

Abstract

Title: How does school lunch affect pupils cognition? A systematic review.

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Background: Good eating habits are important for children’s physical and mental development. Many children have the majority of their meals at school and school meals are thus an important resource to promote health and schooling among pupils. Cognition is a term that encompasses attention, concentration, memory and problem solving. These are abilities pupils use every day. Because of this, it’s interesting to study how the school lunch may affect pupil’s cognition.

Objective: The purpose of this systematic review was to examine how the school lunch affect pupil’s cognition.

Search strategy: The search for original articles were made in PubMed, Cochrane and Scopus. The keywords that were used were School, Lunch, Learning.


Data collection and analysis: A total of six articles met the selection criteria and these were examined using SBU’s quality review template for randomized studies. Three of the studies reviewed the short-term effect, while the other three reviewed the long-term effect. A conjunction of the three short-term effect studies were made using GRADE. Two of the long-term effect studies was said to have low study quality and was therefore excluded. The remaining long-term effect study was then evidence graded separately according to GRADE.

Main results: One of the studies found little improvement in the working memory when eating school lunch compared to not eating lunch (p= 0,01). The study was considered to have a medium-high - high study quality. Two studies showed no difference between the groups that had or hadn’t had school lunch. The studies were considered to have medium-high and medium-high - high study quality. In the study that studied an improvement of school lunch the intervention group had significantly better results than the control group in problem solving (p = 0,009 and <0,001) and significantly worse results than the control group in a test of concentration ability (p = <0,001). The study was considered to have a medium-high - high study quality.

Conclusions: There is a moderately strong scientific evidence (+++) that pupils’ cognitive ability (concentration and working memory) didn’t improve by eating school lunch compared
to not eating school lunch when a cognition test is performed 45-90 minutes after the lunch break. There is a very low scientific evidence (+) that pupils’ cognitive ability (concentration and problem solving) are affected by a three months intervention of improved school meals as a cognition test is carried out after the intervention end. More research is needed in this area. 

*Keywords*: School lunch, cognition, concentration, working memory, attention, problem solving.