



Association Between Regular Sport Activity and Resting Heart Rate Values in A Cross-Sectional Adolescent Study

A collaborative project between

The ABC Study on Heart Disease Foundation
and Liceo Guglielmo Marconi, Conegliano, Italy.



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Introduction

- Resting heart rate (RHR) is a crucial physiological parameter reflects autonomic regulation, CV function, and overall health.
- In adolescents, regular physical activity, has been associated with improved CV efficiency, resulting in a lower RHR.

Aim

- To evaluate the association between regular participation in sports and RHR among adolescents in a cross-sectional study..



Methodology

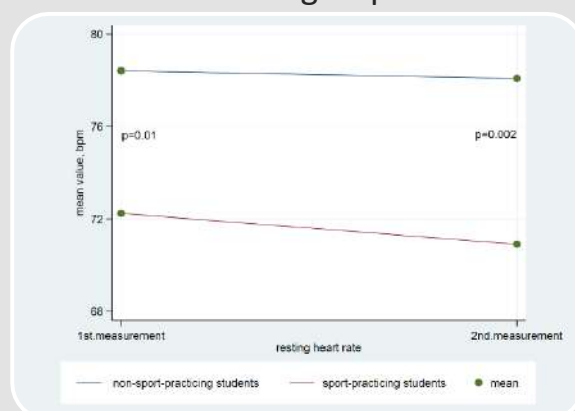
- 250 students** of Liceo Guglielmo Marconi, Conegliano were enrolled
- Stratified into two groups:** those participating in regular sports (≥ 3 times/week for ≥ 60 minutes/session) and those with sedentary or minimal physical activity.
- RHR and** other ECG parameters were evaluated in two different settings and compared between both groups.
- The data were analyzed** using adjusted linear regression models.

Results

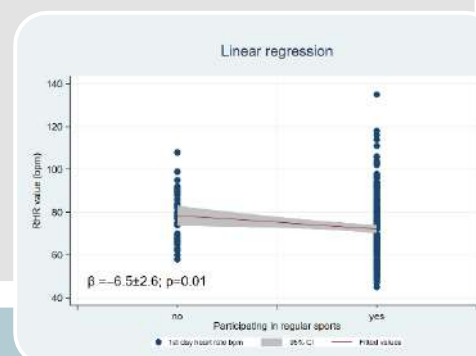
- Mean age of 17 ± 1 years
- 53% females.
- One diabetic student.
- Two had a preexisting arterial Hypertension.
- Mean RHR: 73 ± 15 bpm.

Results

- 167 students (67%) were actively participating in regular sports activities
- 57% isotonic and 43% isometric exercises.
- They shared most demographic and clinical characteristics with those with sedentary lifestyle.
- RHR values in both groups:



- the significant difference in RHR was predominantly observed in students engaging in isotonic exercises compared to non-sport-practicing students (mean difference -7.6; $p=0.01$).
- In a fully-adjusted linear regression model, practicing sport was an independent predictor of lower RHR values even using a repeated RHR measurements:



Conclusion

This analysis highlights the importance of sports, particularly isotonic exercises in enhancing autonomic regulation and reducing resting heart rate in adolescents, reinforcing the value of regular physical activity for reducing the future burden of cardiovascular diseases.