

UNIVERSITI TEKNOLOGI MARA

**THE INTERACTION OF BRAIN
ACTIVATION WITH
CARBOHYDRATE MOUTH RINSING
ON EXERCISE PERFORMANCE: A
REVIEW**

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Research Project submitted in partial fulfilment
of the requirements for the degree of
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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledge as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and regulations for Postgraduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

This systematic review aimed to find research that investigated how carbohydrate mouth rinsing and brain activation impact exercise performance. The essential processes behind CHO mouth rinse's potential performance enhancement were also examined. Without restriction of searches, a systematic review was done in the following electronic databases: Pubmed (National Library of Medicine of the United States), and Scopus. The results of five investigations were compiled and compared once they were categorized as suitable. The objective of this study is to provide the systematic review of the interaction of brain activation with carbohydrate mouth rinsing on exercise performance. Methods of this study is systematically reviewed randomized solution trials that assessed carbohydrate mouth rinse effects area of the brain that activate during mouth rinsing and exercise performance after consuming the solutions. The activation of oral receptors and, as a result, reward-related brain areas (orbitofrontal cortex, insula/operculum frontal, and striatum) has been proposed as a plausible physiological reason for better performance using CHO mouth rinse. However, when muscle and liver glycogen stores are depleted, this beneficial impact appears to be amplified, presumably due to increased sensitivity of the oral receptors, and requires additional exploration. Differences in the length of fasting before the experiment, the duration of mouth rinse, the kind of activity, exercise regimens, and sample size might explain the considerable variance between the studies.

Keywords: carbohydrate mouth rinsing, brain activation and performance.

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