



Healthy Weights
CONNECTION™

December 2015

Traditional Foods and Nutrition of Aboriginal Children and Youth in Canada

Fact sheet No.7

This fact sheet was written by Gabrielle Heil and edited by Alyssa Heil, Julia Hill, Tasha Shields, Dana Zummach, Ornell Douglas, Martin Cooke, and Piotr Wilk. For more information, contact Piotr Wilk at Piotr.Wilk@schulich.uwo.ca.



Introduction

Adequate nutrition is a key component of health throughout the lifespan, and is especially important for the growth and development of children and youth. Traditional foods have been shown to provide adequate, and in many cases, enhanced nutrition when compared to common supermarket foods. While traditional food provides a source of sustenance for many Aboriginal peoples, traditional foods are also considered medicine and contribute to a socio-cultural structure in which they are used as part of a non-cash economy which values sharing and cooperation.¹ Furthermore, knowledge of traditional foods and practices for obtaining and cultivating this food can be used as a teaching tool for Aboriginal youth including teachings about science, environment, math, and history.² Finally, the manner in which traditional foods were obtained, through hunting, gathering, and later farming, were often labour-intensive. This physical activity required to obtain food contributed to a healthy lifestyle that reduced the risk of the lifestyle diseases that plague Aboriginal populations today.

EXAMPLE³: Iroquois believe that corn, beans, and squash are precious gifts from the Great Spirit. The tradition of planting all three plants together is a sophisticated, sustainable system that provides long-term soil fertility and helps the plants thrive. Beans produce a lot of nitrogen of which corn need to grow, and squash plants provide a natural weed cover for the other plants. Nutritionally, the three sisters provide a balanced diet.

Aboriginal Traditional Foods in Canada



"...nations who occupied Northern Ontario, Quebec, and Nunavut might catch fish species who thrive in cold waters, such as the Arctic Char"

For centuries, Aboriginal people have lived off the land. For sustenance, the people would hunt, gather, and fish and would follow the migration patterns of animals and store fresh fruits, berries, nuts, and other plant matter to ensure food security. The animals and plants that Aboriginal people ate, and continue to eat today, depend on their geographic location.⁴ For example, nations who occupy Northern Ontario, Quebec, and Nunavut might catch fish species who thrive in cold waters, such as the Arctic Char.

Aboriginal peoples have deep connections to the land, and recent degradation of the environment by human behavior has taken a huge toll on their ability to continue to practice their traditional ways. Much of the wildlife that once supported whole communities is no longer accessible. Traditional hunting grounds are now urban centers and the wildlife have relocated. Global warming has also had a negative impact on the well-being of many animal and plant species that are vital to their ecosystems--ecosystems that ultimately support all human life. Furthermore, contamination of water and soil causes accumulation of pollutants in the traditional foods many communities rely on and poor access to safe drinking water.⁵

Specific Traditional Food Intake of Aboriginal Children and Youth

Relevant information regarding specific nutrient intake and traditional food intake of First Nations and Métis people's is lacking. However, a study of nutrient intake of Inuit children aged 3-5 years old found that for most of the nutrients considered, there was adequate intake.⁶ Fiber was especially lacking from these childrens' diets, but a high level of traditional food intake was associated with higher vitamin A, vitamin D, and magnesium levels, than those who consume a smaller amount of traditional foods. Those who consumed less traditional foods had higher intakes of protein, iron, and zinc. Some examples of traditional foods frequently consumed by Inuit children [and other Aboriginal populations] include caribou meat, fish, berries, beluga muktuk, and seal meat.⁶

Comparing the Nutrition Content of Traditional Foods to Common Supermarket Foods

Protein

Protein is important, as it is a main building block of body tissues. The human body's only source of protein is through dietary intake, after which the body digests the protein into amino acids. Amino acids are used to build and repair muscle tissues, to help heal wounds, fight infection, and to build the hormones and enzymes that keep our bodies



functioning normally. Generally, as children age they need more protein to aid with their growth and development, and males need more total dietary intake of protein than females.⁷

Traditional wild game, such as caribou and moose meats offer approximately the same amount of protein as beef steak per gram, but often contain much less saturated fat per gram. A lower intake of saturated fat is beneficial because saturated fats are those that contribute to high “bad” cholesterol, and in turn cause cardiovascular disease and metabolic syndrome (a cluster of disorders that puts one at risk for developing cardiovascular disease and diabetes).⁸ Eating green leafy vegetables, such as spinach and broccoli, or legumes is also an excellent way to increase dietary iron intake while also promoting higher dietary fiber and lower saturated fat intake.

