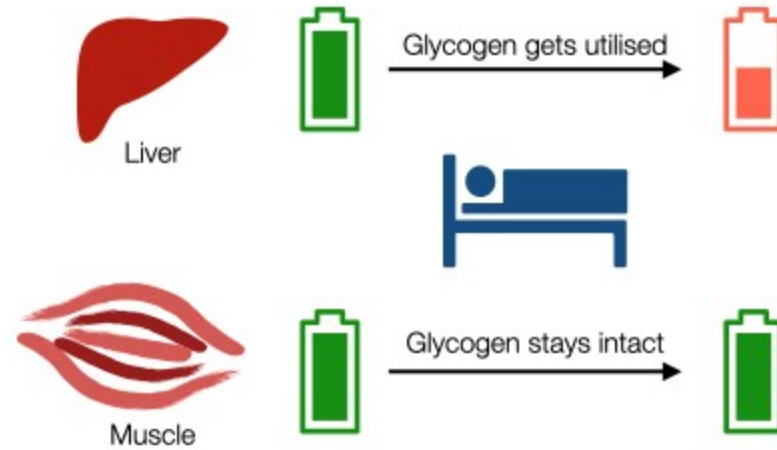


Addition of Fructose to a Carbohydrate-Rich Breakfast Improves Cycling Endurance Capacity in Trained Cyclists

Podlogar T., Cirnski S., Bokal Š., Verdel N. & Gonzalez, J. T.

Problem

After an overnight fast muscle glycogen stores remain intact, while liver glycogen stores get reduced.

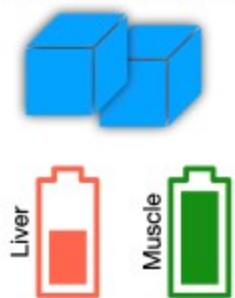


Breakfast in the morning should therefore in theory be made of carbohydrates that target especially liver glycogen stores.

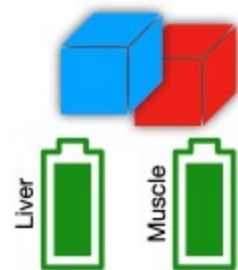
Combining fructose and glucose based carbohydrates can accelerate replenishment of liver glycogen stores.

If this occurs at the pre-exercise meal it may provide greater glycogen availability for exercise capacity

Glucose based CHO

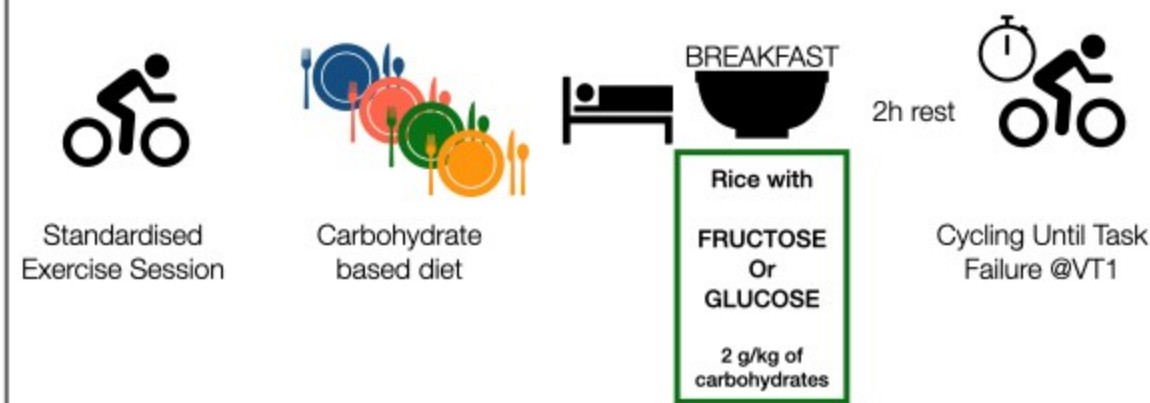


Fructose-Glucose Mix

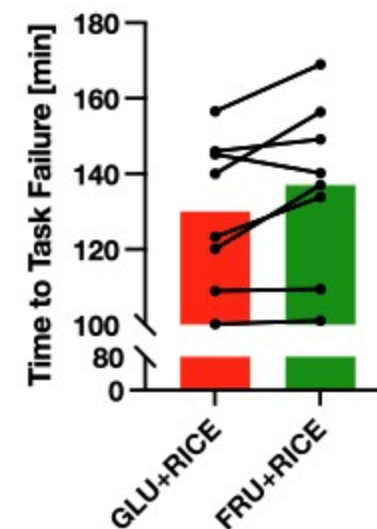


So...

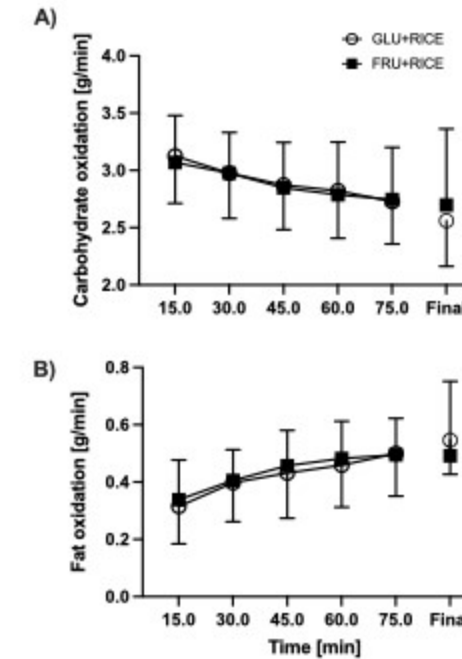
Does addition of Fructose to rice at breakfast improve time to task failure?



Yes, addition of fructose was beneficial for exercise capacity increasing it from 130 ± 20 to 137 ± 23 min.



Mechanisms



There was no differences in total carbohydrate or fat oxidation rates during exercise.

However, because the time to task failure was longer with addition of fructose, more carbohydrates have been oxidised.

This indicates that addition of fructose increased carbohydrate availability and this led to improved endurance capacity.

Take home message

Adding fructose based carbohydrates such as honey, syrups, fruits, table sugar and juices might help improve carbohydrate storage and lead to performance improvements.

Additionally, combining fructose and glucose-based carbohydrates will likely result in quicker digestion and thus lower likelihood for gastrointestinal distress during exercise.