Recommendations for Physicians and Parents

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Introduction

In the post-war period in the Western world, consumption of food has changed from a daily activity to fill the stomach to a social event. Daily meals play an important part in family life. Diners are used to tie friendships, relations, to create a suitable climate for business deals and to celebrate. But at the same time concern about food as a factor that will influence health and disease has been growing rapidly. The media are informing the public about the dangers of overweight and its consequences for the development of diabetes and coronary heart disease. Many somatic complaints are considered to be related to food and food products. Food allergy is in the focus of interest. Public discussion has turned its attention to the possible hazards of food additives, insecticides and genetically manipulated food products.

Parents, on the one hand, like to gain pleasure from the mealtimes with their family and, on the other hand, feel a compelling need to get the right food in the right quantity during the right period into their children. It is this compelling need that sometimes puts pressure on the educational process with consequences for nutritional behavior and subsequently the nutritional intake of their children.

Guidelines for Healthy Feeding in the First Years of Life

It is generally accepted that breast milk is the ideal food for human babies. When it is not available a variety of formulae are on the market to cover the nutritional needs for the first 4–6 months of life [1].

Physicians are frequently confronted with questions by parents and caregivers concerning the transition to complementary foods in infancy. When
can complementary foods be started and what are the best foods to start with? But also questions concerning the way new food products should be introduced are recurrent topics in baby health clinics. At the end of 2002 the American Dietetic Association together with the Gerber Products Company developed an evidence-based approach to establish healthy feeding guidelines for infants and toddlers that were published in 2004 [1, 2]. Simple questions, such as when is an infant’s gastrointestinal tract capable of handling complementary foods, when are renal functions sufficiently mature to allow introduction of complementary foods or when do all gross and fine motor skills required for complementary feeding emerge, were answered in a clear, evidence-based way.

A healthy infant’s gastrointestinal tract is mature enough for the handling of complementary foods by 3 or 4 months of age [3–5]. Despite some renal immaturity, most children will have no problems in maintaining water balance even during the introduction of food products with a relatively high solute load [6]. Motor development, however, varies considerably among infants but skills necessary to be able to handle complementary foods will be present in the majority between 4 and 6 months of age [7–9].

Breast and/or fortified formulas will be sufficient to provide the nutritional requirements for at least the first 6 months of life [1]. Taking these different aspects into account the introduction of complementary foods should not take place before 4 months of age.

What will be the nutritional requirement? The dietary reference intake (DRI) provides balanced recommendations for nutrient intakes in healthy infants [1]. After 6 months the majority of breastfed infants need some complementary foods to meet the DRI for energy and different micronutrients like manganese, iron, fluoride, vitamin D, vitamin B₆, niacin, zinc, vitamin E, magnesium, phosphor, biotin, thiamin [10].

Special attention should be paid to the iron intake in the Western world, since the prevalence of iron deficiency is highest among children in the first 2 years of life [11, 12]. In those infants with a high risk of food allergy (family history with at least 1 first-line family member with atopy), breastfeeding is recommended for at least the first 6 months, whereas it is recommended that the introduction of potentially allergic food products such as eggs, milk, wheat, soy, peanuts, and fish be delayed until the end of the first year of life [13, 14].

Attention should be paid to the way parents establish a healthy and effective feeding relationship. The importance of an appropriate and nurturing feeding environment together with the provision of appropriate healthy food needs to be stressed. It is important for parents to recognize that ‘the child decides whether and how much to eat’ [1]. Responsive parenting appears to be the core of a healthy feeding relationship involving: (1) recognition of the child’s developmental abilities; (2) balancing the child’s needs for assistance with encouragement of self-feeding; (3) allowing the child to initiate and guide feeding directions, and (4) responding early and appropriately to hunger and satiety cues.
It is important for parents to learn how their child communicates hunger and fullness. Parents should be supported in the way they introduce complementary foods to their children, the order of introduction and quantity [15]. Repeated exposure to foods will enhance acceptance and, although no strict evidence exists, it is generally recommended that first solid foods should be single ingredients that can be started one at a time and at intervals of 2–7 days [16]. Table 1 provides information about the DRI of energy during the first years of life.

