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COUNTRY AND MARKET FOOD CONSUMPTION AND NUTRITIONAL STATUS

QANUILIRPITAA? 2017

Nunavik Inuit Health Survey

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RÉGIE RÉGIONALE DE LA SANTÉ ET DES SERVICES SOCIAUX DU NUNAVIK
NUNAVIK REGIONAL BOARD OF HEALTH AND SOCIAL SERVICES

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QANUILIRPITAA? 2017 HEALTH SURVEY

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In memory of Audrey Flemming and Linda Shipaluk

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LIST OF ACRONYMS

CCGS	Canadian Coast Guard Ship
CI	confidence interval
CV	coefficient of variation
DHA	docosahexaenoic acid
DPA	docosapentaenoic acid
EPA	eicosapentaenoic acid
FFQ	food frequency questionnaire
GM	geometric mean
ICP-MS	inductively coupled plasma mass spectrometry
INSPQ	Institut national de santé publique du Québec
n-3 PUFA	long chain omega-3 polyunsaturated fatty acids
NRBHSS	Nunavik Regional Board of Health and Social Services
RBC	red blood cell
UPLC-MS/MS	ultra performance liquid chromatography-tandem mass spectrometry

1 BACKGROUND OF THE *QANUILIRPITAA?* 2017 HEALTH SURVEY

The *Qanuilirpitaa?* 2017 Health Survey is a major population health survey conducted in Nunavik that involved the collection, analysis and dissemination of information on the health status of Nunavimmiut. The last health survey conducted prior to it in Nunavik dated from 2004. Since then, no other surveys providing updated information on the health of this population had been carried out. Thus, in February 2014, the Board of Directors of the Nunavik Regional Board of Health and Social Services (NRBHSS) unanimously adopted a resolution to conduct a new health survey in all 14 Nunavik communities, in support of the Strategic Regional Plan.

The general objective of the 2017 health survey was to provide an up-to-date portrait of the health status of Nunavimmiut. It was also aimed at assessing trends and following up on the health and health determinants of adult participants since 2004, as well as evaluating the health status of Nunavik youth. This health survey has strived to move beyond traditional survey approaches so as to nurture the research capabilities and skills of Inuit and support the development and empowerment of communities.

Qanuilirpitaa? 2017 included four different components: 1) an adult component to document the mental and physical health status of adults in 2017 and to follow up on the adult cohort of 2004; 2) a youth component to establish a new cohort of Nunavimmiut aged 16 to 30 years old and to document their mental and physical health status; 3) a community component to establish the health profiles and assets of communities in a participatory research approach; and 4) a community mobilization project aimed at mobilizing communities and fostering their development.

This health survey relied on a high degree of partnership within Nunavik (Nunavik Regional Board of Health and Social Services (NRBHSS), Makivik Corporation, Kativik Regional Government (KRG), Kativik Ilisarniliriniq (KI), Avataq Cultural Institute, Qarjuit Youth Council, Inuulitsivik Health Centre, Ungava Tulattavik Health Centre), as well as between Nunavik, the Institut national de santé publique du Québec (INSPQ) and academic researchers from three Canadian universities: Université Laval, McGill University and Trent University. This approach followed the OCAP principles of Ownership, Control, Access and Possession (First Nations Centre, 2007).[1] It also emphasized the following values and principles: empowerment and self-determination, respect, value, relevance and usefulness, trust, transparency, engagement, scientific rigour and a realistic approach.

TARGET POPULATION

The survey target population was all permanent Nunavik residents aged 16 years and over. Persons living full time in public institutions were not included in the survey. The most up-to-date beneficiaries register of all Inuit living in Nunavik, provided by the Makivik Corporation in spring 2017, was used to construct the main survey frame. According to this register, the population of Nunavik was 12 488 inhabitants spread out in 14 communities. The register allowed respondents to be selected on the basis of age, sex, and administrative coast of residence (Hudson coast and Ungava coast).

SURVEY FRAME

The survey used a stratified proportional model to select respondents. Stratification was conducted based on communities and age groups, given that one of the main objectives of the survey was to provide estimates for two subpopulations aged, respectively, 16 to 30 years and 31 years and over. In order to obtain precise estimates, the targeted sample size was 1 000 respondents in each age group. Assuming a 50% response rate, nearly 4 000 people were required to obtain the necessary sample size. From this pool, the number of individuals recruited from each

1. OCAP® is a registered trademark of the First Nations Information Governance Centre (FNIGC).

community was proportionate to population size and took into account the number of days that the survey team would remain in each community – a situation that imposed constraints on the number of participants that could be seen. Within each stratum, participants were randomly selected from the beneficiaries register. However, the individuals from the 2004 cohort, all 31 years old and over (representing approximately 700 individuals), were automatically included in the initial sample.

DATA COLLECTION

Data were collected from August 19, 2017 to October 5, 2017 in the 14 villages. The villages were reached by the *Amundsen*, a Canadian Coast Guard Icebreaker, and participants were invited on board the ship for data collection purposes.

Two recruitment teams travelled from one community to another before the ship's arrival. An Inuk assistant in each community helped: identify, contact and transport (if necessary) each participant; inform participants about the sampling and study procedures; obtain informed consent from participants (video), and fill in the identification sheet and sociodemographic questionnaire.

Data collection procedures for the survey included questionnaires, as well as clinical measurements. The survey duration was about four hours for each wave of participants, including their transportation to and from the ship. Unfortunately, this time frame was sometimes insufficient to complete the data collection process. This survey received ethical approval by the Comité d'éthique de la recherche du Centre Hospitalier Universitaire de Québec – Université Laval.

Aboard the ship, the survey questionnaires were administered by interviewers, many of whom were Inuit. Face-to-face interviews were conducted using a computer-assisted interviewing tool. If there were problems with the laptop connections, paper-form questionnaires were filled out. The questionnaires were administered in Inuktitut, English, or French, according to the preference of the participants. Interviewers received training in administering the questionnaires prior to the start of the survey. The questionnaires were divided into five blocks: psychosocial interview (blocks 1 and 3), physical health and food security interview (block 2), food frequency questionnaire (block 4), and sociodemographic interview (block 5).

The survey also included a clinical component, with tests to document aspects of physical health, sampling of biological specimens (blood, oropharyngeal swabs, urine, stool, and vaginal swabs), spirometry, and an oral clinical exam. These sessions were supervised by a team comprised of nurses, respiratory therapists, dentists, dental hygienists and assistants, and laboratory technicians.

PARTICIPATION

There were a total of 1 326 participants, including 574 Nunavimmiut aged 16 to 30 years old and 752 Nunavimmiut aged 31 years and over, for total response rates of 30.7% and 41.5%, respectively. The participants' distribution between the two coasts (Ungava and Hudson) was similar. The distribution of men and women was unequal, with twice as many women (873) than men (453) participating in the survey. If the results obtained from this sample are to be inferred to the target population, survey weights must be used.

Overall, as compared to the 2004 survey, the response rate (i.e., the rate of participants over the total number of individuals on the sampling list) was lower than expected, especially among young people. This includes the refusal rate and especially a low contact rate. Several reasons might explain the low response rate, including the short time available to contact individuals prior to the ship's arrival in the community and non-contact due to people being outside of the community or on the land. Nevertheless, among the individuals that were contacted (n = 1 661), the participation rate was satisfactory with an internal participation rate of 79.7% More details on the collection, processing and analysis of the data are given in the Methodological Report (Hamel, Hamel & Gagnon, 2020)

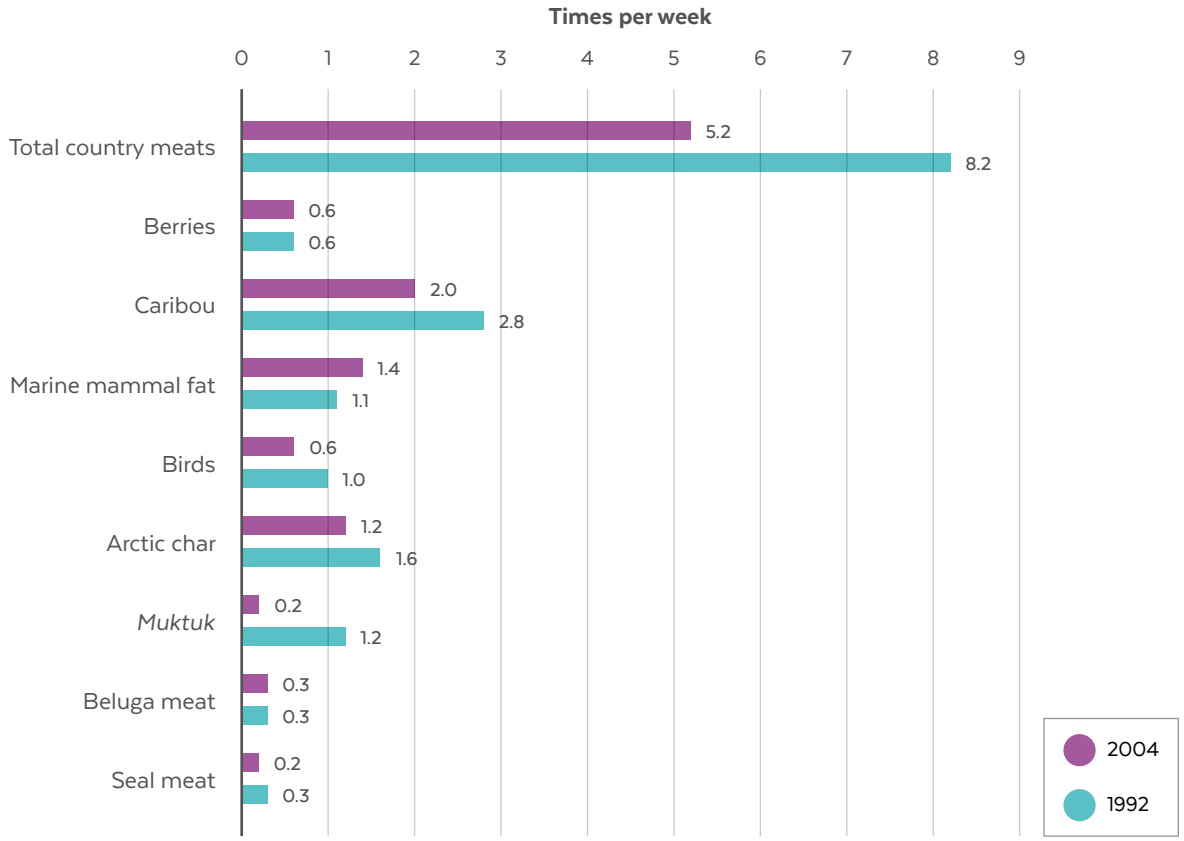
2 INTRODUCTION

Inuit country foods are traditional foods that are hunted, fished and gathered from the land. They consist of locally or regionally harvested marine and terrestrial wildlife, fish and plants (Inuit Tapiriit Kanatami, 2017). Traditional food systems play a key role in the culture of the Inuit of Nunavik. Hunting and food preparation are opportunities to pass on Inuit *Qaujimajatuqangit* (traditional knowledge), which is a central pillar of Inuit culture. Country food is also crucial for Inuit wellness and contributes to enhanced self-sufficiency of Inuit communities. When young hunters learn how to support themselves on the land, they also learn about Arctic environments and the roles that animals play in their lives (Pearce et al., 2011). Country food sharing is an important cultural and historical practice that supports those who might otherwise have insufficient access to food (Inuit Tapiriit Kanatami, 2014, 2017).

In addition to playing an essential role in culture and community well-being, country foods greatly contribute to nutrition and health (Little et al., 2020). They are important sources of protein, vitamins A and D, iron, magnesium and zinc (Kenny et al., 2018; Kuhnlein et al., 2004; Little et al., 2020). Country foods, and especially marine fish and mammals, also contain very high to exceptional levels of long chain omega-3 polyunsaturated fatty acids (n-3 PUFA). n-3 PUFA have been associated with many health benefits, and Nunavimmiut have remarkably high blood levels of these fatty acids (Boucher et al., 2011; Lemire et al., 2015; Lucas et al., 2010; Valera et al., 2011). In addition, many country foods in Nunavik are rich in selenium (Se), particularly those of marine origin, such as beluga *mattaaq* (skin and blubber (*ursuk*)) (Lemire et al., 2015), and blood Se status is generally quite high in Nunavimmiut. Se is a well-known antioxidant and there is evidence that it may protect Inuit from some of the harmful effects of mercury (Hu et al., 2017), to which Nunavimmiut are highly exposed (Lemire et al., 2015). Fats of marine mammals and fatty marine fish species (e.g., Arctic char) are high in lipophilic vitamins such as vitamins A, D and E, while the flesh of Arctic char and other salmonid species (salmon and brook trout) is rich in carotenoid pigments, essentially astaxanthin (an antioxidant) and beta-carotene (an antioxidant and a precursor of vitamin A) (Hatlen et al., 1998; Martinkappi et al., 2009).

Data from the previous health surveys conducted in Nunavik pointed out to a decline in the consumption of these important country foods between 1992 and 2004 (Blanchet & Rochette, 2008; Galloway et al., 2015; Little et al., 2020; Sheikh et al., 2011). For example, as previously highlighted by the *Qanuippitaa*? Nunavik Inuit Health Survey of 2004, the consumption of country meats (marine mammals, fish, shellfish, land mammals and wild birds) among women was higher in 1992 (8.2 times/week) than in 2004 (5.2 times/week) (Figure 1). Again among women, the mean consumption frequency of foods such as caribou, wild birds (generally ptarmigan and geese), Arctic char, beluga *mattaaq* and, to a lesser extent, seal meat, was lower in 2004 than in 1992 (Figure 1). In general, this reduction was observed among all age groups; however, for seal meat and wild birds, the reduction was greatest in women aged 30 to 49 years. Moreover, in 2004, country food intake was consistently higher among older Inuit and those who participated regularly in traditional activities. Country food intake was also higher in men and among Inuit living in Hudson Bay and Hudson Strait communities as compared to those living in Ungava Bay communities (Blanchet & Rochette, 2008; Lemire et al., 2015). Population growth and the decline of certain staple species such as caribou continue to put pressure on the traditional food system (Plante et al., 2018; Statistics Canada, 2017). Climate change is also introducing challenges to the consumption of country foods and the health of Inuit by impacting the availability, accessibility and quality of these important foods (Ford, 2012; Little et al., 2020; Nancarrow & Chan, 2010; Rosol et al., 2016b). Furthermore, declines in country food consumption may be partially fueled by concerns over contaminant burdens, despite public health advisories stressing the importance of balancing nutritional benefits with the risks of contaminants (Calder et al., 2019; Krummel & Gilman, 2016; Laird et al., 2013; Lemire et al., 2015; Little et al., 2020).

Figure 1 Comparison between weekly consumption of country foods among the Inuit women in 2004 and 1992, Nunavik (Blanchet and Rochette, 2008)



Source: *Qanuippitaa?* Nunavik Inuit Healt Survey 2004.
Total country meats include meat and parts from marine mammals, fish, shellfish, land mammals and wild birds.

Comparisons between 2004 and 1992 were made among women only since in 1992, the food frequency questionnaire was not completed by men.

Food insecurity[2] is a matter of grave concern in all regions of the Inuit Nunangat, and it has been linked to many health issues (Council of Canadian Academies, 2014; Goldhar et al., 2010; Huet et al., 2012; Little et al., 2020; Nunavik Regional Board of Health and Social Services, 2020b). The harvesting, preparation, sharing and consumption of country foods are important contributors to food security in Nunavik (Beaumier & Ford, 2010; Rosol et al., 2016a), but the challenges of obtaining country food contribute to the high food insecurity in the region (Council of Canadian Academies, 2014). Food insecurity is also driven by the high cost of store-bought market foods, as food costs in Nunavik are much higher than in southern Quebec (e.g., 55% higher than in Quebec City in 2015-2016) (Robitaille, 2018). Despite Nutrition North Canada (Nutrition North Canada, 2018), a program that subsidizes food in isolated communities, Inuit are often unable to obtain enough food, and the availability and quality of perishable foods is not optimal (Auditor General of Canada, 2014; Little et al., 2020).

In *Qanuippitaa*? 2004, the most commonly reported market foods consumed were sweets, soft drinks, white bread, fruit juice, milk, tea and coffee (Blanchet & Rochette, 2008). In 2004, Nunavimmiut met only one of the recommendations in Canada's Food Guide (Health Canada, 2007), namely, that concerning meat and alternatives. Intakes of milk and alternatives, vegetables and fruit, and whole grain products were reported to be low, while intakes of sweet foods and drinks were high and store-bought food represented 84% of daily energy (Blanchet & Rochette, 2008).

2. For more details on this topic, see the food security thematic report of *Qanuilirpitaa?* 2017.

The first objective of this report is to describe the consumption frequency of country and store-bought market foods as reported by Nunavimmiut during the three months before they were interviewed in 2017. The frequency is described according to: age, sex, ecological region, community size, sociodemographic characteristics and food security, as well as whether or not the individuals surveyed had taken part in traditional activities or had spent time on the land. Country and market food consumption in 2017 is also described in comparison to the *Nunavik Food Guide* and the *Qanuippitaa?* 2004 food consumption data. The second objective is to describe the nutritional status of Nunavimmiut using nutritional biomarkers. Biomarker levels in 2017 are presented according to selected sociodemographic characteristics and the consumption of key country and market foods. When possible, these levels are compared to those of 2004.

3 METHODOLOGICAL ASPECTS

PARTICIPANTS AND DATA COLLECTION

The *Qanuilirpitaa?* (How are we now?) 2017 Health Survey targeted all permanent residents of Nunavik aged 16 years and over. A total of 1 326 individuals participated in the data collection process aboard the CCGS *Amundsen* from August 19, 2017 to October 5, 2017 in the 14 villages. A questionnaire was administered to determine sociodemographic characteristics and food security (Hamel, Hamel & Gagnon, 2020).

Food consumption habits were recorded using a food frequency questionnaire (FFQ, see Appendix 1) with 1 176 individuals. All analyses were conducted among men and non-pregnant women aged 16 and older (n = 33 pregnant women removed); 1 145 individuals were thus included in the analyses for this report. The FFQ contained 65 questions and was designed to estimate the frequency of consumption over a period of three months prior to the survey (i.e., a period somewhere between mid-May and early October 2017, depending on when the FFQ was completed). No portion sizes were assessed, as the goal was to establish whether a particular food was eaten on a regular basis rather than how much of that food was eaten.

The country foods assessed through the questionnaire included (Appendix 1): beluga (dried meat (*nikku*), meat, *misirak/ursuk* (blubber) or *mattaaq* (skin and blubber)); seal (meat, *misirak/ursuk* (blubber), or liver); walrus; polar bear; muskox, ptarmigan; goose; wild bird eggs (duck, goose, seagulls); caribou (dried meat (*nikku*), meat); dried fish (*pitsik*; Arctic char, brook trout, lake trout or other); lake trout; brook or sea trout, salmon; Arctic char; pike or walleye; other fish (lake whitefish, sculpin or others); shellfish (mollusks (mussels, scallops and clams) and urchins); seaweed; wild berries (cloudberries (*arpik*), blueberries (*kigutangirnaq*), blackberries (*paurngaq*) and redberries or cranberries (*kimminaq*)); *suuvalik* (a mixture of fish eggs, blackberries or blueberries and several possible fats such as *ursuk, misirak,* mayonnaise, vegetable oil, shortening or lard) or *uarutilik* (similar to *suuvalik* but contains cooked fish instead of fish eggs).

The consumption of the following market or store-bought food was also recorded for the three months prior to the survey (Appendix 2): sliced or processed meats (ham, salami, bologna or spam), sausage (small links or canned); hot dogs (beef or pork); bacon; beef jerky, hamburger; beef or pork as a main dish; chicken/turkey; chicken nuggets, wings, or fried chicken; canned fish (salmon, sardines or tuna); eggs (chicken); beans, lentils, or chick peas; peanut butter; nuts, peanuts or sunflower seeds; fruits (oranges, apples, bananas, etc.; fresh or frozen); canned fruit; applesauce, fruit puree; green, leafy vegetables; carrots; broccoli, cauliflower or cabbage; tomatoes (whole or canned) or V8; potatoes (baked, boiled or mashed); other vegetables (peppers, corn, celery etc.); white bread; whole wheat or whole grain bread; cold ready-to-eat cereals; hot cereals; bannock (deep-fried, oven-baked or pan-fried); pasta; pizza; bowl noodle soup; rice, French fries or poutine; chips (potato or tortilla); popcorn; crackers; cookies, cakes or muffins; chocolate; candies; chocolate spread or jam; artificial sweeteners; ketchup; milk; chocolate milk; yogurt; ice cream; cheese (including processed); water; diet soft drinks; regular soft drinks; energy drinks; 100% fruit juice; fruit drinks or cocktails; coffee; tea with caffeine; Labrador tea or traditional tea; butter; margarine; mayonnaise or Miracle Whip; added sugar; fats usually used for frying and baking (*ursuk*/ blubber, mayonnaise, butter, vegetable oil, vegetable shortening, or animal shortening).

All foods were also categorized as outlined in the *Nunavik Food Guide*, which provides guidelines for four food groups: meat, fish and alternatives; milk and alternatives; grain products; and vegetables, berries, and fruit. Comparisons were made using the recommended daily number of servings.

NUTRITIONAL BIOMARKERS

Fatty acids in red blood cells were measured using gas chromatography on a Varian 3900 gas chromatograph equipped with a DB-FFAP 15m × 0.10mm i.d. × 0.10 µm column and a flame ionisation detector (Agilent,

Mississauga, ON). Values were expressed as the percentage of total fatty acids (by weight). Serum vitamin D, serum B12 and erythrocyte folate were determined using a MODULAR ANALYTICS e170 from Roche Diagnostics GmbH (Mannheim, Germany). Plasma beta-carotene, vitamin A and vitamin E were measured in blood using ultra performance liquid chromatography-tandem mass spectrometry (UPLC-MS/MS) with an Xevo® TQ-S instrument from Waters® (Milford, Massachusetts, USA). Whole blood selenium concentrations were determined using inductively coupled plasma mass spectrometry (ICP-MS) with a NexION® instrument from PerkinElmer (Cleveland, Ohio, USA).

STATISTICAL ANALYSES

A design weight was applied to each respondent in order to account for the probability of them being selected in each unit of stratification. The weight used to calculate the estimates was based on the design weight, but it was also adjusted to take into account the global non-response and test-specific non-response rates. Sample variance was estimated using the bootstrap method. Coefficients of variation (CV) were used to assess the precision of estimates, based on the CV thresholds of the *Institut de la statistique du Québec*, so as to assure dissemination of high-quality estimates. Estimates with a CV between 15% and 25% are identified with an asterisk and should be interpreted with caution due to high sampling variability. Estimates with a CV greater than 25% are identified by double asterisks and are provided for information purposes only.

Because the distributions were skewed, the frequency of food consumption over the three months prior to the survey is presented using geometric means with a 95% confidence interval and quartiles. The prevalence of consumers (i.e., those who reported consuming a specific food 1 to 3 times a month or more) is also presented. The geometric means were calculated by adding half of the smallest frequency assessed through the questionnaire (half of 0.5 times/week) to all zero values in order to estimate the natural logarithm. Geometric means are presented for all country foods in the questionnaire when presenting data for the total population (Table 1). However, due to the large number of zero values (for country foods consumed "never or less than once per month"), only country foods consumed by at least 50% of the population are presented in the following tables comparing consumption frequencies between different categories (e.g., sex, age groups, ecological regions, etc.). It must be noted that variables representing the total of multiple food items are not presented in the tables but only in the text because preliminary analyses showed that these variables overestimated the total mean. For example, total beluga frequency consumption is not presented in the tables since it represents the sum of four food items, namely, dried beluga meat (beluga *nikku*), beluga meat (fresh, cooked, frozen), beluga *mattaaq* and beluga *misirak* and *ursuk*.

Univariable linear regression analyses using proc SURVEYREG in SAS (SAS university edition (version 3.8), Cary, North Carolina, USA, 2018) were conducted to compare the geometric means of consumption frequencies between men and women, age groups, ecological regions (Hudson coast: Kuujjuarapik, Umiujaq, Inukjuak, Puvirnituq and Akulivik; Hudson Strait: Ivujivik, Salluit, Kangiqsujuaq and Quaqtaq; Ungava Bay: Kangirsuk, Aupaluk, Tasiujaq, Kuujjuaq and Kangiqsualujjuaq), community size (small: Kuujjuarapik, Umiujaq, Akulivik, Ivujivik, Kangiqsujuaq, Quaqtaq, Kangirsuk, Aupaluk, Tasiujaq and Kangiqsualujjuaq; large: Kuujjuaq, Salluit, Puvirnituq and Inukjuak) and other determinants such as annual income (< $20 000; ≥ $20 000), level of education (secondary school not completed; secondary school or higher), marital status (single/divorced/widowed; married/common law), employment status over the past 12 months (employed: paid work (job or self-employed); not employed over the past 12 months: housework, hunter support program, retired or on pension, employment insurance, parental leave, income support or student), food security (food secure; moderately food insecure; severely food insecure), frequency of going on the land from spring until now (never/occasionally; often), and participation in traditional activities over the past 12 months (No; Yes).

