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Methodological considerations in a pilot study on the effects of a berry enriched smoothie on children's performance in school

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Background and aims: In many countries, the consumption of fruit, berries and vegetables is about half the recommended. Berries contain bioactive compounds that may affect cognitive functions. School children are often hungry and thirsty during the lectures before lunch and this affects performance. Could a berry-smoothie decrease thirst and hunger and thereby affect school performance?

The aim was to investigate if a cross-over design can be used to study the effects of a smoothie on performance in a school setting.

Methods: Methodological challenges included developing an appetizing berry-smoothie and choosing a suitable experimental design that could be adapted to school conditions.

In the pilot study, 236 Swedish children aged 10-12 years participated in a cross-over design and were administered either a berry-smoothie or a fruit-based placebo after the midmorning break. Both beverages provided 5% of the daily energy intake. Performance was assessed using the d2 Test of Attention measuring attention span and concentration. Statistical analyses were performed using the Wilcoxon signed rank test in StatXact v 10.3.

Results: The consumption of both the smoothie and the placebo increased the attention span and concentration significantly.

Conclusion: The children's performance in the d2 Test of Attention was positively affected by beverage consumption. The effect was attributed to the supplementation of water and energy. In this design, the study did not permit any conclusive results regarding the effect of bioactive compounds on performance. In a coming study a third group, receiving no beverage, should be included aiming to identify the cause of the effect.

Disclosure of Interest: None to declare