Pediatric Nutrition Guidelines (Six Months to Six Years)

FOR HEALTH PROFESSIONALS

NOVEMBER 2016





Background and Acknowledgements

Background

This document outlines evidence-informed nutrition and feeding guidelines and nutrition risk indicators for healthy, full-term infants and children from about six months (introducing solid foods) up to six years of age. Its purpose is to assist health professionals in British Columbia to provide high-quality care by identifying:

- infants and children who are achieving developmental milestones that relate to feeding
- infants and children who are being fed in a manner that meets their nutrition needs
- markers of increased nutritional risk

This document is intended to be a quick reference guide. Relevant resources are provided within the document for reference to more detailed information and related services.

The Provincial Health Services Authority (PHSA) developed this document in 2016 to provide guidance for all health professionals who work with infants and children in British Columbia. It is based on <u>Ontario's Pediatric Nutrition Guidelines (Birth to Six Years) for Health</u> <u>Professionals</u> and has been adapted and reproduced with permission from the Ontario Society of Nutrition Professionals in Public Health.*

Acknowledgements

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6-9 months

MILESTONES

A marker of a point in development related to feeding.¹

Signs of developmental readiness for solid foods may appear a few weeks before or just after 6 months of age:

- Has better head control.²
- Can sit up and lean forward.²
- Signals caregiver when they are full (e.g. turns head away).²
- Can pick up food and try to put it in their mouth.²
- Has vertical jaw movement (munching).³
- Has some tongue protrusion when beginning to eat solid foods which decreases with experience.³
- May still have early gag reflex until around 7 months.⁴
- Often rejects unfamiliar foods a number of times.⁴

See Additional Information – Parent/Caregiver Influences on Eating Habits on page 12.

GUIDELINES

Guidelines are evidence-informed recommendations for nutrition and feeding.

Fluids

- Advise to continue to breastfeed. Promote the importance of breastfeeding beyond 6 months while supporting the mother regarding her decision.⁵
- If a decision is made to use commercial infant formula, ensure that the parent/ caregiver has all the information needed, and support and educate as required, see Additional Information – Informed Decision Making About Infant Feeding on page 13 and Commercial Infant Formula on page 14.
- Recommend that all infants who are breastfed or fed some breast milk be given a liquid vitamin D supplement of 400 IU (10 μg) every day.⁵
- Advise that small amounts of water can be offered from an open cup.⁵
- Advise the delay of cow milk (vitamin D fortified goat milk) until 9 - 12 months due to its low iron content and risk of iron deficiency with early introduction.⁵
- If juice is given, recommend no more than 125 mL (½ cup) of 100% juice a day and only as a part of a meal or snack. Recommend juice be offered from an open cup, not a bottle or sippy cup.⁵ Encourage consumption of whole vegetables and fruit instead of juice.

Food

- Advise to avoid delaying the introduction of solid foods beyond about 6 months of age to reduce the risk of iron deficiency.⁵
- Solid foods can be offered before or after breast milk. The order may change depending on what works best for the parent/caregiver and infant.⁵
- Advise that soft textures and finger foods can be introduced starting at about 6 months of age.⁵ For more information on safe textures and finger foods see Additional Information – Choking Prevention on page 15.
- Emphasize that it is important to quickly progress to include lumpy textures so that by 12 months of age the infant is eating modified family foods.⁵
- Recommend that iron-rich foods be offered first and offered 2 or more times each day.⁵ See Additional Information – Iron on page 15.
- Advise to introduce a variety of vegetables, fruit, grains and dairy products (except cow milk or goat milk as a beverage) in any sequence after iron-rich foods.⁵
- Advise that there is no need to introduce new foods one-ata-time, except for the common food allergens [cow milk, egg, peanut, tree nuts, soy, seafood (fish, shellfish, crustaceans), wheat and sesame]. These should be introduced one-at-a-time.
- Advise that the introduction of common food allergens should not be delayed.⁶ These foods can be introduced when the infant is ready for other solid foods.^{6,7,8} See Additional Information

 Food Allergy Prevention on page 14.
- Advise offering an amount of food based on the principles of the Division of Responsibility. See Additional Information – Parent/Caregiver Influences on Eating Habits on page 12.

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6-9 months

GUIDELINES (continued)

Food (continued)

- Advise to provide a routine of 3 5 solid food feedings per day and include infants in family meals whenever possible, even if their feeding times do not align.⁵ See Additional Information – Parent/ Caregiver Influences
 - on Eating Habits on page 12.
- Recommend limiting fish higher in mercury.
- To prevent food-borne illness, advise to avoid:
 - Honey, including pasteurized or cooked, until 1 year of age
 - Raw or undercooked eggs or products containing raw/undercooked eggs¹¹
 - Raw or undercooked fish and shellfish¹¹
 - Raw or undercooked meat, deli meats and hotdogs¹¹
 - Raw or lightly cooked sprouts¹¹
 - Unpasteurized cow/ goat milk and milk products (including raw cheeses)¹¹
 - Unpasteurized fruit and vegetable juice unless produce is washed and freshly squeezed immediately before consumption¹¹

NUTRITION RISK INDICATORS

May require additional action, investigation and/or referral.

Nutrition risk indicators represent a variety of levels of risk including poor nutritional status, increased nutritional risk, and identification of the opportunity for early detection and intervention before nutritional problems manifest. Nutrition risk indicators do not represent a validated nutrition screening tool, a nutrition assessment, nor diagnostic criteria.

The presence of nutrition risk indicators requires various actions such as further investigation by the health professional, intervention in the form of parents/caregiver counseling, and referral. Referral to a registered dietitian (RD) for nutrition assessment and ongoing follow-up may be warranted for infants and children who do not meet guidelines or who present with nutrition risk indicators. Contact 8-1-1 Dietitian Services at <u>HealthLink BC</u> for more information.

