The impact of a sucrose mouth-rinse in the fasted and fed-state on time trial performance

Published: 23-01-2012 Last updated: 30-04-2024

To assess time trial performance in the fasted and fed state while mouth-rinsing with a carbohydrate solution and/or a placebo.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON37403

Source ToetsingOnline

Brief title CHO-rinse

Condition

Other condition

Synonym performance cycling

Health condition

cycling performance

Research involving Human

Sponsors and support

Primary sponsor: Medisch Universitair Ziekenhuis Maastricht **Source(s) of monetary or material Support:** Ministerie van OC&W

Intervention

Keyword: cycling, sucrose, time trial performance

Outcome measures

Primary outcome

cycling performance (time, power output, cycling cadence, heart rate)

Secondary outcome

not applicable

Study description

Background summary

Several studies have reported that carbohydrate (CHO) ingestion can improve performance during exercise of short duration (less than 60 min) (4, 7, 10, 11). However, there is no apparent metabolic explanation for this observation because endogenous carbohydrate stores should not be a limiting factor during short duration exercise (11). Nonetheless, several groups have attempted to investigate CHO administration during short duration exercise with varying results. When CHO was administered intravenously, no performance effect was observed despite greater plasma glucose availability (5). Therefore, it was suggested that during exercise of short duration, exogenous CHO ingestion may exert its ergogenic effect by action through the central nervous system, possibly mediated by glucose receptors in the mouth. The latter has been investigated using a CHO-mouth rinse, whereby the CHO solution is spat out to remove any influence of the gut on exogenous carbohydrate oxidation or performance. Using this rinse, studies have demonstrated results both for (5, 18), and against (1, 21) any improvement in short duration exercise performance when compared with a placebo. The discrepancy in the findings may be due to testing subjects in the fed (1) or fasted-state (5), when liver glycogen stores may be compromised. However, no study has tested subjects in both the fasted and fed-state. It remains to be determined whether CHO-mouth rinse is only effective at improving short duration exercise performance when subjects are in

the fasted, compared with the fed-state.

Study objective

To assess time trial performance in the fasted and fed state while mouth-rinsing with a carbohydrate solution and/or a placebo.

Study design

Double-blind, randomized cross-over placebo controlled study.

Intervention

carbohydrate

Study burden and risks

Exercise has minimal risk. The minimal risk outweighs the total time involved (17 h).

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Adults (18-64 years) Elderly (65 years and older)

Inclusion criteria

- Healthy
- Male
- 18 35 years of age

- Endurance cycling trained (*3 sessions of endurance exercise per week for more than 1 year)

- VO2 max * 50 ml/kg/min
- BMI <25 kg/m2

Exclusion criteria

- Use of medication
- Smoking

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Placebo
Primary purpose:	Other

Recruitment

NL	
Recruitment status:	Recruitment stopped
Start date (anticipated):	06-02-2012

4 - The impact of a sucrose mouth-rinse in the fasted and fed-state on time trial pe ... 7-05-2025

Enrollment:	18
Туре:	Actual

Ethics review

Approved WMO	
Date:	23-01-2012
Application type:	First submission
Review commission:	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
ССМО	NL38546.068.11
Other	will be provided when approved