The comparisons between 2004 and 2017 must be interpreted with caution because a slightly different FFQ was used in 2004 (frequency categories were different between the surveys; portion sizes were not assessed in 2017). Age-adjusted linear regression analyses were used to compare consumption frequencies of country and market foods between 2004 and 2017.

Univariable linear regression analyses were conducted to compare concentrations of nutritional biomarkers among women and men, age groups, ecological regions, and large and small communities, and to assess the relationship between these concentrations and the consumption of country and market foods. Age-adjusted linear regressions were used to compare the concentrations of nutritional biomarkers between 2004 and 2017. The significance level was $\alpha < 0.05$ for all analyses.

4 RESULTS

Overall, the results presented in this report represent dietary habits during the late spring and summer season of 2017 (i.e., from mid-May to early October 2017, depending on when the FFQ was completed).

CONSUMPTION OF FOODS

Country foods

Weekly consumption

The country foods eaten most frequently in 2017 (mid-May to early October) were caribou (2.2 times/week, consumed by 95% of the total population) and fish (2.2 times/week), with Arctic char being the most commonly reported type of fish (0.8 times/week, consumed by 83% of the population). Dried fish was consumed by 76% of the population (0.6 times/week). (Table 1). The vast majority of Nunavimmiut reported eating dried fish (*pitsik*) made using Arctic char (94%), followed by lake trout (38%), brook trout (29%) and other fish (25%) (data not shown). Wild berries (1.1 times/week) and wild birds (0.8 times/week) were also frequently consumed. Beluga *misirak/ursuk* was consumed almost twice as often as seal *misirak/ursuk*. Among other marine mammal foods, beluga meat (dried meat and fresh/cooked/frozen meat: 0.7 times/week) was reportedly consumed most often, followed by beluga *mattaaq* (0.6 times/week) and seal meat (0.4 times/meat) (Table 1). Among wild berries, the most frequently consumed were blackberries (*paurngag,* 91%), followed by blueberries (*kigutangirnaq,* 85%), cloudberries (*arpik,* 67%), and redberries or cranberries (*kimminaq,* 45%) (data not shown). Only 3% of Nunavimmiut reported not consuming any country foods.

The contribution of each country food to the total country food consumption frequencies declared by all Nunavimmiut is shown in Figure 2. Caribou and fish comprised the greatest proportion of total country food consumption (19% in both cases), followed by beluga (16%), wild berries (10%), wild birds (7% total with 4% from geese), *suuvalik/uarutilik* (6%), seal (6%), other terrestrial animals (5%), shellfish (4%), wild bird eggs (3%), seaweed (3%) and walrus (2%).

Table 1 Weekly consumption frequency of country foods in the three months prior to the survey, Nunavik, 2017.

Country food	% consumers	GM	95% CI	
Beluga				
Meat all	60	0.65	0.60	0.70
Dried (*nikku*)	53	0.46	0.44	0.49
Meat (fresh, cooked, frozen)	37	0.39	0.37	0.41
Mattaaq	71	0.56	0.52	0.59
Misirak/ursuk	60	0.65	0.60	0.71
Seal				
Meat	46	0.40	0.37	0.42
Liver	31	0.34	0.32	0.35
Misirak/ursuk	32	0.38	0.36	0.41
Walrus	8	0.27	0.26	0.27
Caribou				
Meat all	95	2.18	2.03	2.35
Dried (*nikku*)	89	0.98**	0.91	1.06
Meat (fresh, cooked, frozen)	92	1.10**	1.02	1.18
Polar bear	3	0.26	0.25	0.26
Muskox	3	0.26	0.25	0.26
Wild birds				
Ptarmigan, partridge	40	0.38	0.36	0.39
Goose	70	0.55	0.51	0.58
Wild bird eggs	42	0.38	0.36	0.40
Fish				
Dried fish (*pitsik*)	76	0.64	0.60	0.68
Arctic char	83	0.81*	0.76	0.87
Lake trout	51	0.42	0.40	0.45
Brook or sea trout, or salmon	38	0.36	0.35	0.38
Pike or walleye	6	0.27	0.26	0.28
Other fish	28	0.33	0.32	0.34
Shellfish	59	0.45	0.43	0.47
Seaweed	27	0.33	0.32	0.34
Wild berries	87	1.10**	1.02	1.20
Suuvalik* or *uarutilik	70	0.72	0.67	0.77

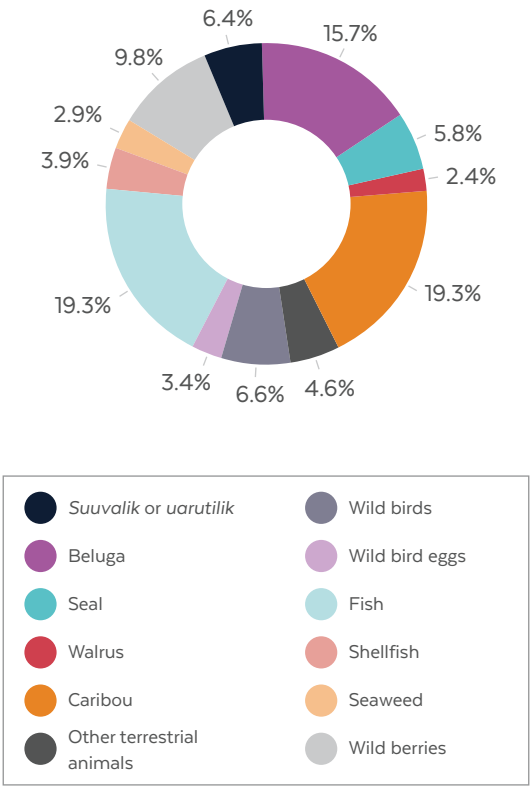
GM: geometric mean; CI: confidence interval.

* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.

** The coefficient of variation is greater than 25%. The proportion is shown for information only.

Wild bird eggs include eggs from duck, geese, and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish). The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Figure 2 Contribution of specific country foods (%) to the total country food consumption (in frequencies) reported in the three months prior to the survey, Nunavik, 2017.



Proportions are expressed as the percentage of total country food frequency consumption reported. Wild bird eggs include eggs from duck, geese, and murre/seagulls. Other terrestrial animals include polar bear and muskox. The wild birds category includes goose, ptarmigan, and partridge. The fish category includes *pitsik*, Arctic char, brook or sea trout, salmon, lake trout, pike, walleye and other fish. The *pitsik* was made from Arctic char, lake trout, brook trout and other fish. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish). The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. The wild berries category includes cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Country food consumption by sex and age

Overall, Nunavimmiut men reported eating country foods more frequently than women. This was true for beluga meat, seal, wild birds, Arctic char and brook trout/sea trout/salmon, but not for wild berries and *suuvalik/uarutilik*, which were more frequently consumed by women (Table 2). Interestingly, younger Nunavimmiut (16 to 29 years of age) said that they consumed several country foods more often than older Nunavimmiut (30 to 49 years of age and 50 years of age and older), including beluga meat (dried meat and fresh/cooked/frozen meat), beluga *mattaaq*, caribou (dried meat and fresh/cooked/frozen meat), goose and *suuvalik/uarutilik* (Table 3). They also reported eating shellfish, including mollusks, more often than 30 to 49 year old Nunavimmiut. Conversely, older individuals reported consuming beluga *misirak*, seal *misirak* and seaweed more frequently than younger individuals. Lastly, the frequency of consumption of wild berries and most types of fish was similar between age categories.

Table 2 Weekly consumption frequency of country foods by sex in the three months prior to the survey, Nunavik, 2017.

Country food	Sex							
	Women				Men			
	% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga								
Meat all	**55**	*0.58*	*0.53*	*0.63*	**65**	*0.72**	*0.64*	*0.82*
Dried (*nikku*)	**50**	*0.43*	*0.40*	*0.46*	**56**	*0.50*	*0.45*	*0.56*
Meat (fresh, cooked, frozen)	**32**	-	-	-	**42**	-	-	-
Mattaaq	71	0.53	0.49	0.57	71	0.58	0.53	0.65
Misirak/ursuk	59	0.66	0.60	0.73	60	0.65*	0.57	0.74
Seal								
Meat	**40**	-	-	-	**51**	0.45	0.41	0.49
Liver	**27**	-	-	-	**36**	-	-	-
Misirak/ursuk	29	-	-	-	35	-	-	-
Walrus	7	-	-	-	9	-	-	-
Caribou								
Meat all	95	2.09	1.91	2.28	95	2.27	2.01	2.57
Dried (*nikku*)	90	*0.88***	*0.81*	*0.96*	89	*1.09***	*0.96*	*1.23*
Meat (fresh, cooked, frozen)	92	1.11**	1.01	1.21	92	1.09**	0.96	1.24
Polar bear	2	-	-	-	3	-	-	-
Muskox	**2**	-	-	-	**5**	-	-	-
Wild birds								
Ptarmigan, partridge	**36**	-	-	-	**44**	-	-	-
Goose	**65**	*0.49*	*0.46*	*0.52*	**75**	*0.61*	*0.55*	*0.67*
Wild bird eggs	39	-	-	-	44	-	-	-
Fish								
Dried fish (*pitsik*)	73	0.60	0.55	0.65	78	0.67	0.61	0.75
Arctic char	84	*0.75*	*0.69*	*0.81*	82	*0.88***	*0.78*	*0.98*
Lake trout	**47**	0.41	0.38	0.43	**55**	0.44	0.41	0.48
Brook or sea trout, or salmon	**34**	-	-	-	**43**	-	-	-
Pike or walleye	6	-	-	-	6	-	-	-
Other fish	25	-	-	-	30	-	-	-
Shellfish	58	0.44	0.41	0.46	60	0.46	0.42	0.49
Seaweed	**31**	-	-	-	**24**	-	-	-
Wild berries	90	*1.23***	*1.11*	*1.36*	86	*1.00***	*0.89*	*1.13*
Suuvalik* or *uarutilik	**78**	*0.81**	*0.75*	*0.88*	**61**	*0.64*	*0.58*	*0.71*

GM: geometric mean; CI: confidence interval.
Proportions of consumers in bold (colored cells) are statistically different between men and women at p<0.05.
Geometric means in italics (colored cells) are statistically different between men and women at p<0.05.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish). The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Table 3 Weekly consumption frequency of country foods by age group in the three months prior to the survey, Nunavik, 2017.

Country food	Age group											
	16 to 29 years				30 to 49 years				50 years and over			
	% consumers	GM	95% CI		% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga												
Meat all	**69**[a]	*0.83*[a]	*0.73*	*0.96*	**54**[b]	*0.53*[b]	*0.47*	*0.59*	**54**[b]	*0.57*[b]	*0.51*	*0.65*
Dried (*nikku*)	**60**[a]	*0.56*[a]	*0.50*	*0.62*	**49**[b]	*0.41*[b]	*0.37*	*0.45*	**47**[b]	*0.41*[b]	*0.37*	*0.45*
Meat (fresh, cooked, frozen)	**45**[a]	-	-	-	**28**[b]	-	-	-	**35**[b]	-	-	-
Mattaaq	**79**[a]	*0.65*[a]	*0.59*	*0.71*	**67**[b]	*0.49*[b]	*0.45*	*0.54*	**62**[b]	*0.51*[b]	*0.45*	*0.58*
Misirak/ursuk	**55**[a]	*0.56*[a]	*0.49*	*0.63*	**64**[b]	*0.69*[*,b]	*0.60*	*0.79*	**61**[a,b]	*0.79*[**,b]	*0.66*	*0.95*
Seal												
Meat	46	-	-	-	47	-	-	-	44	-	-	-
Liver	**27**[a]	-	-	-	**31**[a,b]	-	-	-	**39**[b]	-	-	-
Misirak/ursuk	**28**[a]	-	-	-	**31**[a]	-	-	-	**41**[b]	-	-	-
Walrus	**9**[a,b]	-	-	-	**5**[a]	-	-	-	**12**[b]	-	-	-
Caribou												
Meat all	**97**[a]	*2.92*[a]	*2.57*	*3.32*	**95**[a,b]	*1.81*[b]	*1.58*	*2.08*	**93**[b]	*1.73*[b]	*1.51*	*1.99*
Dried (*nikku*)	**93**[a]	*1.36*[*,a]	*1.18*	*1.57*	**88**[b]	*0.80*[**,b]	*0.70*	*0.9*	**85**[b]	*0.76*[*,b]	*0.67*	*0.86*
Meat (fresh, cooked, frozen)	**94**[a]	*1.29*[**,a]	*1.14*	*1.47*	**91**[a,b]	*1.00*[**,b]	*0.87*	*1.14*	**89**[b]	*0.95*[**,b]	*0.83*	*1.09*
Polar bear	4	-	-	-	1	-	-	-	3	-	-	-
Muskox	4	-	-	-	3	-	-	-	4	-	-	-
Wild birds												
Ptarmigan, partridge	**42**[a,b]	-	-	-	**35**[a]	-	-	-	**44**[b]	-	-	-
Goose	72	*0.64*[a]	*0.57*	*0.71*	67	*0.47*[bb]	*0.43*	*0.52*	69	*0.52*[b]	*0.47*	*0.57*
Wild bird eggs	43	-	-	-	39	-	-	-	44	-	-	-

Country food	Age group											
	16 to 29 years				30 to 49 years				50 years and over			
	% consumers	GM	95% CI		% consumers	GM	95% CI		% consumers	GM	95% CI	
Fish												
Dried fish (*pitsik*)	79	0.67	0.6	0.74	72	0.57	0.51	0.64	75	0.68*	0.60	0.76
Arctic char	81	0.78*	0.70	0.87	85	0.79**	0.70	0.90	84	0.91**	0.79	1.04
Lake trout	51	*0.42^{a,b}*	*0.39*	*0.46*	50	*0.40^{a}*	*0.37*	*0.44*	53	*0.46^{b}*	*0.41*	*0.52*
Brook or sea trout, or salmon	39	-	-	-	38	-	-	-	38	-	-	-
Pike or walleye	5	-	-	-	5	-	-	-	9	-	-	-
Other fish	**21^{a}**	-	-	-	**25^{a}**	-	-	-	**42^{b}**	-	-	-
Shellfish	57	*0.47^{a}*	*0.43*	*0.51*	60	*0.42^{b}*	*0.39*	*0.45*	60	*0.45^{a,b}*	*0.41*	*0.48*
Seaweed	**24^{a}**	-	-	-	**26^{a}**	-	-	-	**34^{b}**	-	-	-
Wild berries	89	1.17**	1.04	1.32	86	1.05**	0.91	1.2	88	1.07**	0.92	1.26
Suuvalik* or *uarutilik	**77^{a}**	*0.89**^{,a}*	*0.79*	*1.00*	**65^{b}**	*0.65^{b}*	*0.58*	*0.73*	**63^{b}**	*0.58^{b}*	*0.51*	*0.67*

GM: geometric mean; CI: confidence interval.
Proportions of consumers in bold (colored cells) and with different superscript letters ($^{a, b, c}$) are statistically different at p<0.05.
Geometric means in italics (colored cells) and with different superscript letters ($^{a, b, c}$) are statistically different at p<0.05.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish).
The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

In general, both women and men under 30 years of age were more likely to consume beluga meat, caribou and *suuvalik/uarutilik*, and they reported doing so more frequently than older Nunavimmiut (Tables 4 and 5). The prevalence and frequency of beluga *mattaaq* and goose consumption were higher among younger men (16 to 29 years of age) than older ones. Younger women were also more likely to report eating beluga *mattaaq*. A greater proportion of older women (50 years and over) reported consuming fish (i.e., lake trout, pike/walleye and other fish, including lake whitefish and sculpin) compared to younger women (under 50 years of age). Moreover, older women declared consuming Arctic char more frequently than younger women. A greater proportion of older men (50 years and over) also reported consuming other fish (i.e., lake whitefish and sculpin) compared to younger men (16 to 29 years of age). A greater proportion of older women (50 years and over) reported consuming seal liver and *misirak*, ptarmigan, and seaweed compared to their younger counterparts.

Table 4 Weekly consumption frequency of country foods among women by age group in the three months prior to the survey, Nunavik, 2017.

Country food	Age group (women)											
	16 to 29 years				30 to 49 years				50 years and over			
	% consumers	GM	95% CI		% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga												
Meat all	**65**[a]	*0.73*[a]	*0.62*	*0.87*	**46**[b]	*0.47*[b]	*0.42*	*0.54*	**49**[b]	*0.53*[b]	*0.45*	*0.63*
Dried (*nikku*)	**59**[a]	*0.50*[a]	*0.44*	*0.57*	**42**[b]	*0.37*[b]	*0.34*	*0.42*	**45**[b]	*0.40*[b]	*0.36*	*0.46*
Meat (fresh, cooked, frozen)	**38**[a]	-	-	-	**26**[b]	-	-	-	**31**[a,b]	-	-	-
Mattaaq	**80**[a]	*0.60*[a]	*0.54*	*0.66*	**64**[b]	*0.44*[b]	*0.40*	*0.48*	**67**[b]	*0.56*[*,a,b]	*0.46*	*0.67*
Misirak/ursuk	**51**[a]	*0.55*[a]	*0.48*	*0.63*	**61**[b]	*0.63*[*,a]	*0.53*	*0.74*	**69**[b]	*0.92*[**,b]	*0.72*	*1.18*
Seal												
Meat	38	-	-	-	43	-	-	-	39	-	-	-
Liver	**22**[a]	-	-	-	**24**[a]	-	-	-	**36**[b]	-	-	-
Misirak/ursuk	**25**[a]	-	-	-	**28**[a]	-	-	-	**39**[b]	-	-	-
Walrus	7	-	-	-	5	-	-	-	11	-	-	-
Caribou												
Meat all	**97**[a]	*2.63*[a]	*2.26*	*3.05*	**95**[a,b]	*1.79*[b]	*1.54*	*2.09*	**93**[b]	*1.80*[*,b]	*1.49*	*2.17*
Dried (*nikku*)	**93**[a]	*1.11*[**,a]	*0.95*	*1.30*	**89**[a,b]	*0.76*[**,b]	*0.66*	*0.87*	**85**[b]	*0.75*[**,b]	*0.64*	*0.88*
Meat (fresh, cooked, frozen)	94	*1.30*[**,a]	*1.13*	*1.51*	91	*0.98*[**,a]	*0.84*	*1.14*	89	*1.01*[**,b]	*0.83*	*1.23*
Polar bear	2	-	-	-	2	-	-	-	3	-	-	-
Muskox	3	-	-	-	1	-	-	-	1	-	-	-
Wild birds												
Ptarmigan, partridge	**35**[a]	-	-	-	**30**[a]	-	-	-	**46**[b]	-	-	-
Goose	**63**[a]	*0.50*[a,b]	*0.45*	*0.55*	**61**[a]	*0.44*[a]	*0.40*	*0.48*	**73**[b]	*0.54*[b]	*0.48*	*0.61*
Wild bird eggs	**34**[a]	-	-	-	**38**[a,b]	-	-	-	**48**[b]	-	-	-

Country food	Age group (women)											
	16 to 29 years				30 to 49 years				50 years and over			
	% consumers	GM	95% CI		% consumers	GM	95% CI		% consumers	GM	95% CI	
Fish												
Dried fish (*pitsik*)	76	0.61	0.54	0.69	69	0.54	0.48	0.61	75	0.66*	0.56	0.78
Arctic char	83	*0.68[a]*	*0.61*	*0.75*	84	*0.72*,[a]*	*0.62*	*0.83*	87	*0.93**,[b]*	*0.77*	*1.13*
Lake trout	**42[a]**	*0.39[a]*	*0.35*	*0.43*	**47[a,b]**	*0.39[a]*	*0.36*	*0.42*	**54[b]**	*0.47[b]*	*0.41*	*0.53*
Brook or sea trout, or salmon	35	-	-	-	31	-	-	-	34	-	-	-
Pike or walleye	**5[a]**	-	-	-	**4[b]**	-	-	-	**10[a]**	-	-	-
Other fish	**19[a]**	-	-	-	**21[a]**	-	-	-	**39[b]**	-	-	-
Shellfish	59	*0.45[a]*	*0.42*	*0.50*	58	*0.40[b]*	*0.37*	*0.43*	57	*0.46[a,b]*	*0.41*	*0.51*
Seaweed	**25[a]**	-	-	-	**29[a]**	-	-	-	**42[b]**	-	-	-
Wild berries	**93[a]**	1.29**	1.12	1.49	**85[b]**	1.13**	0.95	1.34	**91[a,b]**	1.26**	1.00	1.58
Suuvalik* or *uarutilik	**84[a]**	*0.96[a]*	*0.84*	*1.10*	**78[a,b]**	*0.80**,[b]*	*0.69*	*0.92*	**71[b]**	*0.64[b]*	*0.54*	*0.76*

GM: geometric mean; CI: confidence interval.
Proportions of consumers in bold (colored cells) and with different superscript letters ([a, b, c]) are statistically different at p<0.05.
Geometric means in bold and italics (colored cells) and with different superscript letters ([a, b, c]) are statistically different at p<0.05.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish).
The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Table 5 Weekly consumption frequency of country foods among men by age group in the three months prior to the survey, Nunavik, 2017.

Country food	Age group (men)											
	16 to 29 years				30 to 49 years				50 years and over			
	% consumers	GM	95% CI		% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga												
Meat all	**72**[a]	*0.94*[a]	*0.76*	*1.16*	**61**[a,b]	*0.59*[b]	*0.49*	*0.71*	**58**[b]	*0.62*[b]	*0.51*	*0.75*
Dried (*nikku*)	61	*0.50**,[a]	*0.44*	*0.57*	55	*0.37*[b]	*0.34*	*0.42*	49	*0.40*[b]	*0.36*	*0.46*
Meat (fresh, cooked, frozen)	**52**[a]	0.41	0.36	0.47	**31**[b]	-	-	-	**40**[a,b]	-	-	-
Mattaaq	**79**[a]	*0.70**,[a]	*0.59*	*0.83*	**70**[a,b]	*0.55*[b]	*0.46*	*0.64*	**57**[b]	*0.47*[b]	*0.40*	*0.55*
Misirak/ursuk	**58**[a,b]	0.56*	0.46	0.68	**67**[b]	0.75**	0.59	0.95	**53**[a]	0.68**	0.52	0.89
Seal												
Meat	52	0.45	0.39	0.51	51	0.44	0.37	0.53	49	-	-	-
Liver	32	-	-	-	37	-	-	-	42	-	-	-
Misirak/ursuk	31	-	-	-	34	-	-	-	43	-	-	-
Walrus	**10**[a,b]	-	-	-	**5**[a]	-	-	-	**14**[b]	-	-	-
Caribou												
Meat all	**97**[a]	*3.21*[a]	*2.61*	*3.95*	**94**[a,b]	*1.84*[b]	*1.47*	*2.29*	**93**[b]	*1.67**,[b]	*1.34*	*2.07*
Dried (*nikku*)	**93**[a]	*1.63**,[a]	*1.31*	*2.04*	**87**[a,b]	*0.83***,[b]	*0.67*	*1.02*	**85**[b]	*0.77***,[b]	*0.63*	*0.95*
Meat (fresh, cooked, frozen)	94	*1.28***,[a]	*1.05*	*1.57*	91	*1.02***,[a,b]	*0.82*	*1.26*	89	*0.89***,[b]	*0.73*	*1.10*
Polar bear	**6**[a]	-	-	-	**1**[b]	-	-	-	**3**[a,b]	-	-	-
Muskox	5	-	-	-	4	-	-	-	7	-	-	-
Wild birds												
Ptarmigan, partridge	48	-	-	-	40	-	-	-	41	-	-	-
Goose	**81**[a]	*0.79***,[a]	*0.66*	*0.95*	**74**[a,b]	*0.51*[b]	*0.43*	*0.60*	**65**[b]	*0.49*[b]	*0.42*	*0.57*
Wild bird eggs	51	-	-	-	39	-	-	-	39	-	-	-

Country food	Age group (men)											
	16 to 29 years				30 to 49 years				50 years and over			
	% consumers	GM	95% CI		% consumers	GM	95% CI		% consumers	GM	95% CI	
Fish												
Dried fish (*pitsik*)	81	0.72*	0.61	0.84	75	0.61*	0.50	0.73	76	0.69**	0.57	0.84
Arctic char	80	0.88**	0.73	1.06	85	0.87**	0.71	1.06	81	0.88**	0.71	1.09
Lake trout	58	0.46	0.40	0.52	53	0.42	0.36	0.48	53	0.46	0.38	0.55
Brook or sea trout, or salmon	41	-	-	-	45	-	-	-	42	-	-	-
Pike or walleye	5	-	-	-	7	-	-	-	7	-	-	-
Other fish	**23**[a]	-	-	-	**29**[a]	-	-	-	**46**[b]	-	-	-
Shellfish	56	0.48	0.42	0.55	62	0.44	0.39	0.49	63	0.44	0.39	0.49
Seaweed	24	-	-	-	24	-	-	-	26	-	-	-
Wild berries	86	1.08**	0.89	1.31	86	0.98**	0.78	1.22	84	0.91**	0.72	1.14
Suuvalik* or *uarutilik	**72**[a]	*0.83**,a*	*0.69*	*0.99*	**53**[b]	*0.53*[b]	*0.45*	*0.64*	**54**[b]	*0.53*[*,b]	*0.44*	*0.64*

GM: geometric mean; CI: confidence interval.
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Geometric means in italics (colored cells) and with different superscript letters ([a, b, c]) are statistically different at p<0.05.
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** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish).
The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Country food consumption according to region and community size

With regard to marine mammals, Nunavimmiut living in communities along Hudson Strait were more likely to declare consuming beluga meat (dried and fresh/cooked/frozen), beluga *mattaaq*, beluga *misirak* and reported a higher consumption frequency of those foods, compared to those living in Hudson Bay and Ungava Bay communities (Table 6). Seal meat was consumed by a greater proportion of Nunavimmiut living in Hudson Strait compared to Hudson Bay, but not to Ungava Bay, while seal liver was consumed by a greater proportion of Nunavimmiut living in Hudson Strait compared to Ungava Bay, but not compared to Hudson Bay. Seal *misirak* was consumed by a greater proportion of Nunavimmiut living in Ungava Bay compared to the two other regions (consumption frequencies too low to be compared).

