

# Acute exercise leads to increased HbA1c and fructosamine levels in athletes with type 1 diabetes



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## Introduction

In patients with type 1 diabetes, exercise has not consistently been shown to improve glycemic control, as measured using HbA1c levels. Participation in competitive sports may even worsen glycaemic control. Free radicals and oxidative stress markers are known to increase during acute exercise in parallel to decreased circulating antioxidant concentrations.

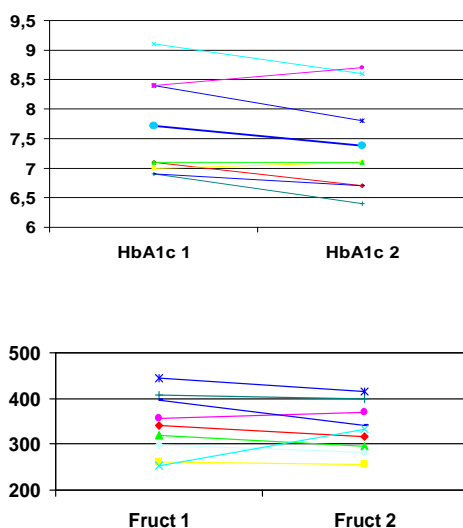
## Objective

We aimed to analyze the effects of chronic and acute exercise on circulating HbA1c and fructosamine levels.

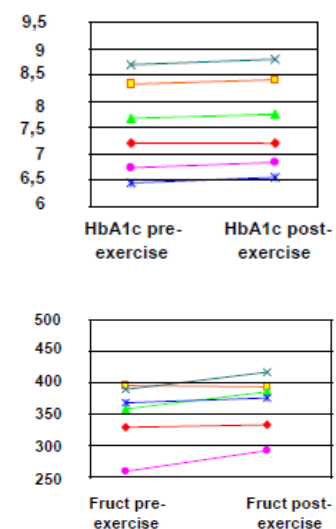
## Results

After eight months training, mean HbA1c decreased from 7.80% (CI 95%: 6.80-8.79) to 7.55 % (CI 95%: 6.52-8.57) (P: 0.13) and mean fructosamine levels decreased from 370.5  $\mu\text{mol/l}$  (CI 95%: 311.87-429.12) to 350  $\mu\text{mol/l}$  (CI 95%: 292.97-407.02) (p:0.075). Paradoxically, after acute exercise, mean HbA1c increased from 7.53% (CI 95%: 6.54-8.52) to 7.61% (CI 95%: 6.61-8.51) (p: 0.025) in parallel to raised fructosamine levels from 348.3  $\mu\text{mol/l}$  (CI 95%: 298.1-398.5) to 363.8  $\mu\text{mol/l}$  (CI 95%: 318.3-409.2) (p: 0,046).

Changes in HbA1c and fructosamine (fruct) after training period



Changes in HbA1c and fructosamine (fruct) levels after running half-marathon



## Conclusion

Acute exercise should be taken into account as one of the factors influencing HbA1c variability in a short time.

## References

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