

Creating a better future



CHILD NUTRITION: A LIFE-COURSE APPROACH TO FUTURE HEALTH

Adequate nutrition during pregnancy, infancy and early childhood is fundamental for child development; to be resistant to disease, to grow properly, to do well at school. The importance of a balanced diet and lifestyle for children to reach their full potential has been well recognised. Yet, effects of poor nutrition at young age are more and more understood to have lifelong implications. Promotion of exclusive breastfeeding from 0-6 months and continued breastfeeding with appropriate complementary feeding for up to 2 years is probably one of the most cost-effective nutrition habits to be endorsed¹. So to promote a healthy future during adult life, programmes to enjoy healthy eating as well as physical play need to commence as early as possible in life.

In this newsletter we describe the impact of nutrition on child development and what Unilever undertakes to contribute to future health.

Nutrition and child development

Undernutrition and stunted growth still is a huge problem – 195 million children are too short for their age¹ - but once food is available and affordable, food choice becomes the main determinant of healthy growth and development. In this transition phase, people often develop unhealthy diet and lifestyle habits resulting in nutrient deficiencies, obesity or both, with children most affected. Globally an estimated 42 million children below five are overweight, many of which are in developing countries². Public health implications are substantial as these children are more likely to grow into obese adults, with associated higher risks of cardiovascular disorders, metabolic syndrome and diabetes, plus substantial psychological suffering³.

There is convincing evidence that children need adequate energy, protein, essential fatty acids, carbohydrates, vitamins A and D, zinc and calcium for normal growth. There is also strong evidence that iodine, iron and protein-energy balance play an essential role in mental development. For omega-3 fatty acids (DHA and ALA), vitamin B12, folate and zinc, evidence is emerging. Deficits for many of these nutrients exist. Iron and iodine deficiencies are globally spread⁴. Intakes of essential fatty acids are commonly low in children⁵. Also children are simply not eating enough fruit and vegetables; only 18% of 11-year old Europeans reached the recommended WHO intake of 400 g/day⁶.

1| http://www.childinfo.org/files/Tracking_Progress_on_Child_and_Maternal_Nutrition_EN.pdf
 2| <http://www.who.int/dietphysicalactivity/childhood/en/index.html>
 3| <http://www.fao.org/WAIRDOCS/WHO/AC911E/AC911E00.HTM>
 4| Black RE et al. Lancet 2008;371 :243-60
 5| Koletzko B et al. Br J Nutr 2010 ;103 :923-8
 6| Yngve A et al. Ann Nutr Metab 2005;49:236-45

Life-course prevention

It is well recognised that the period from gestation to two years of age, the first 1000 days, is a critical window for the promotion of optimal growth, health and behavioural development. In addition, compelling evidence supports a life-course approach to primary prevention of cardiovascular diseases³. For instance, 40-75% of children with elevated total cholesterol in childhood persisted with elevated levels in young adulthood^{7,8}. Fatty streaks in the aorta were found in 50% of 2-15 year olds⁹. Even an inadequate nutrient status of the mother may lead to impaired organ function of the foetus and reduced growth in height as well as changes in metabolism³.

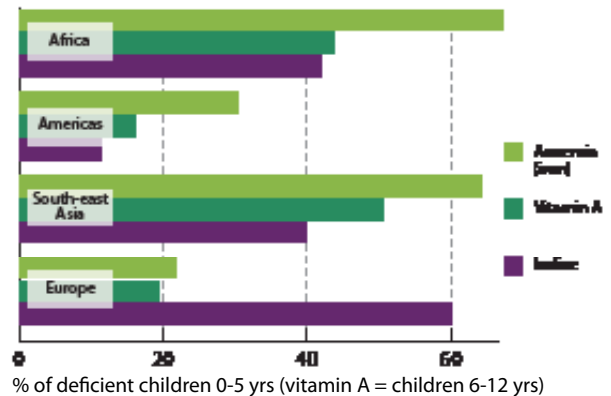
Children's diets

In addition to fruits and vegetables, cereals are generally the first foods that are introduced to the infants' diet. Later on, when children join the family dinner, an increase in salt intake is commonly observed. This in turn may create a preference for saltiness throughout life¹⁰. Since food preferences are an important determinant of children's food intake, it is essential to know how food preferences are acquired and how they can be changed. In the area of fruit and vegetable intake, promotional strategies were recently suggested. Quite some of these may also be appropriate for stimulating intakes of other foods contributing to a healthy diet.

