

# THE NUTRITIONAL HABITS OF MÉTIS CHILDREN AND YOUTH IN CANADA: A PRELIMINARY EXAMINATION



*Prepared by the Métis Centre of the National Aboriginal Health Organization*

## Introduction

Although health depends upon the intersections of various economic, social and environmental factors, the importance of nutrition and a balanced diet have long been recognized as key factors in improving overall health, and in reducing and preventing chronic diseases. For

example, diet and nutrition have been linked to health problems such as diabetes, osteoporosis, cancer and heart disease.<sup>1</sup> According to the Public Health Agency of Canada, eating foods such as fruits, vegetables, whole grains, and low-fat dairy products on a daily basis can help to lower high blood pressure.<sup>2</sup> For children and youth, food insufficiency and not eating a healthy breakfast have impacts on their ability to learn and their school performance.<sup>3</sup> Eating nutritious foods

promotes brain development and the ability to learn in children and youth, leading to significant improvements in academic development.<sup>4</sup> In addition, eating habits have been linked to behaviour and self-esteem in children and youth.<sup>5</sup> Research suggests that an unhealthy diet throughout childhood may interfere with growth and development, and that it may lead to poor eating habits during adolescence and adulthood.<sup>6</sup> More research is needed to determine the extent to which



poor dietary practices pose significant health risks for children later in life.<sup>7</sup>

This fact sheet utilizes findings from the 2006 Aboriginal Peoples Survey (APS) to examine the nutritional habits of Métis children and youth between the ages of six and 14. The APS is a national post-censal survey that targets Aboriginal populations living off-reserve, including those who identify as Métis. In addition to surveying individuals aged 15 years and older, the survey interviewed parents/caregivers of children and youth between the ages of six and 14 years of age. The survey asked parents/caregivers to report the number of times their child had consumed various foods over the course of the week immediately prior to the survey.<sup>8</sup>

## Who are the Métis?

The Métis are one of the three constitutionally recognized Aboriginal groups in Canada.<sup>9</sup> In French, the word “Métis” translates as “mixed,” yet the Métis people do not simply have a “mix” of European and First Nations heritage; they have distinct languages, cultures, values and beliefs that vary between communities and geographic regions.<sup>10</sup> The Métis National Council defines Métis as individuals who self-identify as Métis, are of historic Métis Nation ancestry, are distinct from other Aboriginal peoples, and are accepted by the Métis Nation.

The historic Métis Nation<sup>1</sup> refers to Métis or “Half-Breeds” who resided in the historic Métis Homeland, an area of land in west central North America.<sup>11</sup> According to Canada’s 2006 Census, there are nearly 400,000 Métis in Canada, accounting for 33% of the total Aboriginal population. Significantly, of this Métis population, almost half (43%) are under the age of 25, while one quarter (25%) are aged 14 and under.<sup>12</sup>

## Nutritional Habits and the Métis

According to *Canada’s Food Guide*, a diet that includes a variety of vegetables, fruits, grain products, milk, meat and alternatives, and that is low in fat, sugar and salt, reduces the risk of obesity, type 2 diabetes, heart disease, certain types of cancer, and osteoporosis.<sup>13</sup> The World Health Organization estimates that 80% of premature cases of heart disease, stroke, and type 2 diabetes, and 40% of cancer cases in Canada, could be prevented through healthy eating and lifestyle choices.<sup>14</sup> Eating a healthy well-balanced diet in childhood and adolescence forms the foundation for lifelong eating habits.<sup>15</sup> For children and youth, the intake of nutrients such as iron, vitamin B12, zinc, and omega-3 fatty acids are essential for healthy brain development.<sup>16</sup> Children who do not have a regular intake of these essential nutrients are likely to experience decreased cognitive function and academic performance.<sup>17</sup>

## Consumption of Fruits and Vegetables

Fruits and vegetables contain important vitamins and minerals, and tend to be high in fiber and low in fat and calories. Including them in one’s diet may help reduce the risk of cardiovascular disease and cancer.<sup>18</sup> Children who do not eat enough fruits and vegetables are more likely to be overweight or obese.<sup>19</sup> About half of Métis children and youth (52%) were reported to have consumed vegetables other than potatoes or salad daily in the week prior to the survey.<sup>20</sup> Ten percent were reported to have consumed green salad daily.<sup>21</sup>

The survey showed that nearly two-thirds of Métis children and youth had consumed fruit (excluding juice) daily during the week prior to the survey (61%).<sup>22</sup> In addition, 51% of children and youth had consumed 100% fruit juice daily during that week.<sup>23</sup>

