Infant nutrition – diet between 6 and 24 months, implications for paediatric growth, overweight and obesity

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Abstract

Infants are growing rapidly from 6–24 months and have high nutrient needs in proportion to their body size. This sub-group of the population are prone to dietary imbalances and inadequacies. It is of vital importance to get nutrition right during this time period to support appropriate growth and development.

Overweight and obesity rates are increasing in pre-school children, and maternal nutritional status and early life feeding have been identified as ‘critical windows’ for obesity risk. After the recommended period of exclusive breastfeeding, an increasingly diversified selection of foods are offered to infants and young children, and milk becomes less dominant in the diet.

Rapid weight gain during infancy is the strongest risk factor for childhood overweight and obesity, and this may be modifiable with early intervention. During the complementary feeding period, there is an increase in protein intake, which is in excess of requirements, and may be associated with adverse outcomes regarding later body mass index and body fatness. Guidelines for healthcare professionals have been developed to raise the issue of overfeeding during infancy, and to manage overweight if it arises.

Dietary intake measures show a deteriorating quality of diet as infants move from the first 12 months of life into the second year, with potential excesses of protein, energy, saturated fatty acids, salt and non-milk extrinsic sugars. Formula manufacturers can reduce the protein content of formulas for infants and young children in order to support appropriate growth, whilst supplements, fortified foods and milks can supply ‘at risk’ micronutrients.

Keywords: complementary feeding, energy, obesity, overweight, protein, young child nutrition
Introduction

Infant nutrition is of crucial importance in the support of appropriate growth and the supply of necessary micronutrients to avoid deficiency in early life. Nutritional status both before and during pregnancy and early infant feeding are of prime importance and have been the subject of a recent extensive review (BNF 2013). A growing amount of evidence points to the foundation of obesity being established in the earliest stages of human development including pre-conception, in utero and during early infancy. Overweight among women before and during pregnancy, as well as fetal exposure to diabetes and hyperglycaemia, has been associated with high birthweight and later risk of obesity (Papadopoulou & Stanner 2014). It is not only these early in utero exposures that contribute to risk of later obesity and metabolic disease, but also as would be expected, the quality of the diet during infancy. The number of obese children rises as children progress through primary school (NHS Information Centre 2012) and the danger is that this pattern will be maintained into adulthood. Statistics from the Health Survey for England (HSE) 2012 report a prevalence of obesity in children aged 2–4 years of 10% for boys and 8% for girls, with a total of 22% and 21% classed as overweight (including obesity) for boys and girls, respectively (HSE 2012). Progressing onto primary schoolchildren, the findings from the NHS Child Measurement Programme in 2012 report that obesity rates rise between Reception year (9.5% of those aged 4–5 years) and Year 6 (19.2% of those aged 10–11 years), although there was no rise in prevalence of obesity in the younger age group between 2006/2007 and 2011/2012 (NHS Information Centre 2012). It is therefore essential to focus efforts to prevent the development of childhood overweight and obesity in the pre-school period, as well as to tackle the problems once children are identified as overweight and obese in the school measurement programme.

The World Health Organization (WHO) revised its infant feeding guidance in 2001, and recommended exclusive breastfeeding for the first 6 months of life to protect infants from morbidity and mortality that are associated with gastroenteritis. In response to this recommendation, the UK’s Scientific Advisory Committee on Nutrition (SACN) stated that there was sufficient evidence that exclusive breastfeeding for 6 months is nutritionally adequate. Accordingly, in 2003, the Department of Health (DH) reviewed its guidance on the introduction of solid foods and, in line with WHO, recommended exclusive breastfeeding for the first 6 months of life, while also advising that infants should be managed individually so that insufficient growth or other adverse outcomes are not ignored and appropriate interventions are provided (DH 2003).

Complementary feeding refers to the process of diversifying the diet via the introduction of foods other than milk. This is preferred over the term ‘weaning’, which has been used to describe the curtailment of breastfeeding. Complementary feeding entails the addition of solid foods to the diet, alongside, rather than as a replacement for the milk component.