- Growth concerns. See Additional Information Growth Monitoring on page 13.
- Does not consume iron-rich foods daily⁵ or is at increased risk for iron deficiency.
 See Additional Information – Iron on page 15.
- Is offered foods that are choking hazards. See Additional Information – Choking Prevention on page 15.
- Consumes cow or goat milk, plant-based milk alternatives (e.g. soy, rice, almond beverage), homemade infant formula.⁵
- Consumes fruit drinks/ punch, sports drinks, pop or beverages containing artificial sweeteners or caffeine.⁵
- Consumes more than 125 mL (1/2 cup) juice per day.
- Not supervised during feeding, including having a bottle in bed.⁵
- Feeding schedules or expectations that repeatedly frustrate the infant. Examples: prolonged/frequent feeding despite fullness cues; or early cessation/ infrequent/delay of feeding despite hunger cues.⁵

- Parent/caregiver expresses concern/anxiety about feeding or infant's weight, including current weight or risk of overweight in the future.^{15 16} See Additional Information – Parent/ Caregiver Influences on Eating Habits on page 12.
- Food selection is restricted due to <u>food insecurity</u>, cultural or lifestyle reasons (e.g. vegan) or food allergy/intolerance.
- Constipation. For more information see, <u>Constipation, Age 11 and Younger</u> and <u>Healthy</u> <u>Bowel Habits</u>.
- Infant has severe atopic dermatitis (eczema), which could indicate an increased risk of developing a food allergy. See Additional Information – Food Allergy Prevention on page 14.

9-12 months

MILESTONES

A marker of a point in development related to feeding.¹

- Between 8 12 months, lateral movements of the tongue are developed allowing food to be moved to the teeth (enables biting and chewing of chopped foods and a greater variety of finger foods).⁵
- Uses jaw and tongue to bite and mash a variety of textures.⁴
- Tries to use a spoon and may demand to spoon-feed self.
- Feeds self by holding small foods between thumb and forefinger.
- Often rejects unfamiliar foods a number of times.⁴

See Additional Information - Parent/Caregiver Influences on Eating Habits on page 12.

GUIDELINES

Guidelines are evidence-informed recommendations for nutrition and feeding.

Fluids

- Advise to continue to breastfeed. Promote the importance of breastfeeding beyond 9-12 months while supporting the mother regarding her decision.⁵
- If a decision is made to use commercial infant formula, ensure that the parent/ caregiver has all the information needed, and support and educate as required, see Additional Information – Informed Decision Making About Infant Feeding on page 13. and Commercial Infant Formula on page 14.
- When a toddler is eating a variety of iron-rich foods, advise that pasteurized whole (3.25% M.F.) cow milk can be introduced in an open cup. Pasteurized, full-fat goat milk, with added folic acid and vitamin D, may be given as an alternative to cow milk.⁵
- For the non-breastfed toddler, advise that pasteurized whole (3.25% M.F.) cow milk can replace commercial infant formula at this time. Intake of cow milk (vitamin D fortified goat milk) should not exceed 750 mL (3 cups) per day.
- Recommend that all toddlers who are breastfed or fed some breast milk be given a liquid vitamin D supplement of 400 IU (10 μg) every day.⁵
- For the non-breastfed toddler, recommend a vitamin D supplement if the intake of commercial infant formula and/ or cow milk (vitamin D fortified goat milk) and vitamin D rich foods is below the recommended daily intake of 400 IU (10 µg).

- If juice is given, recommend no more than 125 mL (½ cup) of 100% juice a day only as a part of a meal or snack. Recommend juice be offered from an open cup, not a bottle or sippy cup.⁵ Encourage consumption of whole vegetables and fruit instead of juice.
- Advise that water can be offered from an open cup.
- Advise that the transition from bottle feeding to an open cup should begin by approximately 12 months.
 Aim to complete transition to an open cup by 18 months.⁵

Food

- Recommend that by 12 months, toddlers are eating a variety of family foods with various textures.⁵ For more information see Additional Information – Choking Prevention on page 15.
- Advise to continue to offer iron-rich foods 2 or more times each day.⁵ See Additional Information – Iron on page 15.
- Advise to continue to introduce a variety of foods.⁵
- Advise offering an amount of food based on the principles of the Division of Responsibility.⁹ See Additional Information – Parent/Caregiver Influences on Eating Habits on page 12.
- Advise to provide a routine of 3 5 solid food feedings per day and include toddlers in family meals whenever possible, even if their feeding times do not align.⁵ See Additional Information – Parent/ Caregiver Influences on Eating Habits on page 12.

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9-12 months

GUIDELINES (continued)

Food (continued)

- For information about food allergies for toddlers who are at increased risk see Additional Information – Food Allergy Prevention on page 14.
- Recommend limiting fish higher in mercury.
- To prevent food-borne illness, advise to avoid:
 - Honey, including pasteurized or cooked, until 1 year of age
 - Raw or undercooked eggs or products containing raw/undercooked eggs¹¹
 - Raw or undercooked fish and shellfish¹¹
 - Raw or undercooked meat, deli meats and hotdogs¹¹
 - Raw or lightly cooked sprouts¹¹
 - Unpasteurized cow/ goat milk and milk products (including raw cheeses)¹¹
 - Unpasteurized fruit and vegetable juice unless produce is washed and freshly squeezed immediately before consumption¹¹

NUTRITION RISK INDICATORS

May require additional action, investigation and/or referral.

Nutrition risk indicators represent a variety of levels of risk including poor nutritional status, increased nutritional risk, and identification of the opportunity for early detection and intervention before nutritional problems manifest. Nutrition risk indicators do not represent a validated nutrition screening tool, a nutrition assessment, nor diagnostic criteria.

The presence of nutrition risk indicators requires various actions such as further investigation by the health professional, intervention in the form of parents/caregiver counseling, and referral. Referral to a registered dietitian (RD) for nutrition assessment and ongoing follow-up may be warranted for infants and children who do not meet guidelines or who present with nutrition risk indicators. Contact 8-1-1 Dietitian Services at <u>HealthLink BC</u> for more information.

