

# **Feeding Healthy Term Infants Resource Manual**

## **Section E. Safety Concerns**

## E.1 Bottle Feeding

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### Recommendations

- a) Parents and caregivers should be encouraged to view feeding as an opportunity to hold, cuddle and bond with their baby.
- b) During bottle feeding, infants should be held facing their parent/caregiver, while being supported, such that their head, back and shoulders are in a straight line.
- c) Talk quietly to infants and touch them lightly during feeding, to ensure that they stay awake.
- d) Do not prop a bottle to feed an unattended infant.

### Evidence

- Older infants who can hold a bottle still receive benefits from interacting with parents and caregivers when they are held while feeding.<sup>1</sup>
- The risk of aspiration is lowered when parents/caregivers supervise infants while eating and drinking.<sup>1</sup>
- Using a propped bottle to feed an unattended infant may increase the danger of aspiration, as the flow of milk into the mouth may be too rapid.<sup>1</sup>
- Propping a bottle may increase the risk of overfeeding, since the infant is unable to stop the feeding.<sup>1</sup>

### Reference

1. Health Canada. In: *Nutrition for Healthy Term Infants: Recommendations from Birth to Six Months – A joint statement of Health Canada, Canadian Pediatric Society, Dietitians of Canada, and Breastfeeding Committee for Canada*. Ottawa, ON: Health Canada; 2012. Available at: <http://www.hc-sc.gc.ca/fn-an/nutrition/infant-nourisson/recom/index-eng.php>. Accessed January 13, 2015.

### Client Resources

- *Making Connections: Your First Two Years with Baby*. Winnipeg, MB: Healthy Child Manitoba, 2009. Available at: [http://www.gov.mb.ca/healthychild/healthybaby/hb\\_makingconnections.pdf](http://www.gov.mb.ca/healthychild/healthybaby/hb_makingconnections.pdf).
- *Making Connections: Your First Two Years with Baby – Formula Feeding*. Winnipeg, MB: Healthy Child Manitoba, 2013. Available at: [http://www.gov.mb.ca/healthychild/healthybaby/hb\\_formulafeeding.pdf](http://www.gov.mb.ca/healthychild/healthybaby/hb_formulafeeding.pdf).

## E.2 Safety of Fish Consumption Related to Mercury

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### Recommendations

- a) *Eating Well with Canada's Food Guide* recommends at least 2 servings (150 g or 1 cup, 1 serving = 75 g or ½ cup) of fish each week, and further recommends choosing fish high in omega-3 fat, such as salmon, sardines, rainbow trout, herring, char and Atlantic mackerel. Canada's Food Guide provides recommendations for children  $\geq 2$  years of age.
- b) Health Canada advises that specific populations (i.e. pregnant and breastfeeding women, and children) limit their consumption of certain types of fish that contain higher levels of mercury.
- c) Infants <1 year of age should consume less than 40 g (just over half a serving) **per week** of canned albacore (white) tuna.
- d) Infants <1 year of age should consume less than 40 g (just over half a serving) **per month** of large predatory fish, including fresh or frozen tuna, shark, swordfish, marlin, orange roughy and escolar.
- e) Children aged 1–4 years may consume up to 1 serving (75 g or ½ cup) **per week** of canned albacore (white) tuna.
- f) Children aged 1–4 years may consume up to 1 serving (75 g or ½ cup) **per month** of large predatory fish.

### Evidence

- Fish and shellfish are recommended as part of a healthy diet, as it provides a source of lean protein, omega-3 polyunsaturated fatty acids and other essential nutrients, while also being low in saturated fat. The Dietitians of Canada and the American Dietetic Association recommend an increase in the intake of omega-3 polyunsaturated fatty acids.<sup>1</sup>
- One of the concerns regarding fish consumption is the level of mercury found in some types of fish. Methylmercury is a toxic contaminant that is formed when elemental mercury binds with carbon in the environment.<sup>2</sup> Methylmercury is protein-bound and is therefore found in the muscle tissue of fish.<sup>3</sup> [Level A Evidence]
- Health Canada has issued recommendations for fish consumption for pregnant and breastfeeding women and young children, as these populations are more susceptible to the adverse effects of methylmercury than the general population. Certain levels of methylmercury exposure in utero and in early childhood are associated with irreversible neurological problems in infants and children including a decrease in intelligence quotient, delays in walking and talking, lack of coordination, blindness and seizures.<sup>3,4</sup> [Level A Evidence]
- Methylmercury is found in high levels in larger, predatory fish such as tuna, shark, swordfish, marlin, orange roughy and escolar.<sup>2</sup> [Level A Evidence]

- Albacore tuna is a larger fish than the types of fish used in “light” canned tuna. Large predatory fish bioaccumulate methylmercury in their muscle tissues as a result of eating other fish that have bioaccumulated methylmercury. The fish used in “light” canned tuna are skipjack, yellowfin and tongol, which are smaller fish species and contain less mercury so the same concerns do not exist.<sup>3,4</sup>
- Fish and shellfish that are low in mercury and are good sources of the omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) include anchovy, capelin, char, hake, herring, Atlantic mackerel, mullet, Pollock (Boston Bluefish), salmon, smelt, rainbow trout, lake whitefish, blue crab, shrimp, clams, mussels and oysters.<sup>3-5</sup> [*Level B Evidence*]
- The mercury content of sporting fish is variable. For information regarding the safety of fish caught in Manitoba lakes and rivers, visit the Manitoba Water Stewardship website: <http://www.gov.mb.ca/waterstewardship/fish/mercury/index.html>.

