Comparison of the effects of two carbohydrate bars on endurance capacity in sport active participants

By Maria Asnaghi

Introduction

- Carbohydrate (CHO) depletion is noticeable when the exercise is longer than 90 minutes (Baechle and Earl, 2008).

- Previous studies recommend CHO ingestion in the hour before exercise to prevent CHO depletion (Bosch, 2007)

- It has been shown that time to exhaustion and exercise performance improves if CHO is ingested in the hour before long duration exercise (Bosch, 2007)

Study background

- Many CHO supplements available on the market, however most contain additives, preservatives and colourings to prolong self life.
- Getbuzzing is a new CHO bar without additives (self life: 9 months) and might be a healthier alternative to available commercial bars
- In a previous study, Getbuzzing was tested for its performance enhancing effects and was shown that ingesting the bar one hour before a VO_{2max} test increased endurance capacity by an average of 25 s (compared to not eating a bar)
- Nevertheless, this outcome was to be expected given the CHO content of Getbuzzing, yet the relative effectiveness of the product needs further investigation

Study Purpose

- To investigate the relative effectiveness of Getbuzzing on physiological responses to exercise against an established CHO bar

- To ascertain the differences or similarities in physiological responses between two CHO bars of similar CHO content

CHO bars tested

Getbuzzing

- OATS (26g)
- NATURAL BANANA PIECES (24g)
- SOFT BROWN SUGAR
- APRICOTS
- INVERTED SUGAR SYRUP
- HONEY
- BUTTER
- RICE FLOUR
- **100% Natural,** Wheat **FREE** and completely **FREE** of any artificial colourings, flavourings, preservatives or additives. Suitable for Vegetarians and Diabetics
- http://www.getbuzzing.co.uk/products.php?id=2

Powerbar C2max

- ORGANIC EVAPORATED CANE JUICE SYRUP
- MALTODEXTRIN, FRUCTOSE, DEXTROSE
- OAT BRAN, SOY PROTEIN ISOLATE
- RICE CRISPS (MILLED RICE, RICE BRAN, ROSEMARY EXTRACT),
- BROWN RICE FLOUR, CANOLA OIL, 2% OR LESS OF NATURAL FLAVOR
- VEGETABLE GLYCERIN, SOY LECITHIN, SALT, ALMOND BUTTER, NONFAT MILK, PEANUT FLOUR
- **MINERALS:** CALCIUM PHOSPHATE, POTASSIUM PHOSPHATE, FERROUS FUMARATE (IRON)
- **VITAMINS:** ASCORBIC ACID (VITAMIN C), VITAMIN B6 HYDROCHLORIDE, RIBOFLAVIN (VITAMIN B2), THIAMINE MONONITRATE (VITAMIN B1). **CONTAINS ALMOND, MILK, PEANUT AND SOY INGREDIENTS. MADE ON EQUIPMENT THAT ALSO PROCESSES WHEAT**
- No preservatives or artificial flavors
- http://www.powerbar.com/products/43/powerbar-performance-energy-bar-vanilla-crisp.aspx