- Growth concerns. See Additional Information Growth Monitoring on page 13.
- Does not consume iron-rich foods daily⁵ or is at increased risk for iron deficiency. See Additional Information – Iron on page 15.
- By 9 months, lumpy textures have not been introduced or consumed.⁵
- Is offered foods that are choking hazards. See Additional Information – Choking Prevention on page 15.
- Food selection is restricted due to <u>food insecurity</u>, cultural or lifestyle reasons (e.g. vegan)¹⁷ or food allergy/ intolerance.¹⁸
- Consumes skim, 1% or 2% cow milk or goat milk as main milk source.⁵
- Consumes plant-based milk alternatives (e.g. soy, rice, almond beverage), goat milk not fortified with vitamin D or homemade infant formula as a milk source.⁵
- Consumes more than 750 mL (3 cups) of cow or goat milk a day.⁵
- For the non-breastfed toddler, formula is discontinued and the intake of cow milk (vitamin D fortified goat milk) and vitamin D rich foods is not sufficient to meet their vitamin D needs.

- Consumes more than 125 mL (1/2 cup) of juice a day.
- Consumes fruit drinks/ punch, sports drinks, pop or beverages containing artificial sweeteners or caffeine.⁵
- Not supervised during feeding, including having a bottle in bed.⁵
- Feeding schedules or expectations that repeatedly frustrate the toddler. Examples: prolonged/frequent feeding despite fullness cues; or early cessation/ infrequent/ delay of feeding despite hunger cues.⁵
- Parent/ caregiver expresses concern/ anxiety about feeding or toddler's weight, including current weight or risk of overweight in the future.^{15,16} See Additional Information – Parent/ Caregiver Influences on Eating Habits on page 12.
- Constipation.¹⁹ For more information see, <u>Constipation, Age 11 and Younger</u> and <u>Healthy</u> <u>Bowel Habits.</u>
- Toddler has severe atopic dermatitis (eczema), which could indicate an increased risk of developing a food allergy.²⁰ See Additional Information – Food Allergy Prevention on page 14.

12-24 months

MILESTONES

A marker of a point in development related to feeding.¹

- Growth slows compared with the first year resulting in decreased appetite and erratic and unpredictable food intake.⁴
- Often rejects unfamiliar foods a number of times.⁴

12-18 months

• Acquires full chewing movements.⁵

By 18 months

• Eats most foods without coughing and gagging.²³

By 24 months

- Eats most of the same foods as the rest of the family with some extra preparation to prevent choking.⁴
- Eats with a utensil with little spilling.²²

See Additional Information - Parent/Caregiver Influences on Eating Habits on page 12.

GUIDELINES

Guidelines are evidence-informed recommendations for nutrition and feeding.

Fluids

- Advise to continue to breastfeed. Promote the importance of breastfeeding beyond 12-24 months while supporting the mother regarding her decision.⁵
- Recommend toddlers who are breastfed or fed some breast milk be given a liquid vitamin D supplement of 400 IU (10 μg) every day.⁵
- For the breastfed toddler who is also offered cow milk (vitamin D fortified goat milk) at meals and snacks, advise the continued supplement of 400 IU (10 μg) vitamin D every day.
- If not breastfed, advise to offer 500 mL (2 cups) pasteurized whole (3.25% M.F.) cow milk (vitamin D fortified goat milk) each day.
- Recommend a daily liquid vitamin D supplement of 400 IU (10 μg) for toddlers who do not drink 500 mL (2 cups) of cow milk (vitamin D fortified goat milk) and do not eat a variety of other vitamin D rich foods every day to meet the daily recommended intake of 600 IU (15 μg).⁵
- Skim, 1% and 2% cow milk (vitamin D fortified goat milk) is not routinely recommended. If it is given, ensure toddler is growing well and eating an adequate variety and quantity of nutritious foods, including sources of dietary fat.⁵
- If not breastfed and not offered cow milk (vitamin D fortified goat milk) for cultural, religious or health reasons such as galactosemia, advise to provide soy-based commercial infant formula.⁵

- Emphasize that toddlers do not require pediatric nutritional supplement drinks.^{4,5}
- Recommend offering water when toddler is thirsty.⁵
- If juice is given, recommend no more than 125 mL (½ cup) of 100% juice a day only as a part of a meal or snack. Recommend juice be offered from an open cup, not a bottle or sippy cup.⁵ Encourage consumption of whole vegetables and fruit instead of juice.
- Advise that the transition from bottle-feeding to an open cup for all fluids should be completed no later than 18 months.⁵

Food

- Emphasize offering a variety of food textures including finger foods.⁵
- Recommend offering iron-rich foods at each meal.⁵ See Additional Information – Iron on page 15.
- Beginning at 12 months, advise to offer a variety of family foods from each of the <u>Eating Well with</u> <u>Canada's Food Guide</u> or <u>Eating Well with Canada's</u> <u>Food Guide – First Nations, Inuit and Métis</u> food groups at a regular schedule of 3 meals plus 2 - 3 nutrient-dense snacks. ^{5,24}
- Advise offering an amount of food based on the principles of the Division of Responsibility.⁹ See Additional Information – Parent/Caregiver Influences on Eating Habits on page 12.

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12-24 months

GUIDELINES (continued)

Food (continued)

- Recommend <u>eating together</u> as a family as often as possible.⁵
- Recommend involving toddlers in food preparation appropriate for their skill level.⁵
- Recommend limiting fish higher in mercury.¹⁰
- To prevent food-borne illness, advise to avoid:
 - Raw or undercooked eggs or products containing raw/undercooked eggs¹¹
 - Raw or undercooked fish¹² and shellfish¹¹
 - Raw or undercooked meat, deli meats and hotdogs¹¹
 - Raw or lightly cooked sprouts¹¹
 - Unpasteurized cow/ goat milk and milk products (including raw cheeses)¹¹
 - Unpasteurized fruit and vegetable juice unless produce is washed and freshly squeezed immediately before consumption¹¹

