

ABSTRACT

The effects of missing breakfast on the cognitive functions of schoolchildren of differing nutritional status.

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Being hungry in school may result in the cognitive functions and hence, the school achievement of children being adversely affected. More importantly, malnourished children may be more vulnerable to these effects than adequately nourished ones. However, this had not been previously investigated.

The effects of the omission of breakfast were therefore examined in three groups of poor children aged 9 and 10 years old: stunted (n=30), non-stunted controls (n=30) and previously severely malnourished (n=30). They were admitted to a metabolic ward on two occasions, one week apart. After an overnight fast, half the children received breakfast on their first visit and a cup of tea the second time. The treatment order was reversed for the other children. The breakfast (590 Cals) comprised items from the Jamaican schoolfeeding program.

When breakfast was omitted, the stunted and previously severely malnourished groups responded similarly and differently from the control group. Both malnourished groups had lower scores in the fluency and visual short-term memory (coding) tests ($P < .005$ and $P < .05$ respectively). In contrast, when fasted the controls performed better in arithmetic and in problem solving efficiency ($P < .02$ and $P < .05$ respectively).

The sample was then divided into wasted and non-wasted sets. When they missed breakfast, the wasted children were adversely affected in their performance of the digit span backwards test, a measure of auditory short-term memory with an immediate processing element ($P < .05$). In addition, the wasted members of the malnourished groups were adversely affected in the efficiency of problem solving ($P < .02$). The wasted controls also had lower scores in the digit span forward test (auditory short-term memory) when breakfast was omitted ($P < .03$). All the findings remained when the children's usual caloric intake for breakfast and their IQs were statistically controlled. This implied that the findings were independent of these factors.

There is therefore, an indication that cognitive functions are more vulnerable to missing breakfast in malnourished children. As a result, their school achievement levels would be expected to benefit more from schoolfeeding programs than those of adequately nourished children.