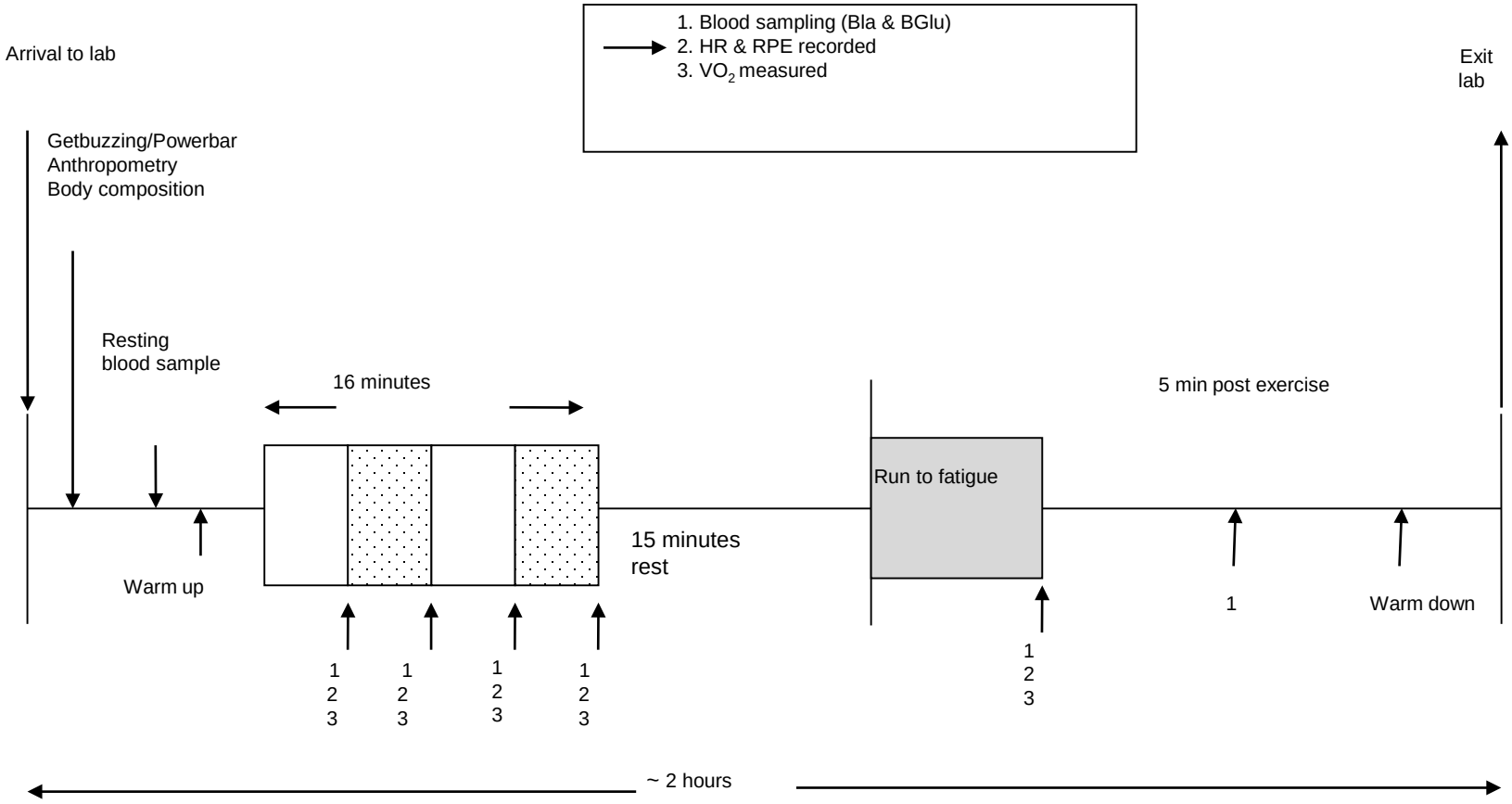
CHO bar nutritional information

	Getbuzzing (62 g)	Powerbar C2 Max (60 g)
Energy	212 kcal	240 kcal
CHO	35.0 g	46.0 g
Of which sugars	21.0 g	26.0 g
Protein	2.2 g	8.0 g
Fat	8.0 g	3.5 g
Saturates	2.0 g	0.5 g
Fibre	2.0 g	1.0 g
Sodium	40.0 mg	200 mg