Caribou and wild berries were consumed by a large majority of Nunavimmiut from all ecological regions. Caribou (total and dried) was consumed more frequently in Hudson Strait and Hudson Bay than in Ungava Bay, while wild berries were consumed more frequently in Hudson Bay than in Hudson Strait and Ungava Bay. Arctic char consumption was also widespread, but this species was reported more often in Hudson Bay compared to Ungava Bay. Goose and lake trout were consumed most frequently by the residents of Hudson Bay, while shellfish were consumed most frequently by those of Hudson Strait. A greater proportion of consumers of dried fish (*pitsik*) was found in Hudson Strait and Ungava Bay, but the consumption frequency of dried fish did not differ between the three regions. Among Nunavimmiut who reported eating dried fish at least once per month, most (90%) reported eating dried fish made of Arctic char in all three ecological regions (Figure 3). Meanwhile, the highest proportion of dried Arctic char consumers was reported in the communities of Hudson Strait. Conversely, the proportion of Nunavimmiut eating dried fish made of brook trout was higher in Ungava Bay communities, while the proportion of dried lake trout consumers was greater in Hudson Bay and Ungava Bay communities. Finally, although the overall frequency of consumption was low, a greater proportion of Nunavimmiut living in Ungava Bay communities consumed brook trout, sea trout or salmon, whereas seaweed was consumed by a greater proportion of Hudson Strait and Ungava Bay residents.

Finally, Table 7 presents consumption data in relation to community size. Several country foods, namely, beluga meat, dried fish, Arctic char, shellfish and *suuvalik/uarutilik,* were consumed by a greater proportion of people, and more frequently, in small communities compared to large ones. There were also more consumers of beluga *mattaaq*, seal meat and liver, walrus, ptarmigan and partridge, wild bird eggs, seaweed and wild berries in small communities than in large ones; however, the frequency of consumption was either not different (in the case of beluga *mattaaq and wild berries*) or too low to be compared (other country foods). No differences in the consumption of caribou, beluga *misirak,* goose and lake trout were found according to community size.

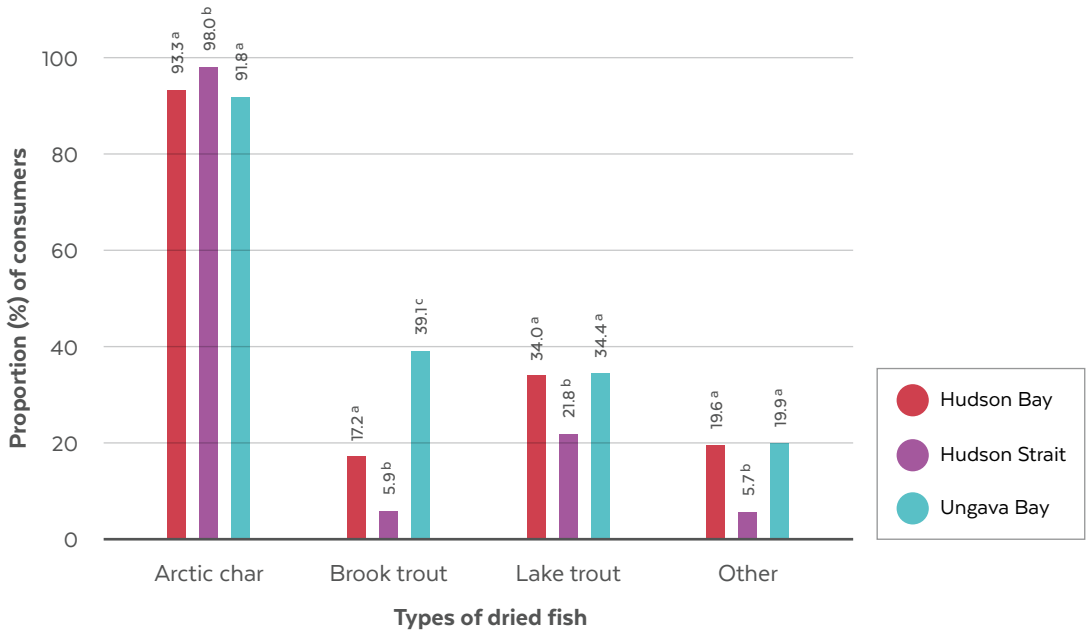
Table 6 Weekly consumption frequency of country foods by ecological region in the three months prior to the survey, Nunavik, 2017.

Country food	Hudson Bay				Hudson Strait				Ungava Bay			
	% consumers	GM	95% CI		% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga												
Meat all	**45**[a]	*0.51*[a]	*0.45*	*0.59*	**85**[b]	*1.10*[b]	*0.93*	*1.31*	**60**[c]	*0.59*[a]	*0.53*	*0.66*
Dried (*nikku*)	**36**[a]	*0.39*[a]	*0.35*	*0.43*	**83**[b]	*0.75*[**,b]	*0.63*	*0.89*	**52**[c]	*0.41*[a]	*0.38*	*0.45*
Meat (fresh, cooked, frozen)	**28**[a]	-	-	-	**52**[b]	0.44	0.39	0.48	**37**[c]	-	-	-
Mattaaq	**62**[a]	*0.49*[a]	*0.44*	*0.54*	**87**[b]	*0.78*[**,b]	*0.67*	*0.91*	**70**[c]	*0.51*[a]	*0.47*	*0.56*
Misirak/ursuk	**52**[a]	*0.62*[*,a]	*0.53*	*0.73*	**71**[b]	*0.88*[**,b]	*0.74*	*1.05*	**60**[a]	*0.56*[a]	*0.51*	*0.61*
Seal												
Meat	**41**[a]	-	-	-	**53**[b]	0.40	0.37	0.44	**46**[a,b]	-	-	-
Liver	**30**[a,b]	-	-	-	**37**[a]	-	-	-	**29**[b]	-	-	-
Misirak/ursuk	**29**[a]	-	-	-	**25**[a]	-	-	-	**41**[b]	-	-	-
Walrus	**7**[a]	-	-	-	**15**[b]	-	-	-	**5**[a]	-	-	-
Caribou												
Meat all	95	*2.36*[a]	*2.05*	*2.71*	97	*2.54*[a]	*2.18*	*2.96*	95	*1.78*[b]	*1.62*	*1.96*
Dried (*nikku*)	88	*1.02*[**,a]	*0.89*	*1.16*	93	*1.20*[**,a]	*1.02*	*1.41*	89	*0.81*[*,b]	*0.74*	*0.89*
Meat (fresh, cooked, frozen)	92	*1.22*[**,a]	*1.06*	*1.41*	94	*1.13*[**,a,b]	*0.96*	*1.32*	91	*0.94*[**,b]	*0.86*	*1.04*
Polar bear	3	-	-	-	2	-	-	-	2	-	-	-
Muskox	**1**[a]	-	-	-	**2**[a]	-	-	-	**7**[b]	-	-	-
Wild birds												
Ptarmigan, partridge	**32**[a]	-	-	-	**42**[b]	-	-	-	**49**[b]	-	-	-
Goose	**80**[a]	*0.68*[*,a]	*0.61*	*0.77*	**68**[b]	*0.53*[b]	*0.47*	*0.59*	**59**[c]	*0.43*[c]	*0.40*	*0.40*
Wild bird eggs	**48**[a]	-	-	-	**28**[b]	-	-	-	**43**[a]	-	-	-

Country food	Hudson Bay				Hudson Strait				Ungava Bay			
	% consumers	GM	95% CI		% consumers	GM	95% CI		% consumers	GM	95% CI	
Fish												
Dried fish (*pitsik*)	**67**[a]	0.59	0.53	0.67	**81**[b]	0.67*	0.58	0.77	**81**[b]	0.66	0.61	0.73
Arctic char	**80**[a]	*0.91***,[a]	*0.80*	*1.04*	**87**[b]	*0.82***,[a,b]	*0.71*	*0.94*	**84**[a,b]	*0.71*[b]	*0.65*	*0.78*
Lake trout	**56**[a]	*0.50*[a]	*0.45*	*0.55*	**41**[b]	*0.34*[b]	*0.32*	*0.36*	**52**[a]	*0.41*[c]	*0.38*	*0.44*
Brook or sea trout, or salmon	**33**[a]	-	-	-	**26**[a]	-	-	-	**54**[b]	0.41	0.38	0.43
Pike or walleye	**11**[a]	-	-	-	**1**[b]	-	-	-	**3**[b]	-	-	-
Other fish	**35**[a]	-	-	-	**18**[b]	-	-	-	**25**[c]	-	-	-
Shellfish	**43**[a]	*0.40*[a]	*0.37*	*0.43*	**75**[b]	*0.55*[b]	*0.50*	*0.62*	**66**[c]	*0.44*[c]	*0.41*	*0.47*
Seaweed	**10**[a]	-	-	-	**45**[b]	-	-	-	**36**[c]	-	-	-
Wild berries	88	*1.30***,[a]	*1.13*	*1.51*	86	*1.01***,[b]	*0.87*	*1.19*	88	*0.96***,[b]	*0.87*	*1.06*
Suuvalik* or *uarutilik	72	0.73*	0.65	0.83	69	0.71	0.62	0.82	66	0.71	0.64	0.78

GM: geometric mean; CI: confidence interval.
Proportions of consumers in bold (colored cells) and with different superscript letters ([a, b, c]) are statistically different at p<0.05.
Geometric means in italics (colored cells) and with different superscript letters ([a, b, c]) are statistically different at p<0.05.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish).
The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Figure 3 Prevalence (%) of types of dried fish (*pitsik*) consumers across ecological regions.



The sum of consumers for the different types of fish for a given region is more than 100% since individuals could report consuming more than one type of dried fish.
Percentages with different superscript letters ($^{a, b, c}$) are statistically different at $p<0.05$.

Table 7 Weekly consumption frequency of country foods by community size in the three months prior to the survey, Nunavik, 2017.

Country food	Community size							
	Large				Small			
	% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga								
Meat all	**53**	*0.58*	*0.52*	*0.64*	**69**	*0.77*	*0.68*	*0.86*
Dried (*nikku*)	**47**	*0.43*	*0.39*	*0.47*	**62**	*0.52*	*0.47*	*0.57*
Meat (fresh, cooked, frozen)	**33**	-	-	-	**42**	-	-	-
Mattaaq	**68**	0.53	0.49	0.57	**75**	0.60	0.54	0.66
Misirak/ursuk	60	0.67*	0.59	0.76	59	0.63	0.57	0.70
Seal								
Meat	**41**	-	-	-	**52**	0.43	0.40	0.46
Liver	**25**	-		-	**40**	-	-	-
Misirak/ursuk	29	-	-	-	36	-	-	-
Walrus	**5**	-	-	-	**13**	-	-	-
Caribou								
Meat all	96	2.09	1.89	2.31	94	2.32	2.07	2.59
Dried (*nikku*)	90	0.94**	0.85	1.03	89	1.05**	0.93	1.18
Meat (fresh, cooked, frozen)	93	1.06**	0.96	1.18	91	1.14**	1.03	1.28
Polar bear	3	-	-	-	3	-	-	-
Muskox	3	-	-	-	3	-	-	-
Wild birds								
Ptarmigan, partridge	**37**	-	-	-	**45**	-	-	-
Goose	71	0.53	0.49	0.57	68	0.57	0.51	0.62
Wild bird eggs	**38**	-	-	-	**46**	-	-	-
Fish								
Dried fish (*pitsik*)	**70**	*0.56*	*0.52*	*0.61*	**83**	*0.75**	*0.68*	*0.83*
Arctic char	**80**	*0.73**	*0.67*	*0.81*	**87**	*0.94***	*0.85*	*1.04*
Lake trout	54	0.44	0.41	0.47	48	0.41	0.38	0.44
Brook or sea trout, or salmon	**41**	-	-	-	**34**	-	-	-
Pike or walleye	7	-	-	-	5	-	-	-
Other fish	29	-	-	-	26	-	-	-
Shellfish	**50**	*0.40*	*0.37*	*0.42*	**72**	*0.52*	*0.49*	*0.56*
Seaweed	**19**	-	-	-	**39**	-	-	-
Wild berries	**86**	1.03**	0.93	1.14	**90**	1.21**	1.07	1.37
Suuvalik* or *uarutilik	**61**	*0.58*	*0.53*	*0.63*	**81**	*0.97***	*0.87*	*1.08*

GM: geometric mean; CI: confidence interval.
Proportions of consumers in bold (colored cells) are statistically different between large and small communities at p<0.05.
Geometric means in italics (colored cells) are statistically different between large and small communities at p<0.05.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish). The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Country food consumption according to sociodemographic characteristics

Nunavimmiut with an annual income of less than $20 000 reported consuming certain country foods more frequently (i.e., caribou, goose and *suuvalik/uarutilik*) in comparison to those with an annual income of $20 000 or more (Table 8). However, a higher proportion of the population with an annual income of $20 000 or more reported consuming beluga *misirak*, muskox, and brook trout/sea trout/salmon compared to those with an annual income of less than $20 000.

Individuals with a lower level of education reported eating beluga dried meat and caribou (dried and fresh/cooked/frozen meat) more frequently than those with a higher level of education (Table 9). Those who were married or living in a common law relationship reported consuming beluga *misirak/ursuk* and Arctic char more frequently than single, widowed or divorced Nunavimmiut (Table 10).

A greater proportion of people who were employed reported consuming beluga dried meat, *mattaaq* and *misirak*, Arctic char, dried fish and shellfish compared to unemployed people (Table 11). However, there was no difference in the frequency of country food consumption according to employment status except in the case of Arctic char, which was eaten more frequently by employed people.

Finally, some differences were observed according to food security status (Table 12). A greater proportion of food secure people reported consuming beluga *mattaaq* compared to severely food insecure individuals. Nunavimmiut who classified as severely food insecure reported consuming shellfish more frequently compared to those who were food secure. The consumption frequency of other country foods was often highest among people who were moderately food insecure.

Table 8 Weekly consumption frequency of country foods by annual income in the three months prior to the survey, Nunavik, 2017.

Country food	Annual income							
	Less than $20 000				$20 000 or more			
	% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga								
Meat all	61	0.69	0.61	0.78	58	0.59	0.52	0.67
Dried (*nikku*)	54	0.48	0.44	0.53	51	0.44	0.40	0.49
Meat (fresh, cooked, frozen)	**41**	-	-	-	**32**	-	-	-
Mattaaq	71	0.54	0.50	0.58	70	0.57	0.51	0.63
Misirak/ursuk	**55**	0.62	0.54	0.71	**65**	0.71*	0.63	0.80
Seal								
Meat	47	-	-	-	43	-	-	-
Liver	32	-	-	-	31	-	-	-
Misirak/ursuk	32	-	-	-	35	-	-	-
Walrus	9	-	-	-	7	-	-	-
Caribou								
Meat all	95	*2.55*	*2.26*	*2.89*	95	*1.85*	*1.65*	*2.07*
Dried (*nikku*)	90	*1.12***	*0.99*	*1.28*	89	*0.86***	*0.77*	*0.97*
Meat (fresh, cooked, frozen)	92	*1.23***	*1.09*	*1.40*	92	*0.96***	*0.86*	*1.07*
Polar bear	3	-	-	-	2	-	-	-
Muskox	**2**	-	-	-	**5**	-	-	-
Wild birds								
Ptarmigan, partridge	42	-	-	-	39	-	-	-
Goose	**73**	*0.61*	*0.55*	*0.67*	**67**	*0.50*	*0.45*	*0.55*
Wild bird eggs	42	-	-	-	40	-	-	-
Fish								
Dried fish (*pitsik*)	74	0.66	0.60	0.73	79	0.62	0.56	0.68
Arctic char	82	0.82**	0.74	0.92	85	0.85**	0.76	0.94
Lake trout	52	0.45	0.41	0.49	50	0.40	0.37	0.43
Brook or sea trout, or salmon	**35**	-	-	-	**42**	-	-	-
Pike or walleye	5	-	-	-	5	-	-	-
Other fish	26	-	-	-	30	-	-	-
Shellfish	56	0.45	0.42	0.49	62	0.43	0.40	0.45
Seaweed	27	-	-	-	28	-	-	-
Wild berries	88	1.20**	1.06	1.37	86	1.03**	0.92	1.16
Suuvalik* or *uarutilik	71	*0.79**	*0.70*	*0.89*	67	*0.62*	*0.56*	*0.69*

GM: geometric mean; CI: confidence interval.
Proportions of consumers in bold (colored cells) are statistically different between income categories at p<0.05.
Geometric means in italics (colored cells) are statistically different between income categories at p<0.05.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish). The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Table 9 Weekly consumption frequency of country foods by level of education in the three months prior to the survey, Nunavik, 2017.

Country food	Education							
	Secondary school not completed				Secondary school or higher			
	% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga								
Meat all	60	*0.66*	*0.61*	*0.71*	49	*0.39*	*0.32*	*0.49*
Dried (*nikku*)	53	*0.47*	*0.44*	*0.50*	41	*0.33*	*0.29*	*0.37*
Meat (fresh, cooked, frozen)	37	-	-	-	23	-	-	-
Mattaaq	71	0.56	0.53	0.59	63	0.46*	0.34	0.64
Misirak/ursuk	60	0.65	0.60	0.71	64	0.74**	0.42	1.33
Seal								
Meat	46	-	-	-	31	-	-	-
Liver	31	-	-	-	21	-	-	-
Misirak/ursuk	32	-	-	-	34	-	-	-
Walrus	8	-	-	-	10	-	-	-
Caribou								
Meat all	95	*2.20*	*2.04*	*2.37*	100	*1.38***	*0.98*	*1.94*
Dried (*nikku*)	90	*0.99***	*0.92*	*1.07*	84	*0.51**	*0.41*	*0.63*
Meat (fresh, cooked, frozen)	92	1.10**	1.02	1.19	92	0.79**	0.53	1.17
Polar bear	3	-	-	-	5	-	-	-
Muskox	3	-	-	-	0	-	-	-
Wild birds								
Ptarmigan, partridge	40	-	-	-	39	-	-	-
Goose	70	0.54	0.51	0.58	72	0.82**	0.44	1.53
Wild bird eggs	42	-	-	-	42	-	-	-
Fish								
Dried fish (*pitsik*)	76	0.63	0.60	0.68	68	0.68**	0.38	1.23
Arctic char	83	0.81*	0.76	0.87	96	1.03**	0.65	1.61
Lake trout	51	0.42	0.40	0.45	49	0.42*	0.30	0.59
Brook or sea trout, or salmon	38	-	-	-	33	-	-	-
Pike or walleye	6	-	-	-	11	-	-	-
Other fish	27	-	-	-	41	-	-	-
Shellfish	59	0.45	0.43	0.47	42	0.40*	0.29	0.56
Seaweed	27	-	-	-	29	-	-	-
Wild berries	88	1.11**	1.02	1.20	78	0.96**	0.59	1.55
Suuvalik* or *uarutilik	70	0.72	0.67	0.77	69	0.76**	0.39	1.48

GM: geometric mean; CI: confidence interval.
Geometric means in italics (colored cells) are statistically different between education level at p<0.05.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish). The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Table 10 Weekly consumption frequency of country foods by marital status in the three months prior to the survey, Nunavik, 2017.

Country food	Marital status							
	Single, divorced or widowed				Married or common law			
	% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga								
Meat all	61	0.70*	0.62	0.78	59	0.61	0.55	0.68
Dried (*nikku*)	54	0.49	0.45	0.54	52	0.44	0.40	0.48
Meat (fresh, cooked, frozen)	38	-	-	-	36	-	-	-
Mattaaq	69	0.57	0.52	0.62	72	0.55	0.51	0.60
Misirak/ursuk	**55**	*0.59*	*0.52*	*0.66*	**63**	*0.72**	*0.64*	*0.81*
Seal								
Meat	43	-	-	-	48	-	-	-
Liver	**27**	-	-	-	**35**	-	-	-
Misirak/ursuk	29	-	-	-	35	-	-	-
Walrus	8	-	-	-	8	-	-	-
Caribou								
Meat all	94	2.13	1.91	2.38	96	2.23	2.00	2.47
Dried (*nikku*)	88	0.99**	0.89	1.11	91	0.97**	0.88	1.08
Meat (fresh, cooked, frozen)	90	1.08**	0.97	1.20	93	1.11**	1.00	1.24
Polar bear	**4**	-	-	-	**2**	-	-	-
Muskox	3	-	-	-	3	-	-	-
Wild birds								
Ptarmigan, partridge	44	-	-	-	37	-	-	-
Goose	70	0.56	0.52	0.62	69	0.53	0.49	0.57
Wild bird eggs	43	-	-	-	40	-	-	-
Fish								
Dried fish (*pitsik*)	74	0.63	0.57	0.70	77	0.64	0.59	0.69
Arctic char	81	*0.73**	*0.66*	*0.81*	85	*0.89***	*0.81*	*0.99*
Lake trout	50	0.42	0.39	0.45	52	0.43	0.40	0.46
Brook or sea trout, or salmon	35	-	-	-	41	-	-	-
Pike or walleye	6	-	-	-	5	-	-	-
Other fish	**24**	-	-	-	**31**	-	-	-
Shellfish	56	0.45	0.42	0.49	61	0.44	0.42	0.47
Seaweed	27	-	-	-	28	-	-	-
Wild berries	88	1.08**	0.96	1.22	87	1.12**	1.01	1.26
Suuvalik* or *uarutilik	71	0.74*	0.67	0.83	68	0.70	0.63	0.78

GM: geometric mean; CI: confidence interval.
Proportions of consumers in bold (colored cells) are statistically different between marital status categories at p<0.05.
Geometric means in italics (colored cells) are statistically different between marital status categories at p<0.05.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish). The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Table 11 Weekly consumption frequency of country foods by employment in the three months prior to the survey, Nunavik, 2017.

