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FUNCTIONAL FOOD: WITH A FOCUS ON HEALTH AND SPORT PERFORMANCE

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Objectives: The overall purpose was to examine the acute effect of consuming sport nutrition bars/meals, varying in glycaemic index (GI), on continuous and intermittent endurance exercise performance and markers of cardiovascular health.

Materials, Methods & Results: In the 1st study, eleven endurance-trained individuals consumed 1.5 g/kg available carbohydrate (CHO) from a low-GI (LGI) bar and a moderate-GI (MGI) bar, as well as a placebo, 1 h before endurance cycling (75 min at 65% VO₂ peak, followed by a 7 km time trial). There is a 77% chance that the low-GI bar condition was superior to the moderate-GI bar condition. There was also a 98% and 100% chance that low-GI bar improved performance against the moderate-GI bar and control during recovery from the initial exercise session. In the 2nd study, eight male recreational soccer players consumed 1.5 g/kg available CHO from a LGI bar or high-GI (HGI) bar 2 hours before a 90-min simulated soccer match, and 0.38 g/kg during a 15-min half-time break. Insulin level 2 hours after consumption was lower in the LGI than HGI condition, which might have contributed in lower rate of CHO oxidation during the simulated soccer match in the LGI condition versus HGI condition ($p < 0.05$). Participants performed better during the LGI rather than the HGI bar condition on agility and heading ($p < 0.01$) late in the soccer match. In the 3rd study, 23 overweight or obese individuals ($BMI \geq 25 \text{ kg/m}^2$) performed: Walking exercise (90 min) at 6pm followed by no meal (EX); exercise followed by a meal with LGI carbohydrates (i.e. lentils, EX-LGI); exercise followed by a meal with HGI carbohydrates (i.e. instant potatoes, white bread, EX-HGI); and, a control condition with no exercise or meal. After a 10 hour overnight fast, participants were given a standardized high fat meal. Triglyceride total area under the curve was 18-32% lower with EX and EX-LGI compared to control and EX-HGI, respectively.

Conclusion: Low-GI foods can provide metabolic and performance benefits during and after a variety of different endurance exercise sessions.

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