



First Nations Food, Nutrition and Environment Study

University of Ottawa
30 Marie Curie Private
Ottawa, ON, K1N 6N5

Tel: 613-562-5800 ex: 7214 Email: fnfnes@uottawa.ca

The right to food: a coast-to-coast look at food security among First Nations living on-reserve south of the 60th parallel

The right to food is recognized in international human rights law. It entails that individuals have sufficient access to food that provides all nutrients required for a healthy and active life at all stages of the life cycle, that it is safe for human consumption and free from adverse substances, and culturally appropriate.

In parallel, **food security is achieved "... when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life"** (Food and Agriculture Organization 2008). Most household food security measures assess the inadequate or insecure access to store-bought foods as a result of financial constraints. A common tool to measure food security in Canada is the Household Food Security Survey Module (HFSSM) used in the national Canadian Community Health Survey (CCHS).

Because food security is largely looked at through the lens of economics and physical access, broader concepts are required to capture the distinct food systems of Indigenous Peoples and to honour their unique world views and perspectives. **Indigenous Peoples' food systems include locally hunted, collected, cultivated or harvested foods and therefore are closely connected to the overall health of the environment.** Declines in environmental quality can affect the quality of Indigenous food and, combined with social, economic, political and cultural factors, can restrict its availability or curtail access.

Food Sovereignty is stated as a precondition for food security. **Indigenous Food Sovereignty emphasizes the close connection Indigenous Peoples have with their environment, the work being done by Indigenous communities to revitalize their food systems, the transmission of cultural knowledge about their lands, and the harvesting of traditional food (i.e., hunting, fishing, gathering, cultivating).** This concept is often used to exemplify the struggles First Nations Peoples encounter in harvesting traditional food and restoring/revitalizing their Indigenous food systems. In Canada, displacement from traditional territories, forced cultural assimilation, involuntary community relocation to reserves and environmental degradation have deeply compromised Indigenous food systems and the resilience of communities.

Over the past century, as First Nations communities have been subject to severe marginalizing pressures of colonization, perpetuated by the residential school system, they have experienced a rapid transition in diet and lifestyle, characterized by decreased physical activity and a shift towards consumption of energy-dense market-based food.

This nutrition transition has been identified to play a key role in the rising rates of obesity-related chronic diseases in these populations, with this trend observed to be driven by a range of processes – first and foremost colonial policies and practices that enforced physical displacement from these lands, disrupting access to environments that enable engagement in traditional food activities. In conjunction with this ongoing nutrition transition, the 2012 Canadian Community Health Survey (CCHS) observed disproportionately high rates of food insecurity among First Nations households (20 %) compared with non-Indigenous households in Canada (8 %). The CCHS, however, excludes First Nations households living on reserve, and therefore this prevalence of food insecurity is considered to underestimate the levels among all First Nations households.

1. Food Security among First Nations living on-reserve in eight Assembly of First Nations Regions

The First Nations Food, Nutrition and Environment Study (FNFNES) is an 11-year participatory study (2008-2019) with First Nations communities that used a standard approach, with identical tools and methodology to conduct a survey of First Nations adults living on reserves in each of the eight AFN regions south of the 60th parallel in Canada (Figure 1). A random sampling strategy was adopted to ensure that the Study assessed and represented the diversity of diets of First Nations. **Data was collected from 6,487 adult participants from 92 First Nations in 11 ecozones across Canada during the fall months (September to mid-December) from 2008 to 2016.**

Respective First Nations were involved in the planning and the implementation of data collection for the five principal study components: household interviews; tap water sampling for metals (of human health concern and for aesthetic objectives); surface water sampling for pharmaceuticals; hair sampling for mercury; and traditional food sampling for contaminants.