Country food	Employment							
	Not employed				Employed			
	% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga								
Meat all	**52**	0.58*	0.47	0.72	**61**	0.66	0.61	0.72
Dried (*nikku*)	**44**	0.41	0.36	0.47	**55**	0.48	0.44	0.51
Meat (fresh, cooked, frozen)	34	-	-	-	38	-	-	-
Mattaaq	**58**	0.49	0.41	0.60	**74**	0.57	0.53	0.61
Misirak/ursuk	**51**	0.56*	0.45	0.70	**61**	0.67	0.61	0.74
Seal								
Meat	38	-	-	-	47	-	-	-
Liver	32	-	-	-	31	-	-	-
Misirak/ursuk	31	-	-	-	33	-	-	-
Walrus	13	-	-	-	8	-	-	-
Caribou								
Meat all	95	2.06*	1.67	2.55	95	2.21	2.04	2.39
Dried (*nikku*)	88	0.91**	0.74	1.13	90	1.00**	0.92	1.08
Meat (fresh, cooked, frozen)	89	1.10**	0.89	1.35	92	1.10**	1.01	1.19
Polar bear	3	-	-	-	3	-	-	-
Muskox	1	-	-	-	4	-	-	-
Wild birds								
Ptarmigan, partridge	41	-	-	-	40	-	-	-
Goose	70	0.55	0.46	0.64	70	0.55	0.51	0.58
Wild bird eggs	39	0.37	0.33	0.42	42	0.38	0.36	0.40
Fish								
Dried fish (*pitsik*)	**68**	0.58*	0.49	0.68	**77**	0.65	0.61	0.69
Arctic char	**75**	*0.67**	*0.57*	*0.80*	**85**	*0.85**	*0.78*	*0.91*
Lake trout	51	0.44	0.38	0.51	51	0.42	0.40	0.45
Brook or sea trout, or salmon	33	-	-	-	39	-	-	-
Pike or walleye	9	-	-	-	5	-	-	-
Other fish	29	-	-	-	27	-	-	-
Shellfish	**50**	0.42	0.38	0.47	**61**	0.45	0.43	0.47
Seaweed	30	-	-	-	27	-	-	-
Wild berries	87	1.16**	0.92	1.47	88	1.09**	1.01	1.18
Suuvalik* or *uarutilik	71	0.69*	0.58	0.82	69	0.73	0.67	0.79

GM: geometric mean; CI: confidence interval.
Proportions of consumers in bold (colored cells) are statistically different between employed and not employed people at p<0.05.
Geometric means in italics (colored cells) are statistically different between employed and not employed people at p<0.05.
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Table 12 Weekly consumption frequency of country foods by food security in the three months prior to the survey, Nunavik, 2017.

Country food	Food security											
	Food secure				Moderately food insecure				Severely food insecure			
	% consumers	GM	95% CI		% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga												
Meat all	59	0.61	0.53	0.69	60	0.67*	0.59	0.76	59	0.62	0.52	0.74
Dried (*nikku*)	52	0.45	0.40	0.51	52	0.48	0.43	0.54	51	0.43	0.38	0.48
Meat (fresh, cooked, frozen)	33	-	-	-	38	-	-	-	42	-	-	-
Mattaaq	**75**[a]	0.57	0.51	0.63	**69**[a,b]	0.58	0.52	0.65	**65**[b]	0.49	0.43	0.56
Misirak/ursuk	60	0.65*	0.57	0.75	61	0.68*	0.59	0.78	56	0.56	0.47	0.66
Seal												
Meat	**41**[a]	-	-	-	**50**[b]	-	-	-	**40**[a]	-	-	-
Liver	28	-	-	-	32	-	-	-	29	-	-	-
Misirak/ursuk	30	-	-	-	33	-	-	-	33	-	-	-
Walrus	6	-	-	-	9	-	-	-	9	-	-	-
Caribou												
Meat all	97	*1.90*[a]	*1.67*	*2.17*	94	*2.42*[b]	*2.15*	*2.73*	96	*2.03*[a,b]	*1.69*	*2.44*
Dried (*nikku*)	**91**[a,b]	*0.85***,[a]	*0.75*	*0.97*	**91**[a]	*1.11***,[b]	*0.98*	*1.24*	**84**[b]	*0.88***,[a]	*0.74*	*1.05*
Meat (fresh, cooked, frozen)	91	*1.00***,[a]	*0.88*	*1.13*	92	*1.19***,[b]	*1.06*	*1.34*	94	*1.03***,[a,b]	*0.86*	*1.23*
Polar bear	2	-	-	-	2	-	-	-	3	-	-	-
Muskox	3	-	-	-	4	-	-	-	2	-	-	-
Wild birds												
Ptarmigan, partridge	39	-	-	-	39	-	-	-	40	-	-	-
Goose	69	*0.50*[a]	*0.45*	*0.55*	70	*0.58*[b]	*0.52*	*0.64*	67	*0.53*[a,b]	*0.46*	*0.60*
Wild bird eggs	**36**[a]	-	-	-	**45**[b]	-	-	-	**42**[a,b]	-	-	-

Country food	Food security											
	Food secure				Moderately food insecure				Severely food insecure			
	% consumers	GM	95% CI		% consumers	GM	95% CI		% consumers	GM	95% CI	
Fish												
Dried fish (*pitsik*)	75	0.59	0.54	0.66	75	0.67	0.60	0.74	77	0.60	0.51	0.69
Arctic char	84	*0.77*^{*,a}	*0.68*	*0.87*	84	*0.93*^{**,b}	*0.82*	*1.04*	80	*0.65*^{*,a}	*0.56*	*0.75*
Lake trout	47	0.39	0.37	0.42	52	0.44	0.40	0.48	55	0.45	0.40	0.51
Brook or sea trout, or salmon	38	-	-	-	39	-	-	-	38	-	-	-
Pike or walleye	6	-	-	-	5	-	-	-	8	-	-	-
Other fish	26	-	-	-	28	-	-	-	27	-	-	-
Shellfish	56	*0.41*^{a}	*0.38*	*0.44*	60	*0.45*^{a,b}	*0.42*	*0.48*	62	*0.48*^{b}	*0.42*	*0.55*
Seaweed	30	-	-	-	25	-	-	-	24	-	-	-
Wild berries	87	1.02**	0.90	1.16	88	1.19**	1.05	1.36	89	1.09**	0.92	1.30
Suuvalik* or *uarutilik	69	0.69*	0.61	0.78	72	0.78*	0.70	0.88	63	0.65*	0.55	0.78

GM: geometric mean; CI: confidence interval.
Proportions of consumers in bold (colored cells) and with different superscript letters ($^{a, b, c}$) are statistically different at $p<0.05$.
Geometric means in italics (colored cells) and with different superscript letters ($^{a, b, c}$) are statistically different at $p<0.05$.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish). The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Country food consumption according to participation in traditional activities

Compared to people who never or occasionally go on the land, those who reported frequently going on the land were more likely to declare consuming a majority of country foods, namely, beluga meat, *mattaaq* and *misirak*, caribou (dried and fresh/cooked/frozen meat), dried fish, Arctic char, shellfish, wild berries and *suuvalik/uarutilik*, as well as a higher frequency of consumption of those foods (Table 13).

Participating in traditional activities was also associated with greater proportions of consumers and higher consumption frequencies of several country foods (Table 14).

Table 13 Weekly consumption frequency of country foods according to frequency of going on the land in the three months prior to the survey, Nunavik, 2017.

Country food	Going on the land							
	Never/occasionally				Often			
	% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga								
Meat all	58	*0.59*	*0.54*	*0.65*	62	*0.74*	*0.65*	*0.84*
Dried (*nikku*)	**49**	0.42	0.39	0.45	**57**	0.53	0.47	0.59
Meat (fresh, cooked, frozen)	36	-	-	-	38	-	-	-
Mattaaq	**66**	*0.51*	*0.47*	*0.55*	**76**	*0.62*	*0.57*	*0.68*
Misirak/ursuk	**56**	*0.60*	*0.54*	*0.66*	**63**	*0.73**	*0.64*	*0.84*
Seal								
Meat	**41**	-	-	-	**51**	0.42	0.39	0.46
Liver	**27**	-	-	-	**36**	-	-	-
Misirak/ursuk	32	-	-	-	33	-	-	-
Walrus	9	-	-	-	8	-	-	-
Caribou								
Meat all	94	*1.88*	*1.70*	*2.08*	96	*2.62*	*2.34*	*2.94*
Dried (*nikku*)	**87**	*0.85***	*0.77*	*0.93*	**92**	*1.18***	*1.05*	*1.33*
Meat (fresh, cooked, frozen)	**89**	*0.97***	*0.88*	*1.07*	**95**	*1.28**	*1.14*	*1.44*
Polar bear	2	-	-	-	3	-	-	-
Muskox	3	-	-	-	4	-	-	-
Wild birds								
Ptarmigan, partridge	37	-	-	-	43	-	-	-
Goose	68	*0.51*	*0.48*	*0.55*	73	*0.59*	*0.54*	*0.65*
Wild bird eggs	**38**	-	-	-	**47**	-	-	-
Fish								
Dried fish (*pitsik*)	**70**	*0.53*	*0.50*	*0.57*	**82**	*0.79**	*0.71*	*0.89*
Arctic char	**80**	*0.72*	*0.66*	*0.79*	**87**	*0.95***	*0.85*	*1.07*
Lake trout	49	*0.40*	*0.38*	*0.43*	54	*0.45*	*0.42*	*0.50*
Brook or sea trout, or salmon	**34**	-	-	-	**43**	-	-	-
Pike or walleye	5	-	-	-	6	-	-	-
Other fish	25	-	-	-	31	-	-	-
Shellfish	**54**	*0.42*	*0.40*	*0.45*	**65**	*0.48*	*0.45*	*0.51*
Seaweed	26	-	-	-	29	-	-	-
Wild berries	**85**	*0.92***	*0.83*	*1.03*	**90**	*1.37**	*1.21*	*1.55*
Suuvalik* or *uarutilik	**65**	*0.63*	*0.57*	*0.68*	**75**	*0.85***	*0.76*	*0.96*

GM: geometric mean; CI: confidence interval.
Proportions of consumers in bold (colored cells) are statistically different between going on the land categories at $p<0.05$.
Geometric means in italics (colored cells) are statistically different between going on the land categories at $p<0.05$.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish). The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Table 14 Weekly consumption frequency of country foods according to participation in traditional activities in the three months prior to the survey, Nunavik, 2017.

Country food	Participation in traditional activities							
	No				Yes			
	% consumers	GM	95% CI		% consumers	GM	95% CI	
Beluga								
Meat all	53	0.56*	0.44	0.71	61	0.66	0.61	0.71
Dried (*nikku*)	**42**	0.43	0.34	0.54	**54**	0.47	0.44	0.50
Meat (fresh, cooked, frozen)	30	-	-	-	38	-	-	-
Mattaaq	**51**	*0.44*	*0.37*	*0.52*	**73**	*0.57*	*0.54*	*0.61*
Misirak/ursuk	**48**	*0.57**	*0.44*	*0.74*	**61**	*0.67*	*0.61*	*0.73*
Seal								
Meat	**35**	-	-	-	**47**	-	-	-
Liver	25	-	-	-	32	-	-	-
Misirak/ursuk	27	-	-	-	33	-	-	-
Walrus	7	-	-	-	8	-	-	-
Caribou								
Meat all	**90**	*1.42***	*1.10*	*1.82*	**96**	*2.30*	*2.13*	*2.49*
Dried (*nikku*)	**79**	*0.69***	*0.55*	*0.86*	**91**	*1.03***	*0.95*	*1.11*
Meat (fresh, cooked, frozen)	**85**	*0.80***	*0.64*	*1.00*	**93**	*1.14***	*1.05*	*1.24*
Polar bear	4	-	-	-	3	-	-	-
Muskox	4	-	-	-	3	-	-	-
Wild birds								
Ptarmigan, partridge	34	-	-	-	41	-	-	-
Goose	62	0.47	0.41	0.55	71	0.56	0.52	0.59
Wild bird eggs	34	-	-	-	42	-	-	-
Fish								
Dried fish (*pitsik*)	**62**	*0.51**	*0.42*	*0.63*	**77**	*0.65*	*0.61*	*0.70*
Arctic char	**66**	*0.50*	*0.42*	*0.59*	**85**	*0.87**	*0.80*	*0.93*
Lake trout	44	*0.37*	*0.32*	*0.42*	52	*0.43*	*0.41*	*0.46*
Brook or sea trout, or salmon	30	-	-	-	39	-	-	-
Pike or walleye	5	-	-	-	6	-	-	-
Other fish	21	-	-	-	28	-	-	-
Shellfish	51	0.42	0.36	0.49	60	0.45	0.43	0.47
Seaweed	**14**	-	-	-	**29**	-	-	-
Wild berries	**78**	*0.75***	*0.61*	*0.92*	**89**	*1.16***	*1.06*	*1.26*
Suuvalik* or *uarutilik	**48**	*0.49*	*0.41*	*0.58*	**72**	*0.76*	*0.70*	*0.82*

GM: geometric mean; CI: confidence interval.
Proportions of consumers in bold (colored cells) are statistically different between participation in traditional activity categories at p<0.05.
Geometric means in italics (colored cells) are statistically different between participation in traditional activity categories at p<0.05.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Wild bird eggs include eggs from duck, geese and murre/seagulls. The other fish category includes lake whitefish (coregone) and sculpin (ugly fish). The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Market foods

Daily consumption

In the case of market foods, those eaten most often on a daily basis during the three months prior to the survey were, in decreasing order: grains (2.2 times/day), meat and alternatives (2.1 times/day), total vegetables and fruit (1.8 times/day), milk and alternatives (1.2 times/day), snacks and fast foods (1.3 times/day); and sweets/ice cream (0.7 times/day) (Table 15). Among beverages, the most common were hot beverages (1.7 times/day) total: coffee (1.2 times/day); tea (0.5 times/day)), followed by sweet beverages (1.4 times/day) and water (1.2 times/day). Refined grains were reported most often (1.8 times/day) in comparison to whole grains (0.3 times/day). The most frequently reported meat and alternatives were processed and red meat (1.1 times/day), followed by eggs (0.4 times/day), chicken and turkey (0.2 times/day), canned fish (0.2 times/day) and legumes and nuts (0.2 times/day). Vegetables were consumed more frequently than fruits (1.0 and 0.6 times/day), and potatoes were the most frequently consumed vegetable. The foods most commonly consumed in the milk and alternatives category were fluid milk (0.4 times/day) and other milk products, evenly distributed between chocolate milk, yogurt, cheese, and processed cheese.

Table 15 Daily consumption frequency of market foods in the three months prior to the survey, Nunavik, 2017.

Market food	% consumers	GM	95% CI	
Total vegetables and fruit	99	1.8	1.7	1.9
Total vegetables	98	1.0**	1.0	1.1
Green, leafy vegetables	73	0.2	0.2	0.2
Carrots	82	0.2	0.2	0.2
Broccoli, cauliflower, cabbage	67	0.2	0.2	0.2
Tomatoes or V8 juice	62	0.2	0.2	0.2
Potatoes	92	0.3	0.2	0.3
Other	89	0.2	0.2	0.3
Total fruit	97	0.6	0.5	0.6
Fresh and frozen fruits	96	0.4	0.3	0.4
Canned fruits	66	0.2	0.2	0.2
Applesauce, fruit puree	39	0.2	0.2	0.2
Processed and red meat	100	1.1**	1.0	1.1
Luncheon meats and sausages	87	0.2	0.2	0.2
Bacon	83	0.2	0.2	0.3
Red meat (beef, pork)	94	0.3	0.3	0.3
Chicken and turkey	92	0.2	0.2	0.2
Eggs	89	0.4	0.4	0.4
Canned fish (salmon, sardines, tuna)	36	0.2	0.2	0.2
Legumes and nuts	72	0.2	0.2	0.3
Milk products	97	1.1	1.0	1.2
Milk	85	0.4	0.4	0.5
Chocolate milk	26	0.2	0.2	0.2
Yogurt	77	0.2	0.2	0.2
Cheese (cheddar, mozzarella)	78	0.2	0.2	0.3
Processed cheese, Kraft singles, Cheez Whiz	64	0.2	0.2	0.2

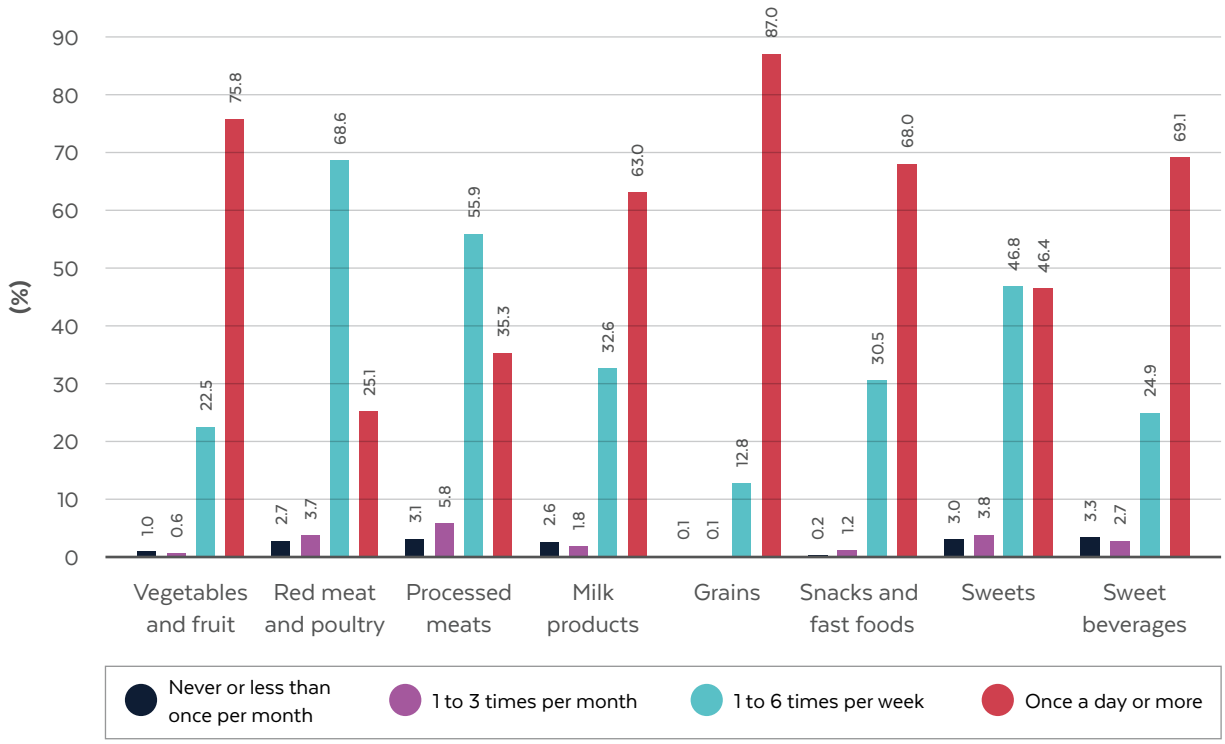
Market food	% consumers	GM	95% CI	
Grains	92	2.2	2.1	2.3
Whole grains	67	0.3	0.3	0.3
Whole wheat bread	55	0.3	0.3	1.3
Oatmeal	38	0.2	0.2	1.2
Refined grains	100	1.8	1.7	5.6
White bread	91	0.5	0.5	1.6
Cold cereals	68	0.3	0.3	1.3
Pasta	93	0.2	0.2	1.2
Rice	93	0.3	0.3	1.3
Bannock	83	0.2	0.2	1.2
Snacks and fast foods	100	1.3	1.2	1.4
Pizza	85	0.2	0.2	0.2
Bowl noodle soup	74	0.2	0.2	0.2
French fries/poutine	82	0.2	0.2	0.2
Potato chips or corn tortilla chips	84	0.4	0.3	0.4
Popcorn	45	0.2	0.2	0.2
Crackers	77	0.2	0.2	0.2
Fried chicken, nuggets, wings	83	0.2	0.2	0.2
Sweets and ice cream	97	0.7	0.7	0.8
Cookies, cakes, muffins	82	0.2	0.2	0.2
Chocolate or candy bars	59	0.2	0.2	0.2
Candies	71	0.2	0.2	0.2
Chocolate spread, jam	59	0.2	0.2	0.2
Ice cream	66	0.2	0.2	0.2
Water	95	1.2*	1.1	1.3
Sweet beverages	97	1.4	1.3	1.5
Soft drinks	76	0.6	0.5	0.6
Energy drinks	11	0.2	0.2	0.3
Fruit juices, cocktails	91	0.6	0.6	0.7
Coffee	80	1.2*	1.1	1.3
Tea	75	0.5	0.5	0.6
Labrador or traditional	22	0.2	0.2	0.2

GM: geometric mean; CI: confidence interval; Q1: Quartile 1; Q3: Quartile 3.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.

Several market foods were consumed by a majority of Nunavimmiut on a daily basis, including grains (87%), vegetables and fruit (76%), sweet beverages (69%), snacks and fast foods (68%) and milk products (63%) (Figure 4). Sweets and ice cream and processed meats were also consumed daily by 46% and 35% of Nunavimmiut, respectively. Most Nunavimmiut reported consuming all categories of vegetables less than once per day (Figure 5). Nunavimmiut reported consuming whole fruits more frequently compared to canned fruits and fruit puree (Figure 6). The majority of individuals reported consuming the different types of meat less than once per day but at least once per week (Figure 7). Milk products were also generally consumed less than once per day but at least once per week, except for chocolate milk (Figure 8). Grain products were reported for the most part as being consumed less than once per day (Figure 9). White bread was eaten daily by 43% of Nunavimmiut, and pasta and rice were eaten weekly by 63% and 60% of Nunavimmiut, respectively. Almost one in five individuals reported eating bannock on a daily basis and 17% reported never eating it or doing so less than once per month. Most people

reported consuming all categories of snacks/fast foods and sweet foods less than once per day (Figure 10 and 11), with chips being the food item most frequently consumed daily (by 28% of Nunavimmiut). Figure 12 shows that the majority of individuals consumed coffee and water once a day or more. Soft drinks and tea were consumed daily by about four out of ten people. It should be noted that most Nunavimmiut reported consuming milk and fruit juices/cocktails less than once per day, but many consumed these beverages more than once per week. Energy drinks were rarely consumed.

Figure 4 Proportion of the population consuming market foods in the three months prior to the survey according to frequency categories, Nunavik, 2017.



Vegetables and fruit include green and leafy vegetables, carrots, broccoli, cauliflower, cabbage, tomatoes or V8 juice, potatoes, other vegetables, whole fruits (oranges, bananas, apples, pears, store-bought berries, fresh or frozen), canned fruit and applesauce. The red meats and poultry category includes hamburger, beef and pork steak, roast and chops, and chicken and turkey breast and legs. The processed meats category includes sliced or processed meat, sausage, hot dogs, bacon, and beef jerky. The milk products category includes plain milk, chocolate milk, yogurt, plain cheese and processed cheese. The grains category includes both refined and whole grains, including bannock. The snacks and fast foods category includes pizza, bowl noodle soup (ramen), French fries, poutine, potato chips, popcorn, crackers, and fried chicken. The sweets category includes cookies, cakes, muffins, chocolate and candy bars, candies, chocolate spread, jam and ice cream. The sweet beverages category includes soft drinks, energy drinks, fruit juices and cocktails.

Figure 5 Proportion of the population consuming vegetables in the three months prior to the survey according to frequency categories, Nunavik, 2017.

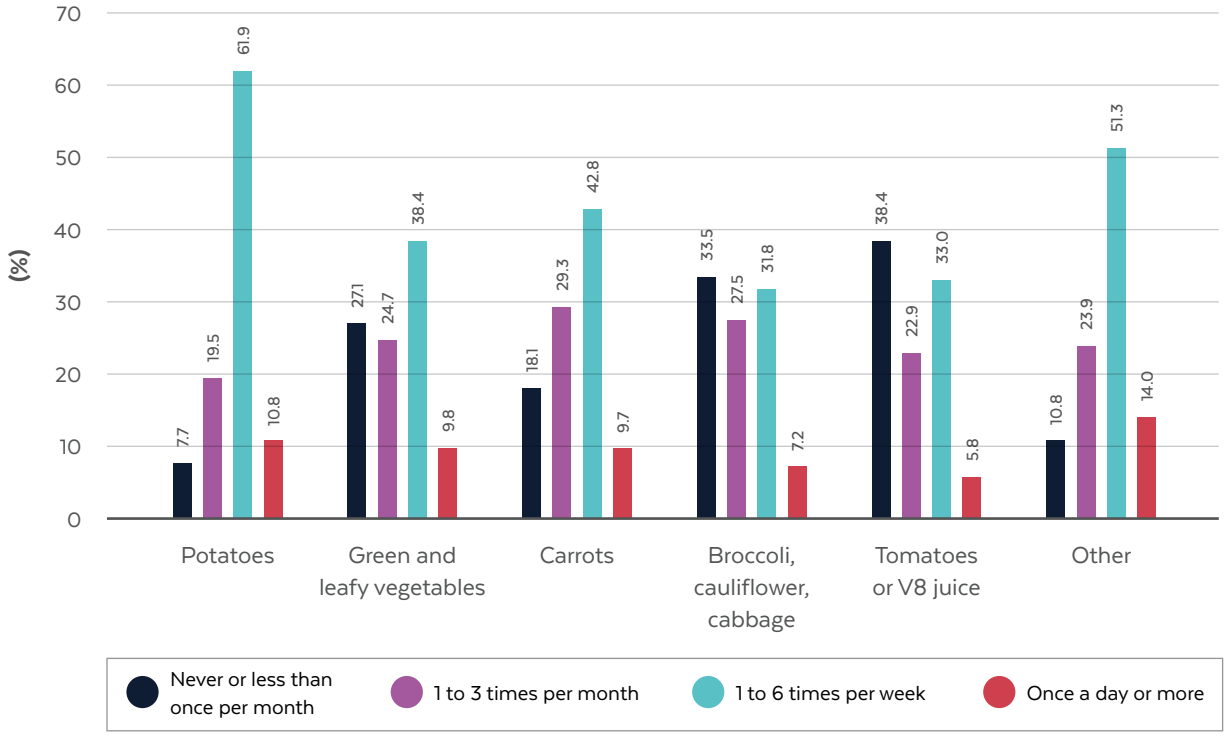


Figure 6 Proportion of the population consuming fruits in the three months prior to the survey according to frequency categories, Nunavik, 2017.

