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Centre for Community Child Health

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Diet for infants and children

In 2013, the National Health and Medical Research Council (NHMRC) released its long-awaited update of the Australian Dietary Guidelines. The Australian Dietary Guidelines draw on the latest evidence in order to provide health professionals, policymakers, educators, food manufacturers, food retailers and researchers with information about the types and amounts of foods to eat and to recommend to the families they work with.

Questions about 'what is the right food to eat?' attract a lot of media attention. For parents trying to feed children who can vary from voracious to extremely picky – sometimes in the course of a single day – it is an area that can be complex. All parents want to feed their child the best possible foods to help their growth and development. To this end, the 2013 Australian Dietary Guidelines focus more on whole foods than nutrients than previous editions (Sweet, 2011). This can make it easier for average Australians to decide what's best to eat, and help practitioners to offer evidence-based advice with confidence.

Infants

For babies, the Australian Dietary Guidelines recommend breastfeeding from birth, exclusively for the first six months. Breastfeeding should continue until the baby is 12 months old and for as long after that as mother and baby want to (NHMRC, 2012). The NHMRC recommendations correspond with the World Health Organization guidelines, which outline significant additional risks that are present for formula-fed babies (Pham, 2013, Coutsidas, Coovadia & Wilfert, 2009).

Breastfeeding can be a significant challenge for many mothers, both physically and emotionally. Women may struggle to find the support they need to get started and to persist. Encouraging new mothers to draw on support from a lactation consultant may help more mothers to persist with breastfeeding their babies. Mothers who are presently breastfeeding or interested in finding out more about breastfeeding, may wish to attend an Australian Breastfeeding Association support group. See Resources at the end of this article to find out more.

Supporting breastfeeding mothers

While the vast majority of Australian mothers successfully initiate breastfeeding – 96% – by the age of six months only 15% of Australian babies are exclusively breastfed (NHMRC, 2012). The steep decline in exclusive breastfeeding over the first months of babies' lives can be due to many different factors. However, increasing the levels of support and information available to new mothers to help women and their babies to take full advantage of the opportunity to breastfeed is vital.

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Starting solids

The Australian Dietary Guidelines have made no significant change to the age at which they recommend starting babies on solids, which is around six months. Despite the recommendation, studies have shown that the majority of Australian babies will start consuming solids between 4 and 7 months of age (Scott et al, 2009; AIHW, 2011).

The guidelines recommend that first solids are an iron-fortified cereal and/or an iron-rich food such as pureed meat, tofu or legumes (NHMRC, 2012). Then, parents can add different types of pureed vegetables, fruit and other foods, varying the texture from pureed to soft, to mashed to minced as the baby gets older.

Introducing iron-rich foods early in the time when family is introducing solids to baby is essential (NHMRC, 2012). Pureed meat is one of the most straightforward methods of introducing iron-rich food early in children's transition to solids. As iron is an essential nutrient for children's neurocognitive development, for families that follow a plant-based diet, getting enough iron into their children's diet for optimal neurocognitive development can be challenging. Families who want their child to grow up on a plant-based diet need to keep a careful watch on their child's consumption of iron and zinc-rich foods. For vegan mothers, it is important to continue breastfeeding for as long as possible – the Guidelines note that at least until the child is two is desirable – and to consult a dietitian for specialised advice regarding iron and B12 supplementation (NHMRC, 2012).

Advice to delay introducing babies to allergenic foods like eggs and nuts (in the form of pastes) has changed in the most recent edition of the Guidelines, with the exception of families where a sibling already has a proven allergy to the food (ASCIA, 2010). Now, the advice is to introduce babies to 'high-risk' foods like any other solid – one at a time every two or three days from around the age of six months, watching baby carefully for any reaction.

Community Paediatric Review vol 20, no 2 in the article on Food allergy: reducing the risk (CCCH, 2012) provided steps that families who are concerned about food allergy can take to minimise the risk to their child.

By following the baby's cues to learn how much food they want at any meal and persisting with introducing new foods to baby's diet, parents will reach a point, by around the age of 12 months, where baby is eating the same foods that the rest of the family enjoys (NHMRC, 2012). Sharing mealtimes with baby – and as new foods are introduced to the baby's diet, sharing the same foods – is key to developing the baby's sense of mealtimes as a pleasant and shared time (Goodyer, 2013).

Commercial baby food

There is a plethora of options available to families when it comes to starting their baby on solids and introducing new flavours to their baby's palate. Commercially prepared baby food is one of those options.