A UK SACN review of the advice on complementary feeding is currently underway by the Subgroup on Maternal and Child Nutrition (SMCN), due for publication in 2015. The group is considering complementary feeding under three topic areas: the nutritional adequacy of exclusive breastfeeding to 6 months and iron status; infant feeding and risk of infection; and the introduction of complementary foods and risk of overweight and obesity. The first topic relates to the possibility that some infants may require dietary iron before 6 months of age. The SMCN review will examine the needs of healthy infants born at term with appropriate weight for gestation, and will also consider possible iron and zinc interactions. The second topic under review by the SMCN is the evidence regarding the effects of not breastfeeding in terms of infection risk to the infant. The impact of introduction of complementary feeding will also be assessed regarding infection risk. Thirdly, the group will be considering the scientific evidence supporting the timing of introduction of complementary foods at around 6 months of age vs. at 4 or 5 months in relation to risk of overweight and obesity.

From the age of 6–24 months, infants and young children receive an increasingly diverse diet while also continuing their rapid growth and development. The Diet and Nutrition Survey of Infants and Young Children (DNSIYC) (Lennox et al. 2013) surveyed infants and young children aged 4–18 months in 2011. Since 2008, the National Diet and Nutrition Survey (NDNS) has been a rolling programme covering adults and children, with a pre-schoolchild group aged 1.5–4.5 years (Bates et al. 2012). Both surveys provide rich data on nutrient intakes and dietary patterns of infants and young children, as well as some indicators of micronutrient status. Secondary analysis using both sources was also recently published (but prior to the publication of the NDNS year 4 data) with a focus on the gaps in nutrient intakes of young children aged 12–36 months (Gibson & Sidnell 2014).

This article will examine dietary intakes and adequacy in relation to growth in children aged 6–24
months in the UK, with a focus on preventing excessively rapid growth. Topics covered will include: the timing of the introduction of complementary foods, the energy and protein content of the diet, food consumption patterns and growth monitoring.

**Timing of the introduction of complementary foods**

The optimum time to start complementary feeding is an area of debate. A key theory behind weight gain in young children is related to the introduction of solids at an early age. The most recent data from the DNSIYC (Lennox et al. 2013) show that 32% of infants were introduced to solids at the age of 4–6 months or earlier. Data from the Infant Feeding Survey (IFS) showed that in 2005, about 51% of mothers had introduced solid foods by the age of 4 months; however, by 2010 this had reduced to 30%, showing a trend towards later weaning (i.e. later than 4 months) (IFS 2012).

There is some evidence that early complementary feeding (i.e. before 4 months) poses a risk for later high body mass index (BMI), as outlined in a recent systematic review of the topic (Pearce et al. 2013). Twenty-three studies met the inclusion criteria outlined by Pearce and colleagues, four of which came from the UK. Of the total studies reviewed, five found that introducing complementary foods at less than 3 months (two studies), 4 months (two studies) or 20 weeks (one study) was associated with a higher BMI in childhood. Overall, Pearce et al. concluded that there is no clear association between timing of introduction of complementary foods and childhood overweight and obesity (Pearce et al. 2013).

An example of studies from the UK included in the Pearce review (Pearce et al. 2013) is a large cohort study that recruited participants from the Southampton Women’s Survey (Robinson et al. 2009). In this study, the relationship between infant feeding practice and body composition in childhood was examined in 536 children. Infants were visited at 6 and 12 months of age to assess breastfeeding duration, age of introduction of complementary foods and the quality of the infants’ diet, measured by adherence to infant feeding guidelines. Results showed that after adjusting for confounders, infants who were breastfed for 12 months or more had a significantly lower ($P = 0.002$) fat mass (4.3–4.7 kg) than those who were never breastfed (4.7–5.3 kg). Furthermore, infants were scored according to their adherence to infant feeding guidelines; those with higher scores (i.e. better adherence to the guidelines) had higher lean body mass at age 4 than those who scored in the bottom quartile (i.e. displayed poor adherence to infant feeding guidelines). However, there was no significant association between BMI at 4 years and variation in the timing of introducing complementary feeding.

In another earlier study, Hawkins et al. (2008) studied a cohort of more than 13,000 children and measured their BMI compared with the International Obesity Task Force cut-off values (Cole et al. 2000). Findings showed 23% of the 3 year-olds to be obese. Some of the factors thought to influence this included: ethnicity (Black origin); introduction of solid foods before the age of 4 months; single parenting; and smoking during pregnancy. Children that were breastfed for longer than 4 months had a decreased risk of obesity.