Interviews to assess food security in FNFNES were conducted by trained First Nations researchers under the guidance of a registered dietitian using the Household Food Security Survey Module (HFSSM), which focuses on self-reports of uncertain, insufficient, or inadequate food access, availability and utilization due to limited financial resources, and the compromised eating patterns and food consumption that may result among members of a household (Health Canada 2012; PROOF Food Insecurity Policy Research 2018). The questionnaire contained 18 questions (10 questions for adults and 8 additional questions for households with children) (PROOF Food Insecurity Policy Research 2018). Households were classified as food secure if no item was answered positively or as marginally, moderately, or severely food insecure, using the thresholds adopted by PROOF (PROOF Food Insecurity Policy Research 2018), rendering FNFNES results directly comparable with Canadian national data.

Food costs in participating First Nations communities (except in British Columbia) and in one or more major urban centres in each region were estimated using the National Nutritious Food Basket tool (Health Canada 2009). The total costs of the items in the food basket were used to calculate the weekly costs of a food basket for a family of four consisting of two adults (a woman and a man, aged 31–50 years) and two children (one boy aged 14–18 years and one girl aged 4–8 years).

PARTICIPATION ACROSS EIGHT AFN REGIONS

92 First Nations

2,210 men
average age of 45



4,277 women
average age of 44



Figure 1 Communities participating in FNFNES

Figure 2 compares food costs between First Nations communities and major centres in all regions where food costs were collected and shows the highest cost of the food basket in each region. **In all regions, food costs were often two to three times higher in communities more than 50 km away from a major urban centre, and were even higher in fly-in communities.**

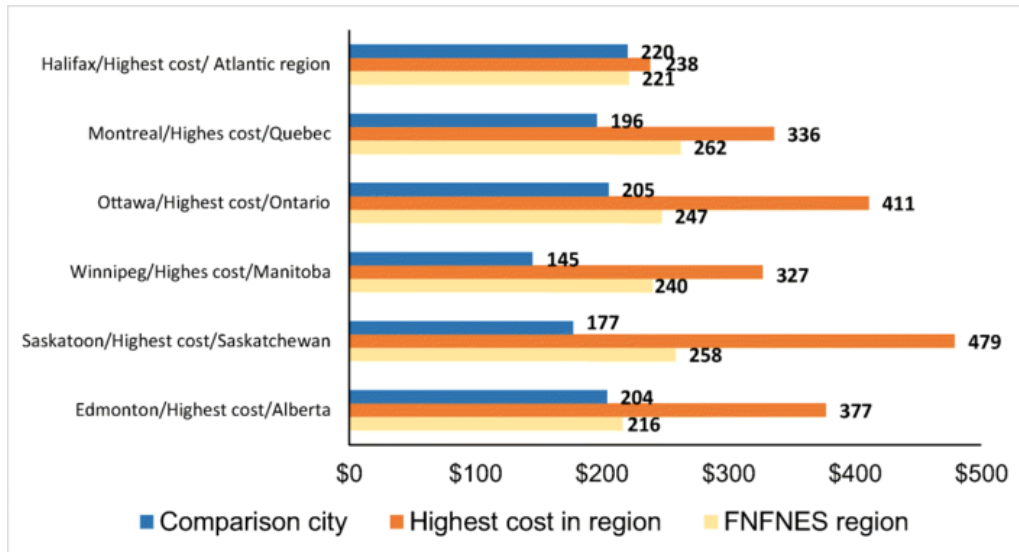


Figure 2 Comparison between cost of a food basket for a family of four between the average in First Nations communities in each region, a major urban centre in the region and the community with the highest food cost.

Prevalence of food insecurity was high in all the surveyed regions and averaged 47.1% (nearly four times higher than the Canadian prevalence at 12,2%). Figure shows food insecurity prevalence per region and allows for regional comparison.