NUTRITION RISK INDICATORS

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- Growth concerns. See Additional Information Growth Monitoring on page 13.
- Not eating a variety of textures and family foods including iron-rich foods each day.⁵
- Is offered foods that are choking hazards. See Additional Information – Choking Prevention on page 15.
- Dietary fat intake is restricted.⁵
- Food selection is restricted due to food insecurity, cultural or lifestyle reasons (e.g. vegan) or food allergy/ intolerance.¹⁸
- Consumes mostly breastmilk and little solid food.^{24, 26, 27}
- By 18 months, has not transitioned from bottle to an open cup.⁵
- Consumes skim, 1% or 2% cow milk or goat milk as main milk source.⁵
- Consumes plant-based milk alternatives (e.g. soy, rice, almond beverage), goat milk not fortified with vitamin D or homemade formula as milk source.⁵
- Consumes more than 750 mL (3 cups) cow or goat milk a day.⁵
- For the non-breastfed toddler, formula is discontinued and the intake of cow milk (vitamin D fortified goat milk) and vitamin D rich foods is not sufficient to meet their vitamin D needs.

- Consumes more than 125 mL (1/2 cup) of juice a day.
- Consumes fruit drinks/ punch, sports drinks, pop or beverages containing artificial sweeteners or caffeine.⁵
 For more information see, <u>Food Safety in Children</u> <u>Older than 1 Year General Information</u>.
- Is dependent on pediatric nutritional supplement drinks to meet nutrition needs instead of a variety of foods.
- Not supervised during feeding, including having a bottle in bed.⁵
- Feeding schedules or expectations that repeatedly frustrate the toddler. Example: prolonged/frequent feeding despite fullness cues; or early cessation/ infrequent/delay of feeding despite hunger cues.⁵
- Parent/ caregiver expresses concern/anxiety about feeding or toddler's weight, including current weight or risk of overweight in the future.^{15,16} See Additional Information – Parent/ Caregiver Influences on Eating Habits on page 12.
- At 18 months, often coughs and chokes when eating.²³
- Constipation.¹⁹ For more information see, <u>Constipation</u>, <u>Age 11 and Younger</u> and <u>Healthy Bowel Habits</u>.
- Toddler has severe atopic dermatitis (eczema), which could indicate an increased risk of developing a food allergy.²⁰ See Additional Information – Food Allergy Prevention on page 14.

2-6 years

MILESTONES

A marker of a point in development related to feeding.¹

- Food consumption moderates to match a slower rate of growth.²⁴
- Eats most foods without coughing and choking.²²
- May have periods of disinterest in food.²⁴
- May be resistant to new foods.²⁴
- Progressing to adult eating pattern but needs adult modeling.^{4, 24}
- Age-appropriate nutrition education concepts can be learned.^{4, 28}

See Additional Information - Parent/Caregiver Influences on Eating Habits on page 12.

GUIDELINES

Guidelines are evidence-informed recommendations for nutrition and feeding.

Fluids

- Recommend to continue to breastfeed for as long as child and mother want.⁵
- For children who are no longer breastfed, advise to offer 500 mL (2 cups) pasteurized 2%, 1% or skim cow milk (or vitamin D fortified goat milk), or fortified plant-based milk alternatives (e.g. soy, rice, almond beverage) daily.⁴
- If fortified plant-based milk alternatives (e.g. soy, rice, almond beverage) are offered, ensure adequate energy, protein, fat and other nutrients are provided from other food sources.
- Recommend a 400 IU liquid vitamin D supplement for children who do not drink 500 mL (2 cups) of pasteurized 2%, 1% or skim cow milk (or vitamin D fortified goat milk) or fortified plant-based milk alternatives (e.g. soy, rice, almond beverage) and do not eat a variety of other vitamin D rich foods every day to meet their daily recommended intake of 600 IU (15 μq).^{4,29}
- Recommend offering water when child is thirsty.⁵
- If juice is given, recommend no more than 125 mL (½ cup) of 100% juice a day only as a part of a meal or snack. Recommend juice be offered from an open cup, not a bottle or sippy cup.⁵ Encourage consumption of whole vegetables and fruit instead of juice.

Food

- Advise to offer a variety of food from each of the <u>Eating Well with Canada's Food Guide</u> or <u>Eating Well</u> with Canada's Food Guide – First Nations, Inuit and <u>Métis</u> food groups at a regular schedule of 3 meals plus 2 - 3 nutrient-dense snacks.^{5,29}
- Recommend eating together as a family as often as possible.^{24,28}
- Advise offering an amount of food based on the principles of the Division of Responsibility.⁹ See Additional Information – Parent/Caregiver Influences on Eating Habits on page 12.
- Recommend involving children in food preparation appropriate for their skill level.⁵
- Recommend limiting fish higher in mercury.¹⁰
- To prevent food-borne illness, advise to avoid until 5 years old:
 - Raw or undercooked eggs or products containing raw/ undercooked eggs¹¹
 - Raw or undercooked fish¹² and shellfish¹¹
 - Raw or undercooked meat, deli meats and hotdogs¹¹
 - Raw or lightly cooked sprouts¹¹
 - Unpasteurized cow/ goat milk and milk products (including raw cheeses)¹¹
 - Unpasteurized fruit and vegetable juice unless produce is washed and freshly squeezed immediately before consumption¹¹

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2-6 years

NUTRITION RISK INDICATORS

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- Growth concerns.¹³ See Additional Information Growth Monitoring on page 13.
- Does not eat a variety of foods from the 4 food groups in <u>Eating Well with Canada's Food Guide</u> or <u>Eating Well</u> with Canada's Food Guide – First Nations, Inuit and Métis.^{28,29}
- Food selection is restricted due to <u>food insecurity</u>, cultural or lifestyle reasons (e.g. vegan)²⁵ or food allergy/intolerance.¹⁸
- Is dependent on pediatric nutritional supplement drinks to meet nutrition needs instead of a variety of foods.^{24,28}
- Consumes large amounts of fluids and little solid food [more than 750 mL (3 cups) cow milk, vitamin D fortified goat milk, or plant-based milk alternatives (e.g. soy, rice, almond beverage) a day or more than 125 mL (¹/₂ cup) juice a day].^{4,24,28}
- Consumes mostly breastmilk and little solid food.^{24,26,27}
- Intake of cow milk (vitamin D fortified goal milk) and other vitamin D rich foods is not sufficient to meet their vitamin D needs.
- Consumes goat milk not fortified with vitamin D.
- Consumes most of their milk and other beverages from a bottle or sippy cup.