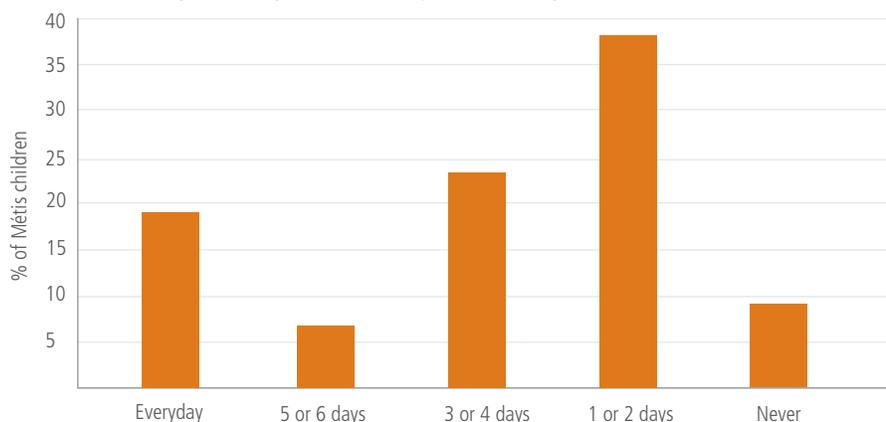
## Consumption of Dairy Products

Dairy products are beneficial for the healthy maintenance of teeth and bones. They are also a source of at least 10 essential nutrients, including calcium, protein, and vitamins A and B12.<sup>24</sup> Milk has been shown to help prevent against health problems such as metabolic syndrome, type 2 diabetes, colon cancer, and high blood pressure.<sup>25</sup> Maintaining adequate calcium intake throughout childhood is necessary for the development of strong, healthy bones.<sup>26</sup>



<sup>1</sup> It is important to note that there is much debate regarding the definition of who is Métis in Canada and there are those who have adopted a broader definition than the one provided here.

Figure 1: Frequency of consumption of candy, soft drinks, cakes, pies, etc. by Métis children and youth (6-14 years) in the week prior to the survey, APS 2006



(Source: Statistics Canada, Aboriginal Peoples Survey, 2006)

In 2006, more than three quarters (79%) of Métis children and youth were reported to have consumed milk daily,<sup>27</sup> with just over half (56%) consuming other dairy products daily.<sup>28</sup>

#### Consumption of Meat

Proteins are comprised of amino acids that serve as building blocks for the body. There are 20 amino acids, and while our body requires them to maintain a healthy immune system, ensure healthy bones and hair, and assist in the maintenance and repair of muscle tissue, the human body is unable to naturally produce all of them.<sup>29</sup> These are essential amino acids and must be obtained through diet. One of the most commonly recognized sources of dietary protein comes from animal products including meat, poultry, and fish. These proteins are referred to as complete proteins because they are comprised of all of the essential amino acids. Dietary protein can also be found in a number of foods including, but not limited to, nuts and seeds, legumes, and soy.<sup>30</sup> In addition to amino acids, meats are a good source of zinc and iron, which are important for healthy cognitive development.<sup>31</sup> The APS asked parents and caregivers of Métis children and youth how often meat, wild meat, fish or seafood had been consumed

during the week prior to the survey. Of all Métis children and youth six to 14 years of age, 31% had consumed “store bought meat” (including beef, poultry, pork, or lamb) every day; 20% five to six days a week; while 30% consumed meat on three or four days.<sup>32</sup>

Wild meat such as moose, caribou and buffalo, along with fish, and wild berries and vegetables are traditional foods of Métis,<sup>33</sup> and are often a source of livelihood, security and well-being.<sup>34</sup> Some Métis today continue to participate in traditional activities and eat traditional foods.<sup>35</sup> However, for many Aboriginal people, traditional diets have changed over the years and many lack access to well-balanced and healthy traditional foods, contributing to inadequate community food security.<sup>36</sup> Among Métis children and youth, 18% had consumed wild meat such as moose or caribou one or two days during the week.<sup>37</sup> Forty-seven percent of children and youth consumed seafood, including fish, once or twice during the week.<sup>38</sup>

#### Consumption of Processed Foods and Foods Containing Refined Sugar

Obesity among Canadian children and youth has been increasing at an alarming rate, with tripling of obesity rates among

adolescents aged 12 to 17 over the past 25 years.<sup>39</sup> Inadequate consumption of fruits and vegetables, increased sedentary lifestyle and lower education levels of family members are associated with increased likelihood of being overweight or obese.<sup>40</sup> Foods that are high in fat, sugar and salt, as well as additives, preservatives, food coloring, artificial sweeteners, flavouring, and refined or bleached flour, all of which when excessively consumed, have been linked to diseases such as diabetes, cancer, high blood pressure, as well as behaviour problems, allergies and asthma.<sup>41</sup>