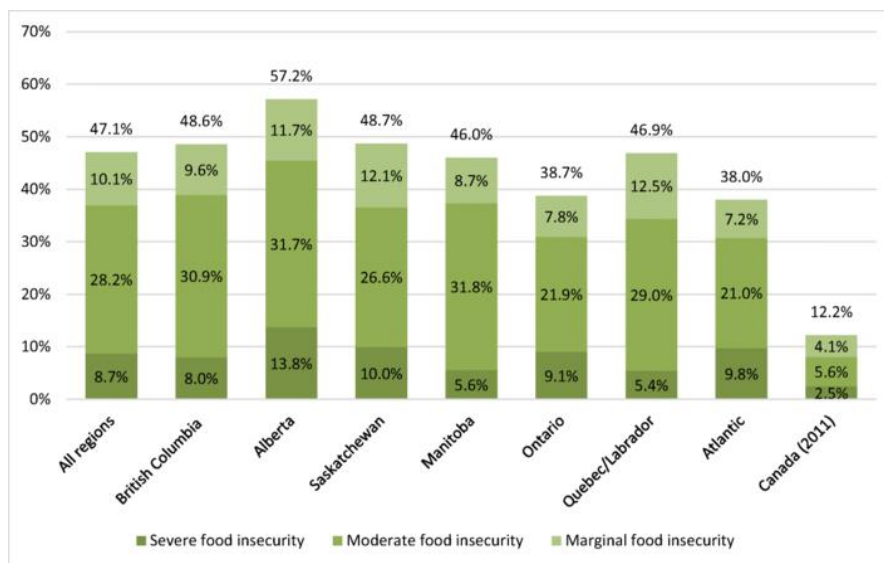


Figure 3 Prevalence of food insecurity as captured by FNFNES in surveyed AFN regions

Because the HFSSM does not measure traditional food access and because of the centrality of traditional food to the well-being of First Nations, FNFNES measured indicators related to Indigenous Food Sovereignty using additional questions that addressed the barriers and enablers to obtaining traditional food and the control over access and sufficiency of traditional food. Two questions were posed to assess a household's adequacy of and the ability to replenish traditional food supplies. Figure 4 shows the results of questions related to access to traditional food. **Almost half of all participating households worried that traditional foods would not last and it was not possible to get any more or would run out before more could be obtained.**

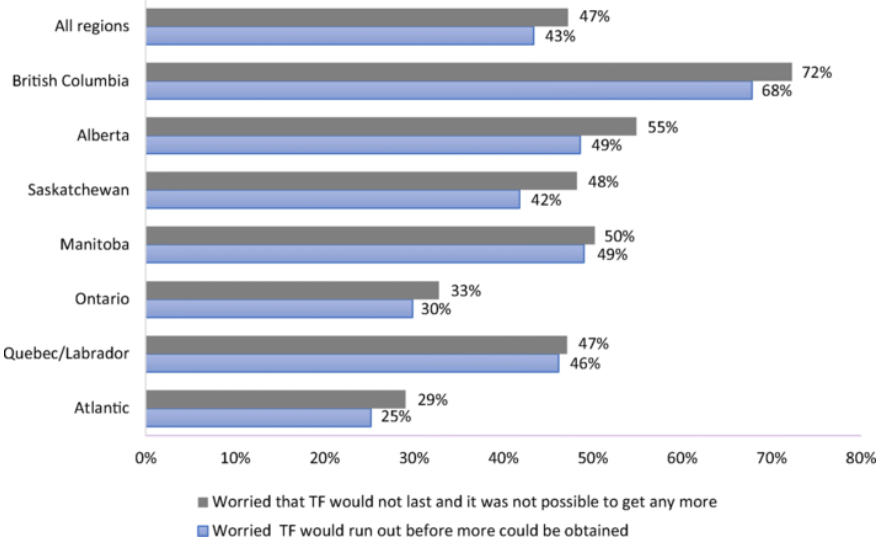


Figure 4 Concern about running out of traditional food in FNFNES

2. The Centrality of traditional food for the health of First Nations

Issues of food insecurity among First Nations are compounded by problems of inadequate access to a healthy diet leading to high rates of nutrition-related chronic disease and chronic disease risk factors in the population. Our representative data have shown that the prevailing dietary intake does not meet dietary recommendations, and the subsequent observed health problems can be understood as associated with the compromised food system. The widely observed high burden of nutrition-related chronic disease in this population is a compelling indicator that diet improvements are needed, and such improvements are only likely if there is a system-wide transformation to improve access to healthy foods. In fact, the diets of First Nations adults living on-reserve are high in saturated fat, sugar and salt and are low in fruits and vegetables, dairy products and several vitamins and minerals. A clear illustration of the nutrition-related health issues can be seen through the high **rates of overweight/obesity and diabetes (figures 5 and 6), twice and three times higher than those for non-Indigenous Canadians** respectively.