To encourage children's fruit and vegetable consumption it may be helpful to¹¹:

1. ensure a pleasant eating context, prevent a negative atmosphere
2. serve as a role model and set a good example
3. be persistent and patient in offering children a variety of both new and familiar foods
4. encourage children's feeling of autonomy and prevent reactance by offering choice
5. avoid the argument 'it is healthy' to persuade a child to eat healthy foods that he/she does not like
6. make fruit and vegetables increasingly available, e.g. during sports activities and parties, vegetables also outside dinner time

7| Webber LS et al. *Am J Epidemiol* 1991;133 :884-99
 8| Lauer RM and Clarke WR. *JAMA* 1990;264:3034-8
 9| Berenson GS et al. *NEJM* 1998 ;338 :1650-6
 10| Dötsch M *Crit Rev Food Sci Nutr* 2009;49:841-51
 11| Zeinstra G PhD thesis. January 2010
 12| <http://www.who.int/vmnis/database/en/index.html>
 13| Osendarp SJ et al. *AJCN* 2007;86:1082-93
 14| Muthayya S et al. *AJCN* 2009;89:1766-75
 15| Andang'o PE et al. *Lancet* 2007;369:1799-806
 16| www.unilever.com



% of deficient children 0-5 yrs (vitamin A = children 6-12 yrs)
 An overview of micronutrient deficiencies in different regions¹²

Our commitment to a good start in life

Unilever contributes in different ways to give children a good start in life:

- 1 Unilever started an extensive **international research programme** to better understand the role of nutrition in physical and mental development of children and to help determine the benefits of key nutrients for children's growth and development. For example, our research in Indonesia showed improvements on verbal learning and memory in well-nourished school-aged children through micronutrients and DHA¹³. Another study showed Indian children grew more and performed better on the cognitive tests than expected after consumption of a protein-energy snack fortified with omega-3 and micronutrients for one year¹⁴. Maize-flour fortified with the right type of iron resulted in a 91% reduction of iron deficiency¹⁵. We furthermore support an endowed chair on Micronutrients and International Health at Wageningen University, The Netherlands, since November 2006 for a period of five years.
- 2 Unilever has various **fortified products** on the market, including margarines (Blue Band/Rama), Annapurna iodised salt, Amaze fortified biscuits and AdeS, a soy-based beverage.
- 3 To combat unhealthy eating habits from developing in the first place, Unilever works with different organisations and governments on **nutrition education** such as the World Food Programme and the World Heart Federation.
- 4 Our policy on **marketing to children** includes such provisos that our advertisements will not promote overeating and that products should be represented in the context of a balanced diet and a physically active lifestyle. We do not market to children under the age of six and only products that meet strict criteria for their nutritional quality are marketed to children between the ages of 6 and 12¹⁶.

Interview

Professor Kees de Graaf (Professor of Sensory Science and Eating Behaviour at Wageningen University, The Netherlands) is a renowned expert in sensory monitoring and evaluation of food and impacts on food choice.

Whereas newborns cannot detect salt, children easily develop a preference for salty foods; how can parents and (health) educators prevent this from happening?

It is true that many food preferences are determined in the first year of life, a period in which children are open to new flavours. Baby foods typically used to introduce solid foods, such as preserved pureed vegetables, contain little salt. Parents judge these foods as bland. So when children are introduced to the family meals, they more often adopt the food their parents eat than parents adopting the low-salt meals recommended for their toddlers. Consequently, their salt intake increases. Getting parents to choose salt-reduced options is tough, as salt boosts nice flavours and masks less pleasant flavours. Most effective would be if food industries manage to reduce the salt levels without reducing the overall product liking. However, this requires a cross-industry approach to make it successful.

Children have a natural liking for sweetness and sugar-based beverages; can this “sweet tooth” be reduced by gradually reducing the sweetness of these beverages?

I believe this is possible up to a certain extent. For example, to halve the current sugar levels in soft drinks to 5g/L would most likely be too radical for consumers. Gradual reduction seems to be the way forward and, again, this needs to be an action across food industries. Sweetness is a very special “signal”, it is actually the only preference present at birth. To reverse such a preference is much more difficult, noting that this research area is relatively unexplored; we do not yet know what the actual tipping point is for consumers not accepting further sugar reductions.

Due to urbanization and the nutrition transition in general, people in developing and emerging economies are increasingly including less healthy, western-type foods in their diet. What can be done about it?

One clearly observes a large shift to products which are relatively high energy-dense and low in fibres. These are easy and quickly to consume,

giving instant satisfaction. No one likes the feeling of being hungry; a feeling of satiety is much more pleasant. Obviously, innovations typically fulfil these characteristic consumer preferences for instant satisfaction. To reverse this trend, we will have to look at contemporary ways to design products with a higher rewarding value for each calorie delivered.

Snacks have become customary in the daily diet, also for children. Not only to keep going between meals, but also as a reward or treat. What can food industries do to facilitate responsible snacking?

Contrary to fruits and vegetables, energy-dense foods that are quickly consumed give little sensory stimulation per calorie ingested. With these foods one can within half an hour match the energy requirement of a full day. Yet, food is intrinsically also about reward. Satisfaction that is generally delivered by calories and sometimes caffeine or alcohol. When products are optimised for their nutritional content, it should not be at the cost of enjoyment. Portion size and texture are to be considered too, because the quicker you can eat a food, the more you’ll eat of it. A nice challenge for food industry to create smaller portions which are eaten slower and provide longer-lasting satiety.



Prof. Kees de Graaf