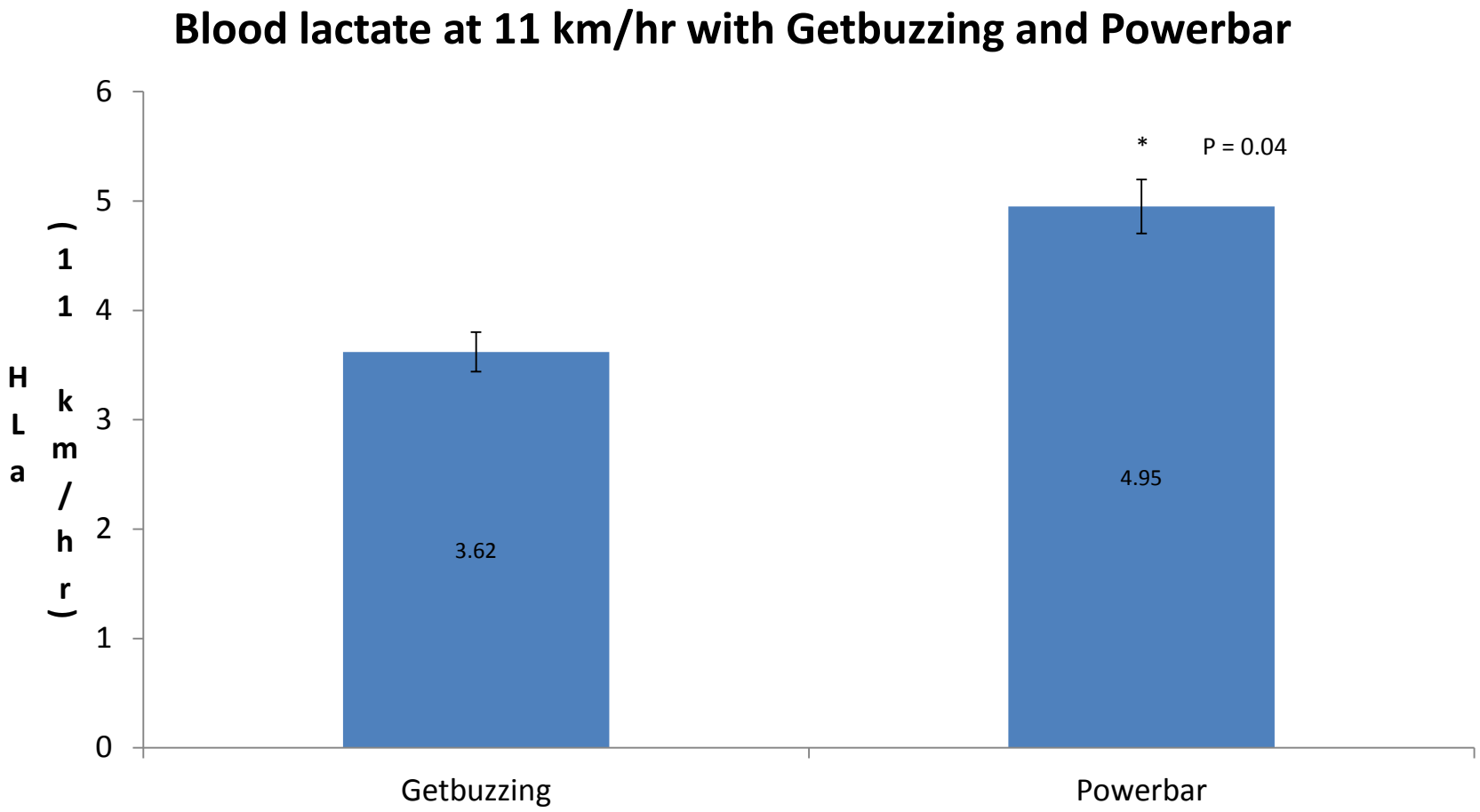
Methods

- Eight men (mean ± SD; age: 27.8 ± 10.5 yrs, stature: 178.3 ± 4.3 cm, body mass: 78.6 ± 10.6 kg) and two women (age 34 ± 18 yrs, stature: 163 ± 2.8 cm, body mass: 61.8 ± 5.5 kg)
- Sample included gym goers and athletes (cyclist, rugby/football players, runners)
- Participants performed two exercise tests one hour after consuming one of the bars in a randomized cross-over double blind design
- Tests were separated by seven days

