

Nutrition Guideline

Healthy Infants and Young Children

Healthy Feeding Relationship

For Professional Reference Only

Applicable to: Nurses, Physicians and Other Health Professionals

Recommendations

- From birth, a parent's role in a healthy feeding relationship is to decide *what* to feed their infant and their infant decides *when, if and how much* to eat.
- Parents are encouraged to:
 - Respect their child's internal hunger and fullness cues.
 - Gradually assume the responsibility for the *when* and *where* to offer food, by providing set meals and snacks as their child begins eating a variety of complementary foods (between 6 to 12 months). Children are always responsible for *if and how much* to eat of the food offered by the parents.
 - By twelve months of age, offer food in the form of regular [meals](#) and [snacks](#).
 - By twelve months of age, offer food and beverages at meal and snack times; offer water between meals and snacks.
 - Create a pleasant atmosphere during family mealtimes, eat meals together and model healthy eating behaviours that they want their child(ren) to adopt.
 - Avoid using food as a bribe, punishment or reward (including over encouragement or extreme praise).

Health Benefits

Establishing a healthy feeding relationship creates positive attitudes about eating and food, and encourages eating adequate amounts of nutritious foods for healthy growth and development.¹ A healthy feeding relationship starts with an infant's first feeding by responding and being attentive to their hunger cues. A healthy feeding relationship supports the development of a [competent eater](#) who is willing to try new foods and is mindful of their own internal hunger and fullness cues.² Establishing a healthy feeding relationship early in life supports the development of lifelong healthy eating behaviours.

This Nutrition Guideline is for healthy term infants and young children (birth to 5 years old). There are a small percentage of children who present with more complex feeding difficulties than covered in this Nutrition Guideline who may require professional intervention. Parents who report their child has an extreme food aversion and/or texture or food sensitivities may need to be referred to a Registered Dietitian, Occupational Therapist or Speech Language Pathologist, depending on site/zone processes and availability of services.

Note that this Nutrition Guideline does not include information on types or amounts of food to offer. Refer to the *Nutrition Guideline*: [4.1 Introduction of Complementary Foods](#).

Definitions

Competent eater: a child who feels good about eating and can comfortably choose what to eat from the healthy foods made available to them. The child feels able to say 'no' to foods that they do not want to eat - without fuss or stress. A competent eater understands and responds to their hunger and fullness cues.²

Family meal: any eating opportunity (breakfast, lunch, supper or snacks) where a parent and the child share a meal together.

Nutrition Guideline

Healthy Infants and Young Children

Healthy Feeding Relationship

For Professional Reference Only

Applicable to: Nurses, Physicians and Other Health Professionals

Snack: a scheduled eating opportunity for a small meal comprised of healthy foods³ from at least 2 food groups from *Eating Well with Canada's Food Guide* (and likely does not include foods typically found in the 'snack' aisle of the grocery store).

Eating environment: describes a wide range of factors influencing eating behaviour. Environments can include: home, child care centres, public facilities, restaurants, schools, worksites and food stores.⁴

Food neophobia: the refusal of new or unfamiliar foods.⁵

Responsive feeding: parents' respond in a prompt, emotionally supportive, developmentally appropriate manner to the child's hunger and fullness cues.¹

Key Questions:

What is a healthy feeding relationship?
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The interaction between a parent and child during mealtimes is called the feeding relationship.⁶ The feeding relationship includes all of the interactions that take place between a parent and child as they engage in food selection, ingestion and regulation.⁶

An appropriate healthy feeding relationship can help a child develop into a competent eater with positive attitudes about food and can promote a nutritious diet following the child's hunger and fullness cues.⁶ From birth, parents are responsible for *what* food is offered and the infant is responsible for *when* food is offered and *how much* is consumed. Children are always responsible for *if* and *how much* to eat of the food offered, but *when* and *where* foods are offered becomes more structured by the parent as the child grows older. Parents gradually assume the responsibility for the *when* and *where* to offer food, by providing structured meals and snacks, as their child begins eating a variety of complementary foods (between 6 to 12 months). Water can be offered in between planned meals and snacks and when a child is thirsty.⁷

