

### Recommendations:

Childhood and adolescence are periods of rapid growth, alterations in body composition and cognitive and psychosocial development. Children and adolescents who eat well and partake in daily physical activity are living a healthy lifestyle. A healthy lifestyle promotes optimal growth and wellbeing, and minimizes the risk of nutrient-related chronic diseases.

A healthy lifestyle for children and adolescents can be achieved by:

- Choosing a variety of foods from Canada's Food Guide every day.
- Eating at least 3 regular meals per day, including breakfast, and 2 to 3 healthy snacks.
- Aiming to include food from all four food groups at meals.
- Choosing snacks that are based on Canada's Food Guide. Snacks should include foods that might be missed during meals.
- Ensuring adequate intake of specific nutrients such as iron, calcium and vitamin D, fluoride and fibre.
- Drinking adequate amounts of fluid for proper hydration; choosing water and milk most often. Limiting juice to 100% juice, maximum ½ cup (125 mL) a day. Fluid requirements for children vary with age.
- Limiting intake of added sugars found in food, sugar-sweetened drinks, and juices.
- Choosing high fibre foods, such as vegetables, fruits and whole grain breads and cereals, more often
- Limiting intake of salt.
- Avoiding caffeinated beverages.
- Preparing and serving healthy portions to meet the recommendations from Canada's Food Guide.
- Being physically active on a daily basis.

### Health Benefits

Following the recommendations above may help to:

- Promotes optimal growth and development in children and adolescents.<sup>1,2</sup>
- Minimizes the risk of nutrient-related chronic diseases, such as: type 2 diabetes mellitus, obesity, rickets, osteoporosis, hypertension, cardiovascular diseases (CVD) and certain cancers.<sup>1,3</sup>
- Promotes better appetite control.<sup>1,2</sup>
- Promotes better performance at school and work.<sup>1,2,3,4</sup>
- Promotes and maintains a healthy weight when combined with active living.<sup>2</sup>
- Reduces the risk of health concerns, such as: iron-deficiency anemia, dental decay, dyslipidemia and viral infections.<sup>4,5,6,7</sup>

### Key Questions

**What measures are used to assess healthy growth in children?**

Healthy children and adolescents are active and follow their own growth pattern. In most children, height and weight measurements follow consistently along or between the same percentile lines on a growth chart. Exceptions are during the first two years of life (notably birth to six months) and during puberty, when growth is more variable.<sup>8</sup>

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*For Professional Reference Only*

Applicable to: Nurses, Physicians and Health Professionals

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To monitor growth, the following should be done at every clinic and physician visit, including immunizations:

- Measure height and weight; don't rely on reported measurements.
- Plot height and weight on the Centers for Disease Control and Prevention (CDC) 2000 Growth Charts.<sup>9</sup>
- Calculate Body Mass Index (BMI) using measured height and weight. See section below ("How do you know if a child is at risk of being under- or overweight?") for instructions on calculating BMI. Plot the BMI on the CDC 2000 Growth Charts.

Over time, these measurements will reveal a child's individual growth pattern. It is important to take a height measurement in conjunction with weight. A weight measurement without a height measurement will not indicate how appropriate the weight is for that child's stature.<sup>1</sup>

Use of waist circumference in clinical practice is not recommended until waist circumference measurement protocols and health-related classification criteria for children and adolescents are developed.<sup>10</sup>

A shift away from a child's typical growth patterns (height and/or weight for age, BMI-for-age) may be a sign of a nutrition-related problem. However, young bodies can be healthy in a variety of individual shapes and sizes.<sup>1,11,12</sup>

*Refer to Guideline: Body Measurements*

### How do you know if a child is at risk of being under or overweight?

After the age of 2 years, age and sex-specific Body Mass Index (BMI) values may be used to assess appropriate weight for height. A healthy body weight for children and adolescents is defined as a BMI-for-age  $\geq 5^{\text{th}}$  and  $< 85^{\text{th}}$  percentile using the Centers for Disease Control and Prevention 2000 Growth Charts.<sup>9,13</sup>

- Underweight is defined as a BMI-for-age  $< 5^{\text{th}}$  percentile.<sup>14</sup>
- Overweight is defined as a BMI-for-age  $\geq 85^{\text{th}}$  and  $< 95^{\text{th}}$  percentiles.<sup>1,10,13</sup>
- Obesity is defined as BMI-for-age  $\geq 95^{\text{th}}$  percentile.<sup>1,10,13</sup>

To determine BMI-for-age percentile:

- Obtain a measured height (in centimetres).
- Obtain a measured weight (in kilograms).
- Calculate BMI using the formula:  $\text{BMI} = \text{weight in kilograms} / (\text{height in meters squared})$ .<sup>4</sup>
- Plot BMI-for-age on the gender-specific Centers for Disease Control and Prevention 2000 Growth Charts.<sup>1</sup>

*Refer to Guideline: Body Measurements*

*If a child is overweight or at risk for overweight, refer to Guideline: Pediatric Weight Management*

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### What is a healthy eating pattern for a child?

Canada's Food Guide promotes a pattern of eating which meets the nutritional needs of Canadians two years and over. The number of servings per day of each food group depends on the child's age, gender, body size and activity level.<sup>15</sup> Younger children who eat small amounts of food at any one time, and growing children and adolescents, may need to eat frequently throughout the day to meet their nutrient and energy needs. This need is most commonly met by having three meals and 2 to 3 nutritious snacks between meals.<sup>16,17</sup>

A healthy eating pattern includes, but is not limited to:

- Choosing a variety of foods from Canada's Food Guide every day.
- Choosing whole grain and enriched breads and cereals, vegetables and fruits, most often.
- Preparing and serving healthy portions to meet the recommended daily number of Food Guide servings.
- Limiting foods that are high in fat, sugar or salt, such as cookies, chips, sugar-sweetened drinks, and candy. These types of foods can be considered occasionally but should not replace foods that contain the nutrients and energy that children and adolescents need.<sup>18</sup>

*Refer to Guidelines: General Healthy Eating For Children and Adults; Planning Healthy Meals and Snacks*

### What are the four food groups of Canada's Food Guide?

Canada's Food Guide recommends choosing a variety of foods from the four food groups every day.<sup>1</sup>

Gender	Children			Teens	
	Girls and Boys			Females	Males
Age in Years	2-3	4-8	9-13	14-18	
Vegetables and Fruit	4	5	6	7	8
Grain Products	3	4	6	6	7
Milk and Alternatives	2	2	3-4	3-4	3-4
Meat and Alternatives	1	1	1-2	2	3

#### Vegetables and Fruit

Vegetables and fruit provide vitamins, minerals, and antioxidants. Choosing dark green, orange, and brightly coloured vegetables and fruit more often is recommended. Children and youth should consume vegetables and fruit with each meal to meet their number of recommended daily servings. Offer a variety of different types of vegetables and fruit, prepared with little or no added fat, sugar, or salt. Vegetables and fruit may be fresh, frozen, canned, or dried; all are equally nutritious. Offer no more than ½ cup (125 mL) of 100% juice per day.

After eating dried fruit or other sticky foods, teeth should be brushed to reduce the risk of tooth decay.<sup>19</sup>

*Refer to Guidelines: General Healthy Eating for Adults and Children; Vegetable and Fruit Intake*

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### Grain Products

Grain products provide energy, fibre and essential vitamins and minerals. Choosing whole grain products more often is recommended. At least half of the total daily recommended servings of Grain Products should be whole grain. Whole grain choices are naturally higher in fibre and can increase satiety.<sup>18</sup>

*Refer to Guidelines:* General Healthy Eating for Adults and Children; Fibre

### Milk and Alternatives

Milk and Alternatives provide calcium, vitamin D and other essential nutrients which are important for bone and teeth development and maintenance. Provide full fat (3.25%, homo) milk and milk products to children under 2 years of age. Lower fat milk and milk products or fortified soy beverages can be given to children over 2 years.

*Refer to Guidelines:* General Healthy Eating for Adults and Children; Calcium and Vitamin D

### Meat and Alternatives

Meat and Alternatives provide protein, iron, vitamin B<sub>12</sub> and other essential nutrients which are required to help build, maintain and restore tissue in the body. Choosing leaner meats, poultry and fish is recommended, as well as choosing dried peas, beans, lentils and tofu more often. Canada's Food Guide recommends eating at least two servings of fish per week.<sup>2</sup>

*Refer to Guidelines:* General Healthy Eating for Adults and Children; Iron; Vegetarian Eating

<b>How can children and adolescents meet the recommended number of servings listed in Canada's Food Guide?</b>
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Children and adolescents can meet their recommended number of servings by eating three regular meals per day and up to three snacks each day.<sup>16,17</sup> Most meals should include foods from the four food groups. Snacks should contain foods from at least two of the four food groups. If meals are more than 4 to 6 hours apart, children and adolescents should consume a healthy snack, served about 2 hours before a meal so they are hungry at meal time.

*Refer to Guidelines:* General Healthy Eating For Children and Adults; Planning Healthy Meals and Snacks

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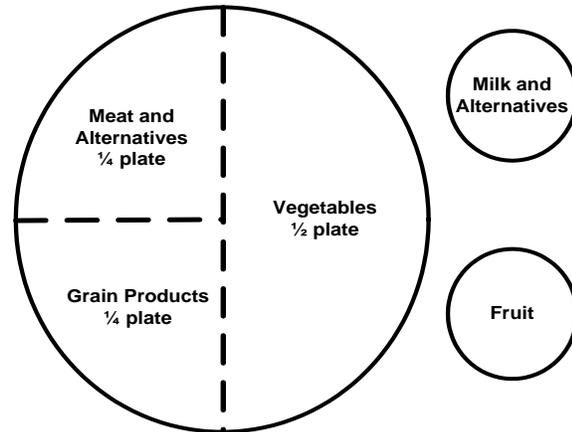
Applicable to: Nurses, Physicians and Health Professionals

## What does a healthy meal look like?

For a healthy meal, aim to include food from all four food groups in Canada's Food Guide.

To build a healthy meal:

- fill  $\frac{1}{2}$  of the plate with Vegetables
- fill  $\frac{1}{4}$  of the plate with Meat and Alternatives
- fill  $\frac{1}{4}$  of the plate with Grain Products
- have 1 serving of Milk and Alternatives
- have fruit on the side



A healthy meal will help with portion control and meeting recommended servings from the four food groups.

*Refer to Guideline: General Healthy Eating For Adults and Children*

## What does a healthy snack look like?

Snacks should be planned based on Canada's Food Guide and should include foods that might be missed during meals. Offer snacks 2 hours before a meal to avoid affecting appetite at mealtime.

Some healthy snack choices are:

- Fresh vegetables and fruit (spice things up by giving yogurt as dip)
- Canned fruit in its own juice
- Whole grain breads, buns and crackers
- Dry, unsweetened cereal and milk
- Cheese
- Hardboiled egg

*Refer to Guideline: Planning Healthy Meals and Snacks*

## What are the key nutrients of concern for children and adolescents?

The key nutrients of concern for children and adolescents are: iron, calcium, vitamin D, fluoride and fibre. For more information on each of these nutrients, see the questions below.

