The Influence of Breakfast Composition on Children's Attention and Memory

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Background

A number of studies have found that breakfast consumption has a positive effect on cognitive performance in children when compared to breakfast omission[1,2].

Glycaemic Index (GI) is a measure of the rate at which food increases and maintains blood glucose levels.

High GI: rapid and high increase in blood glucose with a corresponding rapid decrease.

Low GI: smaller rise in blood glucose of longer duration.

The aim of the current study is to directly compare children's cognitive performance throughout the morning after the consumption of two popular UK breakfast cereals of differing GIs.

Method

Participants

64 children aged 6 to 11 years (mean = 9:3; range: 6:8 – 11:7). 38 females, 26 males.

Tasks

Cognitive Drug Research (CDR) Computerised Assessment battery (Wesnes et al, 2003)

Measures

Secondary Memory
Working Memory
Speed of Memory
Speed of Attention
Accuracy of Attention

Treatments

a) High GI: Coco Pops
35g with 125ml semi-skimmed milk
b) Low GI: All Bran
35g with 125ml semi-skimmed milk

Procedure

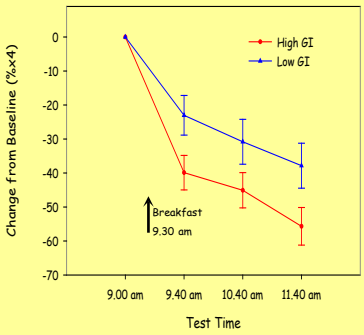
Following an overnight fast children were tested on two consecutive mornings. Each child received both cereals and acted as their own control. The order of the cereals were counterbalanced. Testing followed the following schedule:

Baseline	Breakfast	Test 1	Test 2	Test 3
9:00	9:30	9:40	10:40	11:40

Results

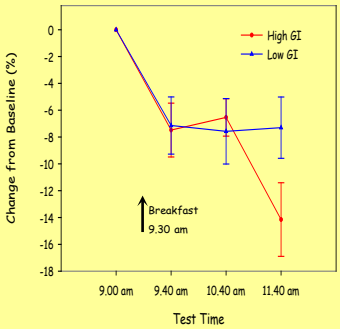
Change from baseline scores were analysed by ANOVA.

Two of the measures showed an effect of breakfast.



Secondary Memory: Significant main effect of breakfast ($F(1,63) = 5.91$, $p < 0.05$) with less decline in performance for the low GI cereal than the high GI cereal.

Accuracy of Attention: Significant interaction between Breakfast and Test Time ($F(2,63) = 4.05$, $p < 0.05$, following Huynh-Feldt correction) with less decline in performance for the low GI cereal than the high GI cereal on Test 3.



Summary and Conclusions

The results suggest that a low GI breakfast cereal can preferentially reduce children's cognitive decline throughout the morning.

There was significantly less decline in cognitive performance following a low GI breakfast, compared to a high GI breakfast on:

- Secondary Memory
- Accuracy of Attention

The benefit seen in cognitive performance after the intake of a low GI cereal is interpreted as the result of a continuous release of glucose into the blood stream throughout the morning compared to a high GI cereal.

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References

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