

Results

There was no difference in peak, radial or longitudinal strain between the athletes and the control subjects in any

of the 17 left ventricular segments ($p > 0.05$). However, LVM, EDV and SV were significantly higher in the athletes compared to the control subjects (129g vs 100 g, $p < 0.001$; 237 vs 180 ml, $p < 0.001$; and 132 vs 110 ml, $p = 0.005$, respectively). On the other hand EF was significantly lower in the athletes compared to the control subjects (56 vs 61%, $p = 0.02$) Figure 1.

Conclusion

Even though left ventricular mass, dimensions and stroke volume at rest are higher in endurance trained athletes compared to normal subjects, regional myocardial strain remain unchanged.

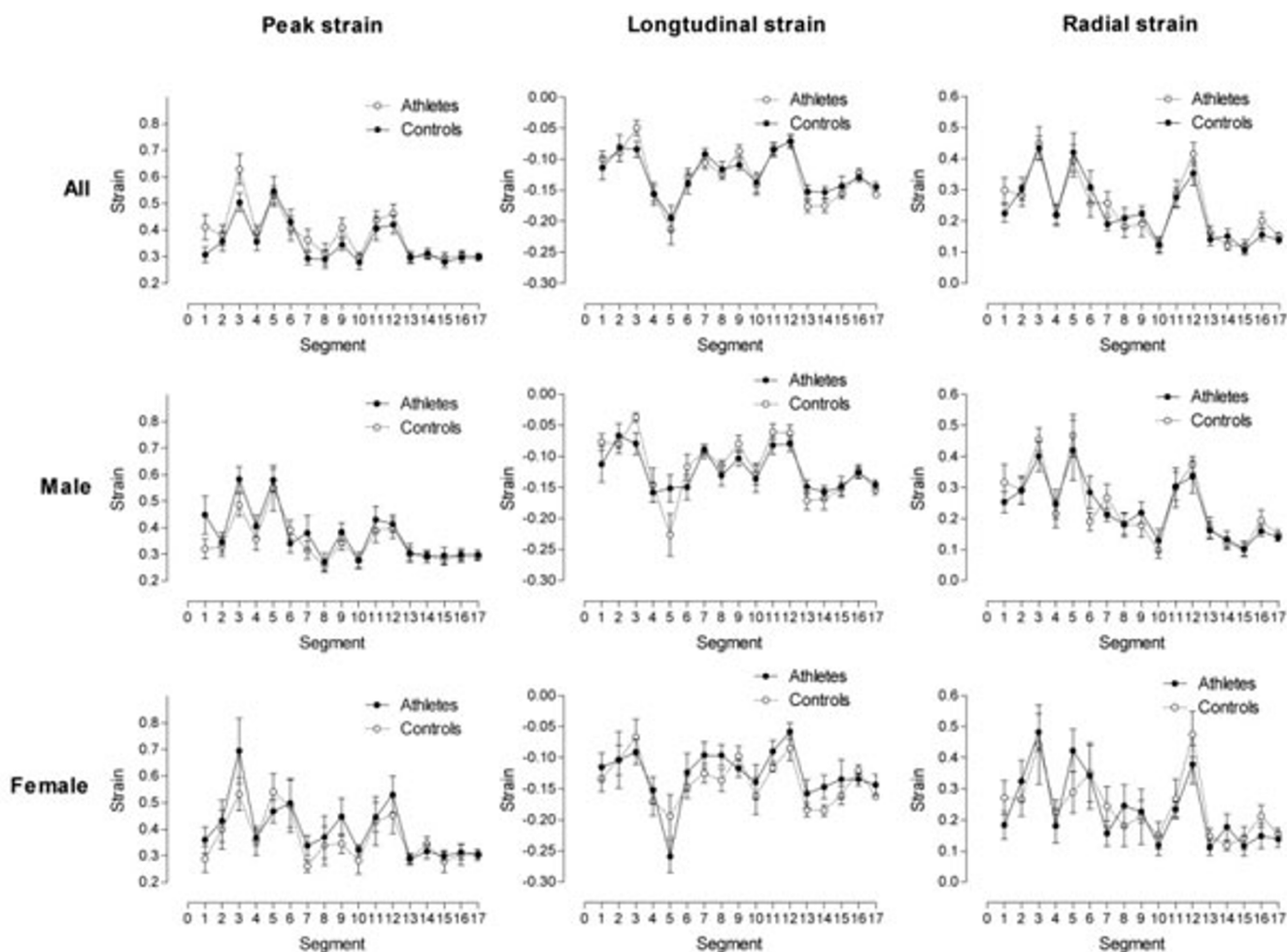


Figure 1

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