Reviewer's report

Title: Carbohydrate mouth rinse: does it improve endurance exercise performance?

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Reviewer: Asker A Jeukendrup

Reviewer's report:

This is a short review of a few studies that have investigated an intriguing new concept, namely carbohydrate may affect performance even when it is not ingested. The studies indicate a pharmacological effect of carbohydrate. The summary of the few studies out there is fairly accurate and up to date. The review is descriptive and the authors have no stab at the potential underlying mechanisms. Overall I think it is interesting but the authors need some help with the English language. I would recommend that the authors seek help from a native English speaker.

Page 1, line 1: Studies investigating the effects of carbohydrate... would be a better start

Page 1: The study by Levine did not contribute something important. It was a poorly conducted study with an interesting observation but it may have been the first one. I would remove this section.

Page 1 bergstrom and hultman did not measure performance they studied endurance capacity (time to exhaustion)

Page 1: The second section is not logical. First you discuss long duration exercise, then high intensity exercise, then you discuss mechanisms only important during more prolonged exercise.

Page 2: it would be good to discuss the study by Carter that shows that infusion of carbohydrate has no effect on performance despite high muscle glucose uptake.

Page 2: The group of Carter. Carter was a student of Jeukendrup so perhaps better to refer to this as the group of Jeukendrup. Or “at the University of Birmingham”... Chambers is in the same research group.

Page 5, line 8-9. The wording of this sentence is awkward. Please rewrite this section.

Page 5, line 14: first 5 min of the test (add the)

Page 5, sentence above INSERT TABLE 1. This sentence is poorly worded and could be improved. Also I am not sure why this is important. If ingesting has no benefit but might be negative why would you do it? The last section of the summary is similar.Why is the comparison between a drink ingested or rinsed so important? Explain?

Page 5: there does not seem to be a reference to the table?
Page 6: add a bit more discussion about why pre-exercise feeding may abolish the effect of the mouth rinse?

Level of interest: An article of importance in its field

Quality of written English: Not suitable for publication unless extensively edited

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