## References

1. Kris-Etherton PM, Innis S; American Dietetic Association and Dietitians of Canada. Position of the American Dietetic Association and Dietitians of Canada: dietary fatty acids. *J Am Diet Assoc.* 2007;107:1599-1611.
2. Health Canada. *Mercury and Human Health*. Health Canada website. Available at: <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/merc-eng.php>. Accessed January 20, 2015.
3. Health Canada. *Mercury in Fish – Questions and Answers*. Health Canada website. [http://www.hc-sc.gc.ca/fn-an/securit/chem-chim/environ/merc/merc\\_fish\\_qa-poisson\\_qr-eng.php](http://www.hc-sc.gc.ca/fn-an/securit/chem-chim/environ/merc/merc_fish_qa-poisson_qr-eng.php). Accessed January 20, 2015.
4. Dietitians of Canada. Infant Nutrition – Complementary Feeding: Key Practice Points. Are there safety concerns for feeding fish to infants and young children related to mercury contamination? In: *Practice-Based Evidence in Nutrition*. Available at: <http://www.pennutrition.com/index.aspx> (access restricted to members). Accessed January 20, 2015.
5. Health Canada. *Eating Well with Canada’s Food Guide: A Resource for Educators and Communicators*. Ottawa, ON: Health Canada. Available at: [http://www.hc-sc.gc.ca/fn-an/alt\\_formats/hpfb-dgpsa/pdf/pubs/res-educat-eng.pdf](http://www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/pubs/res-educat-eng.pdf). Accessed January 20, 2015.

## E.3 Honey

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### Recommendation

Honey (including pasteurized honey and honey as an ingredient in food) should not be given to children <1 year of age, as it may cause infant botulism. It should not be added to an infant's food, water, formula or pacifier.

### Evidence

- Honey may be contaminated with *Clostridium botulinum* spores and poses a risk for infant botulism, a rare but serious form of food poisoning that can affect healthy infants up to one year of age.<sup>1,2</sup> [Level B Evidence]
- When *Clostridium botulinum* spores are consumed, they may grow and produce toxins in the child's digestive tract. The toxin affects the nervous system and can cause paralysis.<sup>3</sup> Symptoms include constipation, general weakness, a weak cry, a poor sucking reflex, irritability, lack of facial expression, and loss of head control. Infants may have trouble breathing due to paralysis of the diaphragm.<sup>1</sup> [Level B Evidence]
- *Clostridium botulinum* spores require a very high temperature (which can only be achieved by pressure canning) to be maintained for a long period of time to be killed.<sup>4</sup> Pasteurization does not use high enough temperatures to kill spores, therefore both pasteurized and unpasteurized honey is not recommended. The cooking process also does not kill spores.<sup>1</sup> [Level B Evidence]
- Honey is the only food in Canada that has been linked to infant botulism.<sup>2</sup> Less than 5% of honey produced in Canada contains botulism spores. However, even a small number of spores can cause infant botulism and there may not be any visible signs or smell.<sup>1</sup> *Clostridium botulinum* and the toxin it produces do not change the colour, odour or taste of food.<sup>2</sup>
- By one year of age, children have developed enough beneficial bacteria in their digestive tract to protect against *Clostridium botulinum* spores. Therefore, their risk of developing infant botulism is very low.<sup>2</sup>

### References

1. Health Canada. In: *Nutrition for Healthy Term Infants: Recommendations from Six to 24 Months – A joint statement of Health Canada, Canadian Pediatric Society, Dietitians of Canada, and Breastfeeding Committee for Canada*. Ottawa, ON: Health Canada; 2014. Available at: <http://www.hc-sc.gc.ca/fn-an/nutrition/infant-nourisson/recom/recom-6-24-months-6-24-mois-eng.php>. Accessed January 20, 2015.
2. Government of Canada. Infant botulism. Available at: <http://healthycanadians.gc.ca/eating-nutrition/safety-salubrite/infant-botulism-botulisme-eng.php>. Accessed January 20, 2015.

3. Public Health Agency of Canada. Safety issues around feeding. Botulism- Fact Sheet. Available at: <http://www.phac-aspc.gc.ca/fs-sa/fs-fi/botulism-eng.php>. Accessed January 20, 2015.
4. Canadian Food Inspection Agency. Canning. In: *Meat Hygiene Manual of Procedures*. Available at: <http://www.inspection.gc.ca/english/fssa/meavia/man/mane.shtml>. Accessed January 20, 2015.

### Client Resources

- *Feeding Your Breastfed Baby Solid Foods: 6 Months to 1 Year*. Winnipeg, MB: Healthy Child Manitoba, Healthy Start for Mom & Me, Winnipeg Regional Health Authority, Dial-a-Dietitian; 2014. Available at: <http://www.gov.mb.ca/healthyliving/hlp/docs/nutrition/breastfed.pdf>.
- *Feeding Your Baby Solid Foods: 6 Months to 1 Year*. Winnipeg, MB: Healthy Child Manitoba, Healthy Start for Mom & Me, Winnipeg Regional Health Authority, Dial-a-Dietitian; 2014. Available at: <http://www.gov.mb.ca/healthyliving/hlp/docs/nutrition/feeding.pdf>.
- *Start Solid Foods at ... 6 Months*. Winnipeg, MB: Healthy Start for Mom & Me, Winnipeg Regional Health Authority; 2011. Available at: <http://www.hsम्म.ca/wp/wp-content/uploads/start-solid-foods-at-6-months-feb-2011.pdf>.