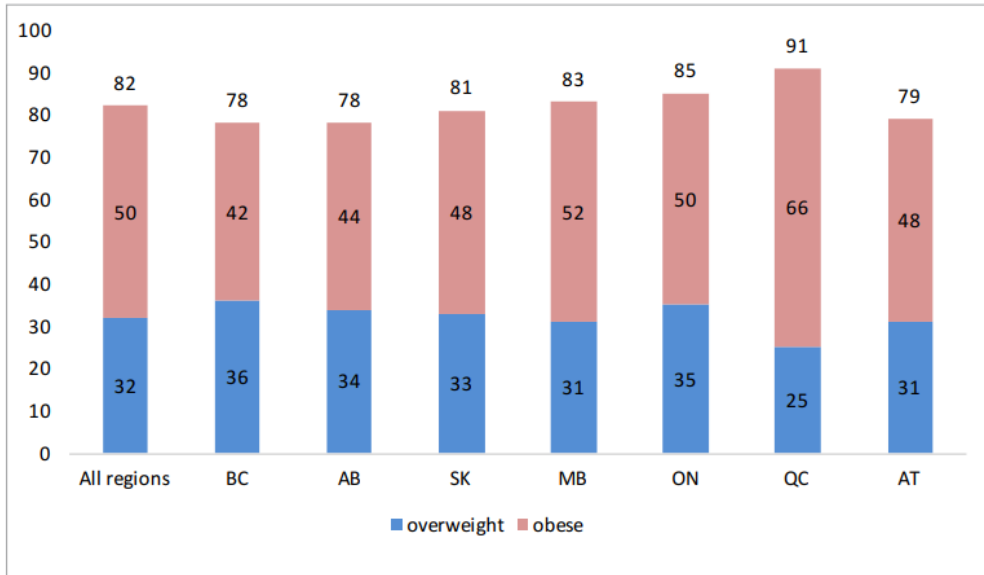


Figure 5 Percentage of adults who are overweight or obese

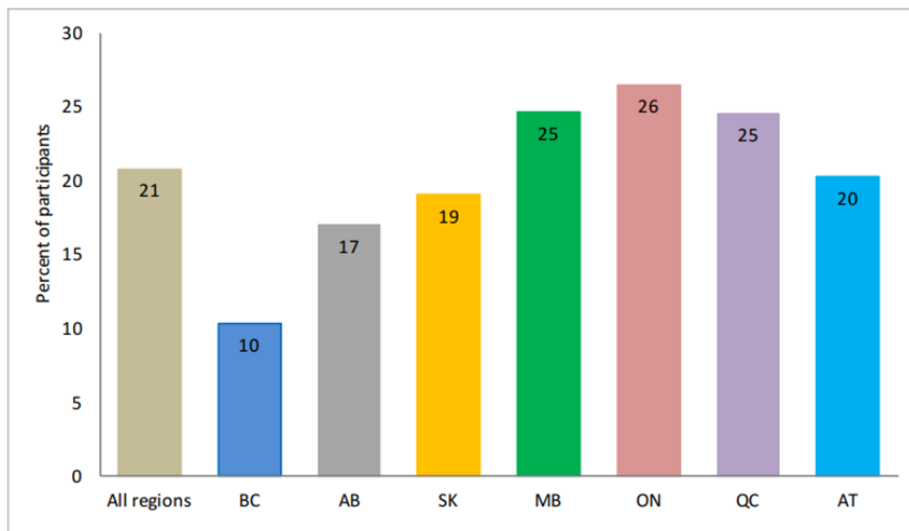


Figure 6 Diabetes per region (crude weighted)

Traditional food, when available, can contribute greatly to the quality of the diet, even when present in small quantities in the diet. The table below compares between days with and without traditional food in terms of availability of key nutrients in the FNFNES sample based on 24-hour recalls (Table 1). **The diet quality was much better in the days when traditional food was consumed than the days without.** First Nations recognize the centrality of traditional food for physical health but also for its role in promoting cultural and spiritual health. **The majority (77%) of First Nations adults in this representative sample of all First Nations south of the 60th parallel would like to consume more traditional food** (figure 7) but are prevented from doing so for a variety of reasons.

