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Importance of involving children in the different steps of meal preparation

Children's nutritional education is, since years, one of the main tools to improving their health. However, what is and what is not nutritional education is still quite confused.

Nutritional education is not teaching children the nutrient content of different foods. Children don't have control of their behaviours to let this issue to drive their decisions, and overall in this world where the offer of junk foods is so pervasive, long-standing and so appealing.

Nutritional education is not either informing them that some foods are good or bad for their future health. Children don't have the meaning nor the feeling of their future, especially if the future is related to their health. Unfortunately this meaning belongs only to chronic sick children who wonder whether they will be able to overcome their problems.

Nutritional education is working in such a way to make healthy foods appealing, familiar, and tasty, in order to let children spontaneously choose "good foods" where "good" means at the same time tasty and healthy.

To reach this goal the 3 papers presented in this issue are important because they help parents to act positively and not just to teach theoretically.

In conclusion, having healthy foods, mainly vegetables, at home largely visible and available, buying foods with children but without letting them use their "pestering power" in the supermarkets and cooking with them helps a lot to convince children to eat vegetables and to like them.

However parents shouldn't forget that they are the main models for their children and that no child will eat healthy if his/her parents don't show the same behaviour.

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Involving children in the purchasing of food: a strategy aimed at reducing food neophobia

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In the context of the high prevalence of childhood obesity, it is crucial to promote a balanced diet, rich in fruit and vegetables (F&V). One of the strategies used to stimulate the consumption of vegetables in children is to reduce their food neophobia (i.e. their reluctance to try new food), which is associated with a poorer diet and a reduced consumption of F&V.

Increasing familiarity with vegetables to improve their acceptability

Promoting exposure to new food to increase familiarity and create positive experiences with new foods is a strategy which has proven effective in reducing food neophobia in children. Sensory education, for example, has shown its effectiveness in this regard. While involving children in the different meal preparation stages is another way to increase familiarity and create positive experiences, there is limited research on its effect on neophobia.

Cross-sectional studies have highlighted a positive association between involvement in meal preparation and healthy eating habits[1]. Some interventional studies including cooking or gardening activities have also shown promising results[2]. A recent experimental study[3] carried out by our team revealed an increase in the willingness to try new food following a cooking session involving this food.

The objective of the present study was to assess the effect of involving children in the purchasing of food on their willingness to try unfamiliar foods and their food choices.

Participating in the purchase of food: what are the effects on choices?

Eighty six children aged 8 to 10 were invited to participate in a food workshop, followed by an afternoon snack. Half of these children (Purchase group) took part in the online purchasing of the ingredients required to prepare 3 unfamiliar dishes containing vegetables: an apple/beetroot juice, a zucchini omelette and a spinach biscuit. The other half of the participants (Control group) took part in a creativity workshop instead. Upon completion of the workshop, the children in both groups were invited to make 3 food choices for their snack, between familiar and unfamiliar foods: [1] orange juice vs apple/beetroot juice, [2] potato omelette vs courgette zucchini and [3] chocolate biscuit *vs* spinach biscuit.

The average number of unfamiliar foods spontaneously selected for a snack was significantly higher in the Purchase group (0.70 ± 0.14) than in the Control group (0.19 ± 0.07) (see Figure 1).

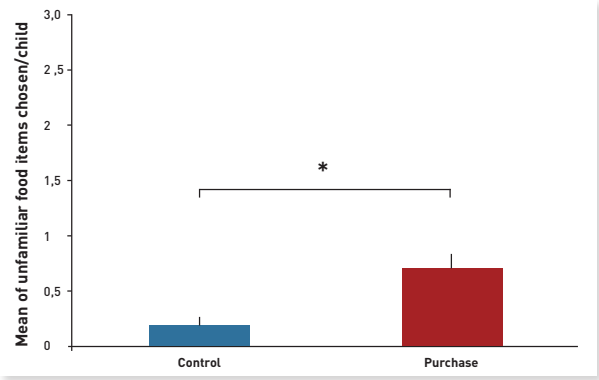

Figure 1: Mean number of unfamiliar foods selected by children for their snack in the Control group in blue (n = 43) and the Purchase group in red (n = 43).

In a previous study[3], the "purchasing" workshop was replaced with a "cooking" workshop during which the children cooked the 3 new dishes themselves. The comparison of the results of both studies shows a similar effect of children's involvement in purchasing ingredients (0.70 ± 0.14 unfamiliar foods selected) and cooking dishes (0.74 ± 0.13 unfamiliar foods selected).

Involving children in all stages: a simple and effective strategy to stimulate the willingness to try

This study demonstrates that involving children in food purchasing as well as cooking can be an effective strategy to guide their choices towards unfamiliar foods containing vegetables. These results were recently confirmed in a school context[4] and over a longer period, justifying the pertinence of interventions aimed at involving children in the choice of dishes, the purchasing of ingredients and cooking, to facilitate the integration of new vegetable-based dishes into school canteens.

