Reviewer’s report

Title: Carbohydrates and exercise performance in non-fasted athletes: A systematic review of studies mimicking real-life

Version: 1 Date: 27 August 2012

Reviewer: Ajmol Ali

Reviewer’s report:

Overall: This review examined the evidence for ergogenic potential of carbohydrate (CHO)-containing sports drinks on exercise performance. The review differs from previous ones because the authors have made an effort to only examine the studies that have more closely resembled ‘real-life’ situations (i.e. more ecologically valid scenarios). The key inclusion criteria were that trained subjects were not fasted prior to exercise and performance tests (as opposed to exercise capacity tests) were utilised. The authors report that only 17 studies were identified (out of 16,658 possible studies based on their keyword search) that fulfilled their set criteria. The conclusion was that performance tests <70 min were unlikely to benefit from CHO ingestion; there was some benefit (although not unequivocal support) with CHO ingestion for events >70 min.

The authors criticise others for not using ecologically valid scenarios e.g. using overnight fasting, exercise capacity tests, recreationally trained (as opposed to international/elite) subjects and so on. There are various reasons why these are chosen but a ‘broad brush’ is used to dismiss these studies. Some athletes do exercise on an empty stomach (pre-breakfast) so there is some ecological validity here. Exercise capacity tests can be used to examine a concept but, as pointed out by the authors, do not resemble most sporting situations. Undertaking such interventional research using truly elite athletes is nigh on impossible for a number of reasons and hence recreationally trained athletes are often used. The authors are right to highlight this issue – some studies use a homogenous cohort of subjects to reduce variability (noise/ random error) but then generalise to a wider population – but it is not always the case. Therefore, a more balanced view is required before the conclusions are made.

Abstract

1. Be more specific with what you mean by “highly standardised”
2. Make some point regarding your search criteria e.g. mention you found 16,658 articles based on your keyword search but only 17 met your criteria
3. Keywords should be different to those found in the title

Introduction

4. Line 47 – should read “the subject of” (rather than object)
5. Add references to support statements made e.g. line 48, line 59
6. Not clear what you mean by “well-standardised study design”. Might wish to mention internal vs. external (ecological) validity
7. Provide rationale for why subjects are often fasted e.g. resting measures can be taken
8. Refer to Currell and Jeukendrup (2008) for review on pros and cons of different types of performance tests

Methods

9. Why were different search engines not used from the outset?
10. (for Web of Science at least) Using an asterix after part of the word searches for all derivatives of that particular word e.g. exerc* will also search for exercise, exercises, exercising, exerciser, exercisers etc
11. ml/kg/min is the correct unit for reporting relative maximal oxygen uptake (max)

Results

12. Line 150-153 - difficult to follow, please re-phrase

Discussion

13. Difficult to use international athletes for such research; you need to mention why this is so scarce (non-existent)
14. “...do not properly describe the methodology used” – please specifically refer to what scientists should be reporting to make things more clear
15. The discussion of what search engine should be used seems out of line with the aim of the study. Why not simply add this information in the methods and go from there?
16. “Comprehensively described studies” - please be more specific

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests