

# Nutrition Guideline

## Healthy Infants and Young Children

### Other Drinks

*For Professional Reference Only*

Applicable to: Nurses, Physicians and Other Health Professionals

#### Recommendations

- 2 – 3 oz (60 – 90 mL) of water may be offered starting at around 6 months of age once complementary foods have been introduced.
- Pasteurized 3.25% (homogenized) milk can be offered around 9 – 12 months of age once an infant is eating iron-rich foods daily.
- Eating whole vegetables and fruit is recommended instead of juice. Juice is not needed for infants and young children. If juice is offered, it should be:
  - only offered after 6 months of age
  - 100% unsweetened juice
  - served in an open cup; not in a sippy cup or bottle
  - offered as part of a meal or snack
  - limited to ½ cup (125 mL) per day
  - pasteurized
  - without added nutrients such as folic acid, plant sterols, fibre and omega fats
- Drinks sweetened with sugar or sugar substitutes are not recommended for infants and young children. This includes drinks such as pop, fruit drinks, punches, cocktails and sports drinks.
- Herbal teas and drinks containing caffeine (including energy drinks) should not be offered to infants or young children.

#### Health Benefits:

This nutrition guideline will provide information on and considerations for the use of drinks for infants and young children. This information will assist health professionals when educating parents on appropriate drink choices for infants and young children to help support healthy growth and development.

#### Key Questions

##### What drinks are recommended for infants and young children?

Breastmilk is recommended for up to 2 years and beyond.<sup>1</sup> Commercial infant formula is the only recommended alternative to breastmilk for infants younger than 9 months of age. Water and milk are also healthy drink choices for older infants and children. Small amounts of water (2 – 3 oz. or 60 – 90 mL) may be offered starting at around 6 months of age once complementary foods have been introduced. Pasteurized 3.25% (homogenized) milk can be offered around 9 – 12 months of age once an infant is eating iron-rich foods daily.<sup>1</sup> More information on breastmilk, infant formula, water, milk, and plant-based beverages can be found within other sections of the [Nutrition Guidelines for Healthy Infants and Young Children](#).

##### Should infants and young children be offered juice?

Juice should not be offered to children younger than 6 months of age. Juice may displace breastmilk or infant formula and may contribute to inadequate intake of energy and essential nutrients such as protein, fat, vitamins and minerals.<sup>2</sup> For children 6 months of age and older, juice may be offered but is not necessary for a healthy diet.

# Nutrition Guideline

## Healthy Infants and Young Children

### Other Drinks

*For Professional Reference Only*

Applicable to: Nurses, Physicians and Other Health Professionals

---

#### **If juice is offered after 6 months of age, how should it be provided?**

Eating whole vegetables and fruit is recommended instead of juice.<sup>1,2</sup> If juice is offered, it should be 100% unsweetened juice and limited to ½ cup (125 mL) per day.<sup>2,3,4,5</sup> Excessive juice intake has been associated with malnutrition (over- and undernutrition), gastrointestinal symptoms (e.g. diarrhea, flatulence, abdominal distension), early childhood caries, and decreased calcium density in the diet.<sup>6</sup> Juice should be served as part of a meal or snack and provided in an open cup, not a bottle or sippy cup.<sup>1,2,3,7,8</sup> Offering juice in a bottle or sippy cup can prolong exposure of an infant's teeth to the fermentable carbohydrates found in juice which has been associated with dental caries and early childhood caries.<sup>2,8</sup>

These same considerations would apply for home-squeezed juices. For more information on home-squeezed juices, see section on "[Unpasteurized milk and juice](#)" below.

Fruit drinks labelled as drinks, punches, beverages and cocktails are not 100% juice. These drinks are sweetened with sugar or sugar substitutes and often lack vitamins and minerals and should not be offered to infants and young children.<sup>1</sup>

#### **Are fortified juices beneficial?**

Many juices are now fortified with other nutrients such as vitamin D, calcium, fibre, and omega fats (DHA [docosahexaenoic acid]). Although fortified juices can be a source of these nutrients, the recommendation is to limit juice intake to ½ cup (125 mL) per day; therefore, amounts of these nutrients obtained from fortified juice would be minimal. An infant's or young child's needs for vitamin D, calcium, fibre, and healthy fat can be met through healthy food choices and a daily vitamin D supplement of 400 IU.

Fruit juices fortified with plant sterols are also available in Canada. Plant sterol enriched foods are not recommended for children under 6 years of age.<sup>9,10</sup> Plant sterols are effective at lowering serum LDL cholesterol levels in hypercholesterolemic adults through reduced absorption of cholesterol in the gut.<sup>11</sup> However, cholesterol is essential for normal growth and development and lowering blood cholesterol is not normally a priority for children.<sup>10</sup>

#### **Are there nutritional differences between fruit juice and whole fruits?**

Fruit juice lacks the fibre of whole fruit;<sup>1,2</sup> therefore, juice does not contribute to health benefits that have been associated with fibre, including regular bowel habits.<sup>12</sup>

Juices can be consumed more quickly than whole vegetables or fruits which can easily lead to overconsumption. Reliance on juice to meet daily vegetable and fruit servings does not promote healthy eating behaviours associated with the consumption of whole vegetables or fruits.<sup>2</sup>

#### **Should juice be diluted before being offered to young children?**

There is no need to dilute juice. Diluting juice with water and providing it throughout the day is not recommended as it allows a child to get accustomed to drinking sweet liquids and prolongs the amount of time teeth are exposed to sugar (which can negatively impact oral health).<sup>13</sup> If juice is diluted, it should still be limited to ½ cup (125 mL) per day.

---

# Nutrition Guideline

## Healthy Infants and Young Children

### Other Drinks

*For Professional Reference Only*

Applicable to: Nurses, Physicians and Other Health Professionals

---

#### What drinks are NOT recommended for infants and young children?

Unpasteurized milk or juice, drinks containing caffeine, herbal teas and vitamin waters should not be offered to young children.<sup>1,14,15</sup> Drinks sweetened with sugar or sugar substitutes are not recommended for infants and young children.<sup>1,16</sup>

#### Unpasteurized Milk and Juice

Infants and young children should not consume unpasteurized milk or juice because it may contain pathogens that can cause serious illness.<sup>1,2,14,15</sup> Unpasteurized juice is usually purchased as “fresh-squeezed” from local orchards, roadside stands, farmers markets, country fairs and juice bars, and at grocery stores on ice, in refrigerated display cases and in produce sections.<sup>15</sup> Although Health Canada encourages producers to label their products as “unpasteurized” when they have not been pasteurized, this practice is currently not mandatory. Consumers should check the label of fresh squeezed products to ensure they are labelled as “pasteurized”.<sup>15</sup>

Home-squeezed juices can be safely offered to infants and young children if proper food safety practices are followed:<sup>17</sup>

- Hands are washed well with soap and warm water for at least 20 seconds.
- All equipment and utensils used for juicing have been washed thoroughly in the dishwasher or in warm, soapy water before and after each use.
- Only tree-picked fruit is used for juicing. Fruit that has dropped from the tree onto the ground or any fruit that is diseased, mouldy, rotten or with animal/bird excrement should not be used.<sup>18</sup>
- All vegetables and fruit (including those that will be peeled) are washed well under cool, running, drinkable water before juicing. A clean produce brush should be used to scrub produce that has firm skins (e.g. carrots, melons, oranges).

Home-squeezed juices should be brought to a rolling boil and cooled to help make them safer.<sup>17</sup> To find out how to pasteurize juice for home storage, see Healthlink BC at <https://www.healthlinkbc.ca/healthlinkbc-files/unpasteurized-fruit-juice-health-risk>.

For more information on unpasteurized milk, refer to the *Nutrition Guideline: [Milk](#)*.

#### Caffeine

Children should avoid caffeine. Caffeine’s stimulatory effects can cause nervousness and negatively affect the proper sleep that is essential to a child’s growth and development.<sup>19,20</sup> Trend data from the United States shows that the major dietary contributors of caffeine in children 2 – 5 years of age are soda and tea; at 27% and 29% respectively.<sup>21,22</sup>

Energy drinks should not be given to infants and young children as they contain high levels of caffeine, sugar and/or sugar substitutes, and other ingredients such as herbs, amino acids and B vitamins.<sup>23</sup>

#### Herbal Teas

Some herbs may have unknown adverse side-effects or pharmacologic actions.<sup>24</sup> More research is needed on the safety of herbal teas for infants, including the potential impact of the herbs themselves, the potential displacement effect of herbal teas on breastmilk and/or formula intake and breastmilk production, and overall impact on nutrition.<sup>25</sup>

# Nutrition Guideline

## Healthy Infants and Young Children

### Other Drinks

*For Professional Reference Only*

Applicable to: Nurses, Physicians and Other Health Professionals

---

#### **Vitamin Waters**

Vitamin waters should not be offered to infants and young children. Vitamin waters are a type of flavoured water with added vitamins and minerals; the amounts of which may exceed requirements for infants and young children. These drinks may also contain added ingredients such as caffeine, herbs and added sugars or sugar substitutes.

#### **Sugar Sweetened Beverages**

Sugar sweetened beverages such as sports drinks; pop; slushes; and fruit drinks, punches, cocktails, and beverages should be avoided as they have a high sugar content, and lack vitamins and minerals.<sup>1</sup> Intake of sugar sweetened beverages in infancy and early childhood is associated with an increased risk of obesity in childhood and with early childhood caries.<sup>3,26,27,28,29,30</sup> Sugar sweetened beverages do not provide the nutrients needed for healthy growth and may displace nutrient dense choices.

#### **Sugar Substitutes**

For optimal growth and development nutrient dense foods are recommended for infants and children.<sup>1,31</sup> Drinks containing sugar substitutes are often of low nutrient value and may displace the nutrient and energy-dense foods needed for healthy growth.<sup>1</sup>

Due to the lack of research about the safety of sugar substitutes in infancy, and the critical nutritional needs at this age, sugar substitutes are not recommended for infants under the age of 12 months.<sup>16</sup>

In children 12 months and older, there is no evidence to show harmful effects of occasional consumption of sugar substitutes but foods and beverages containing sugar substitutes are often not nutrient dense and generally not recommended.

For more information on sugar substitutes, refer to the *Nutrition Guideline: [Sugar Substitutes](#)*.

**Are there any resources related to feeding healthy infants and children that I can use with my clients?**

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

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

# Nutrition Guideline

## Healthy Infants and Young Children

### Other Drinks

*For Professional Reference Only*

Applicable to: Nurses, Physicians and Other Health Professionals

---

#### References

---

- <sup>1</sup> Health Canada, Canadian Paediatric Society, Dietitians of Canada, Health Canada and Breastfeeding Committee for Canada. Nutrition for healthy term infants: recommendations from six to 24 months. [document on the Internet] 2015 Jan 19 [cited 2016 May 18]. Available from: <http://www.hc-sc.gc.ca/fn-an/nutrition/infant-nourisson/recom/recom-6-24-months-6-24-mois-eng.php>
- <sup>2</sup> American Academy of Pediatrics, Committee on Nutrition. The use and misuse of fruit juice in pediatrics. Pediatrics. [serial on the Internet]. 2001. Statement reaffirmed on October 2006. [cited 2016 May 18];107(5):1210-3. Available from: <http://pediatrics.aappublications.org/cgi/content/abstract/107/5/1210>.
- <sup>3</sup> Stephens MB, Keville MP, Hathaway NE, Kendall SK. Clinical inquiries. When is it OK for children to start drinking fruit juice? J Fam Pract. 2009 Sep [cited 2016 May 18];58(9):E3. Abstract available from: <http://www.ncbi.nlm.nih.gov/pubmed/19744411>
- <sup>4</sup> Health Canada. Eating well with Canada's Food Guide [document on the Internet]. Minister of Health Canada; 2007 [cited 2016 May 18]. Available from: <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php>.
- <sup>5</sup> Alberta Health. Alberta nutrition guidelines for children and youth [document on the Internet]. 2012 Sept. [cited 2016 May 18]. Available from <http://www.health.alberta.ca/documents/Nutrition-Guidelines-AB-Children-Youth.pdf>
- <sup>6</sup> Dietitians of Canada. Should fruit juice be introduced to an infant's diet? If so, when and how? In: Practice-Based Evidence in Nutrition [PEN] 2014 05 14 [cited 2016 May 18]. Available from: [www.pennutrition.com](http://www.pennutrition.com). Access only by subscription
- <sup>7</sup> American Dental Association. From baby bottle to cup: choose training cups carefully, use them temporarily. J Am Dent Assoc. 2004;135:387
- <sup>8</sup> Colak H, Dulgergil CT, Dalli, M, Hamidi MM. Early childhood caries update: A review of causes, diagnoses, and treatments. J Nat Sci Biol Med. 2013 Jan-Jun [cited 2016 October 18]; 4(1): 29–38. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3633299/?tool=pmcentrez>
- <sup>9</sup> Health Canada. General Q and As on plant sterols. 2011 Aug 24 [cited 2016 July 29]. Available from: <http://www.hc-sc.gc.ca/fn-an/label-etiquet/nutrition/cons/claims-reclam/faq-eng.php>
- <sup>10</sup> Cofan M, Ros E. Clinical application of plant sterol and stanol products. J AOAC Int. 2015;98(3):701-6.
- <sup>11</sup> Plat J, Baumgartner S, Mensink RP. Mechanisms underlying the health benefits of plant sterol and stanol ester consumption. J AOAC Int. 2015;98(3):697-700
- <sup>12</sup> Williams C. Dietary fibre in childhood. J Pediatr. 2006 [cited 2016 May 18];149(5):S121-30. Abstract available from: <http://www.jpeds.com/article/PIIS0022347606006263/abstract>
- <sup>13</sup> Berkowitz RJ. Causes, treatment and prevention of childhood caries: a microbiologic perspective. J Can Dent Assoc. 2003;69(5):304-7
- <sup>14</sup> Health Canada. Risks of drinking raw milk. 2013 Aug 6 [cited 2016 Oct 19]. Available from: <http://www.healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2013/34889a-eng.php>
- <sup>15</sup> Health Canada. Unpasteurized juice and cider. [Internet]. 2013 Jan 09 [cited 2016 May 18]. Available from: <http://healthycanadians.gc.ca/eating-nutrition/healthy-eating-saine-alimentation/safety-salubrite/fruits-vegetables-legumes-fruits/unpasteurized-pasteurises-eng.php>

# Nutrition Guideline

## Healthy Infants and Young Children

### Other Drinks

*For Professional Reference Only*

Applicable to: Nurses, Physicians and Other Health Professionals

---

- <sup>16</sup> Dietitians of Canada. Sweeteners evidence summary. In: Practice-based Evidence in Nutrition [PEN]. 2013 October 29 [cited 2016 June 2]. Available from: [www.pennutrition.com](http://www.pennutrition.com) Access only by subscription
- <sup>17</sup> Health Canada. Food safety information for children ages 5 and under. 2016 Aug 9 [cited 2016 Oct 19]. Available from: <http://www.healthycanadians.gc.ca/eating-nutrition/healthy-eating-saine-alimentation/safety-salubrite/vulnerable-populations/children-under-5-moins-enfant-eng.php>
- <sup>18</sup> Health Canada. Code of practice for the production and distribution of unpasteurized apple and other fruit juice/cider in Canada. 2012 June 25 [cited 2016 Nov 28] Available from: <http://www.inspection.gc.ca/food/processed-products/manuals/code-of-practice/eng/1340636187830/1340637184931#a4-2>
- <sup>19</sup> Orbeta RL, Overpeck MD, Ramcharran D, Kogan MD, Ledsky R. High caffeine intake in adolescents: associations with difficulty sleeping and feeling tired in the morning. *J. Adolesc. Health*. 2006; 38:451- 453
- <sup>20</sup> Temple J. Caffeine use in children: What we know, what we have left to learn, and why we should worry. *Neurosci Biobehav R*. 2009;33:793–806
- <sup>21</sup> Branum AM, Rossen LM, Schoendorf KC. Trends in caffeine intake among US children and adolescents. *Pediatrics*. 2014;133(3):386–93. doi:10.1542/peds.2013-2877
- <sup>22</sup> Ahluwalia N, Kirsten Herrick K. Caffeine intake from food and beverage sources and trends among children and adolescents in the United States: Review of National Quantitative Studies from 1999 to 2011<sup>1-5</sup>. *Adv. Nutr.* 2015; 6:102–111; doi:10.3945/an.114.007401.
- <sup>23</sup> Health Canada. Information for parents on caffeine in energy drinks. 2012 May 10 [cited July 26, 2016]. Available from: <http://www.hc-sc.gc.ca/fn-an/securit/addit/caf/faq-eng.php>
- <sup>24</sup> Health Canada, Canadian Paediatric Society, Dietitians of Canada, Health Canada and Breastfeeding Committee for Canada. Nutrition for healthy term infants: recommendations from birth to six months. [Internet] 2015 May 18 [cited 2016 May 18]. Available from: <http://www.hc-sc.gc.ca/fn-an/nutrition/infant-nourisson/recom/index-eng.php>
- <sup>25</sup> Dietitians of Canada. Can herbal tea reduce the symptoms of infant colic? In: Practice-based Evidence in Nutrition [PEN]. 2012 Aug 2 [cited 2016 July 13]. Available from: [www.pennutrition.com](http://www.pennutrition.com) Access only by subscription
- <sup>26</sup> Pan L, Li R, Park S, Galuska D, Sherry B, Freedman D. A longitudinal analysis of sugar-sweetened beverage intake in infancy and obesity at 6 years. *Pediatr*. 2014;134(Suppl 1):S29–35.
- <sup>27</sup> DeBoer M, Scharf R, Demmer R. Sugar-sweetened beverages and weight gain in 2- to 5-year-old children. *Pediatrics* 2013 [cited 2016 May 18];132:413–20. Available from: <http://pediatrics.aappublications.org/content/132/3/413>
- <sup>28</sup> Lim S, Zoellner JM, Lee JM, Burt BA, Sandretto AM, Sohn W, et al. Obesity and sugar-sweetened beverages in African-American children: a longitudinal study. *Obesity*. 2009; doi:10.1038/oby.2008.656.
- <sup>29</sup> Evans EW, Hayes C, Palmer CA, Bermudez OI, Cohen SA, Must A. Dietary intake and severe early childhood caries in low-income, young children. *J Acad Nutr Diet*. 2013;113:1057-61
- <sup>30</sup> Malik VS, Pan A, Willett WC, Hu FB. Sugar-sweetened beverages and weight gain in children and adults: a systematic review and meta-analysis. *Am J Clin Nutr*. 2013;98(4):1084-102. doi: 10.3945/ajcn.113.058362.
- <sup>31</sup> Pan American Health Organization, World Health Organization. Guiding principles for complementary feeding of the breastfed child. Washington, DC: Pan American Health Organization; 2003 [cited 2016 May 18]. Available from: <http://www.who.int/nutrition/publications/infantfeeding/a85622/en/index.html>