Iron & Vitamin B12

Traditional game are also rich in *iron and vitamin B12*. Iron and vitamin B12 are important for the production of red blood cells. Iron is a main component of hemoglobin molecules--the component of blood that carries oxygen to tissues and transports carbon dioxide to the lungs to be expelled from the body. Aboriginal children are at an increased risk for *iron deficiency anemia*, a condition in which there are not enough red blood cells due to a lack of iron in the body. Iron deficient anemia is characterized by “behavior abnormalities and developmental, cognitive and psychomotor delay in children”.⁹ There is an increasing need of iron as children age and females require more dietary intake of iron after menarche⁶ (their first menstrual cycle) as their bodies lose iron through this process. Increased Vitamin B12 intake is required as age advances, but requirements are equal for males and females of the same age. ⁷

Table 2: Comparison of Protein, Fat, and Iron in Wild Game vs. Beef Steak

(Adapted from Health Canada: Nutrient Value of Some Common Foods, 2006)¹⁰

	Caribou (75g)	Moose (75g)	Beef (75g)
Protein (g)	24	26	29
Saturated fat/total fat (g)	2.0	1.0	8.0
Iron (mg)	4.2	3.8	3.1
Vitamin B12 (mcg)	4.98	4.73	1.41

Health Canada recommended intake⁷:

Protein: 13-52g/day per day* Iron: 7-15 milligrams per day* Vitamin B12: 0.9-2.4 micrograms per day*

Omega-3 Fatty Acids

Fish is an excellent source of *omega fatty acids*, which are important for brain, nerve, and heart health.¹¹

Please be aware that some fish species may contain heavy metals and should be eaten in moderation, especially when pregnant or breast feeding. Eat less fatty areas of the fish such as skinless, boneless dorsal fillets and **never** eat fish organs.¹²

Health Canada recommends consuming at least 150g of fish each week, and more for pregnant women. “Omega-3 fatty acids” is a general category of fatty acids including three subcategories.¹¹ Fresh fish contains significantly more omega-3 fatty acids than pre-packaged battered fish fillets.⁹

Table 3: Comparison of Omega Fatty Acids in Fresh Fish vs. Battered Fish Fillets

(Adapted from Health Canada: Nutrient Value of Some Common Foods, 2006)⁹

	Sockeye Salmon (75g)	Arctic Char (75g)	Battered Fish Fillets (75g)
EPA+DHA Fatty Acids (grams)	0.93	0.68	0.22

Dieticians of Canada recommendation: 0.3-0.45 grams OR 2 servings of fish per week¹¹

Folate and Fibre

Every day, *dietary folate* is needed for the production of DNA.¹² DNA tells each cell in the body what kind of cell they will be, and therefore, how to function. Folate is important for prenatal health to prevent neural tube defects (i.e. spina bifida) in the developing fetus.¹³ Berries are a traditional food that provide an increased amount of folate when compared to apple sauce, a common snack for children. Berries are also a good source of *dietary fiber*. Increased fiber intake has been associated with a decrease in cardiovascular disease (CVD) and coronary heart disease.¹⁴ To reduce the risk of developing CVD one should decrease sodium, saturated fat, and alcohol intake, partaking in daily physical activity, and quit smoking.¹⁵

Table: Comparison of Folate and Fibre in Berries versus Processed Applesauce

(Adapted from Health Canada: Nutrient Value of Some Common Foods, 2006)⁹

	Blackberries (1/2 cup)	Strawberries (7 berries)	Raspberries (1/2 cup)	Applesauce (1/2 cup)
Folate (Micrograms)	19	20	14	1
Dietary Fibre (Grams)	4	1.9	4.2	1.5

Health Canada recommended daily intake⁷:

FOLATE: Women of child bearing age: 800 mcg* Infants: 65 mcg Adolescents: 400 mcg **FIBRE:** 19-38 g**

Implications for Service Providers

Services providers must consider the historical context of health inequities when interacting with Aboriginal clients. When encouraging healthy eating, one must consider both traditions and access to the food they may be recommending. Encouraging an increased intake of traditional foods must also involve teaching about these traditional foods and an opportunity to take part in the hunting, gathering, and fishing required to obtain the foods. If these traditional practices are inaccessible, one might recommend fresh store-bought game or traditional fish species instead. Another way to increase traditional food intake would be to offer it as an option on the menu during programming, events, and gatherings.

EXAMPLE of how to use this information: Encouraging youth to participate in preparation and intake of iron rich game meats more often than the fattier, less iron-rich beef steaks is one way to combat anemia and also decrease the risk of cardiovascular disease because these meats are high in iron but low in saturated fats.

Other interesting resources:

1. http://www.naho.ca/documents/metiscentre/english/Cookbook_SecondEdition.pdf
2. <http://www.foodmattersmanitoba.ca/2014/06/new-traditional-food-resource-available/>
3. <http://iffculture.ca/indigenous-food/>

*Women of child bearing age should take a supplement with at least 400 micrograms of folate in addition to the folate intake from a balanced diet

**Depending on age and sex. Number increases as age increases and may vary for sex. For more information please visit the primary resource.

¹National Collaborating Centre for Aboriginal Health. (2011). *Traditional Aboriginal diets and health, 1-8*. Retrieved from <http://www.nccah-ccnsa.ca/>

²Cornelius, Carol. (1948). Iroquois corn in a culture-based curriculum: A framework for respectfully teaching about cultures.

Albany:State University of New York Press

³Erney, Diana. 1996. Long live the Three Sisters. *Organic Gardening*. November.p.37-40.

⁴National Collaborating Centre for Aboriginal Health. (n.d.). *Health inequities and social determinants of Aboriginal peoples' health, 1-36*. Retrieved from <http://www.nccah-ccnsa.ca/>

⁵Assembly of First Nations. (2008). *The health of First Nations children and the environment, 1-28*. Retrieved from <http://www.afn.ca/>

⁶Johnson-Down, L & Egeland, G. M. (2010). *Adequate nutrient intakes are associated with traditional food consumption in Nunavut Inuit children aged 3-5 years*.

⁷Health Canada. (2006). *Food and nutrition: Dietary reference intake tables*. Retrieved from <http://www.hc-sc.gc.ca/>

⁸Kaler, S. N., Ralph-Campbell, K., Pohar, S., King, M., Laboucan, C. R., & Toth, E. L. (2006). *High rates of the metabolic syndrome in First Nations community in western Canada: Prevalence and determinants in adults and children, 65(5), 389-402*. doi: 10.3402/ijch.v65i5.18139

⁹Dieticians of Canada. (2012). Registered dietitians in Aboriginal communities: Feeding mind, body, and spirit, p. 15. Retrieved from www.dieticians.ca/

¹⁰Health Canada. (2006). Food and nutrition: Nutrient values of some common foods. Retrieved from <http://www.hc-sc.gc.ca/>

¹¹Dieticians of Canada. (2013). *Food sources of omega-3 fats*. Retrieved from www.dieticians.ca/

¹²Government of Ontario. (2014). *Guide to eating Ontario fish*. Retrieved from www.ontario.ca/

¹³Health Canada. (2013). Food and nutrition: Prenatal nutrition guidelines for health professionals-Folate contributes to a healthy pregnancy. Retrieved from <http://www.hc-sc.gc.ca/>

¹⁴Thrapolton, D. E., Greenwood, D. C., Evans, C. E. L., Cleghorn, C. L., Nykjear, C., Woodhead, C., Cade, J. E., Gale, C. P., & Burley, V. (2013). Dietary fibre intake and risk of cardiovascular disease: A systemic review and meta-analysis, 347, 1-12. doi: 10.1136/bmj.f6879

¹⁵World Health Organization. (2015). *Cardiovascular diseases (CVD)*. Retrieved from www.who.int/