Health Canada (2015) recommends exclusive breastfeeding for the first 6 months of life and sustained breastfeeding up to 2 years of age and beyond with the introduction of appropriate complementary foods around 6 months. After 6 months, complementary foods gradually become more significant, and then become the main source of energy in the infant's diet. From 1 to 2 years of age, approximately one third of a child's energy generally comes from breastmilk and the remaining two thirds from complementary foods.⁸ Children who are overly reliant on breastmilk as their main source of nutrition may consume insufficient amount of complementary foods,⁸ which can put young children at risk of nutrient deficiencies, such as iron.⁹

Regular [meals](#) and [snacks](#) allow children to know when to expect food and feel comfortable eating until they are full. This is appropriate for children of all ages and sizes, including those who may be classified as under- or over-weight. Children who plot low or high on the growth chart do not need to be force fed or have food restricted, respectively.¹⁰ For more information on having conversation with parents regarding growth see:

[Pediatric Growth Discussions: A Tool for Health Professionals](#).

Nutrition Guideline

Healthy Infants and Young Children

Healthy Feeding Relationship

For Professional Reference Only

Applicable to: Nurses, Physicians and Other Health Professionals

Table 1. Feeding Relationship Roles⁷

Age	Parents Role	Infant/Child Role
Birth to around 6 months	The parent is responsible for what is offered.	The infant is responsible for when, if, and how much they eat from what is offered.
Around 6 months with introduction of complementary foods	The parent is responsible for what is offered, and is becoming responsible for when and where the infant is fed.	The infant is responsible for if and how much to eat of the foods offered by the parent.
Twelve months and older	The parent is responsible for what, when, and where the food is offered.	The child is responsible for if and how much to eat from what is offered.

How can parents contribute to development of a healthy feeding relationship?

Parents are encouraged to create a pleasant atmosphere during family mealtimes. Parents can contribute to the development of a healthy feeding relationship by practicing [responsive feeding](#) techniques, creating a healthy eating environment and role modelling healthy behaviours.

Responsive Feeding

The feeding relationship starts with an infant's first feeding.¹ When parents respond to their infant's hunger cues they are starting to create a healthy feeding relationship. As an infant grows and complementary foods are introduced, some of the feeding relationship roles change, but the concept of responsive feeding continues.⁷ Responsive feeding not only responds to the child's hunger and fullness cues but it also recognizes and meets the child's developmental abilities and encourages self-feeding with assistance.¹ In the second 6 months of life, responsive feeding encourages offering finger foods and use of an open cup to foster eating and drinking skills.¹ Responsive feeding practices are recommended to support the development of healthy eating skills.

Eating Environment

Aspects of an eating environment include when and where the child is eating, if the family is eating the same foods together and if distractions are present. Distractions (e.g. toys, games, watching TV, using tablets/computers, or phones) present during meals and snacks can deter a child from paying attention to their hunger and fullness cues. An eating environment encompasses not only the foods available within the home but also the attitudes, behaviours and conversations about food, along with the physical environment and where/how food is served. All of these aspects of an eating environment can influence a child's eating behaviour.¹¹

Role Modelling

Parents are role models for their children; by engaging in healthy eating behaviours, their children are likely to follow suit. There is a strong association between maternal diet^{11,12,13,14} and possibly paternal diet¹⁵ on the child's diet and intake. Maternal dietary diversity and food preferences are strongly associated with child dietary diversity and food preferences.^{16,17} Role modelling provides the opportunity to influence and improve the variety of a child's diet and, therefore, prevent or resolve perceived feeding difficulties.¹⁸

Nutrition Guideline

Healthy Infants and Young Children

Healthy Feeding Relationship

For Professional Reference Only

Applicable to: Nurses, Physicians and Other Health Professionals

What are signs that infants and young children are hungry or full?

An infant's appetite will vary from day to day. Growth is the best indicator that an infant/child is eating adequate amounts of food. Responsive feeding involves understanding and responding to signs of hunger and fullness while following the feeding relationship roles for a child's given age.