Just over one in three Métis children or youth (18%) consumed processed meat three or four days during the week, with 8% consuming it everyday.<sup>42</sup> Nineteen percent had consumed potato chips or french fries three or four days per week, while 5% consumed them daily.<sup>43</sup> Nearly one quarter (24%) of Métis children or youth were reported to have consumed foods containing refined sugar on three or four days during the week preceding the survey, and 19% had consumed refined sugar every day (Figure 1).<sup>44</sup>

#### Food Insecurity

Food insecurity is the lack of access to food that is affordable, safe, and healthy.<sup>45</sup> Food insecurity and poverty are associated with lower quality diets, since energy-rich foods containing refined grains, added sugars and fats represent the lowest cost option.<sup>46</sup> According to the APS, 32% of young Métis children lived in households with more than three children, compared to 25% of non-Aboriginal children.<sup>47</sup> Further, 31% of Métis children aged fourteen and under lived with a lone parent, making them twice as likely to live in a single parent household as non-Aboriginal children.<sup>48</sup> According to Statistics Canada, the median income for Métis was approximately \$5,000 less than the median income of \$25,955 for non-Aboriginal Canadians.<sup>49</sup> Métis children are twice as likely to live in poverty than non-Aboriginal children.<sup>50</sup>



The high number of single parents may be an important factor in the health and nutrition of Métis children. Loppie-Reading and Wien argue that food insecurity is strongly linked to low income and lone parent status.<sup>51</sup> Poverty affects the kinds of choices people make regarding food and nutrition because of what they can afford to purchase. People with lower incomes are more likely to be unable to purchase healthy foods and may, in fact, run out of food.<sup>52</sup>

According to the APS, 7% of Métis children and youth (ages 6-14) were reported by their parents or caregivers to have experienced being hungry because the family had run out of food or money to buy food.<sup>53</sup> Parents of these food-insecure Métis children reported several coping mechanisms. Seventeen percent of parents or caregivers of these Métis children reported that they skipped meals or ate less as a method of coping with food shortages.<sup>54</sup> When food shortages occur in families, several strategies are often used to assist parents or caregivers in providing food. For example, 35% of parents or

guardians of food-insecure Métis children reported seeking help from relatives during food shortages,<sup>55</sup> while 14% sought help from friends.<sup>56</sup> Many families also reported using services such as the food bank (33%) during periods of food scarcity.<sup>57</sup> When asked how often a child had experienced being hungry because the family had run out of food or money to buy food, 12% of food-insecure Métis children often went hungry towards the end of the month, 13% regularly experienced food shortages at the end of the month, 8% experienced hunger every few months, and 52% experienced hunger occasionally but not as a regular occurrence.<sup>58</sup>

### Geographic Differences

There are differences pertaining to food choices and consumption when comparing Métis provincially. For example, Métis children and youth in Newfoundland and Labrador (33%), Nova Scotia (45%) and Manitoba (55%) are less likely to have eaten fruit every day compared to Métis in all of Canada (61%).<sup>59</sup> Métis children and youth in the Northwest Territories

are more likely (28% every one or two days a week) to have consumed wild meat compared to those across Canada (18%) (Figure 2).<sup>60</sup>

### Conclusion and Next Steps

This fact sheet utilized data from the 2006 APS to provide a snapshot of the nutritional habits of Métis children and youth as reported by their parent or caregivers. While the information does provide food for thought, it is limited in some significant ways. For example, parents and caregivers were only asked what their dependants had eaten in the past week. Thus, the findings may not provide an accurate representation of the overall nutritional habits of Métis children or youth. Furthermore, as parents and caregivers were only asked about the number of times the child or youth had consumed particular foods rather than the amount that was consumed on a daily basis or the serving sizes, there is no way of ascertaining whether or not Métis children and youth are consuming a diet consistent with the recommendations set out in

Canada's Food Guide.<sup>61</sup> Further research in these areas would provide a more complete picture of the nutritional habits of these children and youth.

To better understand the nutritional habits of Métis children and youth, a different methodology may need to be applied. For example, a smaller cohort study administered by provincial Métis organizations would allow for face-to-face interviews where parents and caregivers could identify frequency of consumption of various foods, along with identifying the serving size given to the child or youth. Such a study would allow for several encounters over a period of time, ensuring that results were reflective of the child or youth's overall nutritional habits. An added benefit of this type of study would be the opportunity to incorporate the promotion of healthy nutrition practices.