A statement released in 2008 by the European Society of Paediatric Gastroenterology, Hepatology and Nutrition stated that ‘despite theoretical concerns about the potential effects of different aspects of complementary feeding on later obesity risk, the available evidence is not persuasive’ (Agostoni et al. 2008). Following this, the European Food Safety Authority (EFSA) published a scientific opinion report in 2009, which supports the introduction of solid foods not earlier than 4 months. EFSA is of the opinion that some infants will require solids earlier than 6 months in order to provide iron and zinc from foods to support proper growth and development. The EFSA panel judged that iron deficiency in fully breastfed 6 month-old infants is more likely to occur in boys and in infants with a birthweight of 2500–2999 g (EFSA 2009).

Further studies are needed to assess the relationship between the types of food given during complementary feeding, timing and childhood BMI to ascertain whether certain foods or nutrients given at certain times have an impact on growth. Given the evidence linking early (<4 months) introduction of complementary feeding and later higher BMI, education intervention initiatives, such as the Start4Life initiative (NHS Start4Life 2011), may help parents to understand the importance of avoiding inappropriately early introduction of complementary foods.

**Energy and protein intakes of infants and young children**

Dietary Reference Values for energy

It is important to have reliable Dietary Reference Values (DRVs) for energy. In 1991, DH published
reference values that provided estimates of energy requirements for the UK population (DH 1991). These DRVs were based on estimates of total energy expenditure (TEE) for different subgroups of the population. TEE provides a measure of the energy requirement at energy balance (i.e. when energy intake matches energy expenditure). In this way, an energy requirement can be predicted as the rate of TEE plus any additional needs for growth, pregnancy and lactation.

Given the estimation of these DRVs back in 1991, the high and increasing proportion of overweight and obese individuals in the UK, and new data becoming available regarding the measurement of energy expenditure, a SACN review of energy requirements was considered appropriate by 2011. New data of relevance to the energy requirements of very young children were contributed by Butte et al. (2000) who used the doubly labelled water method to measure TEE in healthy American infants. SACN combined these new data with the revised bodyweights from the 2009 UK-WHO growth standards (RCPCH 2009) using the weights of the 50th centile as the average weight desirable for the population. This was a departure from the previous methodology, which included a proportion of overweight and obese children and resulted in higher estimated requirements (see Table 1). The outcome of the 2011 review was to revise the DRVs for energy intakes for infants and young children downwards (SACN 2011) when compared with the 1991 values (DH 1991). Accordingly, the revised SACN guidelines are shown in Table 1 alongside the previous 1991 values.

### Table 1 Estimated average requirements for energy for young children: 1991 EAR (DH 1991) compared with revised SACN values (SACN 2011)

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<td>kcal/day</td>
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<td>Girls aged 12–18 months</td>
<td>910</td>
<td>3.8</td>
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<tr>
<td>Boys aged 12–18 months</td>
<td>960</td>
<td>4.02</td>
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<tr>
<td>Girls aged 18–24 months</td>
<td>1,020</td>
<td>4.26</td>
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<tr>
<td>Boys aged 18–24 months</td>
<td>1,080</td>
<td>4.52</td>
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EAR, estimated average requirement.

Since the new recommendations have been in place, recent dietary survey data have shown that 75% of boys and 76% of girls surveyed in the DNSIYC aged 4–18 months exceeded the SACN estimated average requirement (EAR) for energy (Lennox et al. 2013). According to Gibson and Sidnell, participants in the NDNS (years 1, 2 and 3 data; 2008/2009 to 2010/2011 period) (Bates et al. 2012) aged 18–35 months (n = 185) achieved a mean intake of 124% of the EAR for energy (Gibson & Sidnell 2014). Data from the DNSIYC showed that the percentage of children exceeding the EAR increased with age from between 52% and 59% for boys and girls, respectively, aged 4–6 months, to 88% of those aged 12–18 months, providing evidence that energy intakes increase with age following the introduction of complementary foods (Lennox et al. 2013).

### Energy intake and risk of obesity

A prospective longitudinal study by Stunkard et al. (1999) identified that energy intake in infancy contributes significantly to bodyweight and measures of adiposity at 1 year of age. Results showed that the contribution of energy intake (assessed via weighed food intake records), but not energy expenditure (measured via indirect calorimetry for sleeping and TEE), was significant in the prediction of body size in the infants (n = 78) at 1 year. This was after considering breastfeeding status as well as maternal BMI (Stunkard et al. 1999).

Furthermore, the DNSIYC data showed that the food group ‘milk and milk products’ was the largest contributor to energy intakes at 12–18 months, supplying on average 27% of energy (Lennox et al. 2013). However, the data did not take into account the contribution from infant milks (formula, follow-on and toddler milks), which was an additional 10% of energy.