Table 1 Comparison of nutrient intake on days with and without traditional food

Nutrient	Days with TF (n=1,243 recalls)	Days without TF (n=5,242 recalls)
	mean \pm SE	
Calories, kcal***	2,044 \pm 28.85	1,912 \pm 13.43
Protein, grams***	150 \pm 3.26	74.7 \pm 0.6
Fat, grams***	71.1 \pm 1.3	78.5 \pm 0.69
Carbohydrates, grams***	207 \pm 3.40	232 \pm 1.78
Total sugars, grams***	68.4 \pm 1.87	79.5 \pm 0.92
Fibre, grams***	12.2 \pm 0.23	13.2 \pm 0.12
Cholesterol, grams***	453 \pm 11.12	312 \pm 3.73
Total saturated fat, grams***	20.3 \pm 0.4	25.4 \pm 0.24
Monounsaturated fat, grams***	27.3 \pm 0.59	30.1 \pm 0.28
Polyunsaturated fat, grams	15.1 \pm 0.34	15.6 \pm 0.18
Linoleic acid, grams**	11.2 \pm 0.27	12.3 \pm 0.14
Linolenic acid, grams***	1.84 \pm 0.06	1.37 \pm 0.02
Calcium, mg**	576 \pm 11.2	612 \pm 6.26
Iron, mg***	24.6 \pm 0.59	12.9 \pm 0.11
Zinc, mg***	22.1 \pm 0.61	10.2 \pm 0.10
Magnesium, mg***	301 \pm 5.21	231 \pm 1.78
Copper, mg***	1.92 \pm 0.05	1.13 \pm 0.02
Potassium, mg***	3,308 \pm 56.1	2,258 \pm 17.2
Sodium, mg***	2,709 \pm 56.5	3,136 \pm 27.1
Phosphorus, mg***	1,770 \pm 33.47	1,076 \pm 8.44
Vitamin A, μ g**	630 \pm 56.7	453 \pm 6.8
Vitamin D, μ g***	10.6 \pm 0.69	3.22 \pm 0.05
Vitamin C, mg*	91.5 \pm 4.26	79.9 \pm 1.85
Folate, μ g	347 \pm 7.08	350 \pm 3.48
Thiamin, mg	1.62 \pm 0.03	1.63 \pm 0.02
Riboflavin, mg***	2.44 \pm 0.04	1.87 \pm 0.01
Niacin, mg***	58.2 \pm 1.17	35.4 \pm 0.29
Vitamin B6, mg***	1.95 \pm 0.04	1.41 \pm 0.01
Vitamin B12, μ g***	21.5 \pm 1.11	3.95 \pm 0.13

*Significantly different, unpaired t-test, *p<0.05; **p<0.01; ***p<0.0001.