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### Why is iron important for children and adolescents?

Iron deficiency is the most common nutritional deficiency in the world.<sup>20</sup> In children, fast growth is considered the main reason for inadequate iron status, thus it is important to ensure iron is an essential part of children's diets.<sup>20</sup> Iron is vital for the normal cognitive and psychomotor development in children and is needed to make hemoglobin, the oxygen-carrying component of red blood cells (RBCs). The daily recommended intake of iron for children and adolescents varies depending on age and stage of life.

The recommended intakes (RDA) and associated Tolerable Upper Intake Levels (UL) for iron in children and adolescents are:<sup>21</sup>

Life stage group	RDA (mg/day) for Iron				UL (mg/day) for Iron		
	Males	Females	Pregnant Females (<18 years)	Lactating Females (<18 years)	Males	Females	Pregnant/Lactating Females (<18 years)
1-3 years	7	7			40	40	
4-8 years	10	10			40	40	
9-13 years <sup>a</sup>	8	8	27	10	40	40	45
14-18 years <sup>a</sup>	11	15 <sup>b</sup>	27	10	45	45	45

<sup>a</sup> During growth spurts, adolescent boys and girls need 2.9 mg/day and 1.1 mg/day more iron, respectively.

<sup>b</sup> Assuming menstruation begins at the age of 14. If it has not begun, the RDA for iron is 10.5 mg/day.

Following the tips below can increase the iron in a child's diet:

- Choose the following sources of iron more often: beef, clams, enriched cold or hot cereals, fish, liver, mussels, chicken, pork, shrimp, turkey and lamb.
- Other sources of iron: amaranth, asparagus, enriched breads and pastas, chard, chickpeas, dried figs, lentils, molasses, tofu and quinoa
- Eating vitamin C rich vegetables and fruits or juice at each meal helps the body absorb more iron. Good sources of vitamin C include: oranges, lemons, grapefruit and their juices, cantaloupe, honeydew, kiwi fruit, berries, juices fortified with vitamin C, broccoli, cabbage, cauliflower, kale, peppers, potatoes, and tomatoes.
- Cooking high iron foods with good sources of vitamin C also increases the amount of iron the body absorbs.

*Refer to Guideline: Iron*

### Why is calcium important for children and adolescents?

Children and adolescents need calcium to ensure proper growth and maintenance of healthy bones and teeth and to reduce their risk of osteoporosis later in life.<sup>22</sup> Therefore, it is essential that children's and adolescents' dietary practices incorporate a variety of calcium-rich foods. Children's and adolescents' calcium requirements vary throughout their stages of life. Their greatest need for calcium occurs during

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growth spurts, where bone mineral deposition is the highest.<sup>22,23</sup> By the age of 18 years for girls, and 20 years for boys, attainment of peak bone mass has occurred.<sup>23</sup>

The recommended intake (RDA) of calcium and associated Tolerable Upper Intake Levels (UL) in children and adolescents are:<sup>24</sup>

Life stage group	Calcium RDA (mg/day)	Calcium UL (mg/day)
1 to 3 years	700	2500
4 to 8 years	1000	2500
9 to 18 years	1300	3000

Examples of foods that contain calcium are:

- Milk
- Fortified soy, rice, almond or other plant-based beverages
- Fortified orange juice
- Yogurt or kefir (fermented milk)
- Cheese
- Sardines
- Almonds
- Dried figs
- Broccoli

Refer to Guideline: Calcium and Vitamin D

### Why is vitamin D important for children and adolescents?

Vitamin D is essential for the growth and maintenance of healthy bones and teeth in children and adolescents. Vitamin D aids in calcium absorption, thereby reducing children's and adolescents' risk of developing rickets, and in later life, osteoporosis.<sup>25</sup>

Vitamin D has been studied in relation to cancer (including colon and prostate cancer), cardiovascular disease, hypertension, diabetes, metabolic syndrome, weight management, falls and physical performance, immune function, autoimmune disorders, infections, neuropsychological function, and preeclampsia. Currently there is not enough evidence to clearly establish the effects of vitamin D on these health conditions, or to make recommendations about requirements to prevent or manage these conditions.<sup>26,27</sup>

The recommended intake (RDA) of vitamin D and associated Tolerable Upper Intake Levels (UL) in children and adolescents are:<sup>24</sup>

Life stage group	Vitamin D RDA (IU/day)	Vitamin D UL (IU/day)
1 to 3 years	600	2500
4 to 8 years	600	3000
9 to 18 years	600	4000

There is evidence that vitamin D deficiency exists in some Canadians, partly because of low levels of sun exposure.<sup>28,29</sup> As well, it is widely agreed that consuming adequate amounts of vitamin D from dietary sources is difficult.<sup>29,30</sup>

In view of low levels of vitamin D intake from food and probable low levels from sun exposure, Nutrition Services, Alberta Health Services recommends that healthy children and adolescents include food sources of vitamin D in their diet, and supplement their intake as follows:

### Every healthy child (1-18 years) should take 400 IU vitamin D per day as a supplement

Examples of foods that contain vitamin D are:

- Fatty fish, such as salmon, halibut, and herring
- Milk and fortified soy, rice, or almond beverages
- Eggs
- Margarine
- Fortified cereals
- Fortified yogurt or kefir (fermented milk)

*Refer to Guideline: Calcium and Vitamin D*

### What if a child or adolescent doesn't eat milk products?<sup>31</sup>

Children and adolescents may avoid milk products due to allergy, intolerance, because they dislike them, or because they follow a vegetarian or vegan lifestyle. When milk products are removed from the diet, calcium and vitamin D are decreased and must be replaced through other sources. A Registered Dietitian can assess if children and adolescents are meeting their nutrient requirements and can suggest ways to adjust dietary intake.