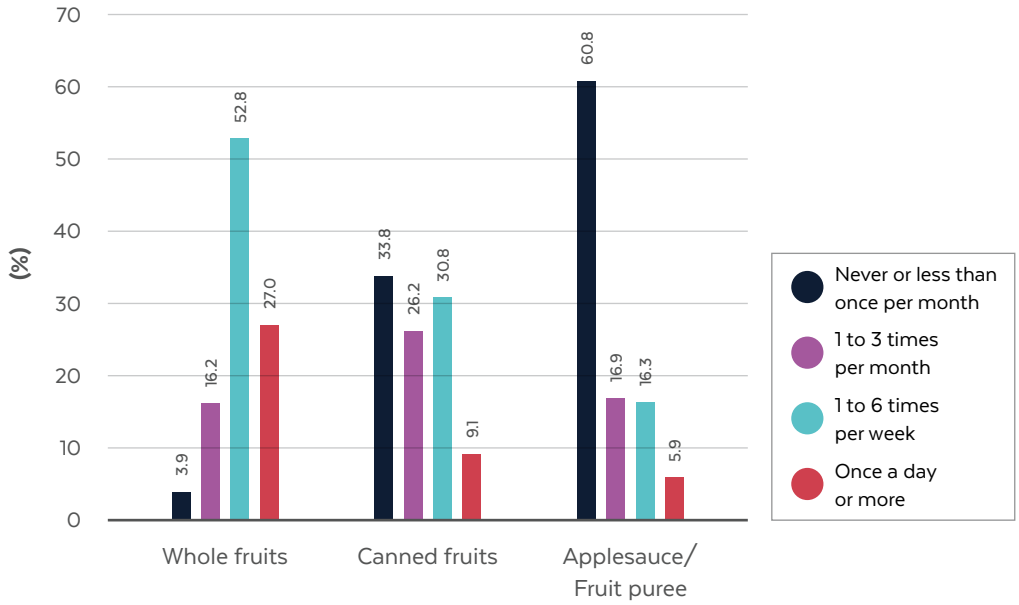


Figure 7 Proportion of the population consuming market meats in the three months prior to the survey according to frequency categories, Nunavik, 2017.

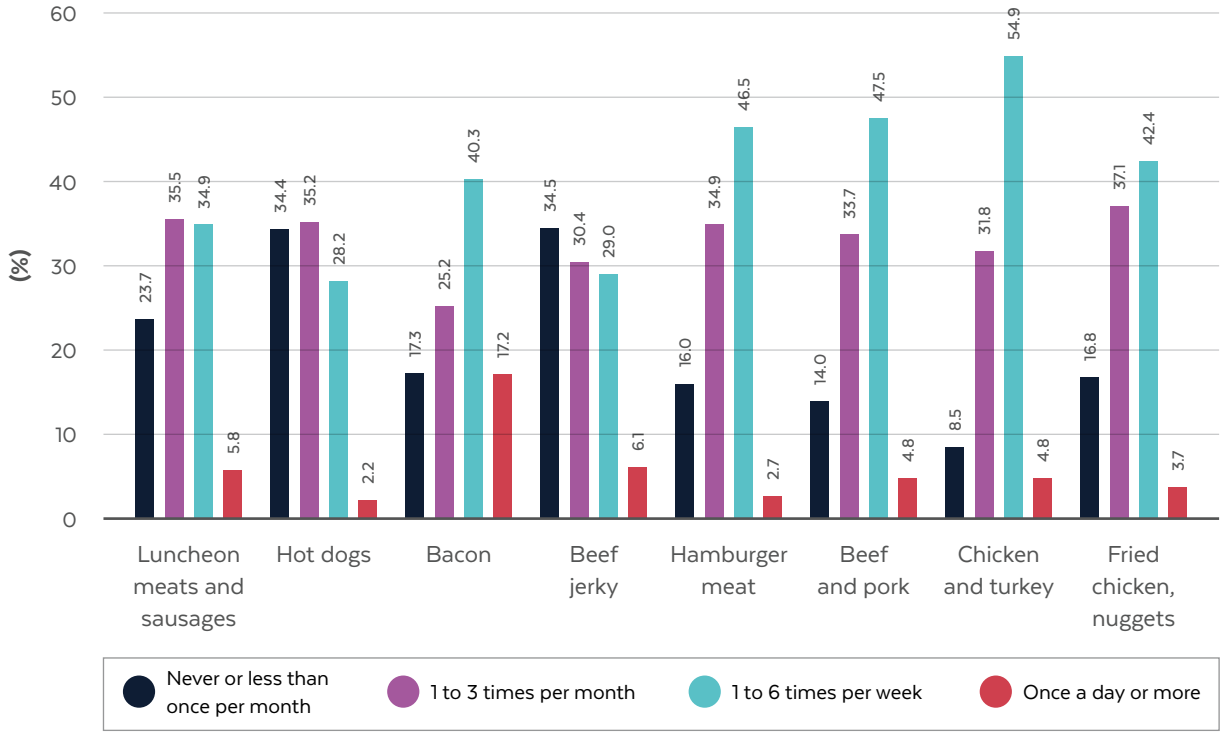


Figure 8 Proportion of the population consuming milk products in the three months prior to the survey according to frequency categories, Nunavik, 2017.

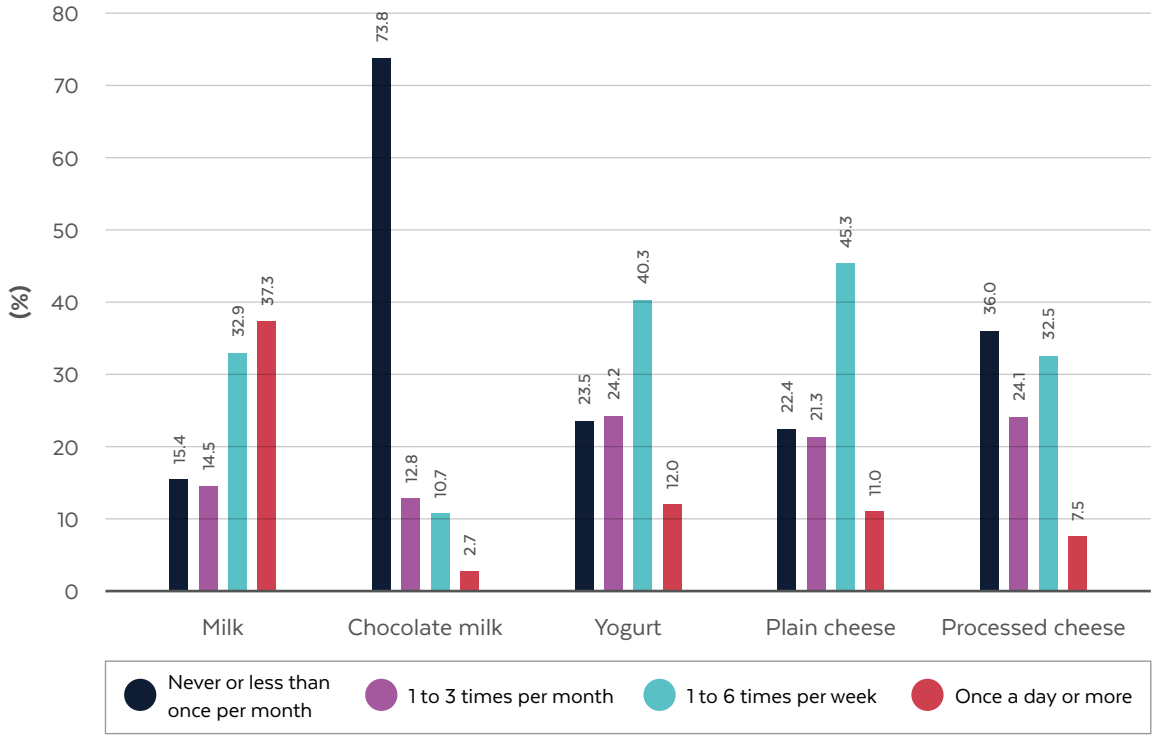


Figure 9 Proportion of the population consuming grain products in the three months prior to the survey according to frequency categories, Nunavik, 2017.

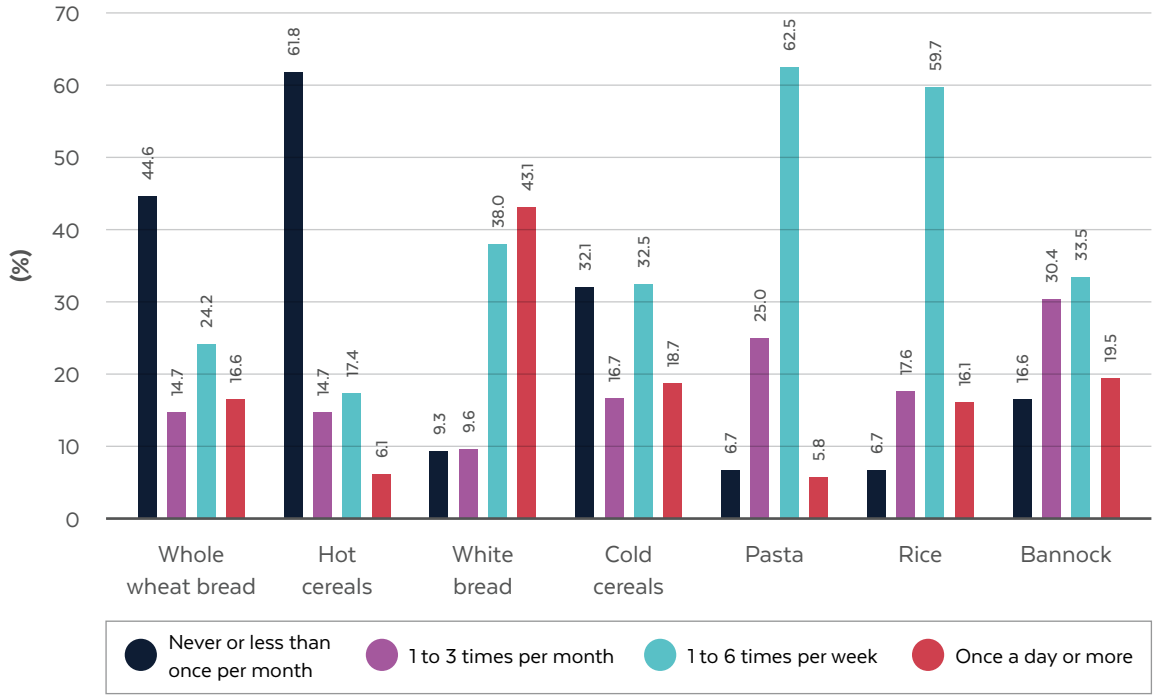


Figure 10 Proportion of the population consuming snacks and fast foods in the three months prior to the survey according to frequency categories, Nunavik, 2017.

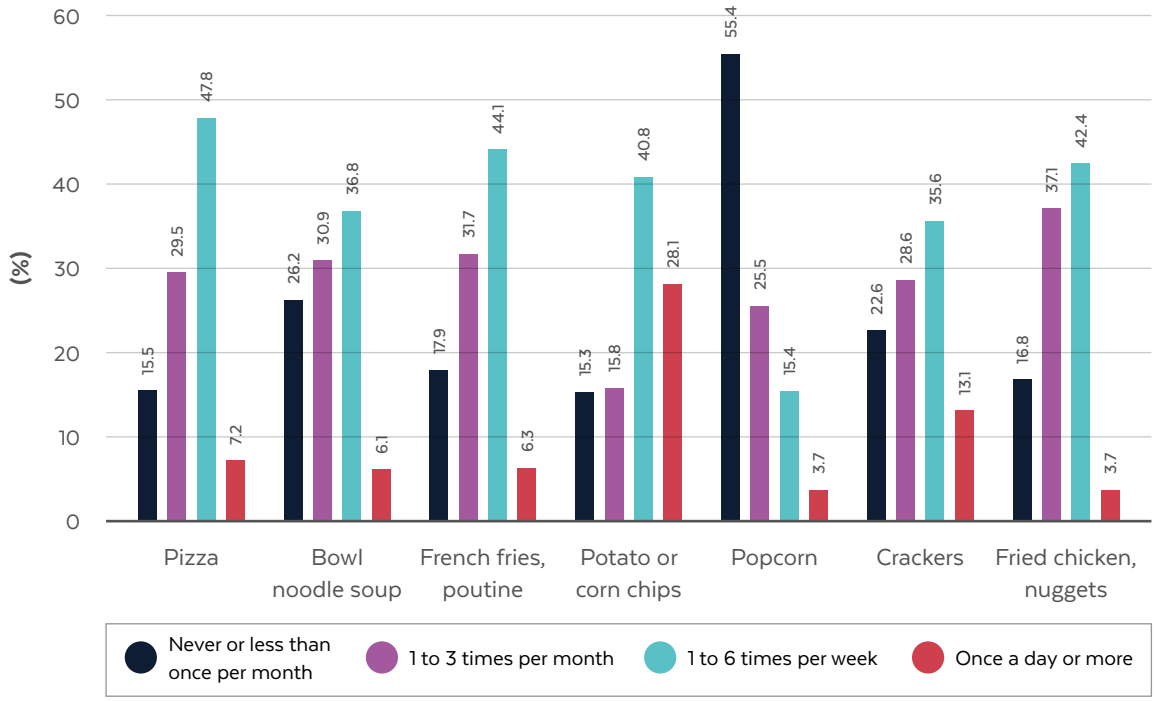


Figure 11 Proportion of the population consuming sweet foods in the three months prior to the survey according to frequency categories, Nunavik, 2017.

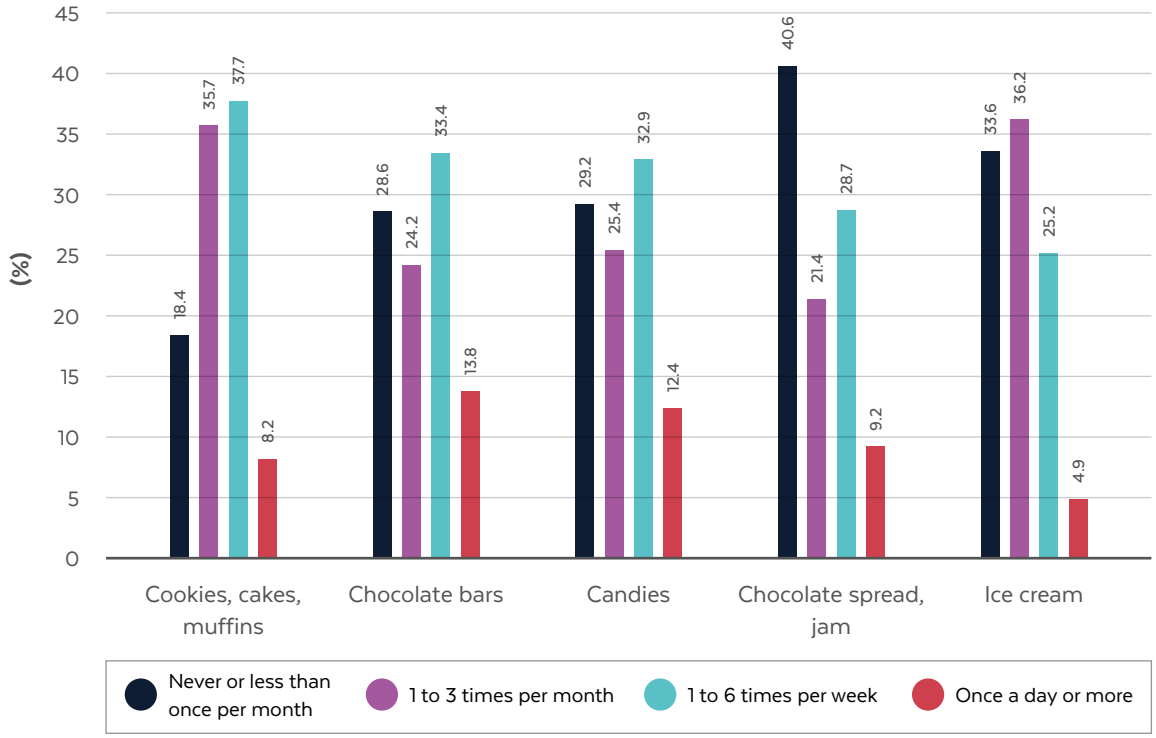
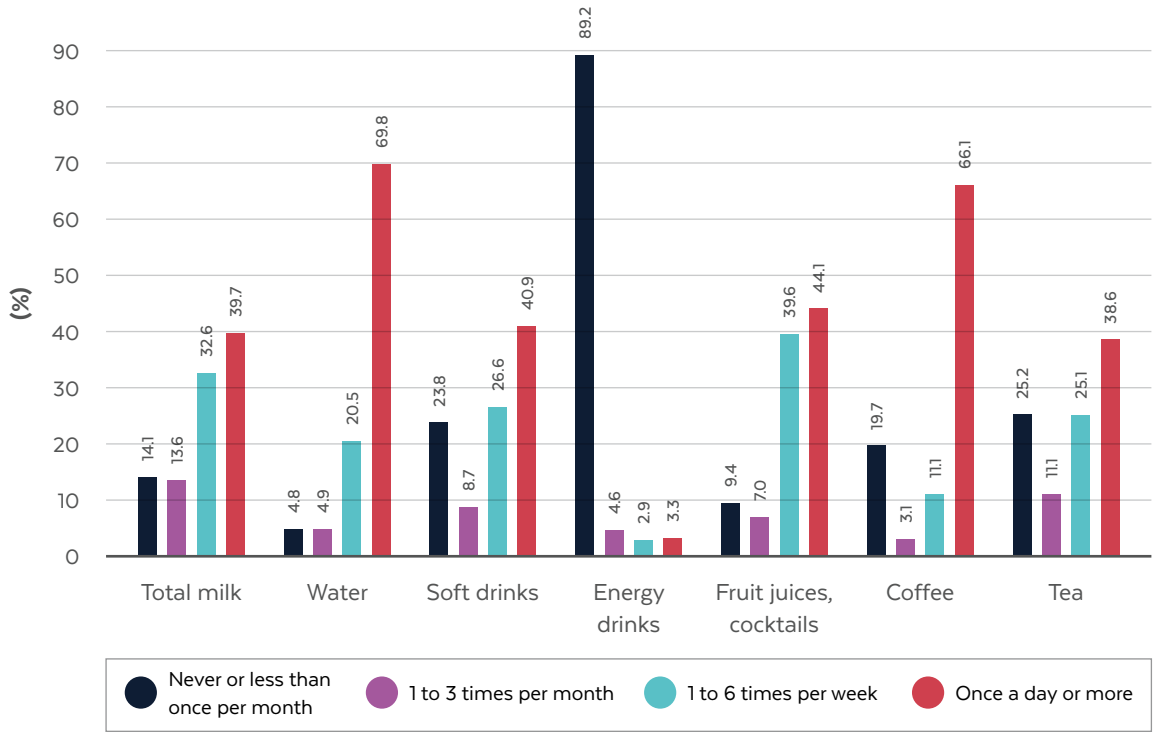


Figure 12 Proportion of the population consuming beverages in the three months prior to the survey according to frequency categories, Nunavik, 2017.



The total milk category includes plain milk and chocolate milk.

Market food consumption by sex and age

Women reported consuming vegetables and fruits more often than men, whereas men reported consuming meat and poultry, legumes and nuts, and tea more frequently than women (Table 16). There were differences between age groups in the frequency of consumption of almost all market food groups, except for vegetables and fruit, legumes and nuts, and milk products (Table 17). Younger Nunavimmiut (16 to 29 and 30 to 49 years of age) generally reported consuming most market foods more frequently than older individuals (50 years of age and older), except in the case of whole grains, water, milk and tea, which were consumed more frequently by older Nunavimmiut. Highly processed market foods, including processed and red meats, refined grains, snacks and fast foods, and sweet beverages, were consumed more frequently by younger individuals (16 to 29 years of age).

Table 16 Daily consumption frequency of market foods by sex in the three months prior to the survey, Nunavik, 2017.

Market food	Sex					
	Women			Men		
	GM	95% CI		GM	95% CI	
Vegetables and fruit	*1.98*	*1.82*	*2.15*	*1.62*	*1.46*	*1.80*
Processed and red meat	*0.95***	*0.89*	*1.02*	*1.21**	*1.11*	*1.33*
Chicken and turkey	*0.17*	*0.16*	*0.18*	*0.19*	*0.17*	*0.21*
Eggs	0.37	0.34	0.40	0.39	0.35	0.43
Canned fish (salmon, sardines, tuna)	0.19	0.18	0.20	0.17	0.16	0.19
Legumes and nuts	*0.23*	*0.21*	*0.24*	*0.27*	*0.24*	*0.30*
Grains	2.06	1.93	2.21	2.27	2.09	2.47
Whole grains	0.32	0.29	0.34	0.33	0.30	0.37
Refined grains	1.73	1.62	1.85	1.88	1.74	2.04
Milk products	1.03	0.95	1.13	1.12	1.02	1.25
Other						
Snacks and fast foods	1.28*	1.18	1.38	1.34*	1.21	1.48
Sweets and ice cream	0.69	0.64	0.76	0.75*	0.66	0.84
Beverages						
Water	1.17**	1.08	1.27	1.18**	1.04	1.32
Fluid milk	0.47	0.43	0.52	0.49**	0.44	0.55
Sweet beverages	1.40*	1.27	1.55	1.33*	1.19	1.50
Coffee	1.21*	1.10	1.32	1.14**	1.01	1.28
Tea	*0.43*	*0.39*	*0.48*	*0.60*	*0.52*	*0.68*

GM: geometric mean; CI: confidence interval.
Geometric means in italics (colored cells) are statistically different between men and women at $p<0.05$.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.

Table 17 Daily consumption frequency of market foods by age group in the three months prior to the survey, Nunavik, 2017.

Market food	Age group								
	16 to 29 years			30 to 49 years			50 years and over		
	GM	95% CI		GM	95% CI		GM	95% CI	
Vegetables and fruit	1.70	1.53	1.89	1.94	1.72	2.19	1.72	1.50	1.97
Processed and red meat	*1.40[a]*	*1.28*	*1.53*	*0.98**[,b]*	*0.89*	*1.09*	*0.79**[,c]*	*0.70*	*0.90*
Chicken and turkey	*0.19[a]*	*0.17*	*0.21*	*0.19[a]*	*0.17*	*0.21*	*0.15[b]*	*0.13*	*0.17*
Eggs	*0.35[a]*	*0.32*	*0.39*	*0.41[b]*	*0.36*	*0.46*	*0.39[a,b]*	*0.34*	*0.44*
Canned fish (salmon, sardines, tuna)	*0.19[a]*	*0.18*	*0.20*	*0.18[a]*	*0.17*	*0.20*	*0.16[b]*	*0.15*	*0.18*
Legumes and nuts	0.25	0.22	0.27	0.25	0.22	0.27	0.25	0.22	0.29
Grains	*1.96[a]*	*1.80*	*2.13*	*2.19[a]*	*1.97*	*2.43*	*2.54[b]*	*2.31*	*2.79*
Whole grains	*0.28[a]*	*0.25*	*0.32*	*0.33[a]*	*0.29*	*0.37*	*0.40[b]*	*0.35*	*0.47*
Refined grains	*3.04[a]*	*2.83*	*3.26*	*3.01[a]*	*2.76*	*3.28*	*2.38[b]*	*2.15*	*2.64*
Milk products	1.02	0.92	1.13	1.11	0.99	1.25	1.15	1.00	1.33
Other									
Snacks and fast foods	*1.62[a]*	*1.47*	*1.78*	*1.36*[,b]*	*1.21*	*1.52*	*0.87**[,c]*	*0.76*	*1.00*
Sweets and ice cream	*0.84**[,a]*	*0.75*	*0.94*	*0.66*[,b]*	*0.58*	*0.75*	*0.63*[,b]*	*0.55*	*0.73*
Beverages									
Water	*1.10**[,a]*	*0.97*	*1.23*	*1.16**[,a,b]*	*1.01*	*1.34*	*1.34*[,b]*	*1.16*	*1.53*
Fluid milk	*0.45[a]*	*0.40*	*0.50*	*0.47[a,b]*	*0.41*	*0.54*	*0.57[b]*	*0.49*	*0.67*
Sweet beverages	*1.76[a]*	*1.56*	*1.99*	*1.47*[,b]*	*1.28*	*1.67*	*0.81**[,c]*	*0.69*	*0.95*
Coffee	*0.68*[,a]*	*0.59*	*0.78*	*1.83[b]*	*1.63*	*2.05*	*1.57*[,b]*	*1.36*	*1.80*
Tea	*0.38[a]*	*0.34*	*0.43*	*0.46[a]*	*0.39*	*0.53*	*0.96**[,b]*	*0.80*	*1.15*

M: geometric mean; CI: confidence interval.