**Table 1.** Nutrient: energy (calories) and estimated energy requirement (EER)

<table>
<thead>
<tr>
<th>DRIs</th>
<th>Formula</th>
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<tbody>
<tr>
<td>0–3 months</td>
<td>((89 \times \text{weight of infant [kg]} - 100) + 175) (kcal for energy deposition)</td>
</tr>
<tr>
<td>4–6 months</td>
<td>((89 \times \text{weight of infant [kg]} - 100) + 56) (kcal for energy deposition)</td>
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<tr>
<td>7–12 months</td>
<td>((89 \times \text{weight of infant [kg]} - 100) + 22) (kcal for energy deposition)</td>
</tr>
<tr>
<td>13–35 months</td>
<td>((89 \times \text{weight of infant [kg]} - 100) + 20) (kcal for energy deposition)</td>
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Sources of nutrients for infants: human milk or iron-fortified infant formula, and complementary foods.

Sources of nutrients for toddlers: variety of foods from all the food groups, whole milk, other dairy products, fortified cereal, whole grains, fruits, vegetables, margarines/vegetable oils, meat, meat alternatives.

Adapted from Butte et al. [1].

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**Feeding Problems**

A variety of feeding problems, including a lack of appetite, eating small amounts, picky eating and strong food preferences, occur in 25–45% of healthy toddlers [17].

Serious feeding problems are seen in 3–10% of all children with a higher frequency in infants with developmental disabilities (33%) [18]. Feeding problems are defined as deficit in any aspect of taking nutrition resulting in undernutrition, poor growth, stressful mealtimes for children as well as caregivers. The scale of feeding problems which have been described vary from inappropriate mealtime behavior, lack of self-feeding and extreme food selectivity to food refusal, oral sensory motor immaturity or dysfunction and swallowing problems with frequent gagging and/or vomiting [19].

For clinical practice, feeding problems in the first years of life can be classified as shown in table 2.
In feeding problems due to somatic diseases, poor appetite can be caused by chronic disorders that are associated with anorexia like inflammation and infection but also by neoplastic and metabolic disorders [20]. Especially as increased nutritional requirements are present at the same time, as in cystic fibrosis and celiac disease the combination may result in failure to thrive.

Aversive consequences of eating as in food allergy, esophagitis or certain metabolic disorders will result in a negative association with certain food products resulting in an aversive reaction and sometimes fear of eating. Physical impediments for eating and/or drinking as in oral motor/pharyngeal dysfunction, anatomic malformation or severe neurological or respiratory diseases will result in interference with the normal swallowing process. In the clinical setting prolonged tube feeding will result in feeding problems as the necessity to eat decreases and continuous enteral feeding will result in a decrease in stomach capacity [21].

A variety of pedagogical problems can form the basis of feeding difficulties. Overestimation of the nutritional needs of a small eater, growing and developing well, will result in forced feeding leading to feeding aversion in the end. Behavioral problems such as insufficient intake during the mealtime whereas although the total intake is still adequate can easily result in compulsive feeding with irritability, crying, fussing, tension and stress during mealtimes resulting in a kind of vicious circle.

The most difficult feeding problems to handle are those due to pathological food refusal. It consists of refusal of food or certain food products, with a struggle during meals which quite frequently leads to a decrease in intake and failure to thrive. Such problems can be resistant to pedagogical approaches. In the majority of cases the child will not exhibit appetite or hunger and no organic etiological causes can be found. Food refusal can be subdivided into different forms including [20, 21]: (1) eating aversion or the refusal of food; (2) swallow fear caused by a strange sensation when food enters the mouth.
with a fear to swallow (for instance after prolonged tube feeding), and
(3) swallow phobia which is fear of swallowing food (for instance after a
traumatic experience resulting in aspiration and/or choking).

The majority of patients with pathological food refusal will present food
refusal and mealtime distress in combination with failure to thrive.