Table 2. Signs of Hunger and Fullness^{19,20}

	Signs of hunger include:	Signs of fullness include:
From birth	Sucks or smacks lips (rooting)	Falls asleep
	Puts fist in their mouth	Closes mouth
	Cries	Fusses or cries
Starting complementary foods	Excited when put in the high chair	Turns head away at sight of spoon
	Leans towards or reaches for food	Closes mouth at sight of food
	Opens mouth at the sight of food	Covers mouth with hands

Refer to the *Nutrition Guideline: [4.1 Introduction of Complementary Foods](#)* for more information on infant feeding and complementary foods.

Parents are encouraged to use their infant's hunger and fullness cues as a guide of how much food to offer their infant²¹ to reduce the likelihood of feeding difficulties occurring. Parents' understanding of hunger and fullness cues and perceptions/beliefs about infant feeding varies; therefore it is useful to explore them to discover topics of potential concern. It has been reported that controlling feeding practices (including positive pressure [over encouragement, extreme praise] and negative pressure [bribing, threatening, etc.]) on the part of the parent are likely to start early in infancy²² and continue as the child ages. Controlling feeding practices may support the infant/child learning to eat based on external/environmental cues rather than hunger.

Responsive feeding may influence a child's early development in terms of self-regulating energy intake.^{23,24,25} Non-responsive feeding relationships may override an infant's internal hunger and fullness cues and interfere with their emerging autonomy.^{24,26} Pressuring infants to eat by using excessive verbal encouragement (such as force feeding to finish a bottle, "clean your plate" or "just one more bite") may lead to negative attitudes about eating and poor eating habits,²⁷ as well as excessive feeding and excess weight gain.^{28,29,30} On the other hand, parents who overly restrict higher-fat, energy-dense foods due to concern about overeating may adversely affect self-regulation and actually increase the child's intake of the foods when they are offered.²⁴ In addition, intake of too much milk or juice can displace a child's nutrient intake (e.g. iron).³¹ Feeding is one of the most gratifying forms of nurturing. As a result, parents who believe their child is too small or at nutrition risk are more likely to react to variation in their child's appetite and intake.³²

Nutrition Guideline

Healthy Infants and Young Children

Healthy Feeding Relationship

For Professional Reference Only

Applicable to: Nurses, Physicians and Other Health Professionals

What is normal food related behaviour of infants and young children?

Most children have an appetite that is appropriate for their age and rate of growth. Growth is rapid from birth to 6 months of age. As a child gets older, growth starts to slow. Parents may report a decrease in milk and food intake at this time and express anxiety that the child is not eating enough. For more information on healthy growth and growth monitoring refer to the [Childhood Growth Monitoring](#) protocol and resources.

Many parents report that their children have undesirable feeding behaviours. This may be described as “picky eating” which is considered common in childhood with a prevalence of approximately 20 to 30% of young children.³³ Health professionals can assure parents with “picky eaters” that this can be a normal stage and to continue to expose the child to a variety of foods. For a young child learning to eat, all foods are new, even those that are very familiar to the parents and to the rest of the family. It generally takes children time and repeated opportunities to learn to eat a new food.^{34,35,36} Steps in eating and accepting a new food include: seeing it, smelling it, touching it, and then finally tasting it.³⁷ This can be a messy time as infants and young children like to eat with their hands (intermittently with a spoon or a fork between 12 to 18 months); however, this is an important part of learning to eat. If the child has the chance to explore new foods with all of their senses, parents can consider this to be a successful exposure. Parents who follow their roles within a healthy feeding relationship and allow the child to follow their roles are supporting long term eating competence in the child.

What are successful ways to encourage infants and young children to accept new foods?

The following strategies can be provided to parents to encourage infants and young children to accept new foods:

