

DETERMINATION OF THE GLYCAEMIC INDEX OF ENERGY PREPARATIONS

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INTRODUCTION AND AIM

Consumers are increasingly informed and educated about the nutritional value of certain foods and products and their effects on the body. Extremely great interest by consumers and the professionals is directed towards the glycaemic index (GI). GI is an indicator of how much a certain amount and type of carbohydrate can affect the rate of blood glucose change (GUK), and is associated with numerous health aspects. Carbohydrates having a low GI induce a small increase of glucose in blood, while those with high GI induce a high blood glucose level.

Sports performance is no exception, and the interest is particularly pronounced among the younger male population. To achieve maximum athletic performance, besides general principles a diet should meet the needs of training and competition and carbohydrates take the spotlight. Studies have shown that consumption of carbohydrates with different GI before, during and after training affects athletic performance, and the consumption of high GI food is preferred.

The aim was to determinate the GI of honey and energy preparations specifically formulated to be consumed before and during training that are available on the market. Also, the aim was to compare their effect on glycaemia and their potential in terms of sport performance.

Glycemic Index Chart



Table 1. Glycaemic index

SAMPLE	GI ± SD	p
Honey	89.6 ± 37.1	ns
Jelly	162.1 ± 60.9	0,008*
Gel	124.1 ± 61.5	ns

*statistically significance between honey and jelly at $p < 0,005$

PARTICIPANS AND METHODS

A controlled clinical trial according to the method ISO 26642:2010 was conducted.

Two commercially available energy preparations specifically formulated for the consumption before and during training (one gel and one jelly) and acacia honey were analysed. D(+)-glucose monohydrate with apple juice was used as control. Sensory acceptability of tested samples was conducted.

The study included 10 men aged 23.2 years (20 to 27 years) who are physically active for minimum of 4 hours per week and involved in at least one sport (semi-professionally or recreationally). Selection of the study population included the analysis on whether they would potentially consume products selected for the analysis.

The statistical analysis and graph plotting was performed with the Statistica software system (version 12.0, StatSoft Inc., USA).

RESULTS

Out of all the tested products, the worst acceptability (determined by hedonic scale) had the gel (mean score 3.1), while control (glucose + apple juice) had the best acceptability (mean score 1.7) as shown in **Figure 1**.

Glycaemia observed through the area under the blood glucose curve (iAUC ± SE) was the lowest for honey 81.0 ± 8.6 , while jelly had the highest iAUC 149.2 ± 16.2 ($p = 0.002$ compared with honey; $p = 0.032$ compared with the control) as shown in **Figure 2**.

A statistically significant difference ($p = 0.008$) was found between honey and jelly GI, while no statistical difference was found for gel GI (**Table 1**).

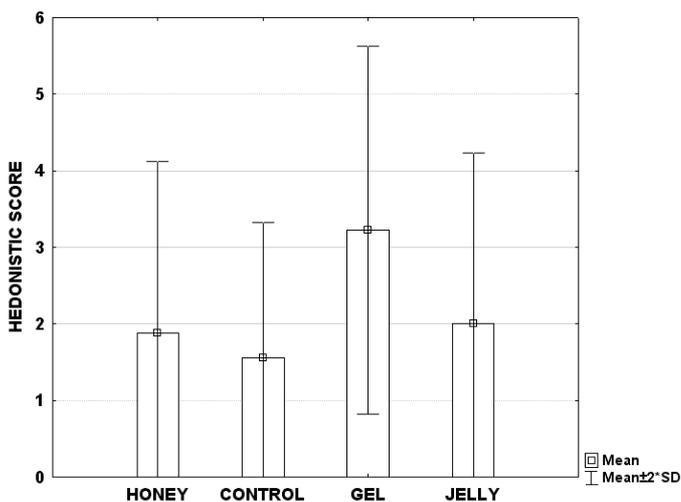


Figure 1. Hedonic scores for tested samples

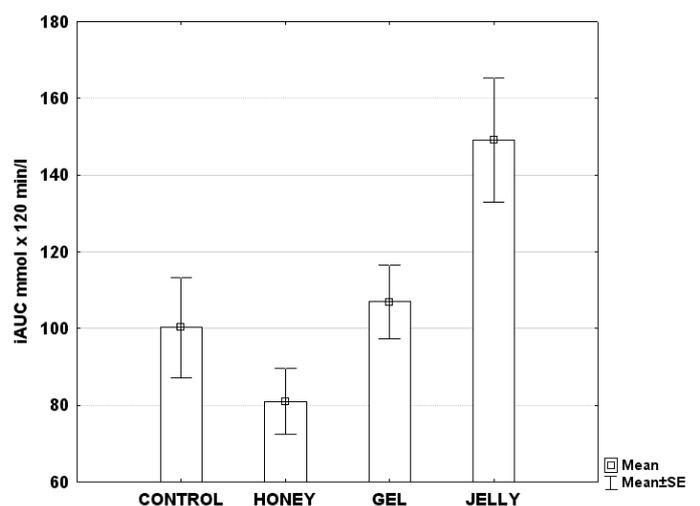


Figure 2. Glycaemia presented as the area under the blood glucose curve (iAUC)

CONCLUSION

The results show that according to its GI, honey can be considered as a good alternative to energy preparations formulated for sport performance.

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