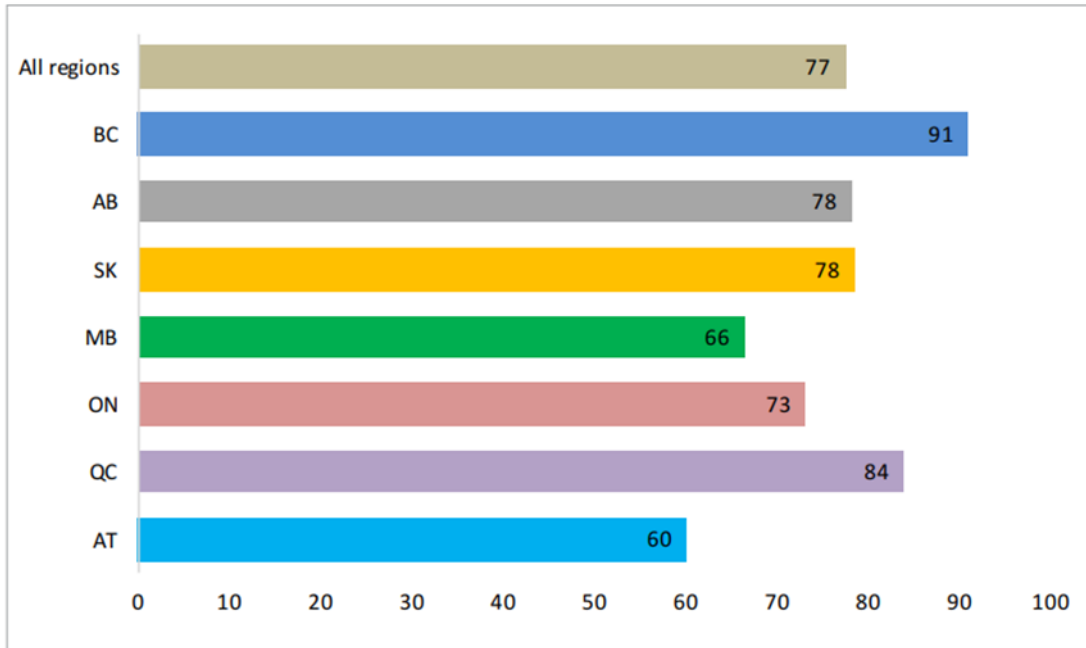


Figure 7 Percent of First Nations adults who would like more traditional food by region

Participants in the FNFNES study have expressed concern over barriers between them and their traditional food and have named **government regulations, farming, hydro projects, oil and gas, forestry and mining as major obstacles**. Additional barriers have been identified at the household level (figure 8), including time, resources and knowledge, in addition to concerns over climate change and its impact on traditional food availability.

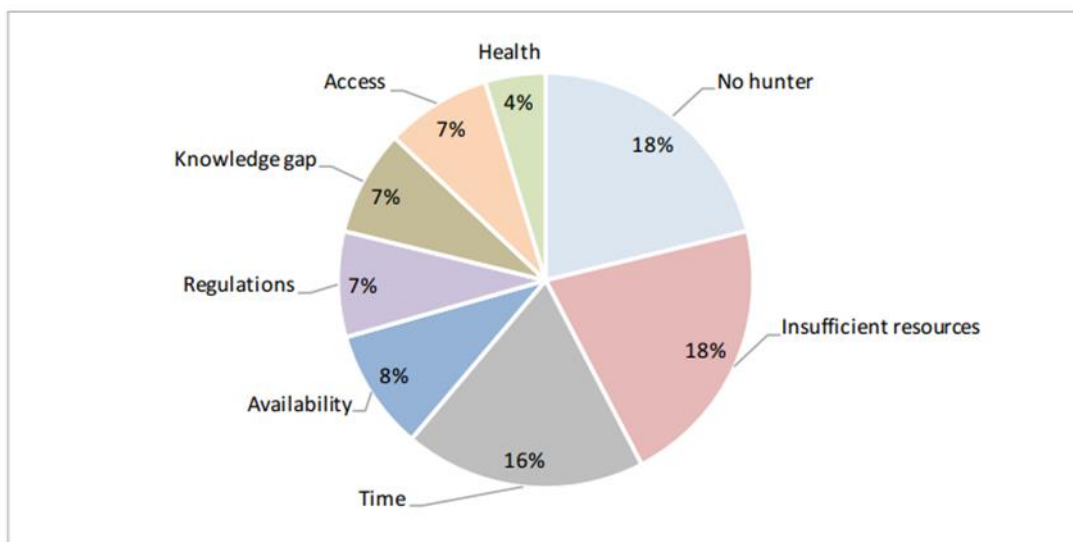


Figure 8 Barriers to traditional food intake, based on the percentage of responses