One should keep in mind that behavioral problems causing feeding difficulties
will sometimes have a physiological underpinning whereas physiologically based
feeding problems can evolve behavioral-based feeding problems that will need
a special approach [22, 23]. Many examples can be encountered in clinical
practice. After multiple surgical interventions, infants fed by tube sometimes
encounter so many negative experiences concerning bad taste, manipulations in
the mouth and problems with swallowing that a serious aversion to oral feeding
can easily result in the long term.

Diagnostic Approach to Feeding Problems

Extensive data collection including a caregiver interview, extensive
history, physical examination, observation of caregiver and child interaction,
dietary inventory and, for special indications, motor and swallow function
testing will form the basis of the diagnostic approach to feeding problems
[24]. An interview with the caregiver will provide basic information on the
course of the feeding problem, the present status of the child and strategies
used previously. But it will also reveal information about food acceptance
and refusal, the amount consumed and the duration of a typical mealtime. It
is important to pay attention to aspects like environment, behavior, and
stress surrounding the normal feeding process. Physical examination should
reveal information on growth and development and the nutritional status of
the child. Extra attention should be paid to the neurological status and the
presence of dysmorphic features pointing towards a genetic/syndromal
background of the feeding problems. In addition to an extensive dietary
inventory, observation of the interaction between caregiver and child can
reveal important information. Are parents/caregivers eating with the child;
how are they reacting on food refusal, and what kind of tools are used for
distraction, encouragement and support. On indication further laboratory
investigations (blood, urine, X-ray-examinations) can be performed [25].

Therapeutic Goals in Feeding Problems

During regular controls in baby health clinics, attention should be paid to
the first signs of feeding difficulties with anticipatory guidance to prevent
more serious feeding problems [26]. Early recognition should result in early
interventions preventing deterioration, while established feeding problems
should be referred to dedicated centers able to provide specific multidisciplinary support, for instance by a feeding team consisting of a nutritionist, speech therapist, psychologist, pediatrician/pediatric gastroenterologist. A feeding team can provide support both in a clinical as well as in an ambulatory setting [25]. Their integrated approach is aimed at a steady weight gain with slow but stable initiation of oral feeding, by steadily weaning from tube feeding and increasing oral intake, while stress during mealtimes is reduced. In the final phase attention is paid to the acceptance of a variety of flavors and textures resulting in a steady normalization of oral intake [24]. If pedagogical problems predominate, extra attention should be directed to caregivers, providing them with support and practical food rules for daily mealtime practice. In more difficult cases a video intervention program can be used in which their interaction with the child can be visualized, discussed and modified. An example of simple practical food rules is provided in table 3.

In the clinical setting, in children with somatic diseases that force the use of enteral feeding, attention should be paid to the prevention of feeding problems on the long term, by continuous oral support and stimulation of oral motor development during the period of enteral nutrition.

**Concluding Remarks**

Well balanced nutrition is of great importance for health, especially in growing and developing children. In infancy and childhood it involves the interaction between caregivers and their children in which different environmental aspects play a part. A pleasant and safe feeding environment will help the child to develop eating skills and a positive attitude towards eating that will form the basis of an accepted social behavior. Feeding should

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**Table 3. Food rules for caregivers**

<table>
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<tr>
<th>Scheduling</th>
<th>Regular mealtimes (only planned snacks)</th>
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<tr>
<td></td>
<td>Mealtime maximum 30 min</td>
</tr>
<tr>
<td></td>
<td>Nothing between meals (except water)</td>
</tr>
<tr>
<td>Environment</td>
<td>Neutral atmosphere (no forced feeding)</td>
</tr>
<tr>
<td></td>
<td>Sheet under chair (prevent mess)</td>
</tr>
<tr>
<td></td>
<td>No game playing</td>
</tr>
<tr>
<td></td>
<td>Food not as reward or present</td>
</tr>
<tr>
<td>Procedures</td>
<td>Small portions</td>
</tr>
<tr>
<td></td>
<td>Solids first, fluids last</td>
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<tr>
<td></td>
<td>Self-feeding</td>
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<tr>
<td></td>
<td>Playing without eating (remove after 15 min)</td>
</tr>
<tr>
<td></td>
<td>wiping mouth, cleaning up only after meal is completed</td>
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</tbody>
</table>