Study protocol

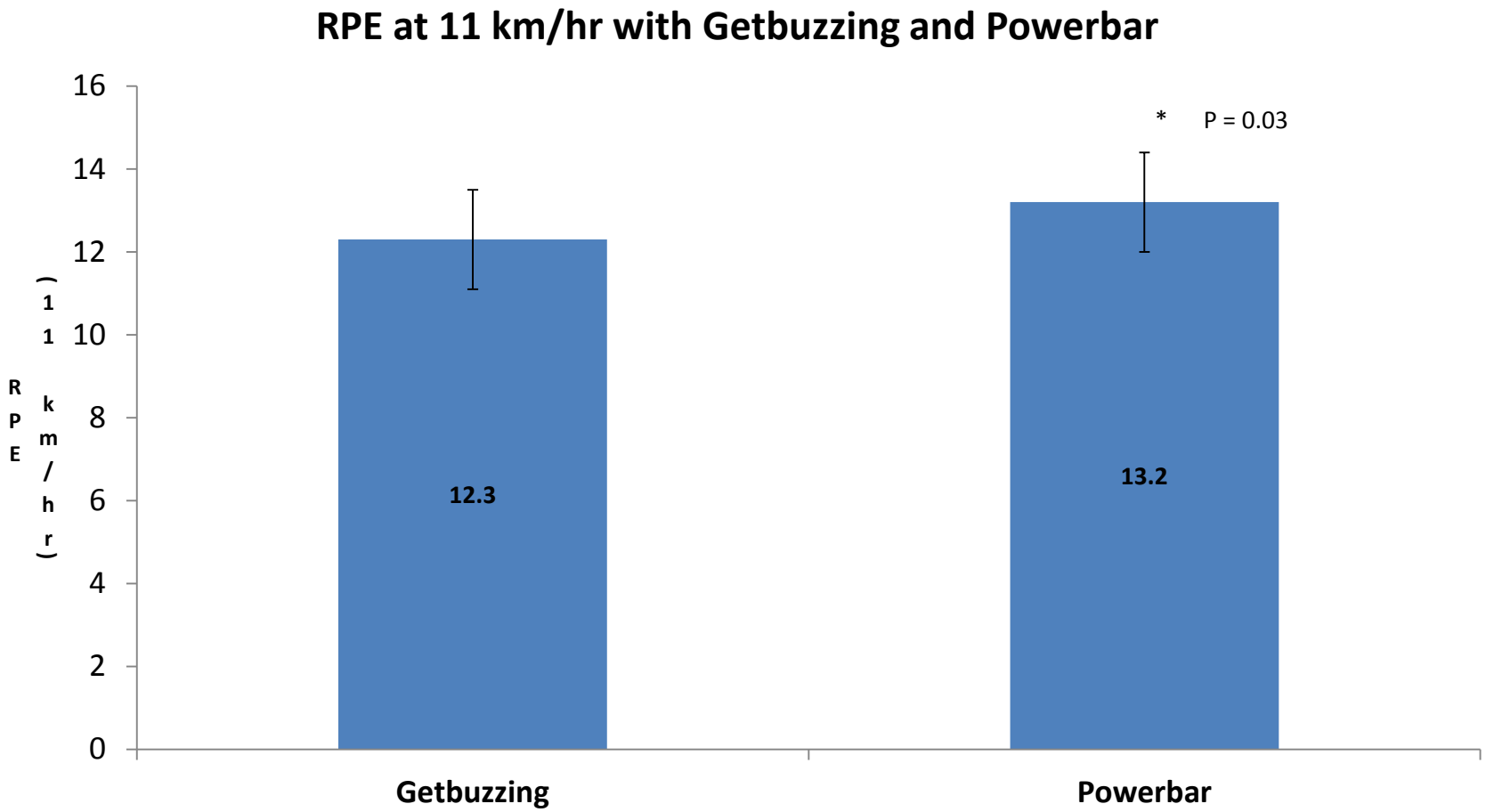


Results



Powerbar Hla was 36.6% higher than Getbuzzing at 11 km/hr

Rating of perceived exertion (RPE) at 11 km/hr