Children and adolescents who are allergic to cow's milk protein must avoid fluid milk, all products made from cow's milk, and all foods containing ingredients derived from cow's milk, for safety reasons. The protein in goat's milk is very similar to that in cow's milk. Consequently, most cow's milk allergic individuals will also react to goat's milk.<sup>31,32</sup> The majority of children will outgrow a cow's milk allergy by school-age.<sup>33</sup>

Individuals intolerant to lactose, a sugar found in milk and milk products, can usually tolerate limited amounts of Milk and Alternatives at a time.<sup>34</sup> Lactose-reduced Milk and Alternatives may be better tolerated. Enzyme preparations which reduce the lactose content of dairy products before or after consumption may be used by individuals planning to consume larger portions of dairy products in one sitting. These enzyme preparations can be purchased at most pharmacies.

**Non-dairy foods high in calcium** include: calcium-fortified orange juice and soy beverages, baked beans, broccoli, almonds, tofu made with calcium, oranges, dried figs and bok choy. **Vitamin D** is also found in fortified soy beverages, fish, eggs, and margarine.

*Refer to Guideline: Calcium and Vitamin D*

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### Why is fluoride important for children and adolescents?

Fluoride makes tooth enamel stronger, thereby preventing tooth caries and decay. It is naturally found in food sources (shrimp, meat and dairy products) and is added to most municipal drinking water and tooth pastes.<sup>1</sup> A deficiency in fluoride is rare and, therefore, it is not recommended to provide supplemental fluoride to children and adolescents.<sup>1</sup> However, in areas where drinking water contains low levels of fluoride, or when a child is at high risk for dental caries, a fluoride supplement may be prescribed by a physician.<sup>35,36</sup>

### What can be done to prevent tooth problems in children and adolescents?<sup>19</sup>

All foods, even nutritious ones, can cause cavities. Therefore, brushing and flossing after meals and snacks is very important.

Since there are times when brushing and flossing after each snack and meal is not possible, a few other ways to help lower the risk of cavities are:

- Have children and adolescents rinse their mouths with water if brushing teeth is not possible.
- Offer children and adolescents water if they are thirsty.
- Ensure teeth and gums are brushed twice a day with fluoride toothpaste.
- Avoid serving sweet, sugary and sticky foods as a snack; rather serve these foods with a meal.

### Why is fibre important for children and adolescents?

Dietary fibre is the part of plant foods that our bodies cannot fully digest or absorb. Providing adequate dietary fibre in children's and adolescent's diets guards against constipation by increasing fecal bulk, and may lower risk of colon cancer and heart disease later in life.<sup>1,4</sup> Furthermore, high-fibre foods promote satiety and, therefore, may discourage overeating.<sup>1</sup> Good sources of fibre include vegetables, fruits, and whole-grain bread and cereals. The amount of dietary fibre in a food can be found in the Nutrition Facts table, under total carbohydrates.

The recommendation for Adequate Intakes (AI) of fibre (grams per day) in children and adolescents is:<sup>37</sup>

	Children		Pre-adolescents		Adolescents	
Gender	Girls and Boys		Females	Males	Females	Males
Age in Years	1-3	4-8	9-13		14-18	
Total Fibre	19	25	26	31	26	38

*Refer to Guideline: Fibre*

### What should be done if a child is experiencing constipation?

Healthy bowel patterns differ among children and adolescents.<sup>38</sup> Children or teens could have bowel movements after each meal or days apart; each pattern can be healthy. Concern arises when a child is experiencing hard and dry stools associated with painful bowel movements. This may cause the child to hold in stool, leading to abdominal distention.

To prevent constipation in children and adolescents, it is important to keep the bowels healthy by following these tips:

- Offer a balanced diet following Canada's Food Guide. Encourage children and adolescents to eat a variety of foods high in fibre, such as vegetables, fruits, and whole-grains.<sup>38,39</sup>
- Ensure fluid intake is adequate. Provide children and adolescents with their recommended intake of water and milk.<sup>39</sup>
- Maintain regular toilet habits, including unhurried time on the toilet and, perhaps, diaries of stool frequency.<sup>39</sup> Teach children and adolescents not to ignore the urge to have a bowel movement.
- Physical activity may help with maintenance of regular bowel habits.

*Refer to Guidelines:* Constipation; Fibre

### Is a vegetarian diet appropriate for all stages of the life cycle?

Yes, a well-planned vegetarian diet is appropriate for all stages of the life cycle, including childhood and adolescence.<sup>40</sup> Parents and/or caregivers who intend to exclude all animal products from a child's diet should consult a Registered Dietitian to ensure nutrient requirements are met.

*Refer to Guideline:* Vegetarian Eating

### What are the Alberta Nutrition Guidelines for Children and Youth?

The **Alberta Nutrition Guidelines for Children and Youth** are designed to assist facilities and organizations in creating an environment which provides healthy food choices and promotes healthy eating habits.<sup>18</sup> These guidelines can be used wherever food is offered to children and youth; in childcare facilities, schools and recreation or community centres, at special events, and in the community at large.