Adapted from Arvedson [27] and Chartoor et al. [24].
never be directed towards just ‘getting food into the child’. A successful learning process concerning feeding will result in an acceptance of a variety of foods with different tastes and developmentally appropriate texture. It will also help the child to develop necessary motor skills, safe sucking, chewing, propelling and swallowing. So successful feeding progress in infancy can become a joy forever.

References

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Discussion

Dr. Aggett: We have all touched on getting information across and somehow generally improving people’s understanding of what nutrition is about. You have many thoughts about this. Would you like to share them with us please, so we can perhaps get a feeling for how we can start to try to get over some of these general aspects on understanding feeding behaviors, normal behavior, and what normality actually is, and what people’s expectations should be rather than what they are lead to expect.

Dr. Heymans: I think that is a major question. If you watch TV, and every one of us would say that he doesn’t do that on a regular base, but you see that health care and hospitals are one of the main targets of interest. People are watching it and most people are only interested in emergencies, the ER. We are not using our time and influence to show what is really important. The problem is that we don’t exactly know, and still have differing opinions. In this country we have baby health clinics, we see more than 90% of all the children that are born. I think we should use these baby health clinics to provide parents with the information that will help them make the right decisions in the right time, for instance to prevent feeding and/or behavioral problems. In the Netherlands pediatricians are not involved enough in preventive health care. We don’t have child health as part of our interest; we are working inside hospitals, and I think that is something which hasn’t been beneficial in the last years. I would like to see a change that might influence preventive health care in such a way that we really are able to get our ideas and views across, and we don’t do that enough.

How are things in England?

Dr. Aggett: Possibly even worse; I don’t know. I think like you that pediatricians, as a profession, are not that well engaged in this. We have this predilection to be involved with the acute services, and the appreciation of the value of preventive medicine and public health, particularly public health nutrition, is under-invested and is not necessarily seen as being a rewarding area. It may be changing, as public health initiatives are recurring. Public health in nutrition, particularly in the UK as well as everywhere else, may give people responsibility but it doesn’t always need pediatricians; of course it does need other informed health professionals with access to the families to be able to implement things.

Dr. Gracey: I would like to pursue this just a little more. Dr. Aggett I think you are absolutely right when you say that most ministries of health or governments are preoccupied with disease care rather than health care, certainly the government in
Australia is. We as pediatricians have a responsibility to try to change this imbalance. I would like to ask Dr. Heymans to follow up the British approach to banning or restricting advertising of junk food, which seems to me in many ways to be a very negative approach to improving health. For too long we have taken approaches like, don’t do this, it is bad for you, don’t eat that, don’t do that and so forth. I think we really need to have much more positive approaches to improving health, and I wonder how we can do that in association with industry, with marketing, with advertisers, with governments, with politicians and with the community. I would really appreciate your comments on those things.

**Dr. Heymans:** It is a difficult question; let me give you an example. In this country the government tried to forbid soft drink machines in high schools because they had decided that lots of calories go into children because of those soft drinks. But we are a permissive society, so who is going to decide that you are not free to drink whatever you want whenever you want, and that is an ongoing discussion. What we haven’t done yet is give the information to the people so that they can make the right decision themselves, and that should precede new regulations, we should do that first. In schools good information should be given about nutrition and also about lifestyle. Things that should be done beyond not eating too much and too fatty foods, and too many high calorie snacks, things like moving, cycling, walking stairs instead of taking elevators and escalators. We are in a society in which everything is changing, so do not only concentrate on food alone, but also on lifestyle as a whole. People are not aware of the fact that we are on the wave of a huge epidemic, but perhaps we have to be in the middle of the epidemic before we are willing to do something. Is it different in Scandinavia?