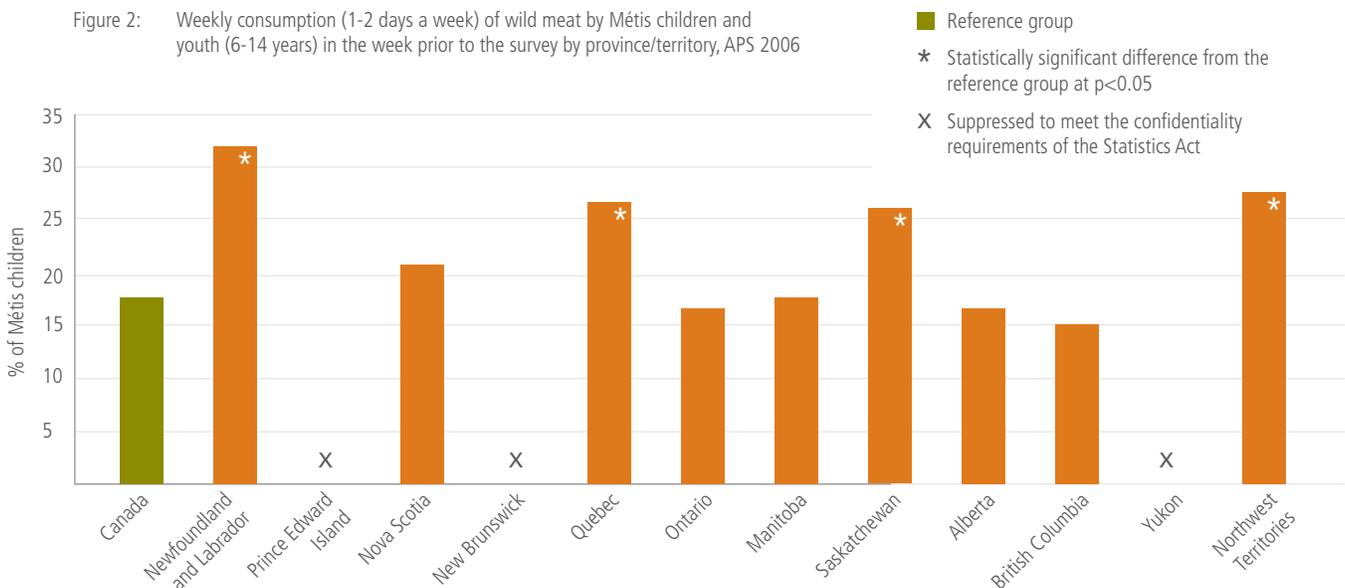
The data available does not conclusively indicate that Métis children and youth are eating a healthy and balanced diet, and even suggests that may not be the case

for some. Further research is required. As indicated previously, single parenthood and low incomes contribute to the likelihood of food insecurity. Since Métis children and youth are more likely to live in single parent and/or low income homes, it is important to understand how these factors impact their nutritional habits. Preliminary work has been done on the subject of food security in the APS, but the questions regarding food security only measure the experiences of children and youth over a period of one week; the survey does not provide an indication of long-term food insecurity or its contributing factors. Further, food insecurity relating to children may be underreported by parents and caregivers.

Research has revealed that poor nutritional habits in childhood are carried through to adulthood. It is vital that positive nutritional habits be instilled early to avoid what could result in chronic disease rates of endemic proportions in years to come. As noted, 25% of Métis children are under the age of 15, reflecting a young and

growing population. To accomplish this, parents/caregivers, children and youth need access to culturally relevant programs that promote healthy lifestyles, including nutrition. Health Canada and other health organizations such as UNICEF and the World Health Organization have acknowledged this need and have endeavoured to improve nutrition through products such as the *Eating Well with Canada's Food Guide, First Nations, Inuit and Métis*, but this information may not be translating into action for some. As noted in a UNICEF report, *Aboriginal Children's Health: Leaving No Child Behind*, there is currently no evidence-based foundation upon which to build culturally sound and effective health care, policies and programming that directly address the needs of Métis children and families.<sup>62</sup> Every effort must be made to reach this population to ensure the best possible health outcomes today and in the future.