### Protein intakes in infancy and early childhood

The protein content of the diet is particularly important with respect to the growth of infants and young children. A protein intake in infancy in excess of requirements is thought to stimulate secretion of insulin-like growth factor (IGF-1) and cause cell proliferation leading to accelerated growth and increased adipose

1It should be noted that 50% of the population is expected to have requirements exceeding the EAR.
tissue (Rolland Cachera et al. 1995). With this in mind, the possibility of an adverse effect of excess protein in infancy has received experimental support from the European Obesity Project, a large multicentre study that compared a formula with high protein content with a formula with moderate protein content (Koletzko et al. 2009). Results showed that infants fed with high-protein formula during the period from 2–12 months of age had greater weight at 12 months of age but not greater length, suggesting increased adiposity. Furthermore, the weight difference was still present at 6 years of age (Weber et al. 2014).

As infants and young children in the UK age, their protein intakes increase. Data from the DNSIYC (Lennox et al. 2013) show that protein intakes currently exceed requirements typically from around 4–6 months becoming more pronounced up to the age of 18 months (see Fig. 1), being >250% of the reference nutrient intake in those aged 12–18 months. Foods make an increasing contribution to protein intake as complementary feeding progresses, as more foods are added to the infant’s diet. Infant formulas contribute 21% of protein at 10–12 months and 7% at 12–18 months, whereas cows’ milk contributes 18% of protein at 10–12 months and 35% at 12–18 months. The decline in protein coming from infant formulas (all formulas) is more than compensated for by the large incremental protein from cows’ milk (Lennox et al. 2013).

In contrast, however, evidence suggests that average protein requirements of healthy infants actually decrease from 1.65 g/100 kcal during the first month of life to about 1.0 g/100 kcal (1 g/kg/day) by 6 months and beyond (Ziegler 2006). Moreover, the protein content of breastmilk decreases at a similar rate in the early months of lactation (Fig. 2) (Lönnerdal 2003). Therefore, the protein intake of the exclusively breastfed infants closely matches their requirements for protein.

Protein intakes during the complementary feeding period, growth and implications for later risk of obesity

Epidemiological evidence points to an association between protein intake during the complementary feeding period and later BMI. Two hundred and three participants in the Dortmund Nutritional and Longi-
protein at 12 months of age was recommended in the Nordic Nutrition Recommendations (Hornell et al. 2013).

Protein content of formula, follow-on formula and toddler milks

The protein content of infant formula is higher than that of breastfeeding. Currently in the UK, formulas typically contain 13 g of protein per litre while the true protein content of breastmilk is significantly lower at 8.5 g of protein per kg (expressed here as g/kg, adapted from g/100 g) (McCance & Widdowson 2002). This is because there is a high proportion of non-protein nitrogen in breastmilk (Lönnertal 2003). The minimum amount of protein permitted by current EU (European Union) regulations in standard bovine milk-based formula is 1.8 g/100 kcal, which, assuming an energy content of 67 kcal/100 ml, equates to 12 g of protein per litre. This minimum level of protein is considered necessary to ensure an adequate supply of essential amino acids for the growing infant (Sidnell & Greenstreet 2009).

The current EU compositional regulations for infant and follow-on formulas are under review, and are the subject of a recent EFSA opinion (EFSA 2014). This opinion reviews the scientific evidence provided by the Scientific Committee on Food in 2003 on the essential requirements of infant and follow-on formulas in the light of more recent evidence. EFSA has recognised that infants are now receiving excess protein, and currently recommends a reduction of maximum protein quantity in infant formula and follow-on formula to 2.5 g/100 kcal, although EFSA does not recommend a reduction to the minimum level (EFSA 2014). In response to the mounting evidence of the benefits of avoiding excess protein in infant and follow-on formulas, Nestlé Nutrition is developing lower protein follow-on and toddler milks. The difference in protein content in grams per litre between current formulas and those proposed can be seen in Figure 2.

Reformulating to reduce protein content of formulas

Lower protein formulas can be achieved by selectively manipulating the composition of milk proteins to increase the levels of those with high biological quality in order to reduce the overall quantity of protein while still meeting the infants’ essential amino acid needs (Sidnell & Greenstreet 2009). However, the compositional requirements laid out in the current Infant Formula and Follow-on Formula Regulations restrict
the scope for protein reduction in formulas. A minimum protein level of 1.8 g/100 kcal is required in both infant formula (breastmilk substitutes) and follow-on formula (intended to be fed alongside complementary foods) (EC 2006).