**Dr. Hernell:** We have exactly the same problem, but I also think that if we are going to do something about it we need to begin earlier than in school age. We need actually to work through the parents and through the well-baby clinics or whatever system we have, I mean if you are successful in getting rid of the vending machines with soft drinks from the schools it does not help much if the children go home to find their parents drinking these soft drinks every now and then.

**Dr. Kleinman:** I think there are some hopeful things happening. For example in the US the National Institutes of Health has focused a certain amount of money specifically towards this question, and has asked for proposals regarding novel approaches that primary care physicians and health care providers can bring towards the prevention of obesity. Ultimately this will provide the evidence needed to guide national recommendations. Second, in the US, insurers are now increasingly aware that there is value in paying for preventive medicine in childhood, and they have built financial incentives for pediatricians to do things like monitor the body mass index. Another advance is the use of the electronic medical record, which is becoming more widespread in the US, and that kind of record allows automatic reminders as well as automatic letters to be generated to parents saying that it is time for your child’s immunization, please show up in 2 weeks; or as your child has not been weighed and measured in the last 6 months it is time to come in for that. So I think technology is going to help move forward this whole issue of the amount of time spent on preventive measures. Then the very last comment has to do with parents’ responsibility, and I agree entirely with all these comments about starting early and giving parents the support that they need to be able to deal with these problems early. But it is very difficult for a parent who is dealing with an older child or an adolescent to deal with all the pressures that they have in their environment that work towards making their child fat. In fact to some degree it is almost impossible. We talked about advertising before and it is quite obvious that USD 6–7 billion are spent in the US towards promoting the consumption of food every year, and the amount of money spent on health messages,
in educational programs to support parents, is less than one tenth of that. It is not a fair fight and the only way it is going to be a fair fight is for the food industry to step up and take some responsibility for this, and many now are doing it, from McDonalds to other corporations, but if they don't do it there is no choice but to ask government to intervene because it is not a level playing field. With regard to vending machines in schools, many school districts in the United States have banned vending machines in schools or they have required that the vending machines be filled with fruits and milk and other healthier foods, or they leave the vending machines there but they don't allow them to be turned on 2 h before the lunch time, up until 2h after lunch time. They do that very successfully, and it gives the child an opportunity to make healthier choices.

Dr. Mexitalia: Although in Indonesia obesity is increasing, malnutrition still remains. When parents come with a malnourished child, we give them advice on how to give their child better food, more milk, but most of the time they cannot afford to buy it. So the problem is not only regulation.

Dr. Heymans: It is also an astonishing fact that the number of malnourished children in the world is equalizing the number of over-fed children, so we have a very strange problem in trying to divide things in an equal way, and I can imagine what you say.

Dr. Verloove: I am very happy to hear about the USA; things are going in the right direction of prevention in an early age. I think in the Netherlands at least we always follow USA.

Dr. Heymans: 25 years later.

Dr. Verloove: No, it is shorter nowadays, it is only 5 years I think. But I quite agree with Dr. Heymans that we should work together with preventive child health care to get the message across, but not forget about the low compliance. We shouldn't idealize the though that whatever we give as information or advice will be followed because half of the people don't. Having said that, it is worthwhile to try and get the other half at least to be knowledgeable about nutrition. My impression is that a lot of the information that professionals, pediatricians, child health people or industry give is in percentage of fat or 30% of intake should be fats or whatever, or in carbohydrates or in proteins, and people just don't understand. They want to have information about cups of milk or spoons of vegetables and what vegetables and how. So maybe our information just doesn't get there because a lot of calculations must be done afterwards. I don't know what kind of information we could give people or lists of things so that it can be done positively, and not always state you should or should not eat that but this is what a child of that age should eat. Is that an approach that is taken in some countries? What do you know about Holland that I am not aware of?

Dr. Heymans: We have nutritional advice based on a survey that was performed some years ago, but for all schoolchildren.

Dr. Verloove: But it is 30 years old.