Figure 2: Weekly consumption (1-2 days a week) of wild meat by Métis children and youth (6-14 years) in the week prior to the survey by province/territory, APS 2006



(Source: Statistics Canada, Aboriginal Peoples Survey, 2006)



## References

- 1 Public Health Agency of Canada (2010). What can happen if I have uncontrolled high blood pressure and what can I do to lower it? Ottawa, ON: Public Health Agency of Canada. Retrieved on November 16, 2010 from [http://www.phac-aspc.gc.ca/cd-mc/cvd-mcv/hbp-ha\\_02-eng.php](http://www.phac-aspc.gc.ca/cd-mc/cvd-mcv/hbp-ha_02-eng.php)
- 2 Ibid.
- 3 Taras, H. (2005). Nutrition and student performance at school. *Journal of School Health*, 75(6): 199-213.
- 4 Government of Alberta (2008). Alberta nutrition guidelines for children and youth: A childcare, school, and recreation/community centre resource manual. Edmonton, AB: Government of Alberta. Retrieved on November 16, 2010 from <http://www.health.alberta.ca/documents/Nutrition-Guidelines-2008.pdf>
- 5 Ibid.
- 6 Heart and Stroke Foundation of Canada (2010). Position statement: Schools and nutrition. Ottawa, ON: Heart and Stroke Foundation. Retrieved on November 15, 2010 from [http://www.heartandstroke.com/site/c.ikIQLcMWJtE/b.3799205/k.DBDC/Position\\_Statements\\_Schools\\_and\\_Nutrition\\_Position\\_Statement.htm](http://www.heartandstroke.com/site/c.ikIQLcMWJtE/b.3799205/k.DBDC/Position_Statements_Schools_and_Nutrition_Position_Statement.htm)
- 7 University of Teesside, School of Health & Social Care (2006). A systematic review of the effect of nutrition, diet, and dietary change on learning education and performance of children of relevance to UK schools. Middlesbrough, UK: University of Teesside. Retrieved on November 22, 2010 from <http://www.food.gov.uk/multimedia/pdfs/systemreview.pdf>
- 8 Statistics Canada (2008b). Aboriginal peoples' survey. Ottawa, ON: Statistics Canada. Retrieved on November 16, 2010 from <http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey> &SDDS=3250&lang=en&db=imdb&adm=8&dis=2#b1
- 9 Bartlett, J. G., Iwasaki, Y., Gottlieb, B., Hall, D., & Mannell, R. (2007). Framework for Aboriginal-guided decolonizing research involving Metis and First Nations persons with diabetes. *Social Science & Medicine*, 65(11), 2371-2382.
- 10 Ibid.; Canadian Institute for Health Information. (2004). *Improving the Health of Canadians*. Ottawa, ON: Canadian Institute for Health Information; Royal Commission on Aboriginal People. (1996). *Final Report of the Royal Commission on Aboriginal People*. Ottawa, ON: Royal Commission on Aboriginal People.
- 11 Métis National Council (2002). *Who are the Métis: National definition of Métis*. Ottawa, ON: Métis National Council. Retrieved December 9, 2009, from <http://www.metisnation.ca/who/definition.html>
- 12 Statistics Canada (2006). *Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14)*. Ottawa, ON: Statistics Canada. Retrieved on November 15, 2010 from [http://www.statcan.gc.ca/imdb-bmdi/instrument/3250\\_Q9\\_V1-eng.pdf](http://www.statcan.gc.ca/imdb-bmdi/instrument/3250_Q9_V1-eng.pdf); Statistics Canada (2008a). *Aboriginal Peoples in Canada in 2006: Inuit, Métis and First Nations, 2006 census*. Ottawa, ON: Statistics Canada, 97-558-XIE.
- 13 Health Canada (2007). *Eating well with Canada's food guide: A resource for educators and communicators*. Ottawa, ON: Health Canada. Retrieved on November 16, 2010 from [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)
- 14 World Health Organization. (nd). *Facing the facts: The impact of chronic disease in Canada*. Geneva: WHO. Retrieved on November 16, 2010 from [http://www.who.int/chp/chronic\\_disease\\_report/media/CANADA.pdf](http://www.who.int/chp/chronic_disease_report/media/CANADA.pdf)
- 15 Government of Alberta (2008).
- 16 Hughes, D. & Bryan, J. (2003). The assessment of cognitive performance in children: Considerations for detecting nutritional influences. *Nutr Rev*, 61(12): 413-422; Bryan, J., Osendarp, S., Hughes, D., Calvaresi, E., Baghurst, K., & van Klinken, J. W. (2004). Nutrients for cognitive development in school-aged children. *Nutrition Reviews*, 62(8): 295-306.
- 17 Ibid.
- 18 Health Canada (2007).
- 19 Shields, M. (2005). *Measured obesity. Overweight Canadian children and adolescents*. Ottawa, ON: Statistics Canada.
- 20 Statistics Canada (2009). Last week, on how many days did he/she consume the following foods and beverages other vegetables (Do not include potatoes or salad)? Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Accessed on June 14, 2010 from [http://www.metiscentreresearch.ca/statistics/Client\\_CY\\_G02L\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/Client_CY_G02L_SEXtable&graph8response_files/sheet001_safe.htm)
- 21 Statistics Canada (2009). Last week, on how many days did he/she consume the following foods and beverages? Green salad by sex for the children and youth, Métis identity population. Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentreresearch.ca/statistics/client\\_CY\\_G02F\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/client_CY_G02F_SEXtable&graph8response_files/sheet001_safe.htm)
- 22 Statistics Canada (2009). Last week, on how many days did he/she consume the following foods and beverages Fruit (Do not include juice)? Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentreresearch.ca/statistics/client\\_CY\\_G02G\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/client_CY_G02G_SEXtable&graph8response_files/sheet001_safe.htm)