- Consumes fruit drinks/ punch, sport drinks, pop or beverages continuing artificial sweeteners or caffeine.^{5,28} For more information see, Food Safety in Children Older than 1 Year General Information.
- Feeding is forced or restricted.^{4,24,28,31} For more on 'picky eating' see Additional Information – Parent/ Caregiver Influences on Eating Habits on page 12.
- Parent/caregiver expresses concern/ anxiety about feeding or child's weight, including current weight or risk of overweight in the future.^{15,16} See Additional Information – Parent/ Caregiver Influences on Eating Habits on page 12.
- Constipation.¹⁹ For more information see, <u>Constipation</u>, <u>Age 11 and Younger</u> and <u>Healthy Bowel Habits</u>.
- Rarely or never eats meals with their family.^{24,31}

Additional Information

Parent/Caregiver Influences on Eating Habits

Parents and other caregivers shape the development of children's eating behaviours, not only by the foods they make available to children, but also by their own eating styles, behaviour at mealtimes, and child feeding practices.^{9,15,31,32} Parents'/ caregivers' child-feeding practices are critical for children developing healthy eating habits later in life.¹⁴ The following discussion points can be especially effective when counseling parents/ caregivers of picky eaters.

Non-responsive Feeding

- Non-responsive feeding, in which parents/ caregivers over- or underregulate feeding without responding to child hunger and fullness cues, has been associated with poor child self-regulation of feeding and increased weight gain/ overweight/ obesity.^{33, 34, 35} Responsive feeding is an important intervention to prevent both overweight/ obesity and disordered eating.^{33,34,35,36} <u>Ellyn Satter</u> operationalized the principles of responsive feeding through the <u>Division of Responsibility</u> (sDOR). Following the sDOR:
 - For 6 months and older, parents/ caregivers are responsible for what food is offered and begin to decide when and where the child is fed. The child decides whether to eat and how much to eat. Parents and caregivers need to trust the child's ability to decide this.⁹
 - By 12 months, parents/ caregivers take over the responsibility for when and where the child is fed. Parents and caregivers need to trust the child's ability to decide how much to eat and whether to eat.⁹

Responsive Feeding

- Healthy children have the ability to self-regulate the amount of food and energy they consume. Children will compensate for eating less on some days or at a particular meal by eating more at other meals. Parents/ caregivers interfere with this regulatory ability when they try to get children to eat certain types or amounts of food.³⁶
- <u>Responsive feeding</u> includes a balance between feeding and encouraging self-feeding (appropriate for child's level of development) using ageappropriate and culturally appropriate eating utensils.⁵

- Avoid distractions such as toys, books and/ or screens during mealtimes.^{24, 38}
- Pressuring babies and children to eat through prodding, scolding, punishment, pleading, bribing, praising, or coercing (e.g. "clean your plate")²⁴ or using excessive verbal encouragement (e.g. "come on, you've tried it before") may lead to negative attitudes about eating and poor eating habits, as well as excessive feeding and excess weight gain.⁵
- Restricting higher-fat, energy-dense foods (often called 'junk foods') due to concern about overeating may adversely affect self-regulation and actually increase the amount of foods the child consumes.^{5,38}
- Children should be offered small portions of foods initially, along with the opportunity to ask for more.⁵
- Children should be provided with opportunities and support for mastering self-feeding skills with the understanding that messy mealtimes are part of the learning process.⁵
- Toddlers and preschoolers are often finished eating and ready to leave the table after 15 20 minutes. When mealtime is over, the food should be removed.²⁴
- It is common to offer a new food more than 10 times before a child will eat it. Reassure parents and caregivers that this behaviour is normal. Advise them to keep offering these foods and wait for the child to try it on their own (see point above re: prodding, bribing, etc).⁵
- Children should not drink an excessive amount of milk or juice or eat or drink between meals and snacks, except water. Both practices lead to eating less at mealtime, tooth decay, and iron deficiency anemia.^{4,24}
- Eating with the family provides the child with a pleasurable, social experience and the opportunity to develop healthy eating habits and learn new skills through imitation.^{5,24} Children are more likely to try and enjoy a variety of foods when they are offered the same foods the rest of the family is eating.^{5,24} Eating with the family is associated with improved diet quality (e.g. increased vegetables and fruit intake), as well as decreased rates of overweight/obesity and less disordered eating behaviour.

Parent/Caregiver Influences on Eating Habits (continued)

• Parents/caregivers' perceptions about a child's poor eating (food refusal, 'picky eating') or concern for risk of overweight in the future is a predictor for pressured feeding and restricted feeding.^{15,16} Even if growth monitoring is not showing current growth faltering, discuss the <u>Division of</u> <u>Responsibility</u> with families, as well as normal growth and development.

Growth Monitoring

- Use the WHO Growth Charts for Canada when assessing growth.¹³
- There are 2 sets of the WHO Growth Charts for Canada. <u>Set 1</u> is the original set developed for use in Canada. <u>Set 2</u> indicates more percentiles for head circumference and weight-for-age and length-for-age for Birth to 24 months, specifically: 3rd, 10th, 25th, 50th, 75th, 90th and 97th percentiles. Set 2 also includes the 99.9th centile for Birth to 24 months, weight-for-length; and 2-19 years, BMI-for-age. Choice of set is based on practitioner preference and/or organization/facility policy.¹³
- Serial measures are more useful than unique/ one-time measures and are ideal for assessing and monitoring growth patterns.¹³
- Weight-for-age, length-for-age or weight-for-length less than 3rd percentile are recommended cut-off criteria for underweight, stunting (shortness), and wasting (thinness) that could be used to identify need for investigation/ intervention/referral.¹³
- Weight-for-length measures greater than 85th percentile indicate risk of overweight.¹³
- A nutrition risk indicator is when growth measurements plot less than 3rd or greater than 85th percentile OR there is a sharp incline or decline in growth in serial growth measures, or a growth-line that remains flat, on the WHO Growth Charts for Canada.¹³
- Use <u>Body Mass Index (BMI)</u> when assessing body weight status to height in children 2 years and older. Use age and gender-specific growth charts to determine the BMI-for-age percentile. A child's actual BMI value will not correspond to the adult cutoffs or ranges for underweight, healthy weight, overweight and obesity. The percentile will allow for assessment of growth status. A percentile less than 3rd percentile indicates wasting. For ages