The guidelines use a food rating system as a simple way to separate healthy foods from the less healthy foods. This rating system puts all foods into three categories based on specific nutritional criteria. The criterion includes guidelines for total fibre, sugar, unhealthy fat, and sodium (salt) content per individual portion. The guidelines use the recommendations in *Eating Well with Canada's Food Guide* to help identify which foods should be placed into the following three categories:<sup>18</sup>

- **Choose Most Often**
- **Choose Sometimes**
- **Choose Least Often**

The *Alberta Nutrition Guidelines for Children and Youth* can be accessed online at:

<http://www.healthyalberta.com/1141.htm>

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### What are Chose Most Often foods in the Alberta Nutrition Guidelines for Children and Youth?<sup>18</sup>

*Choose Most Often* foods are high nutrient foods which should be **consumed daily** in amounts and appropriate portion sizes based on age category. These foods are all recommended as healthy choices in *Eating Well with Canada's Food Guide*. For children in childcare and elementary school, their food and beverage choices should come from foods in the Choose Most Often category

Examples include:

- fresh, frozen, canned or dried vegetables or fruits with no added sugar;
- 100% pure vegetable or fruit juice;
- low fat and low sodium whole grains;
- low fat milk, meats and alternatives.

### What are Chose Sometimes foods in the Alberta Nutrition Guidelines for Children and Youth?<sup>18</sup>

*Choose Sometimes* foods provide some beneficial nutrients, but they tend to be higher in added sugar, fat and sodium (salt). For children and youth in junior and senior high school no more than three choices from the Choose Sometimes category are recommended per week.

Examples include:

- unbleached or white flour breads, grains, pasta, or crackers;
- cereals made from refined grains or with added flavourings;
- grains with added fat and salt.

### What are Chose Least Often foods in the Alberta Nutrition Guidelines for Children and Youth?<sup>18</sup>

*Choose Least Often* foods are low nutrient foods, higher in calories, fat, sugar and salt. Foods in the Choose Least Often category should not be offered in the childcare or school environment. These foods should be eaten less frequently, preferably in the home environment; one serving per week, in small portion sizes

Examples include:

- chips and crackers high in fat and salt;
- sugary cereals, cookies, granola bars and candy;
- high fat and sugar bakery items and frozen desserts;
- sugary drinks like pop and fruit-flavoured beverages.

### How do the Alberta Nutrition Guidelines food categories work?

The Guidelines provide charts for all three food categories, using Canada's Food Guide food groups, to help individuals determine which category foods belong in.<sup>18</sup>

Each chart outlines the food nutrient criteria, based on **one Canada's Food Guide serving**, that a particular food must meet in order to fit into one particular category.<sup>18</sup> The specified serving size shown on the Nutrition Facts table on pre-packaged foods must be noted, as it may be different than that in Canada's Food Guide.

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A food must meet **all** criteria in the chart to fit into a specific category. For example:<sup>18</sup>

- Low fat milk (skim, 1%, 2%) and fortified soy beverage meet the nutrient criteria per serving for total fat, saturated fat, trans fat, sugar, fibre and sodium. This is why they are classified as *Choose Most Often*.
- If chocolate syrup is added for flavour, the fat(s) and sugar content is now higher. This is why chocolate milk belongs in the *Choose Sometimes* category.

When preparing meals and snacks foods from Canada's Food Guide should be chosen with limited fat, sugar or salt, to help fit the dish in the *Choose Most Often* category.

### Should children and adolescents eat fish?

Children 2 years and older should be encouraged to consume at least two Food Guide servings each week of a variety of fish and shellfish which are low in mercury and high in omega-3 fatty acids.<sup>2,41</sup> Fish and shellfish are a good source of protein, are low in saturated fats, and provide benefits from their omega-3 fat content.

Fish and shellfish which are lower in mercury content are better choices.<sup>42</sup> Health Canada advises limiting consumption of some varieties of fish: fresh and frozen tuna, canned albacore (white) tuna, shark, swordfish, escolar, marlin and orange roughy.

For more information about advice for various populations and age groups, go to the Health Canada web page *Mercury in Fish – Questions and Answers*, available at the following link:

[http://www.hc-sc.gc.ca/fn-an/securit/chem-chim/envIRON/mercur/merc\\_fish\\_qa-poisson\\_gr-eng.php](http://www.hc-sc.gc.ca/fn-an/securit/chem-chim/envIRON/mercur/merc_fish_qa-poisson_gr-eng.php)

Refer to Guidelines: Heart Healthy; Pregnancy

### How much fluid to children and adolescents need per day?

Fluid requirements will vary depending on individual differences, outside temperature and participation in physical activity. Satiating thirst and consuming beverages at meals generally provides adequate fluids for individuals to maintain hydration.<sup>43</sup>

In general, the required daily fluid intake for different age groups is as follows:<sup>43</sup>

	Children		Preadolescents		Adolescents	
Gender	Girls and Boys		Females	Males	Females	Males
Ages in Years	2-3	4-8	9-13		14-18	
Fluid intake	1000 mL (4 cups)	1400 mL (5 cups)	1700 mL (7 cups)	1900 mL (8 cups)	1800 mL (7 cups)	2600 mL (10 cups)

Note: Amounts listed are the adequate intakes for fluid, less the water content in food eaten. Water content of food accounts for about 20% of total water intake.<sup>15</sup>

### What is a healthy drink for children and adolescents?

The Alberta Nutrition Guidelines for Children and Youth encourage facilities and organizations to consider the following when choosing beverages:<sup>18</sup>

- Promote the consumption of water to quench thirst and provide adequate hydration.
- Provide access to refrigerated milk, fortified soy beverages and 100% vegetable and/or fruit juices.
- Limit 100% pure vegetable or fruit juice to ½ cup (125 mL) per day.
- To help meet calcium and vitamin D daily requirements, low fat milk (skim, 1%, 2%) or fortified soy beverages are recommended in the following amounts:<sup>2</sup>
  - 2 to 8 years = 2 cups (500 mL) daily.
  - 9 to 18 years = at least 2 cups (500 mL) daily.
- Avoid beverages like pop, iced tea, sports drinks, diet beverages, fruit punches, “drinks” and “ades” (e.g. lemonade).
- Avoid caffeinated beverages, such as tea, coffee, and pop.