Geometric means in italics (colored cells) and with different superscript letters ([a,b,c]) are statistically different at p<0.05.

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Comparing market food consumption by sex and age revealed that processed and red meats, snacks and fast foods, and sweet beverages were consumed more frequently by younger men and women, while grains, coffee and tea were consumed more frequently by older men and women (Tables 18 and 19). Poultry, canned fish, and sweets and ice cream were reported as being consumed more frequently by younger women than by older ones (Table 18), but consumption frequencies for these food items were similar among men of all ages (Table 19). Older women reported drinking water and milk more frequently than younger women (Table 18), while these products were consumed at similar frequencies among all men (Table 19).

Table 18 Daily consumption frequency of market foods by age group among women in the three months prior to the survey, Nunavik, 2017.

Market food	Age group								
	16 to 29 years			30 to 49 years			50 years and over		
	GM	95% CI		GM	95% CI		GM	95% CI	
Vegetables and fruit	1.85*	1.61	2.12	2.23*	1.94	2.57	1.87	1.58	2.21
Processed and red meat	*1.25*^{*,a}	*1.13*	*1.38*	*0.92*^{**,b}	*0.83*	*1.02*	*0.65*^{*,c}	*0.56*	*0.76*
Chicken and turkey	*0.19*^{a}	*0.17*	*0.21*	*0.18*^{a}	*0.15*	*0.20*	*0.13*^{b}	*0.12*	*0.15*
Eggs	*0.33*^{a}	*0.29*	*0.37*	*0.40*^{b}	*0.35*	*0.45*	*0.40*^{a,b}	*0.33*	*0.48*
Canned fish (salmon, sardines, tuna)	*0.20*^{a}	*0.19*	*0.22*	*0.19*^{a,b}	*0.17*	*0.21*	*0.17*^{b}	*0.15*	*0.19*
Legumes and nuts	0.22	0.19	0.25	0.23	0.21	0.26	0.23	0.20	0.26
Grains	*1.90*^{a}	*1.69*	*2.13*	*1.99*^{a}	*1.77*	*2.23*	*2.46*^{b}	*2.19*	*2.78*
Whole grains	0.30	0.26	0.34	0.31	0.28	0.35	0.37	0.30	0.44
Refined grains	*1.63*^{a}	*1.47*	*1.82*	*1.69*^{a,b}	*1.51*	*1.90*	*1.95*^{b}	*1.72*	*2.22*
Milk products	0.92	0.81	1.06	1.13	0.97	1.32	1.10	0.91	1.34
Other									
Snacks and fast foods	*1.64*^{a}	*1.46*	*1.83*	*1.27*^{**,b}	*1.12*	*1.45*	*0.87*^{**,c}	*0.74*	*1.03*
Sweets and ice cream	*0.86*^{**,a}	*0.74*	*0.99*	*0.62*^{b}	*0.54*	*0.71*	*0.58*^{*,b}	*0.49*	*0.69*
Beverages									
Water	*0.96*^{**,a}	*0.83*	*1.11*	*1.27*^{**,b}	*1.07*	*1.49*	*1.43*^{*,b}	*1.22*	*1.66*
Fluid milk	*0.38*^{a}	*0.33*	*0.44*	*0.50*^{b}	*0.42*	*0.60*	*0.59*^{*,b}	*0.48*	*0.73*
Sweet beverages	*1.82*^{a}	*1.55*	*2.14*	*1.46*^{*,a}	*1.26*	*1.70*	*0.89*^{**,b}	*0.72*	*1.09*
Coffee	*0.74*^{**,a}	*0.63*	*0.87*	*1.77*^{b}	*1.55*	*2.02*	*1.54*^{*,b}	*1.27*	*1.86*
Tea	*0.35*^{a}	*0.30*	*0.41*	*0.34*^{b}	*0.29*	*0.40*	*0.81*^{**,b}	*0.64*	*1.02*

GM: geometric mean; CI: confidence interval.

Geometric means in italics (colored cells) and with different superscript letters (^{a,b,c}) are statistically different at p<0.05.

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Table 19 Daily consumption frequency of market foods by age group among men in the three months prior to the survey, Nunavik, 2017.

Market food	Age group								
	16 to 29 years			30 to 49 years			50 years and over		
	GM	95% CI		GM	95% CI		GM	95% CI	
Vegetables and fruit	1.57*	1.34	1.84	1.70*	1.40	2.06	1.58*	1.28	1.95
Processed and red meat	*1.54*[*,a]*	*1.34*	*1.77*	*1.05*[**,b]*	*0.90*	*1.23*	*0.96*[**,b]*	*0.79*	*1.17*
Chicken and turkey	0.19	0.17	0.22	0.20	0.17	0.25	0.17	0.14	0.20
Eggs	0.37	0.32	0.44	0.42	0.35	0.51	0.38	0.31	0.46
Canned fish (salmon, sardines, tuna)	0.18	0.16	0.20	0.18	0.16	0.20	0.16	0.14	0.18
Legumes and nuts	0.27	0.23	0.32	0.26	0.21	0.31	0.29	0.23	0.36
Grains	*2.02*[a]	*1.79*	*2.27*	*2.39*[a,b]	*2.01*	*2.85*	*2.62*[b]	*2.27*	*3.03*
Whole grains	*0.27*[a]	*0.23*	*0.32*	*0.35*[a,b]	*0.28*	*0.44*	*0.45*[b]	*0.36*	*0.55*
Refined grains	1.71	1.51	1.93	2.02	1.72	2.38	2.02	1.75	2.33
Milk products	1.11	0.95	1.31	1.10	0.93	1.30	1.21	0.97	1.50
Other									
Snacks and fast foods	*1.60*[*,a]*	*1.38*	*1.87*	*1.44*[*,a]*	*1.20*	*1.72*	*0.87*[**,b]*	*0.71*	*1.07*
Sweets and ice cream	0.82**	0.70	0.96	0.70**	0.57	0.87	0.68**	0.54	0.86
Beverages									
Water	1.23**	1.02	1.49	1.07**	0.86	1.33	1.25**	0.99	1.58
Fluid milk	0.51	0.43	0.60	0.44	0.35	0.55	0.56*	0.44	0.70
Sweet beverages	*1.71*[*,a]*	*1.45*	*2.03*	*1.47*[**,a]*	*1.19*	*1.81*	*0.74*[**,b]*	*0.58*	*0.94*
Coffee	*0.63*[*,a]*	*0.50*	*0.78*	*1.88*[b]	*1.58*	*2.24*	*1.60*[*,b]*	*1.29*	*1.98*
Tea	*0.41*[a]	*0.33*	*0.50*	*0.61*[**,b]*	*0.47*	*0.79*	*1.14*[**,c]*	*0.88*	*1.49*

GM: geometric mean; CI: confidence interval.
Geometric means in italics (colored cells) and with different superscript letters ([a,b,c]) are statistically different at p<0.05.
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Market food consumption according to region and community size

Hudson Strait residents reported the highest consumption frequencies of sweet beverages and sweets/ice cream, whereas Ungava Bay residents reported the highest consumption frequencies of vegetables and fruits, processed and red meat, eggs, and legumes and nuts.

Except in the case of sweet beverages, consumption frequencies of market foods were similar between Hudson Bay and Hudson Strait communities (Table 20). In addition, consumption of market foods was similar between small and large communities, except in regard to sweets/ice cream and sweet beverages, which were consumed more frequently in small communities (Table 21).

Table 20 Daily consumption frequency of market foods by ecological region in the three months prior to the survey, Nunavik, 2017.

Market food	Ecological region								
	Hudson Bay			Hudson Strait			Ungava Bay		
	GM	95% CI		GM	95% CI		GM	95% CI	
Vegetables and fruit	*1.66[a]*	*1.47*	*1.88*	*1.64[a]*	*1.43*	*1.88*	*2.06[b]*	*1.88*	*2.26*
Processed and red meat	*0.99**[,a]*	*0.88*	*1.10*	*1.09**[,a,b]*	*0.98*	*1.22*	*1.18*[,b]*	*1.09*	*1.28*
Chicken and turkey	0.18	0.16	0.20	0.17	0.15	0.19	0.18	0.17	0.20
Eggs	*0.37[a,b]*	*0.33*	*0.42*	*0.34[a]*	*0.30*	*0.38*	*0.42[b]*	*0.38*	*0.46*
Canned fish (salmon, sardines, tuna)	0.19	0.17	0.20	0.18	0.17	0.20	0.18	0.16	0.19
Legumes and nuts	*0.23[a]*	*0.21*	*0.26*	*0.25[a,b]*	*0.21*	*0.28*	*0.27[b]*	*0.25*	*0.30*
Grains	2.22	2.02	2.44	2.16	1.95	2.39	2.12	1.97	2.28
Whole grains	0.33	0.30	0.37	0.31	0.27	0.36	0.33	0.30	0.36
Refined grains	*3.03[a]*	*2.78*	*3.31*	*2.86[a,b]*	*2.61*	*3.14*	*2.64[b]*	*2.46*	*2.84*
Milk products	1.08	0.97	1.21	0.99	0.85	1.15	1.16	1.06	1.27
Other									
Snacks and fast foods	1.35*	1.19	1.52	1.38*	1.23	1.56	1.22*	1.12	1.33
Sweets and ice cream	*0.70**[,a,b]*	*0.61*	*0.79*	*0.84*[,a]*	*0.73*	*0.95*	*0.67[b]*	*0.61*	*0.75*
Beverages									
Water	1.20**	1.06	1.36	1.06**	0.91	1.24	1.22**	1.10	1.36
Fluid milk	0.48	0.41	0.55	0.46	0.39	0.53	0.51	0.46	0.56
Sweet beverages	*1.30[a]*	*1.14*	*1.49*	*1.72**[,b]*	*1.48*	*2.00*	*1.23**[,a]*	*1.10*	*1.37*
Coffee	1.26**	1.11	1.42	1.13**	0.95	1.34	1.10**	0.98	1.23
Tea	0.55	0.47	0.64	0.46	0.40	0.54	0.50	0.45	0.56

GM: geometric mean; CI: confidence interval.

Geometric means in italics (colored cells) and with different superscript letters ([a,b,c]) are statistically different at p<0.05.

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Table 21 Daily consumption frequency of market foods according to community size in the three months prior to the survey, Nunavik, 2017.

Market food	Community size					
	Large			Small		
	GM	95% CI		GM	95% CI	
Vegetables and fruit	1.74	1.58	1.91	1.84	1.68	2.03
Processed and red meat	1.03**	0.95	1.11	1.15**	1.05	1.25
Chicken and turkey	0.19	0.17	0.20	0.17	0.15	0.18
Eggs	0.37	0.33	0.40	0.40	0.36	0.44
Canned fish (salmon, sardines, tuna)	0.19	0.18	0.20	0.18	0.17	0.19
Legumes and nuts	0.25	0.22	0.27	0.25	0.23	0.28
Grains	2.10	1.95	2.26	2.26	2.09	2.45
Whole grains	0.31	0.28	0.34	0.34	0.31	0.38
Refined grains	1.76	1.63	1.89	1.88	1.74	2.02
Milk products	1.09	0.99	1.19	1.07	0.98	1.19
Other						
Snacks and fast foods	1.28*	1.16	1.41	1.35	1.24	1.47
Sweets and ice cream	*0.65*	*0.58*	*0.72*	*0.83**	*0.75*	*0.91*
Beverages						
Water	1.24**	1.11	1.38	1.09**	0.98	1.21
Fluid milk	0.49	0.44	0.55	0.47	0.42	0.53
Sweet beverages	*1.27**	*1.14*	*1.42*	*1.51*	*1.35*	*1.68*
Coffee	1.20**	1.09	1.32	1.13**	1.00	1.27
Tea	0.51	0.45	0.58	0.51	0.45	0.57

GM: geometric mean; CI: confidence interval.

Geometric means in italics (colored cells) are statistically different at p<0.05.

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Market food consumption according to sociodemographic characteristics

Nunavimmiut with an annual income of $20 000 or more reported more frequent consumption of vegetables and fruit, whole grains, milk products (including fluid milk) and coffee, but less frequent consumption of processed and red meats and snacks/fast foods than those with an annual income of less than $20 000 (Table 22). Nunavimmiut with a lower level of education reported more frequent consumption of vegetables and fruit, processed and red meats, chicken and turkey, eggs and snacks/fast foods than those with a higher level of education (Table 23). People with paid work reported more frequent consumption of vegetables and fruit but less frequent consumption of snacks and fast food and tea than those who were unemployed (Table 24). Single, widowed or divorced Nunavimmiut reported more frequent consumption of canned fish and snacks/fast foods but less frequent consumption of whole grains than those who were married or in a common law relationship (Table 25). Food secure people reported less frequent consumption of processed and red meat, chicken and turkey, snacks and fast food, and sweet beverages than those who were moderately food insecure. Food secure Nunavimmiut also reported more frequent consumption of vegetables and fruit, but less frequent consumption of processed and red meats and tea than those who were severely food insecure. Compared to severely food insecure individuals, moderately food insecure people reported more frequent consumption of vegetables and fruit and sweet beverages, as well as less frequent consumption of tea (Table 26).

Market food consumption according to participation in traditional activities

Nunavimmiut who often go out on the land reported more frequent consumption of vegetables and fruit, refined grains, milk products (including fluid milk), sweets and ice cream, and sweet beverages, as well as less frequent consumption of canned fish, compared to those who go out on the land occasionally or never (Table 27). Individuals participating in traditional activities reported more frequent consumption of vegetables and fruit, legumes and nuts, sweets and ice cream, and fluid milk, but less frequent consumption of tea compared to those who reported not participating in these activities (Table 28).

Table 22 Daily consumption frequency of market foods by annual income in the three months prior to the survey, Nunavik, 2017.

Market food	Annual income					
	Less than $20 000			$20 000 or more		
	GM	95% CI		GM	95% CI	
Vegetables and fruit	*1.61*	*1.43*	*1.80*	*2.14*	*1.95*	*2.35*
Processed and red meat	*1.16***	*1.06*	*1.27*	*1.02***	*0.93*	*1.12*
Chicken and turkey	0.18	0.16	0.20	0.19	0.17	0.20
Eggs	0.39	0.35	0.43	0.38	0.34	0.42
Canned fish (salmon, sardines, tuna)	0.18	0.17	0.19	0.17	0.16	0.18
Legumes and nuts	0.25	0.23	0.28	0.26	0.23	0.29
Grains	2.14	1.96	2.32	2.29	2.13	2.46
Whole grains	*0.29*	*0.27*	*0.32*	*0.36*	*0.32*	*0.41*
Refined grains	1.82	1.67	1.98	1.85	1.72	1.98
Milk products	*1.00*	*0.90*	*1.12*	*1.26*	*1.14*	*1.39*
Other						
Snacks and fast foods	*1.44*	*1.31*	*1.58*	*1.18***	*1.07*	*1.29*
Sweets and ice cream	0.75*	0.67	0.83	0.69*	0.61	0.77
Beverages						
Water	1.15**	1.04	1.28	1.31*	1.16	1.48
Fluid milk	*0.45*	*0.40*	*0.51*	*0.54*	*0.48*	*0.61*
Sweet beverages	1.44*	1.28	1.62	1.31*	1.17	1.47
Coffee	*0.94***	*0.83*	*1.06*	*1.56*	*1.39*	*1.75*
Tea	0.53	0.46	0.60	0.50	0.43	0.57

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Table 23 Daily consumption frequency of market foods by level of education in the three months prior to the survey, Nunavik, 2017.

Market food	Education					
	Secondary school not completed			Secondary school or higher		
	GM	95% CI		GM	95% CI	
Vegetables and fruit	*1.81*	*1.69*	*1.93*	*0.82***	*0.45*	*1.50*
Processed and red meat	*1.09***	*1.03*	*1.16*	*0.43***	*0.27*	*0.66*
Chicken and turkey	*0.18*	*0.17*	*0.19*	*0.12*	*0.09*	*0.15*
Eggs	*0.38*	*0.36*	*0.41*	*0.27*	*0.19*	*0.37*
Canned fish (salmon, sardines, tuna)	0.18	0.17	0.19	0.17	0.13	0.21
Legumes and nuts	0.25	0.23	0.27	0.22	0.16	0.29
Grains	2.17	2.05	2.29	2.28**	1.37	3.80
Whole grains	0.33	0.30	0.35	0.32*	0.20	0.52
Refined grains	1.80	1.71	1.90	1.98**	1.23	3.18
Milk products	1.09	1.02	1.17	0.78*	0.52	1.17
Other						
Snacks and fast foods	*1.32*	*1.24*	*1.41*	*0.74***	*0.44*	*1.24*
Sweets and ice cream	0.73	0.67	0.78	0.46**	0.28	0.75
Beverages						
Water	1.18*	1.09	1.27	0.96**	0.65	1.42
Fluid milk	0.48	0.45	0.52	0.40*	0.27	0.61
Sweet beverages	1.38	1.28	1.49	0.82**	0.48	1.42
Coffee	1.17*	1.09	1.26	0.99**	0.67	1.47
Tea	0.51	0.46	0.55	0.75**	0.35	1.58

GM: geometric mean; CI: confidence interval.

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Table 24 Daily consumption frequency of market foods by employment in the three months prior to the survey, Nunavik, 2017.

Market food	Employment					
	Not employed			Employed		
	GM	95% CI		GM	95% CI	
Vegetables and fruit	*1.40***	*1.15*	*1.72*	*1.87*	*1.74*	*2.00*
Processed and red meat	1.05**	0.89	1.24	1.08**	1.02	1.15
Chicken and turkey	0.18	0.15	0.21	0.18	0.17	0.19
Eggs	0.42	0.35	0.49	0.37	0.34	0.40
Canned fish (salmon, sardines, tuna)	0.20	0.18	0.22	0.18	0.17	0.19
Legumes and nuts	0.23	0.20	0.27	0.25	0.23	0.27
Grains	2.27	1.95	2.65	2.15	2.03	2.27
Whole grains	0.38	0.32	0.44	0.32	0.29	0.34
Refined grains	1.86	1.60	2.16	1.79	1.70	1.90
Milk products	0.95	0.78	1.17	1.11	1.03	1.19
Other						
Snacks and fast foods	*1.54**	*1.31*	*1.81*	*1.27*	*1.19*	*1.36*
Sweets and ice cream	0.70**	0.57	0.86	0.72	0.67	0.79
Beverages						
Water	1.01**	0.82	1.24	1.21*	1.11	1.31
Fluid milk	0.46	0.37	0.57	0.49	0.45	0.53
Sweet beverages	1.27**	1.03	1.58	1.39	1.28	1.51
Coffee	0.99**	0.79	1.24	1.21*	1.12	1.31
Tea	*0.70***	*0.54*	*0.91*	*0.48*	*0.44*	*0.53*

GM: geometric mean; CI: confidence interval.

Geometric means in italics (colored cells) are statistically different at p<0.05.

* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.

** The coefficient of variation is greater than 25%. The proportion is shown for information only.

Table 25 Daily consumption frequency of market foods by marital status in the three months prior to the survey, Nunavik, 2017.

Market food	Marital status					
	Single, divorced or widowed			Married or common law		
	GM	95% CI		GM	95% CI	
Vegetables and fruit	1.69	1.53	1.87	1.87	1.70	2.05
Processed and red meat	1.12**	1.02	1.22	1.04**	0.96	1.13
Chicken and turkey	0.18	0.17	0.20	0.18	0.16	0.19
Eggs	0.36	0.33	0.40	0.39	0.36	0.43
Canned fish (salmon, sardines, tuna)	*0.19*	*0.18*	*0.20*	*0.17*	*0.16*	*0.18*
Legumes and nuts	0.25	0.23	0.27	0.25	0.23	0.28
Grains	2.05	1.89	2.22	2.28	2.13	2.45
Whole grains	*0.30*	*0.27*	*0.33*	*0.35*	*0.32*	*0.39*
Refined grains	1.75	1.61	1.90	1.86	1.74	1.99
Milk products	1.04	0.94	1.14	1.12	1.02	1.24
Other						
Snacks and fast foods	*1.42*	*1.29*	*1.55*	*1.22**	*1.11*	*1.34*
Sweets and ice cream	0.73*	0.66	0.80	0.71*	0.64	0.79
Beverages						
Water	1.19**	1.07	1.32	1.16**	1.04	1.29
Fluid milk	0.45	0.40	0.50	0.51	0.46	0.57
Sweet beverages	1.45*	1.29	1.62	1.30*	1.16	1.45
Coffee	1.07**	0.95	1.21	1.26*	1.13	1.41
Tea	0.53	0.47	0.61	0.49	0.43	0.55

GM: geometric mean; CI: confidence interval.

Geometric means in italics (colored cells) are statistically different at $p<0.05$.

* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.

** The coefficient of variation is greater than 25%. The proportion is shown for information only.

Table 26 Daily consumption frequency of market foods by food security in the three months prior to the survey, Nunavik, 2017.

Market food	Food security								
	Food secure			Moderately food insecure			Severely food insecure		
	GM	95% CI		GM	95% CI		GM	95% CI	
Vegetables and fruit	*2.10[a]*	*1.86*	*2.36*	*1.85[a]*	*1.68*	*2.04*	*1.36**,[b]*	*1.16*	*1.59*
Processed and red meat	*0.92**,[a]*	*0.83*	*1.03*	*1.17**,[b]*	*1.07*	*1.28*	*1.14**,[b]*	*1.00*	*1.29*
Chicken and turkey	*0.16[a]*	*0.15*	*0.18*	*0.20[b]*	*0.18*	*0.22*	*0.17[a,b]*	*0.15*	*0.19*
Eggs	0.35	0.32	0.39	0.40	0.36	0.45	0.36	0.31	0.42
Canned fish (salmon, sardines, tuna)	0.18	0.17	0.19	0.18	0.17	0.19	0.19	0.17	0.21
Legumes and nuts	0.26	0.23	0.30	0.24	0.22	0.27	0.26	0.22	0.30
Grains	2.06	1.89	2.25	2.26	2.09	2.45	2.09	1.80	2.43
Whole grains	0.31	0.28	0.35	0.34	0.30	0.38	0.32	0.27	0.38
Refined grains	1.70	1.56	1.85	1.88	1.73	2.03	1.76	1.53	2.03
Milk products	1.13	1.01	1.27	1.12	1.01	1.23	0.95	0.80	1.11
Other									
Snacks and fast foods	*1.09**,[a]*	*0.97*	*1.23*	*1.41[b]*	*1.28*	*1.56*	*1.43*,[b]*	*1.25*	*1.63*
Sweets and ice cream	*0.67*,[a]*	*0.59*	*0.76*	*0.80*,[b]*	*0.72*	*0.89*	*0.67*,[a,b]*	*0.56*	*0.80*
Beverages									
Water	1.18**	1.03	1.37	1.18**	1.05	1.32	1.12**	0.93	1.36
Fluid milk	0.51	0.44	0.58	0.48	0.43	0.54	0.43	0.36	0.50
Sweet beverages	*1.29*,[a]*	*1.14*	*1.45*	*1.59[b]*	*1.42*	*1.78*	*1.20**,[a]*	*0.98*	*1.48*
Coffee	1.34*	1.18	1.52	1.11**	0.98	1.26	1.05**	0.86	1.30
Tea	*0.47[a]*	*0.41*	*0.55*	*0.43[a]*	*0.37*	*0.50*	*0.72**,[b]*	*0.58*	*0.89*

GM: geometric mean; CI: confidence interval.

Geometric means in italics (colored cells) and with different superscript letters ([a,b]) are statistically different at $p<0.05$.

* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.

** The coefficient of variation is greater than 25%. The proportion is shown for information only.

Table 27 Daily consumption frequency of market foods by frequency of going on the land in the three months prior to the survey, Nunavik, 2017.