Based on: Allirot X, Maiz E, Urdaneta E. Shopping for food with children: A strategy for directing their choices toward novel foods containing vegetables. Appetite. 2018 Jan 1;120:287-296.

References

1. Chu YL, Storey KE, Veugelers PJ. Involvement in meal preparation at home is associated with better diet quality among Canadian children. J Nutr Educ Behav. 2014;46(4):304-308.

2. Hersch D, Perdue L, Ambroz T, et al. The impact of cooking classes on food-related preferences, attitudes, and behaviors of school-aged children: A systematic review of the evidence, 2003-2014. Prev Chronic Dis. 2014;11:E193.

3. Allirot X, da Quinta N, Chokupermal K, et al. Involving children in cooking activities: A potential strategy for directing food choices toward novel foods containing vegetables. Appetite. 2016;103:275-285.

4. Allirot X, Maiz E, Urdaneta E. Du choix de la recette à la préparation en cuisine : résultats d'une étude d'intervention en milieu scolaire pour améliorer les choix alimentaires des enfants. Poster présenté aux Journées Francophones de Nutrition 2017 (Nantes).

Food parenting practices and their association with child nutrition risk status: comparing mothers and fathers

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Establishing healthful dietary habits in early life is important as childhood dietary patterns have been shown to track into later life. The practices parents use when feeding their children may influence children's dietary habits. These practices, also known as food parenting practices, refer to the behaviours or actions (intentional or unintentional) implemented by parents that influence their child's attitudes, behaviours or beliefs about food[1].

Most research examining how food parenting practices are associated with children's dietary intake has focused solely on mothers. Recent changes in women's employment patterns, increasing number of single fathers, and evolving social norms regarding fathers' roles in the home, suggest that research should also examine fathers role in household food parenting practices[2, 3].

We conducted an observational study looking at the associations between food parenting practices and child nutrition risk.

Cross-sectional analysis of thirty-one, 2-parent families with 40 preschool-age children

Using data from the Guelph Family Health Study, we compared mothers' and fathers' food parenting practices scores to their children's nutrition risk status. Food parenting practices were assessed using a modified version of the Comprehensive Feeding Practices Questionnaire (CFPQ), which evaluates 11 identified food parenting practices. Child nutrition risk status was evaluated using a parent-reported NutriSTEP score. We ran linear regression models, utilizing a Generalized Estimating Equation (GEE) approach to account for children from within the same household. Household income, child age, child sex, and parental body mass index (BMI) were included in the models as covariates.

Children involved in meal preparation have lower nutrition risk status

We found that of the 31, two-parent families included, mothers and fathers who (a) provided a healthy home food environment, and (b) involved children in meal planning and prepping, were more likely to have children with lower nutrition risk status. Parents who used controlling food parenting practices, i.e., using food as a reward for behaviour (mothers) and pressuring children to eat and restricting certain foods (fathers) were more likely to have children with a higher nutrition risk status. In fathers, it was found that those who modelled healthy eating behaviours were associated with children with lower nutrition risk status; this same association was not found among mothers.

Recommendations for parents at home

Our study findings compliment results from existing studies underscoring the association between specific food parenting practices and child health. In addition, our findings suggest that future research and interventions aimed at understanding or improving food parenting practices should engage both mothers and fathers.

Although the cross-sectional design of this study cannot support causal relationships between these practices and child nutrition status, there are many ways parents can practice healthful food parenting in their home. These include encouraging both parents to:

1. Provide a home environment that supports healthy dietary habits (i.e., provide a variety of foods that promote a balanced and nutritious diet)[4];
2. Involve young children in planning meals, grocery shopping, and meal prep activities;
3. Model healthy eating behaviours in front of children (e.g., refrain from voicing a distaste for strong tasting vegetables, try new foods in front of children)[5];
4. Avoid coercive food parenting practices (e.g., using pressure to encourage children to eat or using treats to reward good behaviour)[1,4,6,7].

Based on: Watterworth, J.C., Hutchinson, J.M., Buchholz, A.C., Darlington, G., Randall Simpson, J.A., Ma, D.W.L., & Haines, J. (2017). Food parenting practices and their association with child nutrition risk status: comparing mothers and fathers. Appl Physiol Nutr Metab, 42: 667-671.

References

1. Vaughn, A.E., Ward, D.S., Fisher, J.O., Faith, M.S., Hughes, S.O., Kremers, S.P.J., et al. 2016. F Nutr. Rev. 74(2): 98–117.
2. Bianchi, S.M. 2000. Demography, 37(4): 401–414.
3. Yeung, W.J., Sandberg, J.F., Davis-Kean, P.E., and Hofferth, S.L. 2001. J. Marriage Fam. 63: 136–154.
4. Melbye, E.L., Øgaard, T., and Øverby, N.C. 2013. Appetite, 69: 23–30.
5. Holley, C.E., Haycraft, E., and Farrow, C. 2015. Appetite, 87: 215–222.
6. Galloway, A.T., Fiorito, L., Lee, Y., and Birch, L.L. 2005. Parental pressure, dietary patterns, and weight status among girls who are "picky eaters". J. Am. Diet. Assoc. 105(4): 541–548.
7. Haycraft, E.L., and Blissett, J.M. 2008. Obesity, 16(7): 1552–1558.