Moreover, protein reduction is complex, affecting the overall stability of the milk, while also affecting the mineral content. In particular, calcium is bound to milk proteins, thus making it technically challenging to maintain calcium levels while at the same time to reduce the protein content. Although inorganic calcium is permitted as a nutrient addition to formula milks, it is not as soluble as the innate calcium associated with the milk protein and sedimentation over the shelf life of long-life liquid milk products can be an issue.

Given that infants are currently receiving more protein than they actually require, they could potentially benefit if intakes were lowered during the 6–24 month period. Advice on how to avoid excessive protein during the complementary feeding period should also be incorporated into dietary recommendations for parents and healthcare professionals.

**Growth standards: monitoring and interventions**

Growth standards and monitoring are required to measure the growth of a specific population group against expected norms for that group. Data from the DNSIYC not only highlight concerns about dietary quality, but also issues relating to the growth of infants and very young children (Lennox et al. 2013). Use of the UK-WHO Growth Standards in routine check-ups is recommended by the Royal College of Paediatrics and Child Health (RCPCH) (2009) to identify growth that is slower or more rapid than expected in infants and children, and if abnormal, to investigate the possible causes further. Once the infant/child has been measured, plotting their measurement on growth charts will give an indication of whether the child is underweight, overweight or within the normal growth centiles for their age. If the infant/child is overweight/underweight, then the onus is on the healthcare professional to support the needs of the child by helping parents to make positive changes to bring their weight in line with that expected for their age.

**Use of growth charts in the UK**

Redsell et al. (2013a) conducted interviews with 30 health visitors to see how they identify and manage the issue of overweight infants. Findings showed that they felt that this matter was a particularly sensitive subject to approach with parents. Health visitors believed that their main role was to provide dietary guidance, and that they did not formally identify and/or intervene with larger infants. Health visitors do not currently target parents of infants at risk of obesity largely because they do not perceive they have appropriate guidance and skills to enable them to do so. In terms of the scientific literature, a systematic review to identify risk factors for both overweight and obesity in infants and young children has been carried out, which has led to the development of an Infant Risk of Obesity Checklist. The checklist is designed to help healthcare practitioners to identify overweight and obesity risk in infants aged 6–12 months, as well as including potential strategies for the prevention of overweight and obesity. However, these models have not yet been implemented in clinical practice (Redsell et al. 2013b).

Another area attracting attention is that of responsive feeding. A mismatch of caregiver responsiveness to infant cues, such as feeding when the infant is not hungry, is hypothesised to have a role in the development of overweight. This could occur by impairment of the infant’s response to internal states of hunger and satiety. A recent systematic review of the role of responsive feeding in contributing to overweight during infancy and toddlerhood presents what is known in this area. The authors conclude that there is preliminary support for the theory that a ‘mismatch’ in caregiver and infant interactions may play a part in infant/child overweight by inhibiting infants’ ability to regulate their energy intakes (DiSantis et al. 2011).

Recently, a large randomised control trial intervention aimed to try to tackle the obesity problem in Australia by specifically focusing on maternal feeding practices; to guide mothers on the ‘when, what and how’ of complementary feeding. Unfortunately, however, the results did not achieve statistical significance neither in anthropometric indicators such as BMI nor in the prevalence of overweight/obesity (control 17.9% vs. intervention 13.8%; \( P = 0.23 \)) (Daniels et al. 2013). However, on a more positive note, a home-based intervention in Australia (The Healthy Beginnings Trial) assessed the effectiveness of healthy eating advice for first-time mothers (\( n = 479 \)). The intervention was carried out via trained community nurses in socially and economically disadvantaged areas of Sydney between 2007 and 2010. Results showed significantly lower mean BMI levels in infants within the intervention group (16.53) compared with controls (16.82) with a difference of 0.29 (95% CI −0.55 to −0.02; \( P = 0.04 \)) (Wen et al. 2012). The advice given was based on the
There is therefore a need to advise parents to offer nutrient-dense but not energy-dense foods and beverages to their infants in order to avoid overweight and micronutrient deficiencies. For example, iron and vitamin D intakes are suboptimal in the diets of infants and very young children, and this is in part due to a decrease in intakes of fortified foods and beverages that naturally occurs as infants move into the second year of life (Sommerville et al. 2013a, 2013b).

