

LONGER TRAINING EXPERIENCE INDUCED GREATER SYSTOLIC FUNCTION EFFICIENCY IN ENDURANCE ELITE ATHLETES

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- **Introduction:** High performance in endurance athletics is maintained for a large range of age by elite athletes. The physiological factors of high performance in endurance athletics depends largely on the aerobic capacity which in turn depends in part of cardiovascular system.
- **Objective:** The aim of this study was to identify the changes in cardiac specific mechanisms which are related with the aerobic capacity along the experience training in elite athletes.



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METHODS

Inclusion criteria:

- Endurance athletics elite competitors (≥ 5.000 meters dash).
- Strict adherence to high performance training.
- Do not suffer any cardiac or cardiovascular disease or overtraining.

N= 28
Male elite athletes in
endurance athletics

Short-training experience (STE) group

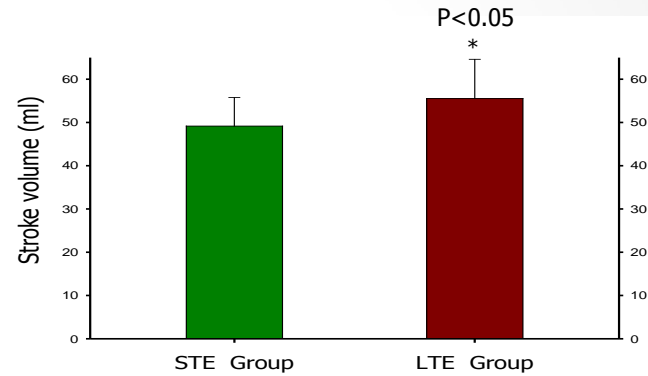
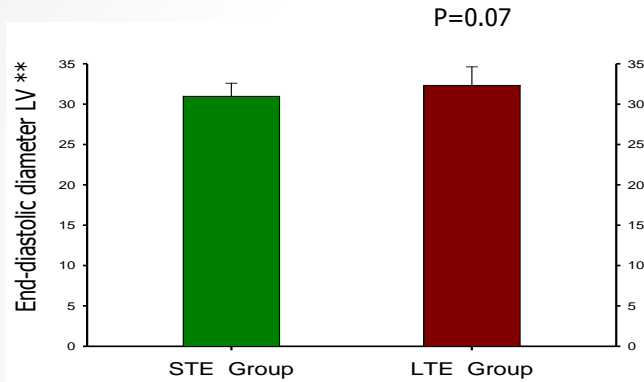
- N=16
- Age 25.6 ± 3.0 years
- Years of training 8.9 ± 3.0 years

Long-training experience (LTE) group

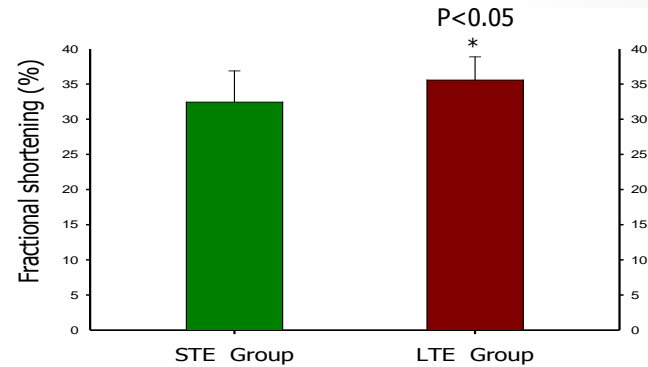
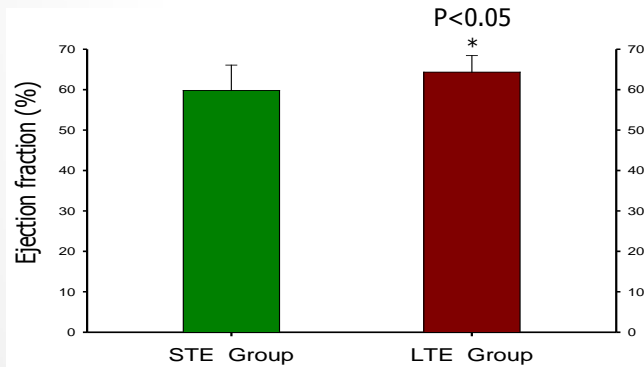
- N=12
- Age 34.7 ± 2.8 years
- Years of training 15.7 ± 3.9 years

- **Standard echocardiographic examinations at rest were performed.**
- **Morphological parameters of the left atrium, left ventricle, and systolic function were obtained.**

RESULTS



** Values corrected by body surface area



DISCUSSION

- Longer training experience in elite athletes is associated with higher ejection fraction and higher fractional shortening despite the similar morphological parameters on the left ventricle.
- These data suggest an increase of cardiac efficiency associated with a progressive increase in cardiac contractility along the years in high performance training.

CONCLUSIONS

- Systolic function in elite endurance athletes continues to improve along the years of training.
- The optimization of Frank-Starling mechanism could partly explain the maintenance of performance along the years in endurance sports in the cardiovascular system.