### Is it okay for children and adolescents to drink chocolate milk?

Chocolate milk provides the same bone-building nutrients as regular milk and contains less sugar than 100% pure fruit juice. However, chocolate milk and other flavoured milk beverages contain enough added sugars to put them in the *Choose Sometimes* food category in the *Alberta Nutrition Guidelines for Children and Youth*; therefore, flavoured milk beverages should be consumed no more than 3 times per week.<sup>18</sup>

### Are sports drinks recommended for children and adolescents?

For most regularly active children and youth, water is still an excellent first choice during and after physical activity.<sup>44</sup>

Flavoured beverages or sports drinks (which have added flavour, carbohydrate – mostly as sugars – and electrolytes, like sodium and potassium) often increase the amount of fluid voluntarily consumed, resulting in better hydration during exercise than plain water. Therefore, for children and adolescents who find it difficult to stay hydrated during intense exercise, especially during exercise in the heat, choosing beverages they find more palatable may help.<sup>45</sup> However, sports drinks should not replace other healthy drinks in a child's or adolescent's meal pattern.

### What about energy drinks for children and adolescents?

Energy drinks are not the same as sports drinks. They are generally high in calories and sugar; they often also contain high levels of caffeine (50-200 mg per can), which exceed the maximum caffeine recommendations for most children and teens.<sup>46</sup>

Energy drinks are not recommended for children and adolescents due to their sugar and caffeine content.<sup>18</sup> Provision of caffeinated beverages to children and youth should be avoided, as caffeine may cause children to become excited, restless, irritable and unable to sleep. Caffeine can also make it difficult for children to concentrate.<sup>18</sup>

*Refer to Guideline: Food and Drinks High in Calories, Fat, Sugar or Salt*

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### How can children and adolescents eat healthfully at school?

Children and adolescents spend the majority of their time away from home, either at school or partaking in school related activities. Proper nutrition helps to ensure they have enough energy to participate and concentrate at school.

The ideas below will help ensure that children and adolescents are receiving a nutritious lunch:

- Plan ahead and shop in advance to ensure there are a variety of nutritious choices available when making lunches.
- Involve your child in planning, preparing and making lunches.
- Be a role model. Remember children will mimic parent's and/or caregiver's behaviours.
- Do some research. Investigate the nutrition programs and food choices available to children and adolescents at their schools.
- Advocate for a healthy eating environment in schools. There are some ideas in the *Alberta Guidelines for Children and Youth* (<http://www.healthyalberta.com/1141.htm>).

Some safe food handling tips for making bag lunches are:

- Use thermos containers for hot soups, casseroles or cold salads.
- Sandwiches with meat, cheese, fish or poultry can be made ahead of time and frozen, for safety and convenience.
- Wash and peel enough vegetables for several days. Wrap in a damp towel, close tightly in a plastic bag and refrigerate.

*Refer to Guideline: Planning Healthy Meals and Snacks*

### How can children and adolescents eat healthfully outside the home?

As children grow older they frequently eat their meals away from home. Fast food meals may be eaten more often by children and adolescents when not at home; these are associated with a lower intake of vegetables and fruit and milk products.<sup>1</sup>

Parents and/or caregivers and their children and adolescents can use the following strategies to ensure eating out is nutritious:

- Plan ahead. Go online and look at the restaurant's menu and nutrition information.
- Make sure the meal offers choices from each of Canada's Food Guide's four food groups.
- Choose water or milk for a beverage, to minimize intake of high sugar beverages and foods.
- Choose items that are grilled; these are usually lower in fat and calories than food which has been deep fried.
- Add extra vegetables to the meal (for example, enjoy a salad with light dressing).

*Refer to Guideline: Eating Out*

### What are the roles of parents and/or caregivers in establishing healthy meal habits?

External factors, such as peers and media, have the potential to negatively influence a child's ability to respond to internal satiety cues and/or obtain adequate intakes.<sup>11</sup> However, parents and caregivers play a significant role in children's and adolescents' food-related feelings and behaviors. Parents have direct control over what food and activities are available in the house. More importantly, they serve as role models for nutrition and activity for their children.<sup>47</sup>

Parents and/or caregivers can show children that healthy eating is important for everyone in the household by:<sup>16,17</sup>

- Choosing and buying nutritious foods.
- Making and serving healthy, balanced meals that include Canada's Food Guide four food groups.
- Offering meals and snacks at regular times, and avoiding skipping meals.
- Sitting and eating with their children at mealtimes to show them appropriate mealtime behaviour.
- Keeping family mealtimes pleasant and without distractions.
- Avoiding the use of foods as a reward or punishment.

In addition, it is essential for parents and/or caregivers to provide children with foods that are suited to their eating behaviours and developmental skills.<sup>18</sup>

*Refer to Guideline: General Healthy Eating For Children and Adults*

### What is a child's role in healthy eating?

Children and adolescents gain knowledge and learn habits from those around them. Their choices are heavily influenced by environmental cues.<sup>48</sup>

At meals and snacks, children are responsible for deciding whether or not they eat and how much they eat of the food served. Therefore, it is important for parents and/or caregivers to always model and encourage healthy eating.