Dr. Heymans: In the coming months it will be renewed, but our society is rapidly changing. Just to give you an idea, in the bigger inner cities in this country about 64–65% of children aged from 0 to 14 years have non-Dutch parents and there is a variety of ethnical backgrounds with a variety of different food and food products. In hospitals this really needs to be taken into account because most of the children are not able to eat normal hospital food. I think it is difficult to reach the young population in this country.

Dr. Aggett: I think what you raised is very important. In the UK we try to convert this advice into examples of diet, what something really should or could be. This was done for the first time about 10 years ago with cardiovascular disease for example. When the advice went out about reducing the amount of saturated fatty acids down to 10% or so of energy fat, 30% of energy or something like that, examples of how many potatoes should
be in the diet, just really to try and translate into objective advice, it was immediately hit by a very strong campaign in the media about a nanny state and over-mothering state treating people in a patronizing way as if they can't understand. It is not difficult to find that this was emanating from various sectors of the agro food industry, and it can be tracked back and is certainly one of the reasons why measures were taken both in Europe and the UK to try to enforce this advice from other invested interests that might be around. Yesterday I talked about the nanny state and this type of attitude that we must overcome, we must make people aware of the public health perspectives and their importance.

Dr. Lemay: I would like to ask two questions. First of all, I am hoping that eventually we will have positive international campaigns on the benefit of good nutrition in our diet, especially for children under the age of 5. In your study on children between 9 and 12 years of age you focused on how many children were following a diet. Do you have any data showing how many children were to some extent following an inappropriate diet or eating appropriately? My second question is that, especially in North America, when educating future pediatricians, students in residence, the content of the nutritional domain is still quite light, compared to a lot of other subjects that are being taught. What would be the best way to teach our physicians, and are we teaching enough about nutrition?

Dr. Heymans: Rather good questions. In our study we didn't ask about the content of the normal diet, but I showed you that there is some information about what children are eating in this country. I have seen the recent report from 2002 on toddlers and it is quite reassuring, there is no over-consumption but that is until 3 years of age, so it is very difficult to draw conclusions in the long-term [1]. There has been a study on what people in the Netherlands are eating but I am not aware of information about the age group. In our study we asked all the schoolchildren whether they were on a normal diet, we didn't ask them what they were eating. So that is something we should get information about, although this is a rural part of the country and I don't know if it will be feasible to use the information from there for the whole of the Netherlands. So I can't tell you if they had a decent diet. Do we invest enough in nutritional education? No. In the normal curriculum of the universities in this country too little attention is paid to nutrition. In the curriculum of pediatricians in this country, there is also only very little attention paid to nutrition. Together with Dr. Taminiau, Dr. Lafeber and I started a 2.5-day nutritional course for pediatricians in a very little village in this country where they couldn't run away. We tried to provide them with information that they as pediatricians need to have on nutrition. Presently the epidemic of obesity that we are seeing is a major problem. The results of the epidemic will become clear in the coming 12, 20, 30 years, but we have to address it now. So I agree with you, it is something we have to change in the program of our universities, and look how much nutritional education people get there, practically nothing.

Dr. Lafeber: So it will be useful if, in a future workshop, we could share different methods that are used to teach nutrition. That would be a great start because eventually we will need to address this issue.

Dr. Heymans: Nutritional education.

Dr. Hardiono Djoened: You said that behavioral problems could cause feeding problems in children. I want to ask the reverse, is there any evidence that some food can cause behavioral problems? If there is no evidence then how should we convince the parents about this because in one of your slides you showed that a large percentage of parents still believe that food can cause behavioral problems.

Dr. Heymans: That is a very interesting question and it will be hard to answer. There is no proof that certain food products, for instance the Feingold diet [2] or having all kind of substances in the food, will cause behavioral problems. There have
been many very well-controlled studies that could not show that this was the case. Still there are individuals who feel that their child improves enormously if they change the diet. For instance in our study in the northern part of the Netherlands, more than 50% of the diets used were not prescribed by doctors but by all kinds of advisors.