- **Model healthy eating behaviours.** Children display decreased food fussiness and increased interest in food when mothers* role model healthy eating to their children.³⁸ Children also accept significantly more novel food if the parent eats the same foods along with the child rather than eating different foods or just being present (but not eating) while the child eats.³⁹ Therefore, role modelling can be achieved by parents serving children the same foods they are eating and by eating along with the child.
- **Eat together as a family.** Family meals support role modelling of healthy eating behaviours, exposure to both novel and familiar foods and increased intake of novel foods by children. A meta-analysis found that families with children who ate 5 or more main meals per week together were 25% less likely to encounter a nutritional health issue (overweight, unhealthy eating and disordered eating) than families who ate one or less meals per week together.⁴⁰
- **Serve the same foods to the whole family.** Children’s diets improve when eating the same foods as their whole family at meals.⁴¹ Children’s vegetable and fruit intake is significantly related to parental intake and is predicted by the whole family eating the same meal.^{42,43} Foods may be served family style (dishes in the middle of the table). The texture of some family foods may need to be modified based on the child’s development; however the same food can still be served. Children who do not want a food on their plate will still be exposed visually to the food(s). Children who are able, can be encouraged to serve themselves.

*Most research in this field has been done with mothers and their children. However, fathers and other caregivers should also be encouraged to role model healthy eating behaviours.

Nutrition Guideline

Healthy Infants and Young Children

Healthy Feeding Relationship

For Professional Reference Only

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- **Repeat exposure.** It is common for a child to require multiple taste exposures to a novel food prior to accepting the food.^{35,36} Studies have reported that children may require anywhere from 6 up to 15 (or more) taste exposures of a food prior to accepting and eating it.^{34,35,36} Parents may not realize how closely a child's acceptance of a food is related to repeat exposures and familiarity and therefore provide food only a few times before they stop preparing and serving it to the family.⁴⁴ Ultimately, if foods are not repeatedly offered to a child, the opportunity for exposure and acceptance is not present.
- **Eat at set times.** Set mealtimes have been shown to improve vegetable and fruit intake in children.⁴³ This may be related to an increase in the frequency that vegetables and fruits are offered to children throughout the day, which is highly correlated to improved vegetable and fruit intake.⁴³ Children require regular meals and snacks (e.g. food every 2 to 3 hours) in order to develop eating competence.²
- **Offer new foods with familiar foods.** Serving unfamiliar/non-preferred foods alongside with familiar/preferred foods may help with initial acceptance of the novel food.³⁴
- **Offer small portions.** Infants and children have small stomachs and may not eat as much as parents' expect. Providing small portions of food may help with acceptance, and limit plate waste.³⁴ More food can be offered if they are still hungry.
- **Expose children early to a wide variety of tastes and textures** to promote food acceptance.^{17,45,46} (Children often resist tasting unfamiliar foods as they approach the age of 2 years; referred to as [food neophobia](#).⁵ There is a narrow timeframe before this neophobic stage to expose children to a variety of foods. Children who eat a wide variety of foods by the age of 2 to 3 years are more likely to become adults who eat a wide variety of foods.⁴⁶
- **Allow children to discover the sensory aspects of food.** Sensory aspects include taste, texture, aroma, appearance, sound and temperature. Offering children opportunities to experience all the sensory aspects of the food is important. Even if the child doesn't taste the food, exploring with their other senses (e.g. feeling, smelling) is the beginning of accepting a new food.^{37,47,48,49}

How can parents make sure their child is meeting their nutritional needs?

To support a child's nutrient needs parents are encouraged to offer a variety of foods from *Eating Well with Canada's Food Guide* at meals and snacks. Providing meals with 3 to 4 food groups and snacks with 2 food groups can support energy and nutrient needs. By twelve months, in-between meals and snacks, only water is offered to allow a child to come to the table hungry and ready to eat.⁷

In recent years, it has become popular to hide healthy foods into recipes. Healthy foods hidden or blended into other foods may add extra nutrition but this does not help the child become familiar with or accept the food on its own.

What if a child refuses a meal?

A child's intake may vary from day to day and/or meal to meal. Despite this variable intake, total daily energy intake has been reported to be relatively consistent because when children do not eat at a particular meal, they generally compensate at a later meal or snack or on another day.⁵⁰ In a non-controlling, non-coercive environment, healthy children have the ability to self-regulate the amount of food and energy consumed.⁵¹ Thus, alternative, 'child-friendly' or 'back up' foods are not required to ensure adequate nutrition.