### What skills and behaviours might a child may exhibit while eating?

The transition from weaning to consumption of a mature diet is a gradual process. It may start as early as around 6 months and not be completed until the age of 2 years. By the age of 2, most children's food choices are similar to older individuals.<sup>3</sup> Listed below are common skills and behaviours children between the ages of 2 to 5 years exhibit during mealtimes:<sup>16,49</sup>

Toddler (18 months to 3 years old):

- Holds glass or cup with one hand.
- Chews food more, but choking is still a hazard.
- Uses fork and spoon with more skill.
- Insists on doing it alone. Spills a lot and mealtime is messy.
- Can be very demanding. Definite likes and dislikes.
- Is easily distracted. Dawdles over meal times. Feelings of hunger are less as growth slows down.

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Preschooler (3 to 5 years old):

- Is a good self-feeder with spoon and fork. Learning to use a knife safely.
- Can open the fridge and pour liquids from a small pitcher.
- Is able to eat hard foods like popcorn and nuts after 4 years of age.
- Shows improved appetite and interest in food (including where food comes from).
- Is influenced by T.V. commercials, family and friends.
- Is often distracted and would rather talk than eat.

Toddlers and preschoolers may have fussy eating behaviour.<sup>16</sup> It is common for children in these age groups to want to eat only one or two kinds of foods for a few days or longer ('food jags').<sup>16</sup> Food eaten today may be refused tomorrow, and asked for in a week.<sup>16</sup> It is important to provide children with appropriate food textures based on the eating behaviours and developmental skills of the child, to reduce the risk of choking.

Parents and caregivers can support healthy eating behaviours in children by trying the following:

- Set regular meal times and offer healthy choices.
- Be patient and continually offer a variety of nutritious foods choices.
- Encourage participation in meal planning and preparation activities, like washing vegetables.
- Offer favorite foods at meal times along with not so favorite foods in small portions.
- Remove uneaten food within about 20 to 30 minutes of serving. Quietly explain when the next planned meal or snack will be provided.

### At what age is choking a concern?

Although choking is a concern for all ages, it is especially a concern during the first four years.<sup>1,50</sup> Up to the age of 4, children are developing chewing and grinding oral skills, therefore, it is important to take extra precautions to minimize risk.

The following strategies can reduce the likeliness of a child choking:

- Cut large foods into small pieces.
- Eat all meals and snacks while sitting, as the risk of choking is greater when a child is lying down or running with food in the mouth.<sup>1,50</sup>
- Avoid eating in the car; sudden movement increases choking risk.<sup>50</sup>
- Encourage small bites. Avoid taking large mouthfuls of food.

Recognize foods that may cause choking:<sup>51</sup>

Foods that may cause problems	What to do to make them safe
Stringy or chewy (e.g. meat or cheesy toppings)	Cut the food up into small pieces
Sticks to the roof of the mouth (e.g. peanut butter)	Spread it very thinly for your baby
Round or smooth foods (e.g. grapes or cherries)	Cut them into four parts and take out the pits/seeds
Foods like wieners or hot dogs	Cut them lengthwise and then cut again into bite-sized pieces
Hard foods (e.g. raw vegetables or fruit)	Cook to soften them or grate them into tiny pieces
Hard candies, nuts, seeds, popcorn, fish with bones, or snacks with toothpicks or skewers	Do not give these foods to children before they are 4 years old

### How can a parent and/or caregiver introduce new foods to children and adolescents?<sup>49,52</sup>

Often children and adolescents refuse new foods because they are unfamiliar. It is important that parents and/or caregivers continually try to introduce the food in small amounts. Multiple exposures to a new food increase the likelihood of a child accepting the new food; up to 10-15 exposures<sup>16</sup> be needed. Do not overwhelm the child during meal or snack times with new foods. Introduce one new food at a time. This will help to develop consistency and familiarity.

Helpful ideas for introducing new foods include, but are not limited to:

- Introduce new foods in small amounts at the beginning of the meal while children are still hungry.
- Introduce new foods alongside a familiar one.
- If the food is initially refused, try offering it again by preparing it a different way.
- Do not pressure children into eating a new food, as this will only cause more refusal.
- Gently encourage children to eat; never bribe them with dessert.
- Involve children and adolescents in growing, choosing, preparing and serving food as much as possible.
- Children mimic people around them. Model healthy eating and comment on how the new food looks, smells and tastes.

### Why might a child be a selective eater?

As children grow, they begin to develop autonomy and begin to make their own food choices. A child's refusal to eat a particular food can be attributed to the food not being familiar or an attempt by the child to establish his/her independence.<sup>1</sup> Consequently, meal times can become a struggle when children refuse to eat what is prepared for them. Even with repeated exposure, there still may be some foods that the child may never want to eat.

### What can parents and/or caregivers do if their child is a selective eater?

Listed below are strategies which may help reduce picky eating:

- Serve small amounts of familiar foods with each meal.
- Serve new foods alongside familiar ones.
- Ensure snacks are not too close to meals. There should be at least 2 hours before or after meals.
- Offer everyone in the family the same foods during meals and snacks.
- Establish regular but flexible snack and meal times.
- Plan a rest break before meals, as children may not be interested in eating if they are engaged in an activity.
- Have the child sit at a table when eating; away from distractions such as the television.
- Allow your child to have at least 20 to 30 minutes to eat a meal. If a child refuses a meal or snack but asks for food or drink soon after, decline requests except for water, and explain when the next meal or snack will be served.

**How can parents and/or caregivers make sure their child is getting enough nutrition if he/she is a selective eater?**

Grazing could lead to early satiety and cause the child to avoid eating during mealtimes.<sup>1</sup> Therefore, be consistent with what is offered at meals and snacks. This will allow the child to eat adequate servings from each of the food groups in Canada's Food Guide during the day.