Dr. Hardiono Djoened: But how can we convince the parents about this? You said that about 70% of parents still put their children on a diet because of this belief in Holland.

Dr. Heymans: What we try to do is to show them in a kind and clear way the results of studies that implicate that there is no proof of any beneficial effect. We have an information center in our hospital which provides the parents with information from the literature, shows them how to find their way, how to select information that can be beneficial to their child. But sometimes dietary interventions are based on belief, and belief is very difficult to discuss.

Dr. Exl-Preysch: I would like to come back to what was discussed before and Dr. Lemay took up what I wanted to say. I think we are already discussing a little bit the end of the line here; we really have to start at the beginning and those children that see the pediatrician because of feeding problems are already at the end of the line. So what we want is to establish healthy feeding habits and healthy children with no problems in the beginning, and it is exactly as you pointed out, nutrition is not only not in the curriculum, it is absolutely not sexy for them, nobody is interested. Everybody is interested in molecular biology and whatever is in fashion nowadays, but nutrition is boring, and I think that is the major problem we are facing. Most of the pediatricians are not really interested, only those who are here, but those who are not here or at those congresses are not at all interested. I don't know if it is different in different countries, but in a lot of countries children are not even seen by a pediatrician, they are seen by a general practitioner who knows even less about health and nutrition. He knows exactly the same that the parents know, he has no idea, and I think that is the point where we really have to start to think what to do. Again in different countries there are different systems, for instance in Switzerland we have a system of so-called mother consultancy, so the parents visit the mother consultant with their children and it is this consultant who gives the nutritional advice and discusses with the parents. I think we really have to start an overall system to sensitize these people, and also the government and the politicians. They spend huge amounts on alcohol, drugs, HIV and smoking, and they spend literally nothing on nutrition and nutrition prevention, and that is the point where we really have to start and build up a huge and strong community to convince these people that it is a real problem. Finally, as has already been said, the industry has to do something together with non-government and government organizations. To give you a good example: in Switzerland we set up a joint venture of the Swiss Society of Nutrition together with the financial support of the government and set up an association called Nutrikid to create material for the nutritional education of normal children and normal parents. It started in 2001 and the sets are really running very well. We have already sold 4,000 sets. I think this is the way we should go to really educate both children and their parents. I think it is the best way to set up a balanced nutrition and then the children can make their own choices. They are not so stupid, they like learning.

Dr. Steenhout: In my point of view, nutritional recommendations to mothers should already start before birth and be done by the obstetrician in collaboration with the future pediatrician. This is the only way to continue to obtain better results in terms of breastfeeding policy implementation.

Concerning your suggestion to hold a workshop on the problems of nutritional education, this was already been organized by Nestlé in 1988 (vol 20: Changing Needs in Pediatric Education). Nestlé has always been committed to providing the material and the support for programs concerning nutritional education.
On the other hand, and unfortunately, with their current budget constraints, most European countries are not increasing the expenses for education, and less and less nutritional programs are present in the medical curriculum!

Now concerning the role of industry and the collaboration between industry, health and regulatory authorities, or medical and scientific societies, I don’t see a problem. If a clear consensus, a clear message issued by the scientific and medical community exists, and moreover, if this is converted in recommendations or rules by the health authorities (FDA, EFSA, etc.), the food industry will obviously move in this direction and apply the new regulation. Political authorities must also be involved to establish legislation and to implement the right competitive rules.

So we have to work together and this is certainly one of the key messages I would like to leave at the end of this workshop.

Dr. Heymans: First I agree with everything, I don’t want to comment on anything you said, but for those who are interested in research on how to change behavior, particularly with regard to nutrition and physical activity, there will be an international meeting here in Amsterdam, it is to be lead by Dr. Buch from the Free University and is under the auspices of the International Society of Behavioral Nutrition and Physical Activity. This will be the 4th meeting of the society, and it is quite an interesting group. It brings together investigators in the area of behavioral change, specifically around nutrition and physical activity, and if you are interested in it, the web site is www.isbnpa.org.

References