Nutrition Guideline

Healthy Infants and Young Children

Healthy Feeding Relationship

For Professional Reference Only

Applicable to: Nurses, Physicians and Other Health Professionals

Children may need to be exposed to a food many times (6 to 15 or more) before accepting a new food. Parents can support children's food acceptance by continuing to offer previously rejected foods. Parents can be advised that using food as a reward, bribe or punishment is not a successful food acceptance strategy. Although parents may report the child eats more food when forced, in the long term it does not support a competent eater. Forcing children to eat may cause the rejection of the particular food in the long term.

Mealtime duration will vary by family and age of the child. Children need adequate time to consume a meal or snack, otherwise they may feel stressed. Prolonged meals, on the other hand, can result in eating times merging together (e.g. snack scheduled soon after meal is over). Up to 30 minutes is an appropriate length of time for young children to stay at table.⁵² When mealtime is over, uneaten food should be removed.⁵³ Food which is not consumed at a meal may be saved as leftovers and offered later. It is strongly recommended that food not be used as a punishment. Parents may wish to offer leftovers the next day alongside previously accepted foods. This allows for a repeat exposure of a rejected food in a neutral, non-punitive environment (as they can choose to eat the leftovers and/or other foods offered). When leftovers are saved, food safety needs to be considered. Untouched foods from serving dish can be saved in the fridge if the dish has been at room temperature for less than 2 hours. Leftovers can be stored for up to 3 days in a fridge. Food leftover from the child's plate should be discarded.

Children often have a better appetite if they are physically active between meals; structured and safe opportunities for regular exercise is recommended.⁵⁴ Physical activity for an infant includes floor based interactive play.⁵⁴

At times, a referral to a physician and/or dietitian may be advised - for example: When a parent reports a child consistently refuses all foods from a particular food group, when a child consumes large amounts of fluid and small amounts of complementary foods, and/or when a child depends on a vitamin/mineral supplement rather than food as the main source of nutrients.^{53,55,56,57,58}

Can families in a food insecure household follow a healthy feeding relationship?

Household food insecurity occurs in 16% of all households in Alberta with children.⁵⁹ Parents in food insecure households may not be able to eat the same foods that they offer their children. Regardless of the circumstances, parents are encouraged to follow the healthy feeding relationship principles, with the parents choosing *what* to offer and the child choosing *if* and *how much* to eat, based on their hunger cues and the amount of food available.

Refer to the *Nutrition Guideline*: [Household Food Insecurity](#) for more information.

Are there any handouts on healthy feeding relationships that I can use with my patients?

For infant nutrition resources visit Nutrition Education Materials at <http://www.albertahealthservices.ca/nutrition/Page11115.aspx> and click on **Infants**.

For more information related to healthy infants and children see [Healthy Parents Healthy Children](#).

Nutrition Guideline

Healthy Infants and Young Children

Healthy Feeding Relationship

For Professional Reference Only

Applicable to: Nurses, Physicians and Other Health Professionals

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Nutrition Guideline

Healthy Infants and Young Children

Healthy Feeding Relationship

For Professional Reference Only

Applicable to: Nurses, Physicians and Other Health Professionals

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Nutrition Guideline

Healthy Infants and Young Children

Healthy Feeding Relationship

For Professional Reference Only

Applicable to: Nurses, Physicians and Other Health Professionals

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Nutrition Guideline

Healthy Infants and Young Children

Healthy Feeding Relationship

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Applicable to: Nurses, Physicians and Other Health Professionals

⁵⁶ Dietitians of Canada. Toddler and Preschool Nutrition Knowledge Pathway In: Practice-based Evidence in Nutrition [PEN] 2014 [cited 2016 Aug] Available from:

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⁵⁷ Baker R, Greer F. Clinical report diagnosis and prevention of iron deficiency and iron-deficiency anemia in infants and young children (0-3 years of age). Pediatrics 2010; 2010-576.

⁵⁸ Coulthard H, Harris G, Emmett P. Delayed introduction of lumpy foods to children during the complementary feeding period affects child's food acceptance and feeding at 7 years of age. Maternal Child Nutrition. 2009; 5:75-85.

⁵⁹ Tarasuk V, Mitchell A, Dachner N. (2016). Household food insecurity in Canada, 2014. Toronto: Research to identify policy options to reduce food insecurity (PROOF). Retrieved from <http://proof.utoronto.ca>