

Review

Effects of pre-exercise nutrition on endurance performance - A systematic review of studies comparing high fat energy ratio meal ingestion and high carbohydrate energy ratio meal ingestion

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ABSTRACT

【Aim】

To improve endurance performance, the ingestion of 1-4 g/kg of bodyweight of carbohydrates 1-4 hours prior to endurance exercise is recommended. However, the reviews recommending this method of pre-exercise nutrition may not have considered the results of studies comparing the effects of high fat energy ratio meal ingestion with those of high carbohydrate energy ratio meal ingestion on endurance performance. The purpose of this study was to conduct a systematic review of studies comparing the effects of high fat energy ratio meal ingestion with high carbohydrate energy ratio meal ingestion on endurance performance.

【Methods】

Original articles were searched according to the following criteria: 1) healthy subjects, 2) comparison of high fat energy ratio meals and high carbohydrate energy ratio meals as pre-exercise meals, and 3) effects on endurance performance were examined.

【Results】

Six studies were included based on the criteria. All studies found no differences in the effects on endurance performance between high fat energy ratio meal ingestion and high carbohydrate energy ratio meal ingestion.

【Conclusion】

We were unable to find studies that demonstrated that high carbohydrate energy ratio meal ingestion, which is the recommended method of pre-exercise nutrition, was more effective at improving endurance performance than high fat energy ratio meal ingestion. However, the evidence may be insufficient because there were only six studies comparing the effects of high fat energy ratio meal ingestion with those of high carbohydrate energy ratio meal ingestion on endurance performance.

Keywords: PFCratio, glycogen, endurance, cycling, running