The following strategies can help to meet a growing child's nutrition needs if he/she refuses certain foods:

**Refuses Vegetables and/or Fruit:**

- Cut vegetables and fruits in fun shapes and serve with dips or sauces.
- Add extra vegetables to canned soups or entrees.
- Add shredded carrots or zucchini to homemade muffins, pancakes and waffles.
- Add dried fruit such as raisins, apricots or dates to hot or cold cereals, salads and baking.
- Add fruit to yogurt and cereals.
- Mince vegetables and add them to pasta sauces, pizza and meatloaf.

**Refuses Milk:**

- Add milk or skim milk powder when cooking sauces, soups, hot cereals, pancakes or casseroles.
- Add milk or skim milk powder when baking muffins, cakes or biscuits.
- Prepare smoothies from milk, yogurt and fruit.
- Provide alternative foods which are a good source of calcium, such as cheese or yogurt.
- Add cheese to egg dishes, casseroles, and favorite sandwiches.

**Refuses Meat and/or Meat Alternatives:**

- Dice or grind meat, fish or poultry and add to soups and sauces.
- Serve ground beef, pork, chicken or turkey in meatloaf, meat pies, chili and pitas.
- Cut up hard boiled eggs and add to salads.
- Blend or puree legumes or lentils and add to tomato or cheese-based sauces. Use these sauces on noodles and cooked vegetables.
- Spread peanut butter on toast, crackers, muffins, bananas, apple wedges or celery.

**What is the difference between a serving and a portion?**

A serving is a standard amount used in Canada's Food Guide. A portion is the amount of food an individual chooses to eat at one time. Proper portion sizes in meals and snacks are one step towards achieving appropriate energy and nutrient intake.

*Refer to Guideline: Portion Sizes*

**Are the serving sizes for children different than adults?**

For each food in Canada's Food Guide there is only one suggested serving size. Different people need to eat a different number of servings based on their age, gender, body size and activity level.

For ages 1 to 3, the servings in the Food Guide can be divided into smaller amounts and served throughout the day. For example, a vegetable or fruit serving may be divided into two portions. The portions can be provided at two different snacks to add up to one full Vegetable and Fruit serving.<sup>16</sup>

Alberta Health has produced a series of education resources which illustrate children's food serving sizes by comparing them to common household items (*Food Guide Serving Sizes for Children 1-4, 5-11 and 13-18 Year Olds*). These are available online at: <http://healthyalberta.com/428.htm>

### What is the recommended amount of physical activity for children and adolescents?

Children of all ages should be physically active. Physical activity promotes healthy growth and development by building strong bones, strengthening muscles, improving fitness, and improving self-esteem.<sup>1</sup> It is important for physical activity to be fun, and to be a part of children's and adolescents' daily routines. Opportunities to be physically active could include team, individual, and recreational activities.

#### For children 2- 4 -years old:

Children 2-4 years should accumulate at least 180 minutes of physical activity at any intensity spread throughout the day, including a variety of activities in different environments and activities that develop movement skills.<sup>53</sup>

For healthy growth and development, sedentary time should be minimized for ages 2-4 years during waking hours. This includes prolonged sitting for more than one hour at a time. Screen time should be limited to less than one hour per day for children aged 2-4 years.<sup>54</sup>

#### For children and adolescents 5-17 years old:

For health benefits, children aged 5-17 years should accumulate at least 60 minutes of moderate to vigorous intensity physical activity daily, including vigorous activities at least 3 days per week, and activities that strengthen muscle and bone at least 3 days per week.<sup>55</sup>

Recreational screen time should be limited to no more than 2 hours per day. Extended sedentary sitting time and time spent indoors should be limited. Spending less time being sedentary can maintain a healthy body weight, improve self-confidence, improve fitness, help children do better in school, increase enjoyment with friends, and provide new skills.<sup>56</sup>

For more information refer to:

- The Canadian Physical Activity and Canadian Sedentary Behavior Guidelines, available at: [www.csep.ca/guidelines](http://www.csep.ca/guidelines). Guidelines are available for:
  - 0 – 4 years
  - 5 – 11 years
  - 12 – 17 years
- The Alberta Health handout series *Healthy Eating and Active Living* for physical activity ideas for children and adolescents. These are available at: <http://healthyalberta.com/428.htm>.
  - Healthy Eating and Active Living: For Your 1 to 4 Year Old
  - Healthy Eating and Active Living: For Your 5 to 11 Year Old
  - Healthy Eating and Active Living: For ages 13 to 18 years

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### What type of physical activity is recommended for children and adolescents?

For the best results, Health Canada recommends a combination of 3 types of physical activities for children and adolescents:<sup>12,13</sup>

1. **Endurance activities** make children breathe deeper and make their hearts beat faster. Examples include running, jumping, swimming and soccer.
2. **Flexibility activities** bend and move the joints. Examples include gymnastics, dancing and yoga.
3. **Strength activities** build strong muscles and bones. Examples include climbing and swimming.

*Refer to Guideline: Physical Activity*

### What are ways an inactive child can become more physically active?<sup>57,58</sup>

- Increase outdoor activities such as walking to school, walking the dog, raking leaves, shovel snow, play in the park, skateboarding, bike riding, and running.
- Reduce screen time and replace computer and TV time with something active
- Build active opportunities into daily classroom routines and encourage children to join a sport team
- Physical activity should include a combination of moderate activity (such as brisk walking, skating and bike riding) with vigorous activity (such as running and playing soccer).<sup>57,58</sup>

### Are there any handouts on children and adolescents I can use with my clients?

Refer to approved provincial Alberta Health Services nutrition handouts to support patient education. For more information, contact [Nutrition.Resources@albertahealthservices.ca](mailto:Nutrition.Resources@albertahealthservices.ca)

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