Early life is a critical time for learning experiences such as the variety of foods available with different colours, textures and tastes (Cowbrough 2010). Furthermore, if snacking on unhealthy foods begins at an early age, the likelihood of this becoming a habit is high, which could lead to negative health consequences in later life, such as increasing the risk of obesity and obesity-related disorders, as well as micronutrient deficiencies (Harris 2004).

**Diet and lifestyle factors**

**Food-based dietary intakes**

In terms of the actual diet of very young children, foods introduced to the infant should be appropriate for their age, particularly for salt, saturated fatty acids and sugar. The Nestlé Feeding Infants and Toddlers Study (Briefel et al. 2010) conducted in the United States in 2008 evaluated the diets of nearly 3500 children from birth to 4 years. Findings showed that 50% of toddlers’ daily calorie intakes came from foods such as milk, cheese, bread, poultry and processed cereals. More specifically, looking at the macronutrients within the diet, 70% of saturated fatty acid intakes came from milk, cheese, butter, processed meats and cookies, and 40% of sodium intake came from processed meats, bread, crackers and milk. Snacks consumed within the home tend to be healthier and are typically based around milk, fruits and crackers, compared with snacks provided outside the home where snacks high in salt, sugar and fat were a more popular choice.

**Out-of-home feeding**

The key message here is the importance of parental planning when the infant is eating out of home. Although the UK DNSIYC does not specify the type of foods consumed in or out of the home by UK infants and toddlers, it does however identify that snacking increases with age and that a higher percentage of 12–18 month-olds snack on ‘sugar preserves and confectionary’ (63%) compared with ‘savoury snacks’ (43%). There is therefore a need to advise parents to offer nutrient-dense but not energy-dense foods and beverages to their infants in order to avoid overweight and micronutrient deficiencies. For example, iron and vitamin D intakes are suboptimal in the diets of infants and very young children, and this is in part due to a decrease in intakes of fortified foods and beverages that naturally occurs as infants move into the second year of life (Sommerville et al. 2013a, 2013b).

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**Conclusion**

It is clear from UK national statistics that overweight and obesity rates among pre-school and school-age children are undesirably high. The origins of overweight and obesity are many and complex, with maternal nutritional status and maternal diet in pregnancy being important contributory factors. Given that early diet and dietary habits are important for the current and future health of individuals, understanding the feeding practices that are associated with good health outcomes is critical. However, research into the early life modifiable factors that can affect overweight and obesity is lacking. Nevertheless, it is worthwhile to pursue given the potential gains to society.

Fortunately, dietary surveys provide valuable information regarding the nutrient intakes, the dietary patterns and the nutritional status of infants and young children, as well as important anthropometric data. However, given that the lower age limit of the NDNS rolling programme is 18 months, a regular survey of infants from 6 months is needed to monitor not only the quality of infants/children’s diets but also so that the anthropometric data provided by the DNSIYC can continue to be collected and acted upon.

Recent survey data highlight that the diets of infants from 6–24 months are providing energy in excess of current recommendations, and potentially are also providing protein in excess of metabolic requirements. Furthermore, in terms of iron and vitamin D intakes in particular, these have been shown to drop significantly beyond 12 months of age (Sommerville et al. 2013a, 2013b). Therefore, more education of healthcare pro-
fessionals and parents is needed to encourage uptake of recommended vitamin supplements and appropriate recommendation of fortified foods and beverages. Moreover, the food industry can play a role in the reformulation of foods by providing fortified products that meet nutrient needs without providing excess energy and protein. In terms of the role of healthcare professionals in child weight management, guidelines have been developed to assist them to identify infants who are at risk of overweight and obesity. Work is progressing to pilot these guidelines and understand the training needs of health professionals to properly implement them. Health visitors, in particular, have a crucial role in using the opportunity of baby weighing sessions to relay more preventative messages regarding overfeeding, as well as to try to address any overweight that may be developing via the use of appropriate corrective advice. Lastly, efforts to support parents to correctly feed their infants and young children need to be culturally appropriate and offer clear consistent advice. Future investment in research and education in this area is highly worthwhile in preventing short-term dietary deficiencies and minimising future obesity-related ill health.

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Conflict of interest

Jenny Hardwick and Anne Sidnell are employed by Nestlé UK.

References


