The effects of Nordic school meals on concentration and school performance in 8- to 11-year-old children in the OPUS School Meal Study: a cluster-randomised, controlled, cross-over trial - DTU Orbit (17/01/2019)

The effects of Nordic school meals on concentration and school performance in 8- to 11-year-old children in the OPUS School Meal Study: a cluster-randomised, controlled, cross-over trial

It is widely assumed that nutrition can improve school performance in children; however, evidence remains limited and inconclusive. In the present study, we investigated whether serving healthy school meals influenced concentration and school performance of 8- to 11-year-old Danish children. The OPUS (Optimal well-being, development and health for Danish children through a healthy New Nordic Diet) School Meal Study was a cluster-randomised, controlled, cross-over trial comparing a healthy school meal programme with the usual packed lunch from home (control) each for 3 months (NCT 01457794). The d2 test of attention, the Learning Rating Scale (LRS) and standard tests on reading and mathematics proficiency were administered at baseline and at the end of each study period. Intervention effects were evaluated using hierarchical mixed models. The school meal intervention did not influence concentration performance (CP; primary outcome, n 693) or processing speed; however, the decrease in error percentage was 0·18 points smaller (P<0·001) in the intervention period than in the control period (medians: baseline 2·03 %; intervention 1·46 %; control 1·37 %). In contrast, the intervention increased reading speed (0·7 sentence, P= 0·009) and the number of correct sentences (1·8 sentences, P=0·001), which corresponded to 11 and 25 %, respectively, of the effect of one school year. The percentage of correct sentences also improved (P<0·001), indicating that the number correct improved relatively more than reading speed. There was no effect on overall math performance or outcomes from the LRS. In conclusion, school meals did not affect CP, but improved reading performance, which is a complex cognitive activity that involves inference, and increased errors related to impulsivity and inattention. These findings are worth examining in future trials.

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