2 - 5 years, a percentile greater than 85th percentile indicates risk of overweight. For ages 5-19 years, a percentile greater than the 85th percentile indicates overweight.¹³

• The overall trajectory of weight-for-age, length-for-age and weight-forlength (under 2 years) or BMI-for-age (over 2 years) will determine whether a child is tracking along the growth curves or is crossing centiles downwards or upwards. The direction of serial measurements on the curve is more important than the actual percentile. It may be normal for children to cross both weight-for-age and length-for-age/ height-for-age up to 2 percentiles for the first 2 - 3 years of age.¹³

Informed Decision Making About Infant Feeding

- All mothers and their families have the right to make a fully informed decision about infant feeding. Mothers and families need to feel the support of their health professionals for their decision and receive appropriate information, guidance and education to promote the health of their infant.
- A health professional can promote informed decision making by the mother and family by practicing in accordance with the guidelines provided by the <u>WHO/UNICEF International Code of Marketing of Breast Milk Substitutes</u>, the WHO/UNICEF Statement on Protecting, Promoting and Supporting Breastfeeding, and the WHO/ UNICEF Baby-Friendly Initiative.⁴¹ The key information required to make an informed decision includes the following:
 - The opportunity for a woman to discuss her concerns.⁴⁰
 - Importance of breastfeeding for baby, mother, family and community.⁴⁰
 - Health consequences for baby and mother of not breastfeeding.⁴⁰
 - Impact of commercial infant formulas.⁴⁰
 - Difficulty of reversing the decision once breastfeeding is stopped.⁴⁰
- Mothers and their families who have made an informed decision not to breastfeed or who have chosen to supplement their babies with commercial infant formula for non-medically indicated reasons should be supported to choose commercial infant formulas that are acceptable, feasible, affordable, sustainable and safe.⁴⁰

Informed Decision Making About Infant Feeding (continued)

- If temporary supplementation is indicated for acceptable medical reasons, the importance of breastfeeding should be weighed against the risks posed by the use of commercial infant formulas.⁴⁰
- Since it is difficult to reverse the decision to stop breastfeeding, offer breast feeding support as needed (e.g. local health unit or local breastfeeding clinics, lactation consultant, peer to peer support, and support in acute care).⁴⁰

Commercial Infant Formula

- For parents/caregivers who have made the decision to use commercial infant formula, select a commercial infant formula based on the infant's medical and family's cultural/religious needs.⁴⁰
- Information on safe preparation, storage and feeding of commercial infant formula should be provided on an individual basis and not in a group setting.⁴⁰
- Inform parents/ caregivers that all commercial infant formulas have an expiry date and should be discarded after that date.⁴⁰
- All mothers and babies (including the non-breastfed baby) benefit from <u>Baby-Friendly Initiative</u> practices: these include responsive feeding, and family-centred care.⁴⁰
- There is no established superiority for commercial follow-up (Step 2) infant formulas for infants older than 6 months.⁵
- For most children there is no indication for the use of commercial infant formulas beyond 12 months. For the child, 12 months and older, who is no longer breastfed and is not being introduced to whole cow or goat milk (pasteurized, full-fat, with added folic acid and vitamin D), soy-based commercial infant formula is recommended until 2 years of age.⁵

Food Allergy Prevention

The information provided is intended for infants and toddlers who are considered at increased risk.

- Infants with at least 1 first degree relative (parent or sibling) with a history of atopic dermatitis (eczema), food allergy, allergic rhinitis (hay fever) or asthma are considered at increased risk of developing food allergy.^{6,42,43}
- Infants with severe eczema are also considered to be at increased risk of developing food allergy.
- The introduction of common food allergens [cow milk, egg, peanut, tree nuts, soy, seafood (fish, shellfish, crustaceans), wheat and sesame] should not be delayed as this can increase the risk of a food allergy developing.⁷ These foods may be introduced when the infant is ready for other solid foods.^{5,6,7,8} The evidence supporting early introduction (about 6 months of age) is strongest for peanut.^{7,8,44}
- The common food allergens should be introduced to the infant's diet one at time, this may help to clarify tolerance to individual foods.⁵ Once a common food allergen has been introduced and is tolerated, it should be offered at least 2 3 times per week. Regular ingestion appears to help maintain tolerance.
- While Health Canada recommends waiting 2 days between each common food allergen⁵, there is no research available to support this specific time interval.^{45, 46, 47} Symptoms of an allergic reaction to a food often appear within minutes after eating the food. Less commonly, symptoms can also occur hours later.
- If a parent/caregiver is concerned a food has caused an allergic reaction, advise they stop offering the food and guide them to speak to their child's physician or nurse practitioner for a diagnosis.
- Parents/ caregivers should be reassured they may continue to introduce other new foods, including the other common food allergens.
 Parents/caregivers with questions or concerns about introducing solid foods, including the common food allergens, should be referred to a registered dietitian or advised to call Dietitian Services at HealthLink BC to speak with the allergy dietitian.