Nearly all families will turn to commercially prepared baby food on occasion, but it's important to advise families to minimise their use in favour of homemade product. While commercially prepared foods are much better at minimising use of salt and sugar than they once were, making baby's food at home lets parents keep salt and sugar out of the food completely, which is an important part of letting babies develop a palate that enjoys natural flavours (Goodyer, 2013).

Baby-led weaning

Baby-led weaning is a practice that involves introducing solid food to baby by offering small pieces of food that baby can place in their mouth. The thinking behind the practice is that letting the baby pick up food and put it in their mouth themselves encourages play and exploration (Volders, 2013). The practice of baby-led weaning is in direct contrast to the more established weaning practice of spoon-feeding purees to baby and to the NHMRC's Guidelines. However, anecdotal evidence suggests that it is a practice that more child and family health nurses are seeing being followed or at least tried by clients.

While there is limited evidence to date for or against baby-led weaning, a recent study of 1,835 children with an increased genetic risk of Type 1 diabetes, indicated that the timing of baby's introduction to solid food may be linked to the development or otherwise of the disease (Frederiksen et al, 2013).

Toddlers & preschoolers

Healthy eating habits, established in the first year of life, are the foundation for healthy eating habits in toddlerhood. Healthy eating also provides the energy for the significant levels of growth and development that are underway at this time (Queensland Health, 2004). Unfortunately, Australian children and adults alike are not very good at adhering to the NHMRC's dietary guidelines with the result that children's intake of fruit, vegetables, grain foods, and dairy and dairy alternatives is below recommended levels (NHMRC, 2013). At the same time, the intake of salt, sugar and saturated fat exceeds recommendations. A national nutrition survey showed that 41% of the total energy intake of Australian 2–18 year olds was derived from nutrient-poor and energy-dense 'sometimes' foods (Rangan et al, 2008).

Intake of quality foods is complicated in the toddler years by the developmental changes that are occurring, which mean that toddlers may be challenging their parent or caregivers' authority at mealtimes for the first time (Queensland Health, 2008). These developmental changes will also mean that some meals children are ravenously hungry and other times they're almost disinterested in food. Coping with these shifts can be challenging for parents. Having regular checks to monitor weight and height may go some way to reassuring parents that their child is eating as much as they need to for healthy growth and development. If families are concerned about their child's growth; if the child is unwell, tired and not eating; or mealtimes are causing a lot of stress and anxiety for the family, referring to a paediatrician or dietitian for additional support is recommended (Queensland Health, 2008).

Obesity and overweight

In early childhood, children need to maintain a rate of growth that is consistent with what is expected for their age, gender and physiological maturity (NHMRC, 2013b). However, a recent analysis of data from the Longitudinal Study of Australian Children showed that children from low socioeconomic backgrounds are already more likely to be overweight at the age of 4 than their more advantaged peers and that those differences become more marked as the children age (Creagh, 2013).

A cross sectional survey in 2010 found that 18.7% of Australian children were overweight or obese in their first year of school (Hardy, King, Hector & Lloyd, 2011). The study looked at the habits that those children had established by the time they started school and found a number of weight-related behaviours that occurred in the home environment. Compared to their non-overweight or obese peers:

- Overweight and obese boys were 1.7 times as likely to exceed recommended screen time.
- Overweight and obese boys were 2.07 times as likely to eat dinner in front of the television three or more times per week.
- Overweight and obese girls were twice as likely to have a television in their bedroom and to usually be rewarded with sweets for good behaviour.
- Overweight and obese girls were 1.6 times as likely to be inactive.

(Hardy, King, Hector & Lloyd, 2011)

Working with families when you have concerns about their child's weight can be very challenging. Parents may feel that they are being blamed for the child's weight (Powell, 2012) or simply not be able to see a problem (Davey, 2012). Given that research shows that habits established by the time children reach school have significant correlation to those children's weight, intervention strategies to encourage children and their families to adopt and maintain healthy diet and exercise habits in the years before school are essential.

Child and family health nurses can work with parents and families to help them to adapt and model healthy eating and exercise in their own lives. This modelling will help to instil healthy habits in their children that can then be a significant contributor towards helping children and families to achieve and maintain a healthy weight.

Reflection

How can you better support mothers who are struggling with maintaining breastfeeding?

What resources can you provide to families to assist them to choose the best foods for them and for their child?

When you are concerned about a child's weight, how can you best address that with the family?

How can you help families to establish and maintain healthy relationships with food and mealtimes so as to set optimal nutrition examples for their child?

