



HabEat

Determining factors and critical periods in food habit formation and breaking in early childhood: a multidisciplinary approach

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Executive summary

The development of overweight during childhood is linked with a higher risk of obesity at adult age and increased morbidity and mortality risks [1]. Thus, it is important to understand better eating behaviours that may favour the development of overweight, and particularly in children. The first objective of this study was to measure two behaviours of overeating that have already been related to children adiposity [4-7]: caloric compensation and eating in the absence of hunger in French preschool children, in a realistic setting at three time points: before an intervention programme, just after and one year after the intervention programme. The second objective of the present study was to develop an intervention programme, aimed at helping children to focus on their internal cues of hunger and fullness to better control their food intake, adapted for 4-5 year-old children and to examine whether the children who followed this programme had a better level of caloric compensation or/and eat less in the absence of hunger than the children who did not follow the intervention programme (control group).

Concerning caloric compensation, the results showed that on average preschool children compensated partially ($52 \pm 4 \%$) a preload eaten 30 minutes before their lunch. There were important inter-individual differences, independently of their age ($r = -0.05$, $P = 0.45$), their gender ($P = 0.42$) or their adiposity ($r = -0.01$, $P = 0.87$). We observed that at post-intervention the mean score of caloric compensation was higher than at pre-intervention. Nevertheless, this increase was not different between the group who participated in the intervention programme and the group who did not. We concluded that our intervention programme did not improve the ability of children to compensate their energy intake during successive eating occasions. Finally, one year after the first series of measurements we observed that the mean score of caloric compensation decreased significantly suggesting that the older the children the lower the caloric compensation.

Concerning the eating in the absence of hunger behaviour we observed that most of preschool children ate in the absence of hunger, independently of their age or their adiposity.

On average in the absence of hunger they ate 25% of the energy brought by the previous meal (90 ± 4 Kcal), and boys ate significantly more than girls. The eating in the absence of hunger score was positively correlated between the different periods of measurement, suggesting that this behaviour is expressed early in childhood and is stable when children grow older. At the post-intervention measurement all children ate more in the absence of hunger than before the intervention programme. However, this increase was significantly lower for children who participated in the intervention programme. We concluded that the intervention programme limited the evolution of the EAH score between the pre and the post-intervention measurements.

Beside, caloric compensation and eating in the absence of hunger were never correlated with each other, suggesting that they correspond to two different mechanisms. We supposed that caloric compensation is a behaviour mainly driven by internal factors controlling energy homeostasis, while eating in the absence of hunger could be influenced by external factors such as food environment or by an intervention programme helping children to be more responsive to their internal cues as shown by the current study.