3. Recommendations for improving food security and nutrition-related health in First Nations communities

For millennia, Indigenous Peoples have taken care of the land, cultivating, producing, and harvesting foods in sustainable ways because of their 'longstanding sacred responsibilities to nurture healthy, interdependent relationships with the land, plants, and animals that provide us with our food' (Morrison 2011). New mechanisms and governance models co-developed with First Nations Peoples are needed to address weaknesses in current policy and program approaches. This may range from increasing local food production and reducing food price differences to improving families' financial ability to obtain healthy food choices. Additionally, to address environmental threats to traditional food systems, efforts are needed that strengthen First Nations Peoples' self-determination, connection to the land, and their stewardship of the environment. Indigenous priorities and values need to be meaningfully recognized and included within relevant federal, provincial, and municipal decisions with respect to land use, development, conservation, and habitat protection with an intention to maintain or enhance access to and availability of high-quality traditional food as has been recognized in the United Nations Declaration on the Rights of Indigenous Peoples. Support is needed by all levels of government, including First Nations Peoples themselves, to monitor, protect, and ensure that local ecosystems are healthy and can support First Nations Peoples' ability to access traditional food.

Some First Nations communities have rallied to implement programs to improve their food sovereignty, such as reintroducing and promoting salmon in the Okanagan (Syilx Okanagan Nation Alliance 2017), paying individuals who hunt and fish full-time (Cree Hunters and Trappers Income Security Board 2017), and ongoing efforts for knowledge transfer to future generations, e.g., culture camps and school curricula. **Studies investigating the holistic evaluation of the feasibility of increasing traditional food from an Indigenous perspective are required to monitor the health, social, and economic benefits of traditional food and food sovereignty strategies.** Additionally, serious efforts need to be put in place to ensure First Nations people have the financial ability to access high nutritional quality market food that is liked by community members and that this food is made available at a reasonable cost. **Better access to traditional food and healthy store-bought market foods must be established to help improve the health and food security/sovereignty of First Nations Peoples.** This access can be achieved by addressing the more systemic political, regulatory, environmental and economic barriers to improve access to traditional food and healthy store-bought market foods. **Our data on food cost and on levels of food insecurity in remote communities show that existing federal programs such as Nutrition North have failed to reduce food insecurity in the communities where these programs are present.**

- Dr. Malek, Batal, Dr. Laurie Chan, Dr. Tonio Sadik, Dr. Constantine Tikhonov and Lynn Barwin, on behalf of the FNFNES team

References

- Cree Hunters and Trappers Income Security Board (2017). The Program. <http://www.chtisb.ca/program/> . Accessed Feb 20 2021
- Food and Agriculture Organization (2008). An Introduction to the Basic Concepts of Food Security. www.foodsec.org/docs/concepts_guide.pdf. Accessed Feb 20 2021
- Health Canada (2009). 2008 National Nutritious Food Basket. <https://www.canada.ca/en/health-canada/services/food-nutrition/food-nutrition-surveillance/national-nutritious-food-basket/questions-answers-2008-national-nutritious-food-basket.html> . Accessed Feb 20 2021
- Health Canada (2012). The Household Food Security Survey Module (HFSSM)The Household Food Security Survey Module (HFSSM). <http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/insecurit/hfssm-mesam-eng.php> . Accessed Feb 20 2021.
- Morrison, D. (2011). Indigenous food sovereignty – A model for social learning. In H. Wittman, D. A.A., & N. Wiebe (Eds.), *Food sovereignty in Canada: creating just and sustainable food systems* (pp. 97-113). Halifax, Nova Scotia, Canada: Fernwood Publishing.
- Nutrition North Canada (2018). How Nutrition North Canada works. <https://www.nutritionnorthcanada.gc.ca/eng/1415538638170/1415538670874>. Accessed Feb 20 2021
- PROOF Food Insecurity Policy Research (2018). Household Food Insecurity in Canada: A Guide to Measurement and Interpretation. <https://proof.utoronto.ca/wp-content/uploads/2018/11/Household-Food-Insecurity-in-Canada-A-Guide-to-Measurement-and-Interpretation.pdf>
- Syilx Okanagan Nation Alliance (2017). The conservation, protection, restoration, and enhancement of indigenous fisheries (anadromous and resident) and aquatic resources within Okanagan Nation Territory. <https://www.syilx.org/fisheries/>. Accessed Feb 20 2021