Resources

Australian Breastfeeding Association support groups
www.breastfeeding.asn.au/contacts/groups

Baby-friendly Hospital Initiative
www.who.int/nutrition/topics/bfhi/en/index.html

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Safe wrapping in early infancy

While rates of developmental hip dysplasia had been dropping, the Department of Orthopaedics at The Royal Children's Hospital in Melbourne has recently observed an increase in the number of families presenting with a child with significant dysplasia at a later age.

Developmental hip dysplasia is an abnormal development of the hip joint. Genetics contribute to its occurrence and it also affects girls more commonly than boys (American Academy of Pediatrics, 2000).

There are a number of risk factors for developmental hip dysplasia that can be present from birth, but the condition has also been linked to inappropriate swaddling or wrapping in infancy (Royal Children's Hospital, 2006). Wrapping babies to help them to settle has become an increasingly common practice in Australia and is generally well received by parents and supported by health practitioners. However, when wrapping or swaddling is done in such a way that the baby's legs are held in extension or the swaddling otherwise imposes a restriction on the hip joint, it can have a severe effect on the growing hip joint and lead to developmental dysplasia of the hip (DDH).

This paper reviews the literature and the links between swaddling and DDH.

Figure 1: Glazed relief of a wrapped child from the Ospedale degli Innocenti, Florence

Developmental dysplasia of the hip

Developmental dysplasia of the hip (DDH) refers to a condition whereby the infant's hip fails to develop appropriately and may dislocate. Early identification, referral, and management is vital, as late diagnosis requires complex surgery in childhood and can lead to problems in adult life such as osteoarthritis. Where families have access to specialist paediatric orthopaedic services, management of the condition by those services is recommended by the Royal Children's Hospital, Melbourne.

In the uterus, babies generally lie with their hips in an outward position. This helps the hip joint to develop normally. Instability of the hip is present in around 1 in 100 live births and usually spontaneously resolves in the neonatal period. However, wrapping the legs in an extended position can compromise the normal growth of the hip, causing it to become unstable and dislocate. This risk is increased for infants who have a family history of DDH, are born breech, or have packaging deformities such as plagiocephaly or torticollis. In South Australia at the Women's and Children's Hospital, it had been observed that of the babies treated for late diagnosis of DDH (up to 3 months of age), 79% had been swaddled (Williams, Foster and Cundy 2012).

Figure 2: Toddler with a dislocated left hip

A systematic review of 11 epidemiologic studies showed that the incidence of DDH is highly correlated with the traditional use of swaddling for newborn infants (van Sleuwan et al 2007). For cultures such as in Japan, Turkey and the Navajo Indian, in which the practice of swaddling is more common, a higher rate of DDH has been noted (Mahan & Kasser 2008). Studies have shown that when this practice is stopped, the incidence of hip dislocation drops significantly. A national campaign to discourage swaddling infants with the hips and knees in extension in Japan was associated with a subsequent reduction in the rate of DDH from 3.5% to 0.2% (Yamamuro & Ishida, 1984). Animal studies have also shown that straight legged swaddling increased the prevalence of developmental dysplasia of the hip, especially if the swaddling was early or prolonged (Wang et al 2012).

There are many ways to wrap babies by using muslin wraps or similar, or commercially available products that provide ample room for the legs to move. However, there are also products available on the market that force baby's legs into an extended position and/or restrict leg movement, putting the baby at risk of DDH.

It is vital for child and family health nurses to educate parents about the risks associated with wrapping their baby's hips and knees in extension, particularly in the first months of life.

Safe wrapping involves the legs being wrapped loosely to allow for hip flexion and abduction (Figure 3). The legs should be able to bend at the hips with the knees apart. This position will assist proper development of the hip joint.

Safe wrapping options

Safe wrapping is particularly critical in the first three months of life. There are three recommended ways to wrap babies: the diamond method, the square method and pouch-type wraps. You can learn more about these at **www.ddheducation.com**

Figure 3: Safe wrapping with the hips bent and knees apart – diamond method

Figure 4: Completed safe wrapping

Resources

www.ddheducation.com
www.hipdysplasia.org
www.raisingchildren.net.au/articles/wrapping_newborn.html

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About the Centre for Community Child Health

The Royal Children's Hospital Centre for Community Child Health (CCCH) has been at the forefront of Australian research into early childhood development and behaviour since 1994.

The CCCH conducts research into the many conditions and common problems faced by children that are either preventable or can be improved if recognised and managed early.

Community Paediatric Review

Community Paediatric Review supports child and family health nurses in caring for children and their families through the provision of evidence-based information on current health issues.

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