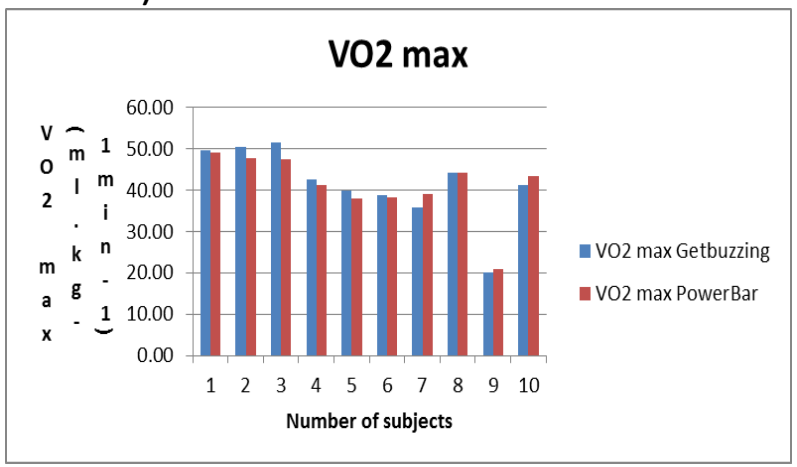


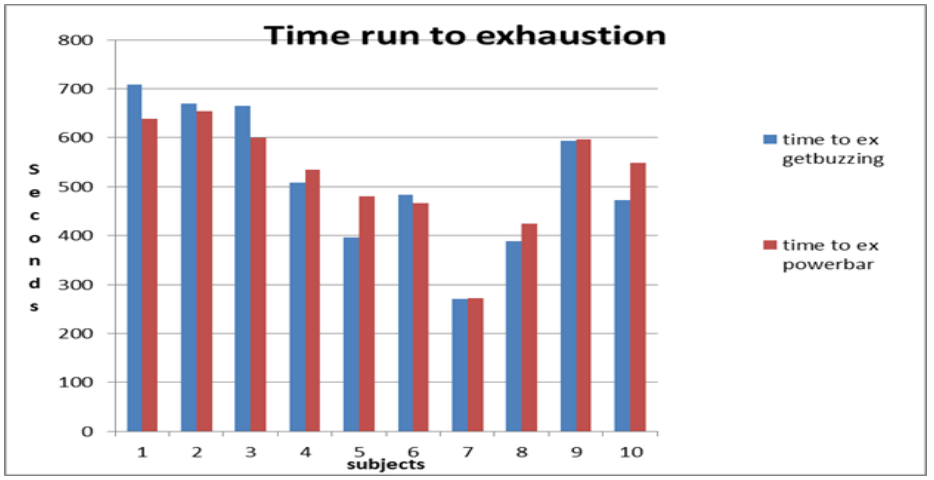
RPE at 11 km/hr was 7.31% higher with Powerbar compared to Getbuzzing

