

I.F. Briefing 3

Diet and Health in European Children

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Key finding 1: Too much energy-dense food

The worldwide problem of unhealthy eating and excessive food consumption by children is supported by our findings. The children we studied eat too much and tend to eat too much energy-dense food.

The average energy density of foods eaten by I.Family children is similar to that of high energy density foods like oven-baked French fries (about 2 kcal/g).¹ An energy density more like that of boiled potato salad (1.4 kcal/g) would be healthier.

Energy density of foods popular with European children



3.4 kcal/g



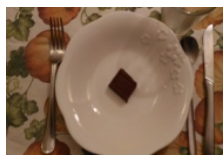
2 kcal/g



1.4 kcal/g

The energy density of a food depends on its composition. Water contributes weight but lowers the energy density of foods as it contains no calories. Vegetable fibre also contains very few calories and helps to lower energy density. On the other hand, high fat content increases energy density, even more so than proteins and sugars.

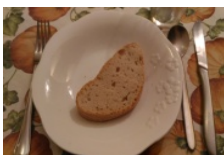
The pictures below show **six portions of foods with a kilocalorie count of 100**, chosen from those most popular with children from the I.Family study.



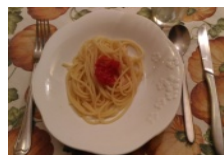
Chocolate
16 g



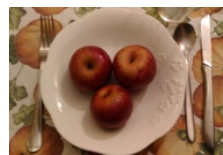
Potato chips
19 g



Bread
37 g



Spaghetti
75 g



Apples
250 g



Tomatoes
526 g

Key finding 2: A (healthy) Mediterranean-type diet is popular among children from some Northern European centres

A Mediterranean-type diet is rich in vegetables, legumes, fruits, nuts, cereals and fish and low in meat and dairy products. This sort of diet was also common in Swedish children from the Gothenburg area and German children from the Bremen area.²

Key findings 3, 4 and 5: Consequences of unhealthy eating

Adverse consequences of unhealthy eating are evident in young children. There is also evidence that healthy diets can improve children's health. We found that children with a diet high in vegetables, wholemeal cereals, fruit and plain milk, and low in sugary products have a lower incidence of overweight/obesity.³

After two years, children with a high adherence to this sort of diet had 36% less probability of becoming overweight/obese.



High intake of sugar and heavily processed foods combined with a low intake of vegetables and fruits are associated with increased levels of high sensitivity C-reactive protein, a marker of inflammation related to the risk of cardiovascular disease.⁴ Infant breast-feeding is associated with markers of metabolic health⁵ and reduced risk of childhood overweight.

Effect of breastfeeding duration on overweight/obesity in childhood⁶

<i>Exclusive breast-feeding</i>	
<i>1-3 months</i>	-13% decreased probability of becoming overweight/obese
<i>4-5 months</i>	-19% decreased probability of becoming overweight/obese
<i>6 months</i>	-29% decreased probability of becoming overweight/obese

Key finding 6: Unhealthy diets in children from poorer families

Unhealthy diets are more common in children from poorer & less well-educated families.⁷

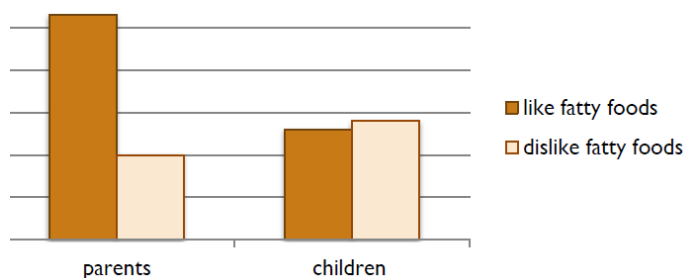
Dietary patterns that are more common (↑) or less common (↓) in children from families with specific characteristics

	<i>Common dietary patterns</i>		
<i>Family type</i>	Street food, fast food French fries, hamburger, pizza, kebab, savoury pastries	Sweet foods Sweetened drinks, chocolate, biscuits and candies	Healthy foods Raw vegetables, fruits, wholemeal products
<i>Migrants</i>	↑ +25%		
<i>High parental education</i>		↓ -30%	↑ +50%
<i>High household income</i>		↓ -30%	↑ +30%

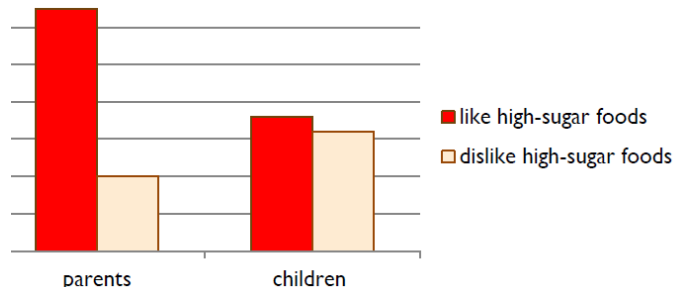
Key finding 7: Taste preference and food consumption

Parents who like fatty foods consumed twice as many fatty foods compared to those who do not like fatty foods. Parents who like sweet foods consumed three times as many sugar-rich foods compared to those who do not like sugar-rich foods.