Market food	Going on the land					
	Never/occasionally			Often		
	GM	95% CI		GM	95% CI	
Vegetables and fruit	*1.63*	*1.49*	*1.79*	*2.00*	*1.81*	*2.20*
Processed and red meat	1.05**	0.97	1.14	1.12**	1.02	1.22
Chicken and turkey	0.18	0.17	0.20	0.17	0.16	0.19
Eggs	0.40	0.36	0.43	0.36	0.32	0.39
Canned fish (salmon, sardines, tuna)	*0.19*	*0.18*	*0.20*	*0.17*	*0.16*	*0.18*
Legumes and nuts	0.25	0.23	0.27	0.25	0.22	0.27
Grains	*2.03*	*1.89*	*2.18*	*2.36*	*2.18*	*2.55*
Whole grains	0.31	0.28	0.34	0.34	0.31	0.39
Refined grains	*1.70*	*1.58*	*1.82*	*1.95*	*1.81*	*2.11*
Milk products	*0.98*	*0.89*	*1.08*	*1.22*	*1.10*	*1.36*
Other						
Snacks and fast foods	1.28*	1.18	1.40	1.35*	1.22	1.49
Sweets and ice cream	*0.67*	*0.61*	*0.74*	*0.79***	*0.70*	*0.89*
Beverages						
Water	1.17**	1.06	1.30	1.17**	1.05	1.32
Fluid milk	*0.42*	*0.38*	*0.46*	*0.58*	*0.52*	*0.65*
Sweet beverages	*1.26**	*1.14*	*1.39*	*1.52*	*1.35*	*1.72*
Coffee	1.18**	1.06	1.31	1.16**	1.03	1.31
Tea	0.54	0.48	0.61	0.47	0.41	0.54

GM: geometric mean; CI: confidence interval.

Geometric means in italics (colored cells) are statistically different at p<0.05.

* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.

** The coefficient of variation is greater than 25%. The proportion is shown for information only.

Table 28 Daily consumption frequency of market foods by participation in traditional activities in the three months prior to the survey, Nunavik, 2017.

Market food	Participation in traditional activities					
	No			Yes		
	GM	95% CI		GM	95% CI	
Vegetables and fruit	*1.23***	*0.96*	*1.57*	*1.87*	*1.74*	*2.00*
Processed and red meat	1.03**	0.83	1.28	1.08**	1.02	1.15
Chicken and turkey	0.16	0.13	0.20	0.18	0.17	0.19
Eggs	0.37	0.29	0.46	0.38	0.35	0.41
Canned fish (salmon, sardines, tuna)	0.17	0.15	0.20	0.18	0.18	0.19
Legumes and nuts	*0.21*	*0.18*	*0.25*	*0.25*	*0.24*	*0.27*
Grains	1.81*	1.47	2.24	2.21	2.10	2.34
Whole grains	0.29	0.23	0.35	0.33	0.31	0.36
Refined grains	1.52**	1.22	1.89	1.84	1.75	1.94
Milk products	0.93	0.75	1.15	1.10	1.03	1.18
Other						
Snacks and fast foods	1.25**	0.99	1.59	1.31	1.23	1.40
Sweets and ice cream	*0.55*	*0.44*	*0.68*	*0.74*	*0.69*	*0.81*
Beverages						
Water	0.97**	0.74	1.26	1.20*	1.11	1.30
Fluid milk	*0.34*	*0.27*	*0.43*	*0.50*	*0.46*	*0.54*
Sweet beverages	1.12**	0.86	1.46	1.40	1.30	1.52
Coffee	1.08**	0.84	1.40	1.18**	1.08	1.28
Tea	*0.77***	*0.58*	*1.02*	*0.48*	*0.44*	*0.53*

GM: geometric mean; CI: confidence interval.
Geometric means in italics (colored cells) are statistically different at p<0.05.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.

COMPARISON WITH THE *NUNAVIK FOOD GUIDE*

Frequencies of food consumption in times per day evaluated as part of *Qanuilirpitaa?* 2017 can be generally compared to the daily portions recommended in the *Nunavik Food Guide*. That being said, no information on serving size is available in the *Qanuilirpitaa?* 2017 survey, as only frequencies of consumption were assessed. As shown in Table 29, the reported mean consumption of meat, fish and alternatives was 3.7 times per day as compared to the recommended 2 to 3 portions per day. Country foods represent about a third of the total consumption frequency for this category, with the main contributors being caribou, fish (mainly Arctic char), wild birds and beluga (Table 1). However, milk and alternatives were consumed 1.2 times per day, or less than the recommended 2 to 4 portions per day. Vegetables, berries and fruit (of which about 16% were country foods, including wild berries) were consumed 2.4 times per day, while the recommended daily number of portions is 7 to 10. Lastly, grain products were consumed 2.2 times per day, while the *Nunavik Food Guide* recommends 6 to 8 portions per day.

Table 29 Daily consumption frequency of four food groups from the Nunavik Food Guide in the three months prior to the survey, Nunavik, 2017.

Food group	Food guide recommendations (portions per day)	GM (times per day)	95% CI	
Meat, fish, and alternatives	2 – 3	3.7	3.5	3.9
From country foods		1.2	1.1	1.3
From market foods		2.0	1.9	2.1
Milk and alternatives	2 – 4	1.2	1.1	1.3
Vegetables, berries and fruit	7 – 10	2.4	2.2	2.5
From country foods		0.3	0.3	0.4
From market foods		1.8	1.7	1.9
Grain products	6 – 8	2.2	2.1	2.3

GM: geometric mean; CI: confidence interval.

SALT, FAT AND SUGAR USE

Most Nunavimmiut (83%) reported adding salt at the table. The consumption of soy sauce or other high-salt seasonings (e.g., Aromat®) was not assessed in 2017, but these products are known to be popular in Nunavik especially when used in combination with country foods (NRBHSS, personal communication). More than 20% of Nunavimmiut reported frying food at home at least once per week more than once per week, while 47% reported consuming it less than once per week and 31% said that they never fried their food (Table 29). The fat most commonly used for frying was vegetable oil (41%), followed by margarine (31%); two percent (2%) of Nunavimmiut reported using mostly marine mammal blubber. The most popular fat used for baking was vegetable oil (32%), followed by butter (28%), margarine (21%) and lard (11%).

Sixty-one percent (61%) of people reported adding more than 2 teaspoons of sugar per day to their beverages or foods, while 16% reported adding 2 teaspoons, 5% 1 teaspoon and 18% never adding sugar. Fifteen percent (15%) of respondents said they added more than 10 teaspoons of sugar to their beverages daily (Table 30).

Table 30 Salt, fat and sugar use, Nunavik, 2017.

Behaviour	Frequency (%)	95% CI	
Adding salt at the table			
Yes	82.5	79.9	85.0
No	17.5	15.0	20.1
Frying food at home			
Never	31.1	28.0	34.2
Less than once per week	46.8	43.3	50.3
1 to 3 times per week	10.9	8.9	13.0
4 to 6 times per week	8.2	6.3	10.1
Daily	2.9*	2.0	3.9
Fat used to fry food			
Margarine	30.6	27.6	33.7
Vegetable oil	41.0	37.7	44.3
Vegetable shortening	3.3*	2.2	4.4
Animal shortening	8.1	6.1	10.0
Ursuk (blubber)	2.1*	1.2	2.9
Other	15.0	12.5	17.4
Fat used for baking at home			
Margarine	21.3	18.7	23.9
Butter	28.4	25.6	31.2
Vegetable oil	31.6	28.5	34.8
Vegetable shortening	2.6*	1.5	3.7
Animal shortening	11.0	8.8	13.2
Ursuk (blubber)	0.1**	0.0	0.2
Other	4.9*	3.4	6.5
Teaspoons of sugar added to beverages or foods daily			
0	18.0	15.4	20.5
1	5.3	4.1	6.6
2	16.2	13.8	18.6
3	8.7	6.7	10.6
4	6.5	4.9	8.0
5	3.7*	2.3	5.0
6	10.5	8.4	12.6
7	2.6*	1.4	3.7
8	7.0	5.2	8.8
9	2.6*	1.5	3.6
10	4.2*	2.8	5.5
More than 10	14.9	12.5	17.2

CI: confidence interval.

* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.

** The coefficient of variation is greater than 25%. The proportion is shown for information only.

COMPARISON BETWEEN 2004 AND 2017 RESULTS

The comparisons presented in this section must be interpreted with caution since the food frequency questionnaire (FFQ) administered in 2017 was different from the one used in 2004.

Country foods

Proportions of consumers of most country foods increased in 2017 compared to 2004; for Arctic char, seal *misirak* and walrus, proportions of consumers did not differ between surveys, whereas less consumers of seal meat and shellfish were noted in 2017 compared to 2004 (Figure 13). A similar picture emerged when comparing consumptions frequencies between the two surveys (Table 31). As a whole, these data suggest that country food consumption increased between the 2004 and 2017 surveys. It must be stressed that food categories differ slightly between the 2004 and 2017 questionnaires and that this might explain some of the observed differences.

In 2017, both men and women reported an increase in the frequency of beluga, caribou, goose, dried fish and wild berries consumption but a decrease in the frequency of shellfish consumption compared to 2004 (Table A, Appendix 2). For all age groups, the consumption frequency of most country foods increased in 2017 compared to 2004, while that for Arctic char remained similar between both surveys. The consumption frequency for shellfish by age group declined in 2017 compared to 2004 (Table B, Appendix 2).

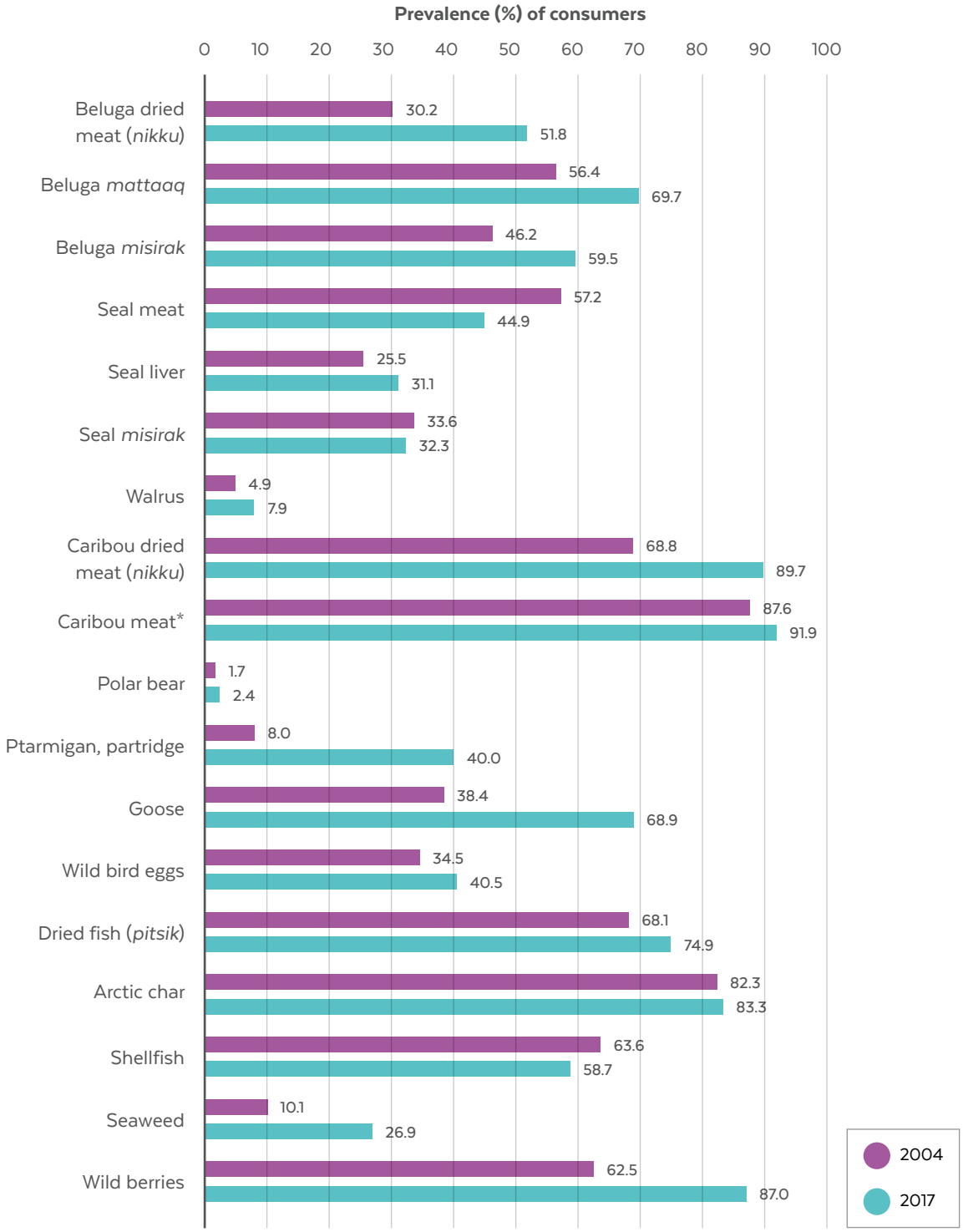
In Hudson Bay, the consumption frequency of beluga, caribou, goose, dried fish and wild berries was reportedly greater in 2017, while that of Arctic char was similar between the two surveys and that of shellfish reportedly decreased (Table C, Appendix 2). Respondents from Hudson Strait reported an increase in the consumption frequency of all country foods, except for shellfish, which was said to be eaten less frequently. In Ungava Bay, beluga, dried caribou, goose, dried fish and wild berries were consumed more frequently in 2017, while shellfish were consumed less frequently; caribou meat (fresh/cooked/frozen) and Arctic char were consumed at a similar frequency in both surveys. In small communities, all country foods expect shellfish were reportedly consumed more often in 2017 (Table D, Appendix 2). In large communities, the consumption frequency of Arctic char did not differ between 2004 and 2017, whereas that of all other country foods was higher in 2017, except in the case of shellfish, whose consumption frequency was lower in 2017 compared to 2004.

Table 31 Comparison of weekly consumption frequency of country foods in Nunavik, 2004 and 2017.

	2004[1]			2017		
	GM	95% CI		GM	95% CI	
Beluga						
Dried (*nikku*)	*0.4*	*0.4*	*0.4*	*0.9*	*0.8*	*1.0*
Mattaaq	*0.6*	*0.6*	*0.7*	*1.4*	*1.3*	*1.6*
Misirak/ursuk	*0.8*	*0.7*	*0.9*	*1.5*	*1.3*	*1.7*
Caribou						
Dried (*nikku*)	*1.2*	*1.0*	*1.3*	*3.3*	*3.0*	*3.6*
Meat (fresh, cooked, frozen)	*2.3*	*2.1*	*2.6*	*3.8*	*3.5*	*4.2*
Wild birds						
Goose	*0.6*	*0.5*	*0.7*	*1.4*	*1.3*	*1.5*
Fish						
Dried fish (*pitsik*)	*1.0*	*0.9*	*1.2*	*1.8*	*1.6*	*1.9*
Arctic char	2.3	2.1	2.5	2.6	2.3	2.8
Shellfish	*2.6*	*2.3*	*3.0*	*1.0*	*0.9*	*1.1*
Wild berries	*1.0*	*0.9*	*1.2*	*3.6*	*3.3*	*4.0*

GM: geometric mean; CI: confidence interval.
Only food items consumed by at least 50% of the Nunavik population in 2017 are presented here.
Geometric means in italics (colored cells) are statistically different between 2004 and 2017 at $p<0.05$
Geometric means are unadjusted and for adults (≥18 years) only.
1. Summer data were used for 2004.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
The shellfish category includes mollusks (mussels, scallops, clams, etc.) and urchins. Wild berries include cloudberries (*arpik*), blackberries (*paurngaq*), blueberries (*kigutangirnaq*), and redberries or cranberries (*kimminaq*).

Figure 13 Comparison of the proportions of consumers of country food in Nunavik, between 2004 and 2017.



Comparisons between the proportions of consumers in 2004 and in 2017 were assessed using a chi-square test and for adults (≥18 years) only.

a Prevalences of consumers between 2004 and 2017 are statistically different at $p<0.05$.

* Fresh, cooked or frozen meat.

Market foods

Consumption frequencies of total vegetables and fruits, processed meats, red meat, whole grains, sweets and coffee increased from 2004 to 2017 in the total population (Table 32). However, consumption frequencies of white bread, pasta and bannock as well as total milk, sweet beverages and tea were lower in 2017 compared to 2004. Water consumption was not assessed in the 2004 food questionnaire, so no comparisons could be made with water consumption in 2017.

Both women and men reported greater consumption frequencies of vegetables and fruit, processed meats, red meat, chicken, eggs, legumes and nuts, whole grains, sweets and coffee in 2017 compared to 2004 (Table E, Appendix 2). Milk product consumption frequency was similar between 2004 and 2017 among women and men, but as mentioned above, the consumption frequency of sweet beverages and tea declined significantly between 2004 and 2017 in both sexes.

Table 32 Mean daily consumption frequency of market foods in Nunavik, 2004 and 2017.

Market food	2004			2017		
	GM	95% CI		GM	95% CI	
Total vegetables	*0.87***	*0.81*	*0.94*	*1.05***	*0.98*	*1.12*
Carrots	*0.17*	*0.16*	*0.18*	*0.20*	*0.19*	*0.21*
Broccoli	*0.17*	*0.16*	*0.18*	*0.20*	*0.19*	*0.21*
Tomatoes	*0.16*	*0.15*	*0.17*	*0.20*	*0.19*	*0.21*
Potatoes	*0.20*	*0.18*	*0.21*	*0.25*	*0.24*	*0.27*
Total fruits	*0.25*	*0.23*	*0.27*	*0.37*	*0.34*	*0.40*
Processed meat	*0.26*	*0.24*	*0.28*	*0.54*	*0.51*	*0.58*
Bacon	*0.21*	*0.20*	*0.22*	*0.24*	*0.22*	*0.25*
Red meat	*0.19*	*0.18*	*0.20*	*0.28*	*0.26*	*0.30*
Chicken	*0.14*	*0.14*	*0.15*	*0.18*	*0.17*	*0.19*
Eggs	*0.28*	*0.26*	*0.30*	*0.38*	*0.35*	*0.41*
Canned fish	*0.17*	*0.16*	*0.18*	*0.18*	*0.17*	*0.19*
Legumes and nuts	*0.21*	*0.20*	*0.23*	*0.25*	*0.23*	*0.27*
Milk products	0.89**	0.81	0.98	0.92**	0.85	0.98
Total milk	*0.60*	*0.55*	*0.66*	*0.48*	*0.45*	*0.52*
Yogurt	*0.18*	*0.17*	*0.20*	*0.23*	*0.21*	*0.24*
Cheese	*0.18*	*0.17*	*0.20*	*0.24*	*0.22*	*0.25*
Total grains	*1.91*	*1.80*	*2.02*	*2.17*	*2.06*	*2.29*
Whole grains	*0.23*	*0.21*	*0.24*	*0.33*	*0.30*	*0.35*
Whole bread	*0.24*	*0.23*	*0.26*	*0.29*	*0.27*	*0.31*
Hot cereals	*0.21*	*0.20*	*0.21*	*0.22*	*0.21*	*0.23*
Refined grains	1.67	1.58	1.77	1.81	1.72	1.90
White bread	*0.59*	*0.55*	*0.64*	*0.51*	*0.48*	*0.55*
Cold cereals	*0.22*	*0.21*	*0.24*	*0.28*	*0.26*	*0.29*
Pasta	*0.24*	*0.22*	*0.26*	*0.20*	*0.19*	*0.22*
Rice	*0.23*	*0.22*	*0.24*	*0.29*	*0.27*	*0.31*
Bannock	*0.29*	*0.27*	*0.33*	*0.24*	*0.22*	*0.26*
French fries	0.18	0.17	0.19	0.18	0.17	0.19
Fried chicken	*0.18*	*0.18*	*0.19*	*0.16*	*0.15*	*0.17*
Sweets	*0.56*	*0.52*	*0.61*	*0.72*	*0.67*	*0.78*
Cookies	0.19	0.18	0.21	0.18	0.17	0.19
Chocolate bars	0.21	0.19	0.22	0.23	0.21	0.25
Candies	*0.25*	*0.24*	*0.26*	*0.22*	*0.20*	*0.23*
Spread, jams	0.21	0.20	0.22	0.21	0.20	0.22
Ice cream	*0.14*	*0.13*	*0.14*	*0.16*	*0.15*	*0.17*
Sweet beverages	*1.89*	*1.76*	*2.03*	*1.37*	*1.27*	*1.47*
Soft drinks	*0.80**	*0.73*	*0.87*	*0.57*	*0.53*	*0.62*
Juices, cocktails	*0.79**	*0.73*	*0.86*	*0.63*	*0.58*	*0.68*
Coffee	*0.63*	*0.58*	*0.68*	*1.17**	*1.09*	*1.26*
Tea	*0.71*	*0.65*	*0.78*	*0.51*	*0.47*	*0.56*

GM: geometric mean; CI: confidence interval.
Only food items consumed by at least 50% of the Nunavik population in 2017 are presented here.
Geometric means in italics (colored cells) are statistically different between 2004 and 2017 at $p<0.05$
Geometric means are unadjusted and for adults (≥18 years) only.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only.
Total milk includes plain and chocolate milk.

NUTRITIONAL BIOMARKERS

Blood levels of nutritional biomarkers are presented in Table 33. Note that iron and ferritin status are detailed elsewhere in the thematic report "Iron Deficiency and Anemia". Briefly, the overall prevalence of iron deficiency (taking into account ferritin, inflammation and iron stores status) in Nunavimmiut aged 16 years and over was 18% and was more prevalent in women (26%) than in men (10%). The prevalence of the population below the cut-off point for ferritin concentrations (unadjusted for inflammation and iron store status) was 13%.

Table 33 Levels of nutritional biomarkers, Nunavik, 2017.

Biomarker	GM	95% CI	
Vitamin A (ng/ml)	476	467	484
Folate (B9) (nmol/L)	755	745	765
Vitamin B12 (pmol/L)	383	375	392
Vitamin D (nmol/L)	72.1	70.2	74.0
Vitamin E (ng/ml)	11226	11012	11441
Beta-carotene (ng/ml)	44.5	42.4	46.6
n-3 PUFA index (%)	5.6	5.5	5.7
EPA+DPA+DHA (%)	7.5	7.4	7.7
EPA (%)	1.2	1.1	1.2
DPA (%)	2.0	1.9	2.0
DHA (%)	4.4	4.3	4.5
Selenium (µmol/L)	3.8	3.6	3.9

GM: geometric mean; CI: confidence interval.
EPA: Eicosapentaenoic acid; DPA: Docosapentaenoic acid; DHA: Docosahexaenoic acid; n-3 PUFA index: omega-3 polyunsaturated fatty acids index (sum of EPA+DHA).
Vitamin B12 and vitamin D were measured in serum. Beta-carotene, vitamin A and vitamin E were measured in plasma.
Folate was measured in red blood cells. n-3 PUFA were measured in red blood cells and are expressed as a % of total fatty acids.
Selenium was measured in whole blood.

The prevalence of vitamin A deficiency was less than 1% among all Nunavimmiut. The prevalence of vitamin D deficiency was 7%, and it was similar between women and men (Table 34). Almost one quarter (23%) of the population was identified as having insufficient vitamin D serum concentrations in 2017. Around 5% of Nunavimmiut experienced vitamin B12 insufficiency (borderline deficiency) and this was more frequent in men than in women (7% vs. 4%), whereas fewer than 1% of Nunavimmiut had deficiency. Although folate deficiency was also rare (<1%), 92% of Nunavik women of childbearing age exhibited folate concentrations below the optimal value for this specific age group.

Table 34 Prevalence of deficiency and insufficiency for vitamin A, vitamin D, folate and vitamin B12 according to status biomarkers in women and men, Nunavik, 2017.

	Total population			Women			Men		
	%	95% CI		%	95% CI		%	95% CI	
Vitamin A (ng/mL)									
< 200 (deficiency) (World Health Organization, 2011)	0.7**	0.2	1.2	1.1**	0.3	1.9	NP	NP	NP
Vitamin D (ng/ml)									
< 30 (deficiency) (Amrein et al., 2020)	7.1	5.5	8.7	6.9	5.1	8.7	7.3*	4.7	9.9
30 – 50 (insufficiency) (Amrein et al., 2020)	23.2	20.4	26.0	20.7	17.8	23.6	25.5	21.0	30.1
Folate (nmol/L)									
< 305 (deficiency, general population) (Institute of Medicine, 1998b)	NP	NP	NP	NP	NP	NP	NP	NP	NP
< 906 (below optimal for women of childbearing age) (Daly et al., 1995; Tam et al., 2009)	-	-	-	92.4	90.3	94.5	-	-	-
Vitamin B12 (pmol/L)									
< 148 (deficiency) (Zinck et al., 2015)	0.6**	0.1	1.1	1.2**	0.1	2.3	NP	NP	NP
148 – 220 (insufficiency) (Zinck et al., 2015)	5.4*	3.7	7.2	*3.5**	*2.1*	*4.9*	*7.3**	*4.2*	*10.3*

CI: confidence interval.
Values in italics (colored cells) are statistically different between women and men at p<0.05.
Folate was measured in red blood cells.
Vitamin B12 and vitamin D were measured in serum.
* The coefficient of variation is greater than 15% and lower than or equal to 25%. The proportion should be interpreted carefully.
** The coefficient of variation is greater than 25%. The proportion is shown for information only. Women between 16 and 49 years of age were considered to be of childbearing age.
NP: This value is not displayed since the cell has less than 5 respondents.