Additional Information

Iron

- Infants who are at increased risk for iron deficiency include those born to mothers with diabetes, with low ferritin, who did not take prenatal vitamins and/or who experienced postpartum hemorrhaging.¹⁴
- The risk of iron deficiency for all infants can be reduced with regular consumption of iron-rich foods such as meat and meat alternatives and iron-fortified cereal. Pallor, poor appetite, irritability, and slowed growth and development are later signs of iron deficiency.⁵
- Heme iron is better absorbed than non-heme iron. Overall iron absorption is greater when heme and non-heme sources are eaten together. Daily consumption of foods rich in vitamin C, such as vegetables and fruit, can also help enhance absorption of iron from non-heme sources.⁵
- Example food sources include:
 - Heme iron beef, chicken, turkey, pork, fish.
 - Non-heme iron beans, lentils, chickpeas, tofu, eggs, fortified grains, peanut, tree nut and seed butters.⁴⁸

Choking Prevention

- To reduce the risk of choking, soft, cut-up family foods can be offered such as pieces of cooked vegetables; ripe fruit such as banana or pear, finely minced, shredded, ground or mashed cooked meat, deboned fish, and poultry; grated cheese and bread crusts or toast.
- Foods with firmer textures can be offered when prepared in the following ways: hot dogs or sausages diced or cut lengthwise; grated raw vegetables or hard fruits such as carrots and apples; pits and skins removed from fruits, grapes chopped, nut butters thinly spread on crackers or toast, and finely chopped fibrous or stringy textured foods such as celery, pineapple or oranges.⁵
- Some food shapes and textures should not be offered to children younger than 4 years, including foods that are round and hard, sticky, or difficult to swallow. Examples include hard candies or cough drops, gum, dried fruit, popcorn, marshmallows, whole nuts (including peanuts), olives with pits, whole cherry tomatoes or grapes, fish with bones and snacks using toothpicks or skewers.⁵

- Children younger than 4 years of age are at higher risk of choking. Parents and caregivers can reduce the risk of choking by: being aware of child's ability to chew and swallow, supervising eating, and knowing how to respond if choking occurs.⁵
- Gagging is a natural reflex that helps older infants to avoid choking. Occasionally food sticks to the back of the tongue or falls over the back of the mouth before the swallow is triggered, resulting in the protective action of a gag or cough.⁵
- As long as an infant or child is attentive, sitting upright and is free from distractions, the risk of choking is the same as an adult.⁵

Fish Consumption and Methylmercury

- Fatty fish is a good source of the omega-3 fats EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid). While the optimal amount of EPA and DHA for infants and young children has not been determined, offer fish, as a good food source, and work up to 2 servings per week as a general guideline by 24 months of age.⁵
- Certain types of fish should be limited because of the risk of overexposure to mercury.¹⁰ Limit consumption of the following fresh/ frozen tuna, shark, swordfish, escolar, marlin, orange roughy, and canned albacore (white) tuna. Note: Canned albacore tuna (labeled with 'Product of Canada') has no serving limits.

Nutrition Resources List

Baby Friendly Initiative

- <u>http://bcbabyfriendly.ca</u>
- Protecting, Promoting and Supporting Breastfeeding A Practical Workbook for Community-Based Programs 2nd Edition: <u>http://www.phac-aspc.gc.ca/ hp-ps/dca-dea/publications/pdf/ppsb-ppsam-eng.pdf</u>

Better Together – See Eating Together

BMI Calculator

http://www.dietitians.ca/Your-Health/Assess-Yourself/Assess-Your-BMI/ BMI-Children.aspx

Breastfeeding Promotion – See Baby Friendly Initiative

British Columbia Pediatric Society http://www.bcpeds.ca

Canada's Food Guide – See Eating Well with Canada's Food Guide and Eating Well with Canada's Food Guide - First Nations, Inuit and Métis

Canadian Pediatric Society http://www.cps.ca

Child Health BC http://childhealthbc.ca

Child Weight Resources for Professionals and Stakeholders <u>http://childhoodobesityfoundation.ca/healthcare-professionals</u>

Childhood Healthy Weight Programs in British Columbia <u>http://childhoodobesityfoundation.ca/healthcare-professionals/341-2/</u>

Choking – See HealthLink BC Resources

Commercial Infant Formula – See HealthLink BC Resources

Constipation

- Constipation, Age 11 and Younger: <u>https://www.healthlinkbc.ca/health-topics/con10</u>
- Healthy Bowel Habits for Children
 <u>http://www.caringforkids.cps.ca/handouts/healthy_bowel_habits</u>

Dietitians – Referral Resources

- Dietitian Services at HealthLink BC. Includes pediatric nutrition service and allergy nutrition service. Dial 8-1-1 or visit <u>http://www.healthlinkbc.ca/healthyeating/dietitian-services.html</u>
- Outpatient dietitians at your local hospital
- Public Health dietitian at your local health unit
- Private practice dietitians: Find-A-Dietitian at http://dietitians.ca

Dietitians of Canada http://www.dietitians.ca

Division of Responsibility (sDOR) – See Ellyn Satter Institute

Eating Well with Canada's Food Guide <u>http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php</u>

Eating Well with Canada's Food Guide – First Nations, Inuit and Métis <u>http://www.hc-sc.gc.ca/fn-an/pubs/fnim-pnim/index-eng.php</u>

Eating Together

- Better Together: <u>http://www.bettertogetherbc.ca</u>
- Ellyn Satter Institute Mastering Family Meals: <u>http://ellynsatterinstitute.org/htf/mfm.php</u>

Ellyn Satter Institute http://www.ellynsatterinstitute.org

First Foods – See HealthLink BC Resources

Nutrition Resources List

Fish - See HealthLink BC Resources

Food Allergy Canada http://foodallergycanada.ca

Food Safety

- See HealthLink BC Files
- BC Centre for Disease Control Food & Your Health: http://www.bccdc.ca/health-info/food-your-health
- Canadian Partnership for Consumer Food Safety Education: <u>http://befoodsafe.ca</u>
- Canadian Pediatric Society Position Statement on Foodborne Infections: <u>http://www.cps.ca/documents/position/foodborne-infections</u>

Food Security

- BC Food Security Gateway: <u>http://bcfoodsecuritygateway.ca/</u>
- Food Security, Population and Public Health, PHSA: <u>http://www.phsa.ca/our-services/programs-services/population-public-health/food-security</u>