Consumption of fatty foods



Consumption of sugar-rich foods



On the other hand, children's food consumption seems unaffected by their own preferences.⁸

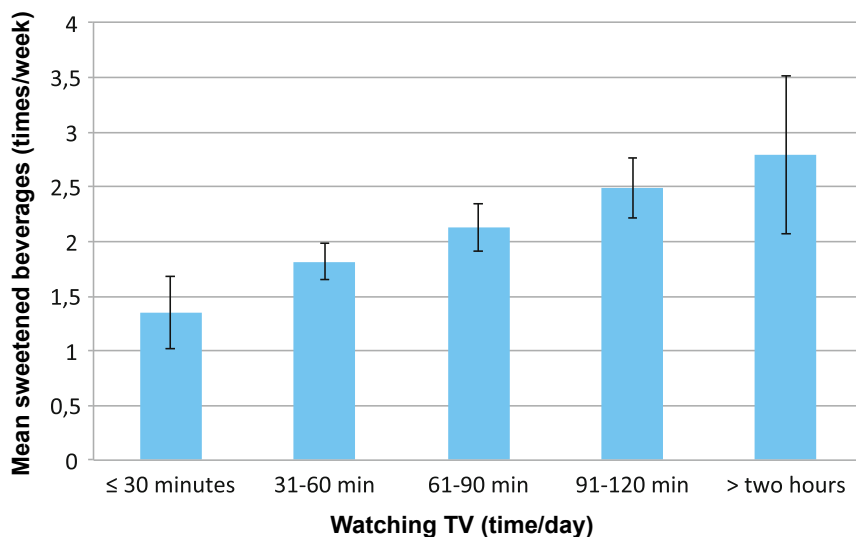
Key finding 8: Family food environment and children's food choices⁹

Children copy parents: Children are likely to adopt the same eating habits as their parents. If the mother or father eats a sugar-rich diet, the child is twice as likely to do the same. This effect gets stronger as the number of shared meals increases.

If a food is on the table the child will consume it: If both parents eat a sugar rich diet, and sugary drinks are available on the table during the meal, it is three time more likely that a child will also eat a sugar-rich diet.

Key findings 9-10: long-term effect of media exposure

Families and children need to be informed of the risks of unhealthy eating and, more importantly, the benefits of healthy eating. But this is far from enough. We have found that TV advertising is a major factor encouraging children to eat unhealthy foods.



Consumption of sweetened drinks increases as TV time increases

Media influence is actually stronger than parental guidance in deciding what children eat. We found that children exposed to TV, especially commercial TV, consume much more sweetened drinks. This happens regardless of whether parents discourage such drinks.¹⁰

The influence of TV watching is so strong that children will choose heavily-advertised sweets or snacks even when they like them less. We found that children who have regular meals while watching TV have +20% likelihood of eating fatty foods and +30% likelihood of eating sugary foods. More surprisingly, we found that the effect of TV was the same on children who had high and low preferences for fats and sweets. In other words, marketing not only disrupts food cultures, but it also seems to disrupt individual food choices.¹¹

Conclusions

Our observations show that European children eat far too much energy-dense food and that those with unhealthy dietary patterns are more likely to become overweight and obese. Parents, as role models and gatekeepers of family food consumption, influence both the quantity and quality of food that children consume. So it makes sense to inform families and children of the risks of unhealthy eating and the benefits of healthy eating.

However, this may not be enough to steer children towards healthy diets. Our data show that advertising is also a major factor. The massive marketing of junk foods directly to children makes it difficult if not impossible for even health-conscious parents to limit their children's consumption of these products. In view of the pervasive negative influence of the media on children's eating habits, advertising to children needs to be regulated – self-regulation by the food industry has not worked.

¹ Hebestreit et al. 2014. Dietary Energy Density in Young Children across Europe. *International Journal of Obesity* 38: S124-S134.

² Tognon et al. 2013. Mediterranean Diet, Overweight and Body Composition in Children From Eight European Countries: Cross-Sectional and Prospective Results From the IDEFICS Study. *Nutrition, Metabolism and Cardiovascular Diseases* 24: 205–13.

³ Pala et al. 2013. Dietary Patterns and Longitudinal Change in Body Mass in European Children: A Follow-Up Study on the IDEFICS Multicenter Cohort. *European Journal of Clinical Nutrition* 67: 1042–49.

⁴ González-Gil et al. 2016. Food Intake and Inflammation in European Children: The IDEFICS Study. *European Journal of Nutrition* 70: 819-823.

⁵ Priego et al. 2014. Influence of Breastfeeding on Blood-Cell Transcript-Based Biomarkers of Health in Children. *Pediatric Obesity* 9: 463–70.

⁶ Hunsberger et al. 2012. Infant Feeding Practices and Prevalence of Obesity in Eight European Countries – the IDEFICS Study. *Public Health Nutrition* 16: 219–27.

⁷ Fernández-Alvira et al. 2015. Prospective Associations Between Socio-Economic Status and Dietary Patterns in European Children. *British Journal of Nutrition* 113: 517-525.

⁸ Based on a paper by Jilani et al, currently in submission.

⁹ Based on a paper by Hebestreit et al, currently in submission.

¹⁰ Olafsdottir et al. 2014. Young Children's Screen Habits Are Associated with Consumption of Sweetened Beverages Independently of Parental Norms. *International Journal of Public Health* 59: 67–75.

¹¹ Lissner et al. 2012. Television Habits in Relation to Overweight, Diet and Taste Preferences in European Children: The IDEFICS Study. *European Journal of Epidemiology* 27: 705–15.