Visual exposure and categorization performance positively influence 3- to 6-year-old children's willingness to taste unfamiliar vegetables

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Food neophobia, defined as the refusal to eat new foods[1], and food selectivity, defined as the refusal to eat certain types of food and certain textures[2], are largely responsible for the limited consumption of fruit and vegetables in children[3,4] and can have alarming consequences on health. It is therefore essential to carry out effective campaigns to reduce this food rejection (neophobia and selectivity) in children.

10 to 15 taste exposures are needed for children to accept new food!

Many studies have highlighted the effectiveness of taste exposure on neophobia and food selectivity[5], showing that repeated taste exposure to new foods seems to increase the willingness to eat this food (which was initially rejected). However, the mechanisms responsible for this positive exposure effect remain as yet largely unknown. Furthermore, from a practical point of view, these strategies can have limited effectiveness in reducing neophobia and food selectivity, as several studies have revealed that 10 to 15 taste exposures to new food could be needed for acceptance by pre-school children[6], i.e. a higher number than what most parents are prepared to put up with.

Visual exposure increases the consumption of vegetables in children

In light of the results of previous studies, which show a correlation between development of categorisation skills and food rejection[6,7], we hypothesised that exposure campaigns can be effective when they serve to improve the children's categorisation and inductive reasoning skills (notably highly neophobic children). If exposure, by enhancing the content of food categories in children, facilitates the recognition (e.g. recognising a courgette), categorisation (e.g. knowing that a courgette is a vegetable) and induction process (e.g. knowing that if a courgette contains vitamins, another courgette also contains vitamins), it could reduce the likelihood of a food item being rejected. This is why the purpose of this study was to develop a project based on exposure with a view to putting this hypothesis to the test, in an attempt to explain the mechanisms involved in the effects of exposure. We focused solely on visual exposure, which is innovative as (i) we work on rejection at the mere sight of food and (ii) it is easier to implement in the context of school or the family.

This study was carried out in two phases with 70 children enrolled in three nursery schools in Southeast Lyon. Before the canteen intervention, a test measuring the categorisation performance and a taste test were conducted on the 70 children. The children were next exposed visually to different vegetables via place mats used every day in the canteen for two weeks. Finally, their categorisation performance and willingness to try unknown food were measured again after the intervention. The results of this study are very promising as they show the beneficial effect of visual exposure to vegetables on the children's willingness to try this type of food. After visual exposure, the children ate more new vegetables. In addition, the children's categorisation performance (e.g. being able to recognise a courgette, knowing that it is a vegetable) positively influences this willingness to try.

Develop educational tools to promote the consumption of vegetables

These results can be taken into account when developing new educational tools with a view to promoting the consumption of rejected foods such as vegetables. These tools could take the form of serious games (educational games) like lotto games for example, helping children familiarise themselves visually with different vegetables of different shapes and colours. As the results of the latest study show that visual exposure alone (without taste exposure) is effective in increasing the consumption of vegetables in children, it seems appropriate to expose them visually via games in a playful context.

Based on: Rioux, C., Picard, D., & Lafraire, L. (2016). Food rejection and the development of food categorization in young children. Cognitive Development, 40, 163-177.

References

1. Pliner, P., & Hobden, K. (1992). Development of a scale to measure the trait of food neophobia.
Appetite, 19(2), 105–120.
2. Taylor, C. M., Wernimont, S. M., Northstone, K., & Emmett, P. M. (2015). Picky/fussy eating in children: review of definitions, assessment, prevalence and dietary intakes. Appetite, 95, 349–359.
3. Dovey, T. M., Staples, P. A., Gibson, E. L., & Halford, J. C. G. (2008). Food neophobia and "picky/fussy eating in children: a review. Appetite, 50(2-3), 181–193.
4. Lafraire, J., Rioux, C., Giboreau, A., & Picard, D. (2015). Food rejections in children: Cognitive and social/environmental factors involved in food neophobia and picky/fussy eating behavior. Appetite, 96, 347-357.
5. Cooke, L. J. (2007). The importance of exposure for healthy eating in childhood: a review. Journal of Human Nutrition and Dietetics: The Official Journal of the British Dietetic Association, 20(4), 294– 301.
6. Heath, P., Houston-Price, C., & Kennedy, O. B. (2011). Increasing food familiarity without the tears. A role for visual exposure? Appetite, 57(3), 832–838.