Formula

- Healthy Families BC: How to Choose, Prepare and Store Infant Formula: <u>https://www.healthyfamiliesbc.ca/home/articles/how-choose-prepare-and-store-infant-formula</u>
- See HealthLink BC Resources

Healthy Families BC https://www.healthyfamiliesbc.ca

HealthLink BC Dietitians - See Dietitians - Referral Resources

HealthLink BC Eating and Activity Program for Kids http://www.healthlinkbc.ca/healthyeating/eating-activity-program.html HealthLink BC Resources

- Baby's First Foods (HealthLinkBC File #69c): <u>http://www.healthlinkbc.ca/healthfiles/hfile69c.stm</u>
- Eczema and Food Allergy in Babies and Young Children: <u>http://www.healthlinkbc.ca/healthyeating/eczema-food-allergy-babies.html</u>
- Feeding Your Baby Formula: Safely Making and Storing Formula (HealthLinkBC File #69b):
- http://www.healthlinkbc.ca/healthfiles/hfile69b.stm
- Feeding Your Baby: Sample Meals for Babies 6 to 12 Months of Age: <u>http://www.healthlinkbc.ca/healthyeating/feeding-baby.html</u>
- Finger Foods for Babies 6 12 Months: <u>http://www.healthlinkbc.ca/healthyeating/finger-foods-babies-</u> 6-12-months.html
- Food Safety in Children Older than 1 Year General Information
 <u>http://www.healthlinkbc.ca/healthyeating/food-safety-children.html</u>
- Food Safety in Children Older than 1 Year Preventing Food-borne Illness <u>http://www.healthlinkbc.ca/healthyeating/food-safety-children-preventing-foodborne-illness.html</u>
- Food Safety: Mercury in Fish (HealthLinkBC File #68m) <u>http://www.healthlinkbc.ca/healthfiles/hfile68m.stm</u>
- Healthy Eating Guidelines for Your Vegetarian Baby: 6-12 months: http://www.healthlinkbc.ca/healthyeating/vegetarian-baby.html
- Healthy Eating Guidelines for Your Vegetarian Toddler: 1-3 years: http://www.healthlinkbc.ca/healthyeating/vegetarian-toddler.html
- Helping Your 1 to 3 Year Old Child Eat Well (HealthLinkBC File #69d): <u>http://www.healthlinkbc.ca/healthfiles/hfile69d.stm</u>
- Iron-Fortified Infant Cereal Recipes: Finger Foods For Babies and Toddlers: http://www.healthlinkbc.ca/healthyeating/iron-infant-cereal-recipes.html
- Iron in Foods (HealthLinkBC File #68d)
 <u>http://www.healthlinkbc.ca/healthfiles/hfile68d.stm</u>
- Meal and Snack Ideas for Your 1 to 3 Year Old Child (HealthLinkBC File #69e): http://www.healthlinkbc.ca/healthfiles/hfile69e.stm
- Preventing Choking in Babies and Young Children (HealthLinkBC File #110b) <u>http://www.healthlinkbc.ca/healthfiles/hfile110b.stm</u>

Nutrition Resources List

HealthLink BC Resources (continued)

- Recipes for Your Baby 6 9 Months Old: http://www.healthlinkbc.ca/healthyeating/recipes-baby-6-9-months.html
- Recipes for Your Baby 9 12 Months Old: http://www.healthlinkbc.ca/healthyeating/recipes-baby-9-12-months.html
- Reducing Risk of Food Allergy in Your Baby: A Resource for Parents of Babies at Increased Risk of Food Allergy:

http://www.healthlinkbc.ca/healthyeating/reducing-food-allergy-baby.html

 Severe Allergic Reactions to Food: Children and Teens (HealthLinkBC File #100a): http://www.healthlinkbc.ca/healthfiles/hfile100a.stm

Infant Feeding

http://www.hc-sc.gc.ca/fn-an/nutrition/infant-nourisson/index-eng.php

Iron-Rich Foods - See HealthLink BC Resources

Mind, Exercise, Nutrition, Do It! (MEND) <u>http://childhoodobesityfoundation.ca/mind-exercise-nutrition-mend/</u>

Mercury in Fish - See HealthLink BC Resources

Nutrition for Healthy Term Infants: Recommendations from Six to 24 Months <u>http://www.hc-sc.gc.ca/fn-an/nutrition/infant-nourisson/recom/recom-6-</u>24-months-6-24-mois-eng.php

Provincial Nutrition Resource Inventory – HealthLink BC <u>http://www.healthlinkbc.ca/healthyeating/professionals/nutrition-resource-</u> inventory.html

Shapedown BC

http://childhoodobesityfoundation.ca/families/resources/shapedown-bc/

Toddlers First Steps http://www.health.gov.bc.ca/library/publications/year/2015/toddlers-firststeps-2015.pdf

WHO (World Health Organization) Growth Charts for Canada

- Set 1: <u>http://www.dietitians.ca/Dietitians-Views/Prenatal-and-Infant/WHO-Growth-Charts/WHO-Growth-Charts-Set-1.aspx</u>
- Set 2: <u>http://www.dietitians.ca/Dietitians-Views/Prenatal-and-Infant/WHO-Growth-Charts/WHO-Growth-Charts-Set-2.aspx</u>
- Assessment and Counselling Key Messages and Actions: <u>http://www.dietitians.ca/Downloads/Public/Growth-Charts-Key-Messages-ENGLISH.aspx</u>
- Resources for Health Professionals: <u>http://www.dietitians.ca/Dietitians-Views/Prenatal-and-Infant/WHO-</u> <u>Growth-Charts/WHO-Growth-Charts---Resources-for-Health-Professio.aspx</u>
- Training Modules: <u>http://www.dietitians.ca/Learn/Learning-On-Demand/Online-Courses/WHO-</u> <u>Growth-Chart-Training.aspx</u>

WHO/ UNICEF (World Health Organization) Code of Marketing of Breast-Milk Substitutes <u>http://www.who.int/nutrition/publications/infantfeeding/9241541601/en/</u>

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