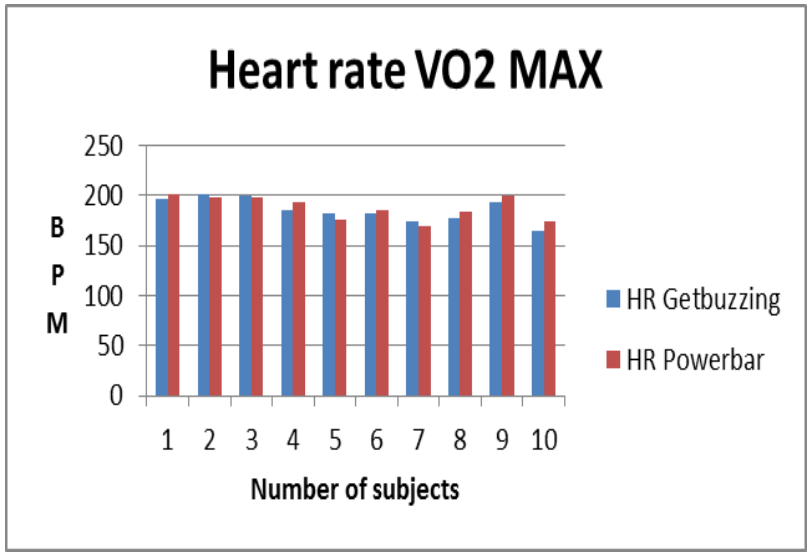
Results

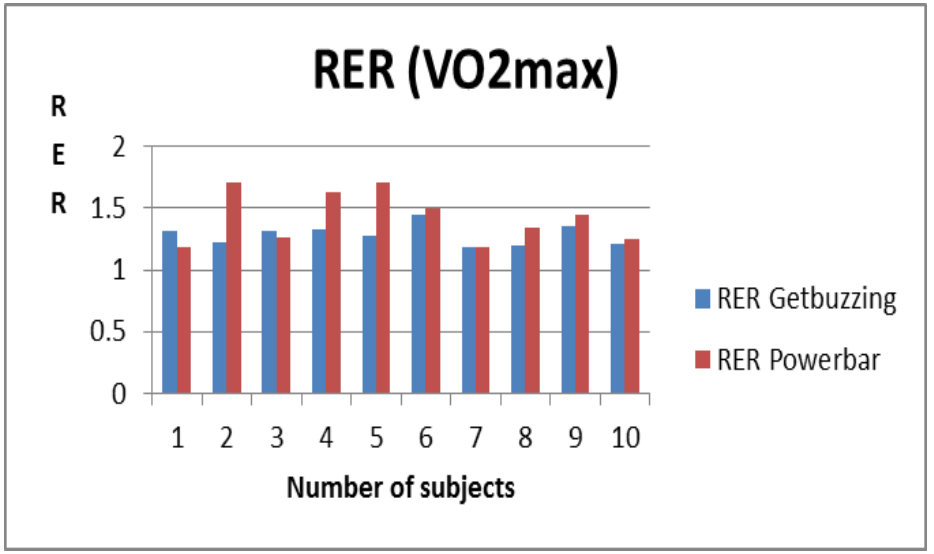
- **No difference between other measured variables in the sub-max test**
- VO_2 (Getbuzzing:32.6 ± 6.17 vs Powerbar 32.5 ± 5.75 $ml \cdot kg^{-1}\ min^{-1}$)
- HR (Getbuzzing: 160.2 ± 10.62 vs Powerbar 165.2 ± 9.69 $b \cdot min^{-1}$)
- Glucose (Getbuzzing: 2.87±1.56 vs Powerbar: 3.35±1.46 mM)

In the maximal test, none of the responses differed between the two bars (P>0.05) except for RER which was lower during the Getbuzzing trial (1.28 ± 0.08 vs 1.42 ± 0.21) .









Discussion

- It appears that Getbuzzing elicits lower lactate levels during submaximal exercise. This finding was confirmed by the RPE findings at the same intensity (11 km/hr)
- There were no differences in physiological responses at maximal intensity following consumption of the two bars

Conclusion:

- These results indicate that Getbuzzing is an effective performance supplement comparable to an established product such as the PowerBar.

- Feedback from the participants tested favoured Getbuzzing for its light taste and consistency
- Getbuzzing is not fortified with vitamins and has fewer ingredients compared to Powerbar, however it is effective as a performance supplement
- Further testing with a larger sample is recommended

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