- www.metiscentreresearch.ca/statistics/Client\_CY\_G02E\_SEXtable&graph8response\_files/sheet001\_safe.htm
- <sup>23</sup> Statistics Canada (2009). Last week, on how many days did he/she consume 100% fruit juices (such as orange, grapefruit or tomato. Do not include fruit drinks, Kool-Aid, etc.)? Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentreresearch.ca/statistics/Client\\_CY\\_G02D\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/Client_CY_G02D_SEXtable&graph8response_files/sheet001_safe.htm)
- <sup>24</sup> Dairy Australia (2005). Dairy nutrients. Victoria, AU: Dairy Australia. Retrieved on November 15, 2010 from [http://docs.google.com/viewer?a=v&q=cache:fH-qjI7w02sj:www.fil-idf.org/WebsiteDocuments/Dairy%2520Nutrients%25200205.pdf+nutrient+s+found+in+dairy+products&hl=en&gl=ca&p id=bl&srcid=ADGEEShQmEWBNECm\\_-K5yVnVXZLD5b1wQbrkVhRexbpEtm6Wj5n999RIHkQasQQgBaLak90OyroR1F7zTG5qu-6Myb7suueZoWzcA6RFUa7HxT-SvQSNcoTHL\\_xQs6gL6laX83nHxmV&sig=AHIEtbTLOhPCg5mlt6Lr5RyEvPvJPUUJlg](http://docs.google.com/viewer?a=v&q=cache:fH-qjI7w02sj:www.fil-idf.org/WebsiteDocuments/Dairy%2520Nutrients%25200205.pdf+nutrient+s+found+in+dairy+products&hl=en&gl=ca&p id=bl&srcid=ADGEEShQmEWBNECm_-K5yVnVXZLD5b1wQbrkVhRexbpEtm6Wj5n999RIHkQasQQgBaLak90OyroR1F7zTG5qu-6Myb7suueZoWzcA6RFUa7HxT-SvQSNcoTHL_xQs6gL6laX83nHxmV&sig=AHIEtbTLOhPCg5mlt6Lr5RyEvPvJPUUJlg)
- <sup>25</sup> Dairy Farmers of Canada (2010). Benefits of milk products. Ottawa, ON: Dairy Farmers of Canada. Retrieved on November 16, 2010 from <http://www.dairygoodness.ca/good-health/benefits-of-milk-products>
- <sup>26</sup> American Academy of Pediatrics-Committee on Nutrition (1999). Calcium requirements of infants, children and adolescents in paediatrics. *American Academy of Paediatrics*, 104(5): 1152-1157.
- <sup>27</sup> Statistics Canada (2009). Last week, on how many days did he/she consume milk? Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentreresearch.ca/statistics/Client\\_CY\\_G02A\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/Client_CY_G02A_SEXtable&graph8response_files/sheet001_safe.htm)
- <sup>28</sup> Statistics Canada (2009). Last week, on how many days did he/she consume cheese, yogurt and other milk products by sex for the children and youth, Métis identity population. Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentreresearch.ca/statistics/client\\_CY\\_G02B\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/client_CY_G02B_SEXtable&graph8response_files/sheet001_safe.htm)
- <sup>29</sup> Centers for Disease Control and Prevention (2010). Protein. Atlanta, GA: Centers for Disease Control and Prevention. Retrieved on November 15, 2010 from <http://www.cdc.gov/nutrition/everyone/basics/protein.html>
- <sup>30</sup> Ibid.
- <sup>31</sup> Sandstead, H. H. (2000). Causes of iron and zinc deficiencies and their effects on brain. *Journal of Nutrition*, 130(2S Suppl): 347S-349S.
- <sup>32</sup> Statistics Canada (2009). Last week, on how many days did he/she consume the following foods and beverages Store bought meat (such as beef, pork, lamb, poultry)? Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentreresearch.ca/statistics/Client\\_CY\\_G02Q\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/Client_CY_G02Q_SEXtable&graph8response_files/sheet001_safe.htm)
- <sup>33</sup> Barkwell, L., Hourie, A., & Swain, E. (2006). The heritage and legacy of the Metis people. In L. Barkwell, L. M. Dorion & A. Hourie (Eds.), *Metis Legacy II*. Saskatoon, SK: Gabriel Dumont Institute and Pemmican Publications.
- <sup>34</sup> Edge, L. & McCallum, L. (2006). Métis identity: Sharing traditional knowledge and healing practices at Métis Elders' gatherings. *Pimatisiwin*, 4(2): 83-115.
- <sup>35</sup> Kumar, M.B. & Janz, T. (2010). An exploration of cultural activities of Métis in Canada. Ottawa, ON: Statistics Canada, Catalogue no. 11-008-X.
- <sup>36</sup> Vancouver Coastal Health. (2002). Aboriginal Health. Programs & Services. Aboriginal Health Initiative Program (AHIP). Vancouver, BC: Vancouver Coastal Health. Retrieved February 3, 2011, from <http://aboriginalhealthinitiative.vch.ca/>
- <sup>37</sup> Statistics Canada (2009). Last week, on how many days did he/she consume the following foods and beverages Wild meat (such as moose, caribou, venison, walrus, muktuk)? Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentreresearch.ca/statistics/Client\\_CY\\_G02P\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/Client_CY_G02P_SEXtable&graph8response_files/sheet001_safe.htm)
- <sup>38</sup> Statistics Canada (2009). Last week, on how many days did he/she consume the following foods and beverages? Fish and seafood by sex for the children and youth, Métis identity population. Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentreresearch.ca/statistics/client\\_CY\\_G02R\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/client_CY_G02R_SEXtable&graph8response_files/sheet001_safe.htm)
- <sup>39</sup> Shields (2005).
- <sup>40</sup> Ibid.
- <sup>41</sup> Government of Alberta (2008).
- <sup>42</sup> Statistics Canada (2009). Last week, on how many days did he/she consume the following foods and beverages? Processed meat (such as bologna, hot dogs, spam, klik) by sex for the children and youth, Métis identity population. Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentreresearch.ca/statistics/client\\_CY\\_G02O\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/client_CY_G02O_SEXtable&graph8response_files/sheet001_safe.htm)
- <sup>43</sup> Statistics Canada (2009). Last week, on how many days did he/she consume the following foods and beverages french fries, potato chips, pretzels, etc? Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentreresearch.ca/statistics/Client\\_CY\\_G02G\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/Client_CY_G02G_SEXtable&graph8response_files/sheet001_safe.htm)
- <sup>44</sup> Statistics Canada (2009). Last week, on how many days did he/she consume the following foods and beverages? Candy, soft drinks, cakes, pies, etc. by sex for the children and youth, Métis identity population. Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentreresearch.ca/statistics/Client\\_CY\\_G02N\\_SEXtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentreresearch.ca/statistics/Client_CY_G02N_SEXtable&graph8response_files/sheet001_safe.htm)
- <sup>45</sup> Loppie-Reading, C. & Wien, F. (2009). Health inequalities and social determinants of Aboriginal Peoples' health. Prince George, BC: National Collaborating Centre for Aboriginal Health. Retrieved on November 22, 2010 from [http://www.nccah-censa.ca/myfiles/NCCAH-Loppie-Wien\\_Report.pdf](http://www.nccah-censa.ca/myfiles/NCCAH-Loppie-Wien_Report.pdf)
- <sup>46</sup> Drewnowski, A., & Specter, S. E. (2004). Poverty and obesity: The role of energy density and energy costs. *American Journal of Clinical Nutrition*, 79(1): 6-16.
- <sup>47</sup> Statistics Canada (2008b).
- <sup>48</sup> Statistics Canada (2008a).
- <sup>49</sup> Gionet, L. (2009). Métis in Canada: Selected findings of the 2006 census. Ottawa, ON: Statistics Canada, 11-008-X.
- <sup>50</sup> Canadian UNICEF Committee (2009). Canadian supplement to the state of the world's children 2009 - Aboriginal children's health: Leaving no one behind. Ottawa, ON: UNICEF Canada.
- <sup>51</sup> Loppie-Reading & Wien (2009).
- <sup>52</sup> Ibid.
- <sup>53</sup> Statistics Canada (2009). Has he/she ever experienced being hungry because the family has run out of food or money to buy food? Aboriginal peoples' survey 2006 (children and youth – aged 6

to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentrereseach.ca/statistics/Client\\_CY\\_G03\\_SEXtable&graph5response\\_files/sheet001\\_safe.htm](http://www.metiscentrereseach.ca/statistics/Client_CY_G03_SEXtable&graph5response_files/sheet001_safe.htm)

<sup>54</sup> Statistics Canada (2009). How do you cope with feeding him/her when this happens? Parent/guardian skips meals or eats less. Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentrereseach.ca/statistics/Client\\_CY\\_G05A\\_SEXtable&graph4response\\_files/sheet001\\_safe.htm](http://www.metiscentrereseach.ca/statistics/Client_CY_G05A_SEXtable&graph4response_files/sheet001_safe.htm)

<sup>55</sup> Statistics Canada (2009). How do you cope with feeding him/her when he/she is hungry b/c the family has run out of food? Seek help from relatives by sex for the children and youth, Métis identity population. Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentrereseach.ca/statistics/client\\_CY\\_G05D\\_SEXtable&graph4response\\_files/sheet001\\_safe.htm](http://www.metiscentrereseach.ca/statistics/client_CY_G05D_SEXtable&graph4response_files/sheet001_safe.htm)

<sup>56</sup> Statistics Canada (2009). How do you cope with feeding him/her when he/she is hungry b/c the family has run out of food? Seek help from friends by sex for the children and youth, Métis identity population. Aboriginal peoples'

survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentrereseach.ca/statistics/client\\_CY\\_G05E\\_SEXtable&graph4response\\_files/sheet001\\_safe.htm](http://www.metiscentrereseach.ca/statistics/client_CY_G05E_SEXtable&graph4response_files/sheet001_safe.htm)

<sup>57</sup> Statistics Canada (2009). How do you cope with feeding him/her when he/she is hungry b/c the family has run out of food? Seek help from food bank (emergency food program) by sex for the children and youth, Métis identity population. Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentrereseach.ca/statistics/client\\_CY\\_G05G\\_SEXtable&graph4response\\_files/sheet001\\_safe.htm](http://www.metiscentrereseach.ca/statistics/client_CY_G05G_SEXtable&graph4response_files/sheet001_safe.htm)

<sup>58</sup> Statistics Canada (2009). How often has he/she ever experienced being hungry because the family has run out of food or money to buy food? by sex for the children and youth, Métis identity population. Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentrereseach.ca/statistics/client\\_CY\\_G04\\_SEXtable&graph6response\\_files/sheet001\\_safe.htm](http://www.metiscentrereseach.ca/statistics/client_CY_G04_SEXtable&graph6response_files/sheet001_safe.htm)

<sup>59</sup> Statistics Canada (2009). Last week, on how many

days did he/she consume the following foods and beverages? Fruit (Do not include juice) by province and territory for the the children and youth, Métis identity population. Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentrereseach.ca/statistics/client\\_CY\\_G02E\\_DPRCODEnoNUNAVUTtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentrereseach.ca/statistics/client_CY_G02E_DPRCODEnoNUNAVUTtable&graph8response_files/sheet001_safe.htm)

<sup>60</sup> Statistics Canada (2009). Last week, on how many days did he/she consume the following foods and beverages? Wild meat (such as moose, caribou, venison, walrus, muktuk) by province and territory for the the children and youth, Métis identity population. Aboriginal peoples' survey 2006 (children and youth – aged 6 to 14). Ottawa, ON: Statistics Canada. Retrieved June 14, 2010 from the Métis Centre of the National Aboriginal Health Organization: [http://www.metiscentrereseach.ca/statistics/client\\_CY\\_G02P\\_DPRCODEnoNUNAVUTtable&graph8response\\_files/sheet001\\_safe.htm](http://www.metiscentrereseach.ca/statistics/client_CY_G02P_DPRCODEnoNUNAVUTtable&graph8response_files/sheet001_safe.htm)

<sup>61</sup> Statistics Canada (2006).

<sup>62</sup> Canadian UNICEF Committee (2009).



NATIONAL COLLABORATING CENTRE  
FOR ABORIGINAL HEALTH  
CENTRE DE COLLABORATION NATIONALE  
DE LA SANTÉ AUTOCHTONE

FOR MORE INFORMATION:  
UNIVERSITY OF NORTHERN BRITISH COLUMBIA  
3333 UNIVERSITY WAY, PRINCE GEORGE, BC V2N 4Z9

1 250 960 5250  
NCCA@UNBC.CA  
WWW.NCCA.HC.A