Women had higher circulating levels of vitamin B12, beta-carotene, n-3 PUFA and selenium than men, while men had greater levels of vitamin A and folate (Table 35). Levels of vitamin A, D and E, n-3 PUFA and selenium all increased with age (Table 36). Folate and beta-carotene levels were not different between age groups, while vitamin B12 levels were higher among younger and older respondents when compared to the 30 to 49 age group.

Table 35 Levels of nutritional biomarkers by sex, Nunavik, 2017.

Biomarker	Women			Men		
	GM	95% CI		GM	95% CI	
Vitamin A (ng/ml)	*451*	*441*	*461*	*499*	*485*	*513*
Folate (B9) (nmol/L)	*723*	*713*	*733*	*786*	*769*	*802*
Vitamin B12 (pmol/L)	*407*	*395*	*418*	*363*	*350*	*376*
Vitamin D (nmol/L)	74.2	71.4	77.1	70.1	67.3	72.8
Vitamin E (ng/ml)	11383	11155	11611	11078	10716	11440
Beta-carotene (ng/ml)	*51.7*	*49.0*	*54.5*	*38.6*	*35.7*	*41.7*
n-3 PUFA index (%)	*6.03*	*5.89*	*6.17*	*5.17*	*4.96*	*5.37*
EPA+DPA+DHA (%)	*8.01*	*7.86*	*8.16*	*7.10*	*6.87*	*7.34*
Selenium (µmol/L)	*4.18*	*4.02*	*4.35*	*3.40*	*3.23*	*3.58*

GM: geometric mean; CI: confidence interval.
Values in italics (colored cells) are statistically different at p<0.05.
EPA: Eicosapentaenoic acid; DPA: Docosapentaenoic acid; DHA: Docosahexaenoic acid; n-3 PUFA index: omega-3 polyunsaturated fatty acids index (sum of EPA+DHA).
Vitamin B12 and vitamin D were measured in serum. Beta-carotene, vitamin A and vitamin E were measured in plasma.
Folate was measured in red blood cells. n-3 PUFA were measured in red blood cells and are expressed as a % of total fatty acids.
Selenium was measured in whole blood.

Table 36 Levels of nutritional biomarkers by age group, Nunavik, 2017.

Biomarker	Age group								
	16 to 29 years			30 to 49 years			50 years and over		
	GM	95% CI		GM	95% CI		GM	95% CI	
Vitamin A (ng/ml)	*418^{a}*	*407*	*429*	*504^{b}*	*487*	*520*	*533^{c}*	*514*	*553*
Folate (B9) (nmol/L)	744	730	758	767	749	786	757	736	778
Vitamin B12 (pmol/L)	*388^{a}*	*374*	*404*	*365^{b}*	*351*	*379*	*402^{a}*	*383*	*422*
Vitamin D (ng/ml)	*56.9^{a}*	*54.7*	*59.1*	*69.8^{b}*	*66.7*	*73.0*	*101^{c}*	*94.7*	*106*
Vitamin E (ng/ml)	*9756^{a}*	*9470*	*10042*	*11964^{b}*	*11519*	*12410*	*12640^{c}*	*12188*	*13092*
Beta-carotene (ng/ml)	43.7	40.9	46.7	44.5	41.0	48.2	45.7	41.0	51.0
n-3 PUFA index (%)	*4.63^{a}*	*4.48*	*4.78*	*5.61^{b}*	*5.39*	*5.84*	*7.17^{c}*	*6.85*	*7.50*
EPA+DPA+DHA (%)	*6.51^{a}*	*6.34*	*6.69*	*7.58^{b}*	*7.33*	*7.83*	*9.25^{c}*	*8.88*	*9.61*
Selenium (µmol/L)	*3.45^{a}*	*3.28*	*3.63*	*3.81^{b}*	*3.61*	*4.01*	*4.28^{c}*	*4.00*	*4.57*

GM: geometric mean; CI: confidence interval.
Values in italics (colored cells) and with different superscript letters (^{a,b,c}) are statistically different at p<0.05.
EPA: Eicosapentaenoic acid; DPA: Docosapentaenoic acid; DHA: Docosahexaenoic acid; n-3 PUFA index: omega-3 polyunsaturated fatty acids index (sum of EPA+DHA).
Vitamin B12 and vitamin D were measured in serum. Beta-carotene, vitamin A and vitamin E were measured in plasma.
Folate was measured in red blood cells. n-3 PUFA were measured in red blood cells and are expressed as a % of total fatty acids.
Selenium was measured in whole blood.

Levels of nutritional biomarkers also varied according to ecological region (Table 37). Vitamin A levels were similar in all regions, while mean vitamin B12 levels were highest in Hudson Strait, folate was highest in Ungava Bay and Hudson Strait, vitamin D was highest in Ungava Bay and Hudson Bay, and vitamin E was highest in Ungava Bay. Mean beta-carotene and n-3 PUFA levels were higher in Ungava Bay and Hudson Strait, while selenium levels were markedly higher in Hudson Strait communities. Levels of n-3 PUFAs, selenium and vitamins B12, D and E were higher in small compared to large communities, whereas beta-carotene levels were lower in small communities. Similar concentrations of folate and vitamin A were found in both small and large communities (Table 38).

Table 37 Levels of nutritional biomarkers by ecological region, Nunavik, 2017.

Biomarker	Ecological region								
	Hudson Bay			Hudson Strait			Ungava Bay		
	GM	95% CI		GM	95% CI		GM	95% CI	
Vitamin A (ng/ml)	475	460	489	486	467	505	470	459	481
Folate (B9) (nmol/L)	*703[a]*	*686*	*719*	*791[b]*	*774*	*807*	*794[b]*	*777*	*811*
Vitamin B12 (pmol/L)	*375[a]*	*361*	*389*	*409[b]*	*391*	*428*	*377[a]*	*363*	*391*
Vitamin D (nmol/L)	*76.0[a]*	*72.3*	*79.7*	*57.6[b]*	*54.1*	*61.1*	*77.7[a]*	*74.8*	*80.5*
Vitamin E (ng/ml)	*10884[a]*	*10603*	*11164*	*10454[a]*	*10006*	*10903*	*12191[b]*	*11800*	*12581*
Beta-carotene (ng/ml)	*39.7[a]*	*36.8*	*42.9*	*45.2[b]*	*41.3*	*49.4*	*50.4[b]*	*46.7*	*54.5*
n-3 PUFA index (%)	*5.28[a]*	*5.06*	*5.50*	*5.67[b]*	*5.42*	*5.92*	*5.90[b]*	*5.71*	*6.10*
EPA+DPA+DHA (%)	*7.10[a]*	*6.86*	*7.34*	*7.75[b]*	*7.47*	*8.03*	*7.94[b]*	*7.72*	*8.16*
Selenium (µmol/L)	*3.32[a]*	*3.16*	*3.49*	*5.24[b]*	*4.87*	*5.65*	*3.45[a]*	*3.31*	*3.59*

GM: geometric mean; CI: confidence interval.
Values in italics (colored cells) and with different superscript letters are statistically different at p<0.05.
EPA: Eicosapentaenoic acid; DPA: Docosapentaenoic acid; DHA: Docosahexaenoic acid; n-3 PUFA index: omega-3 polyunsaturated fatty acids index (sum of EPA+DHA).
Vitamin B12 and vitamin D were measured in serum. Beta-carotene, vitamin A and vitamin E were measured in plasma.
Folate was measured in red blood cells. n-3 PUFA were measured in red blood cells and are expressed as a % of total fatty acids.
Selenium was measured in whole blood.

Table 38 Levels of nutritional biomarkers by community size, Nunavik, 2017.

Biomarker	Large			Small		
	GM	95% CI		GM	95% CI	
Vitamin A (ng/ml)	479	467	491	472	460	484
Folate (B9) (nmol/L)	760	745	774	749	737	762
Vitamin B12 (pmol/L)	*373*	*362*	*385*	*397*	*384*	*411*
Vitamin D (nmol/L)	*66.8*	*63.9*	*69.7*	*79.3*	*76.5*	*82.1*
Vitamin E (ng/ml)	*11018*	*10715*	*11322*	*11509*	*11213*	*11805*
Beta-carotene (ng/ml)	*46.4*	*43.3*	*49.8*	*41.9*	*39.4*	*44.6*
n-3 PUFA index (%)	*5.31*	*5.14*	*5.86*	*5.96*	*5.76*	*6.16*
EPA+DPA+DHA (%)	*7.23*	*7.04*	*7.42*	*7.97*	*7.75*	*8.19*
Selenium (µmol/L)	*3.65*	*3.49*	*3.81*	*3.92*	*3.75*	*4.10*

GM: geometric mean; CI: confidence interval.
Values in italics (colored cells) are statistically different at p<0.05.
EPA: Eicosapentaenoic acid; DPA: Docosapentaenoic acid; DHA: Docosahexaenoic acid; n-3 PUFA index: omega-3 polyunsaturated fatty acids index (sum of EPA+DHA).
Vitamin B12 and vitamin D were measured in serum. Beta-carotene, vitamin A and vitamin E were measured in plasma.
Folate was measured in red blood cells. n-3 PUFA were measured in red blood cells and are expressed as a % of total fatty acids.
Selenium was measured in whole blood.

Nutritional biomarker levels according to country food and market food consumption

Consumption of beluga *misirak,* dried fish and Arctic char was positively associated with vitamin A, vitamin B12, vitamin D, n-3 PUFA and selenium concentrations (Table 39). Beluga *nikku* and *mattaaq* as well as shellfish consumption was positively associated with folate, n-3 PUFA and selenium concentrations. *Suuvalik* or *uarutilik* consumption was positively associated with vitamin B12, vitamin D, n-3 PUFA and selenium concentrations. Wild berries consumption was positively associated with vitamin D, n-3 PUFA and selenium concentrations. Only beluga *misirak* consumption was associated with vitamin E concentration. Beta-carotene concentration was not associated with country food consumption.

Table 39 Association between consumption of country foods and nutritional biomarker concentrations, Nunavik, 2017.

Country foods	Biomarkers																			
	Vitamin A (ng/ml)			Folate (B9) (nmol/L)			Vitamin B12 (pmol/L)			Vitamin D (ng/ml)			Vitamin E (ng/ml)			EPA+DPA+DHA (%)			Selenium (µmol/L)			Beta-carotene (ng/ml)		
	Estimate	95% CI		Estimate	95% CI		Estimate	95% CI		Estimate	95% CI		Estimate	95% CI		Estimate	95% CI		Estimate	95% CI		Estimate	95% CI	
Beluga																								
Dried meat (*nikku*)	+11.2	-7.8	+30.3	**+26.2**	**+6.7**	**+45.8**	**+41.8**	**+11.6**	**+72.0**	-1.8	-6.6	+3.1	-3.6	-477.8	+470.7	**+0.6**	**+0.2**	**+0.9**	**+1.2**	**+0.9**	**+1.6**	-1.7	-8.8	+5.5
Mattaaq	+3.6	-17.7	+24.9	**+21.6**	**+0.2**	**+43.1**	**+42.4**	**+16.7**	**+68.1**	-1.3	-6.2	+3.7	-274.1	-800.4	+252.2	**+0.5**	**+0.2**	**+0.9**	**+1.4**	**+1.1**	**+1.7**	+2.4	-6.0	+10.7
Misirak/ ursuk	**+27.0**	**+8.7**	**+45.4**	+15.4	-4.9	+35.7	**+51.5**	**+24.0**	**+79.0**	**+9.7**	**+5.0**	**+14.4**	**+553.5**	**+71.2**	**+1035.8**	**+1.3**	**+1.0**	**+1.7**	**+1.5**	**+1.1**	**+1.8**	-1.3	-9.3	+6.8
Caribou																								
Dried meat (*nikku*)	-4.3	-38.9	+30.4	+18.0	-15.3	+51.4	**+45.5**	**+14.9**	**+76.1**	+0.3	-6.4	+6.9	**-1008.4**	**-1965.4**	**-51.3**	+0.4	-0.2	+0.9	**+0.8**	**+0.3**	**+1.2**	+2.5	-10.5	+15.6
Meat	+1.3	-33.7	+36.3	+4.6	-31.3	+40.6	+29.1	-8.1	+66.4	+0.3	-9.2	+9.9	-735.4	-1931.2	+460.4	-0.0	-0.7	+0.7	+0.5	-0.1	+1.0	+9.6	-0.8	+20.0
Wild birds																								
Goose	+10.4	-9.1	+29.8	-18.0	-39.0	+3.0	-3.6	-45.9	+38.8	+3.6	-1.1	+8.2	-481.9	-986.9	+23.1	+0.0	-0.3	+0.4	+0.2	-0.2	+0.5	-4.6	-12.7	+3.6
Fish																								
Dried fish (*pitsik*)	**+38.5**	**+17.4**	**+59.6**	+21.8	-1.2	+44.9	**+37.0**	**+4.1**	**+69.9**	**+9.4**	**+3.9**	**+14.9**	+42.4	-536.2	+621.1	**+1.0**	**+0.6**	**+1.4**	**+0.8**	**+0.4**	**+1.2**	+2.6	-6.5	+11.8
Arctic char	**+25.8**	**+3.2**	**+48.4**	+22.4	-3.3	+48.1	**+73.7**	**+48.0**	**+99.5**	**+16.4**	**+11.1**	**+21.7**	+28.6	-746.2	+803.5	**+1.4**	**+1.0**	**+1.8**	**+1.2**	**+0.8**	**+1.5**	+5.4	-5.3	+16.2
Lake trout	+10.0	-8.9	+28.9	-7.3	-28.3	+13.7	-9.2	-39.4	+21.0	+4.9	-0.1	+9.8	+138.4	-329.2	+606.0	+0.3	-0.0	+0.6	-0.0	-0.4	+0.3	-5.1	-12.8	+2.5
Shellfish	+14.4	-4.6	+33.4	**+21.8**	**+1.5**	**+42.1**	+16.6	-17.1	+50.3	**+6.0**	**+1.1**	**+10.9**	+273.0	-188.2	+734.1	**+1.1**	**+0.8**	**+1.4**	**+1.0**	**+0.6**	**+1.3**	+1.5	-6.1	+9.1
Wild berries	-9.8	-41.8	+22.2	-7.7	-40.9	+25.4	+19.7	-13.0	+52.4	**+7.8**	**+1.2**	**+14.4**	-535.2	-1507.4	+436.9	**+0.7**	**+0.2**	**+1.3**	**+0.6**	**+0.2**	**+1.1**	+0.5	-14.3	+15.3
Suuvalik* or *uarutilik	**-27.1**	**-48.3**	**-5.9**	**-40.6**	**-64.1**	**-17.0**	**+43.1**	**+11.8**	**+74.5**	**+9.1**	**+4.2**	**+14.1**	-208.3	-729.4	+312.7	**+0.8**	**+0.4**	**+1.1**	**+0.9**	**+0.5**	**+1.2**	-0.5	-9.6	+8.5

CI: confidence interval.
Estimates were obtained using linear regression analysis and are presented as the mean differences in biomarker concentrations between consumers and non-consumers.
Values in bold (colored cells) are statistically different at $p<0.05$.
Vitamin B12 and vitamin D were measured in serum. Beta-carotene, vitamin A and vitamin E were measured in plasma. Folate was measured in red blood cells.
n-3 PUFA were measured in red blood cells and are expressed as a % of total fatty acids. Selenium was measured in whole blood.

Consumption of eggs from the market and butter was positively associated with vitamin A (Table 40). Only butter consumption was positively associated with folate concentrations, while none of the selected market foods were positively associated with vitamin B12 concentrations. Consumption of grains and margarine was positively associated with vitamin D concentrations. Consumption of vegetables, eggs from the market, legumes and nuts, and butter was positively associated with vitamin E concentrations, while consumption of vegetables, fruits, legumes and nuts, milk products and butter was positively associated with beta-carotene concentrations. Interestingly, none of the selected market foods were positively associated with n-3 PUFA and selenium concentrations.

Table 40 Association between consumption of market foods and nutritional biomarker concentrations, Nunavik, 2017.

Market food	Biomarkers																				
	Vitamin A (ng/ml)			Folate (B9)			Vitamin B12 (pmol/L)			Vitamin D (ng/ml)			Vitamin E (ng/ml)			EPA+DPA+DHA (%)			Selenium (µmol/L)			Beta-carotene (ng/ml)		
	Estimate	95% CI		Estimate	95% CI		Estimate	95% CI		Estimate	95% CI		Estimate	95% CI		Estimate	95% CI		Estimate	95% CI		Estimate	95% CI	
Vegetables	+9.5	-10.9	+29.9	+15.8	-4.1	+35.8	-15.4	-47.6	+16.8	-1.8	-6.7	+3.2	**+467.3**	**+0.2**	**+934.4**	+0.0	-0.4	+0.3	-0.3	-0.7	+0.1	**+20.3**	**+12.3**	**+28.2**
Fruits	+3.1	-15.4	+21.6	+13.1	-7.6	+33.7	+7.4	-22.8	+37.6	-1.1	-6.2	+4.1	+89.6	-392.8	+571.9	+0.1	-0.2	+0.5	-0.2	-0.5	+0.2	**+15.2**	**+8.4**	**+22.1**
Processed meats	**-27.4**	**-46.1**	**-8.6**	+10.0	-9.9	+30.0	-4.1	-35.4	+27.2	**-7.2**	**-12.3**	**-2.0**	-287.7	-750.6	+175.2	**-0.7**	**-1.1**	**-0.4**	**-0.5**	**-0.9**	**-0.2**	**-8.1**	**-15.9**	**-0.2**
Red meat (beef, pork)	-18.7	-38.4	+0.9	+12.6	-8.1	+33.3	**-30.8**	**-61.2**	**-0.4**	**-9.7**	**-15.0**	**-4.4**	-191.5	-698.4	+315.4	**-0.9**	**-1.3**	**-0.5**	**-0.5**	**-0.8**	**-0.1**	-1.1	-8.4	+6.1
Chicken and turkey	-13.9	-33.0	+5.3	+20.4	-0.3	+41.1	-8.1	-37.5	+21.4	-4.7	-9.9	+0.5	-122.6	-578.1	+332.9	**-0.6**	**-0.9**	**-0.2**	**-0.4**	**-0.8**	**-0.1**	-0.9	-8.4	+6.5
Eggs	**+22.7**	**+3.9**	**+41.5**	+10.5	-10.6	+31.6	-5.0	-34.9	+25.0	+3.9	-1.1	+9.0	**+518.7**	**+48.0**	**+989.4**	+0.0	-0.4	+0.3	-0.3	-0.6	+0.1	+1.4	-6.4	+9.2
Legumes and nuts	+15.9	-4.0	+35.7	+15.1	-5.4	+35.7	+0.7	-28.9	+30.3	+2.2	-2.9	+7.3	**+537.8**	**+68.0**	**+1007.7**	+0.0	-0.4	+0.3	**-0.4**	**-0.8**	**-0.1**	**+11.0**	**+3.6**	**+18.4**
Milk products	-3.7	-22.8	+15.5	+7.7	-13.5	+28.8	+13.0	-18.1	+44.0	+2.4	-2.5	+7.4	+100.2	-382.4	+582.7	-0.2	-0.5	+0.2	**-0.5**	**-0.9**	**-0.1**	**+8.0**	**+0.8**	**+15.2**
Grains	-7.4	-27.0	+12.1	+2.7	-16.8	+22.2	+12.5	-17.9	+42.9	**+8.2**	**+3.3**	**+13.2**	+20.4	-452.1	+493.0	+0.1	-0.2	+0.4	-0.3	-0.7	+0.0	-1.7	-9.1	+5.6
Snacks and fast foods	**-30.8**	**-50.4**	**-11.1**	-2.3	-22.6	+17.9	**-44.0**	**-72.7**	**-15.2**	**-11.9**	**-16.7**	**-7.0**	-357.9	-805.6	+89.9	**-0.8**	**-1.1**	**-0.5**	**-0.6**	**-0.9**	**-0.2**	**-10.4**	**-17.5**	**-3.4**
Sweets and ice cream	**-22.9**	**-42.0**	**-3.9**	-14.0	-33.8	+5.7	-1.9	-32.6	+28.8	**-5.9**	**-10.8**	**-1.1**	-326.1	-771.2	+119.0	**-0.3**	**-0.7**	**-0.0**	-0.1	-0.5	+0.3	-1.7	-9.4	+5.9
Butter	**+26.8**	**+8.1**	**+45.4**	**+43.0**	**+23.4**	**+62.5**	-4.3	-34.5	+25.9	+1.7	-3.3	+6.8	**+820.7**	**+346.9**	**+1294.4**	+0.0	-0.3	+0.4	+0.1	-0.3	+0.4	**+8.7**	**+1.4**	**+15.9**
Margarine	+19.8	-0.3	+39.8	-5.6	-27.2	+15.9	-9.5	-38.4	+19.4	**+6.0**	**+0.7**	**+11.2**	+105.6	-406.2	+617.3	+0.3	-0.1	+0.6	-0.2	-0.6	+0.2	**-10.7**	**-18.1**	**-3.3**

CI: confidence interval.
Estimates were obtained using linear regression analysis and are presented as the mean differences in biomarker concentrations between frequent consumers (≥ median) and less frequent consumers (< median).
Values in bold (colored cells) are statistically different at $p<0.05$.
Processed meats include sliced processed meat, sausage, hot dogs, bacon and beef jerky. Red meat includes beef and pork. Milk products include plain milk, chocolate milk, yogurt, cheese and processed cheese.
Vitamin B12 and vitamin D were measured in serum. Beta-carotene, vitamin A and vitamin E were measured in plasma. Folate was measured in red blood cells. n-3 PUFA were measured in red blood cells and are expressed as a % of total fatty acids. Selenium was measured in whole blood.

Comparisons of selected nutritional biomarkers between 2004 and 2017

Mean n-3 PUFA concentrations in the red blood cells of Nunavimmiut decreased between 2004 and 2017, whereas whole blood selenium concentrations remained similar (vitamin A, folate, D, E and beta-carotene were not measured in 2004) (Table 41). Both in 2004 and 2017, women consistently had higher n-3 PUFA and selenium levels than men ($p<0.05$). Interestingly, while n-3 PUFA levels declined between 2004 and 2017 among women and men, blood selenium levels remained similar in men and increased in women during that period (Table 42). With respect to age groups, n3-PUFA levels declined in all groups between 2004 and 2017 (Table 43). Interestingly, selenium concentrations increased slightly in the 18 to 29 age group, remained similar in the 30 to 49 age group and declined slightly in the 50 years and over age group between 2004 and 2017. During the same period, a decline in n-3 PUFA levels was observed in all ecological regions, whereas selenium levels remained similar in Hudson Strait and Ungava Bay communities but rose slightly in those in Hudson Bay (Table 44).

Vitamin B12 concentrations were also measured in 2004, but only among women. Compared to women in 2004, women in 2017 had greater concentrations of vitamin B12 (403 vs. 368 pmol/L, $p<0.001$, data not shown).

Table 41 Omega-3 polyunsaturated fatty acids in red blood cell membranes and blood selenium concentrations in Nunavik, 2004 and 2017.

	2004			2017		
	GM	95% CI		GM	95% CI	
n-3 PUFA index (%)	*6.90*	*6.73*	*7.07*	*5.70*	*5.56*	*5.84*
EPA+DPA+DHA (%)	*9.05*	*8.86*	*9.25*	*7.67*	*7.52*	*7.82*
EPA (%)	*1.59*	*1.52*	*1.66*	*1.23*	*1.17*	*1.28*
DPA (%)	*2.15*	*2.12*	*2.18*	*1.97*	*1.95*	*1.99*
DHA (%)	*5.31*	*5.20*	*5.42*	*4.48*	*4.38*	*4.57*
Selenium (µmol/L)	3.73	3.62	3.84	3.82	3.69	3.95

GM: geometric mean; CI: confidence interval.
Geometric means in italics (colored cells) are statistically different between 2004 and 2017 at $p<0.05$
Geometric means are unadjusted and for adults (≥18 years) only.
EPA: Eicosapentaenoic acid; DPA: Docosapentaenoic acid; DHA: Docosahexaenoic acid; n-3 PUFA index: omega-3 polyunsaturated fatty acids index (sum of EPA+DHA).
n-3 PUFA were measured in red blood cells and are expressed as a % of total fatty acids. Selenium was measured in whole blood.

Table 42 Omega-3 fatty acids in red blood cell membranes and blood selenium concentrations according to sex in Nunavik, 2004 and 2017.

	Women						Men					
	2004			2017			2004			2017		
	GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI	
n-3 PUFA index (%)	*7.39*	*7.17*	*7.61*	*6.12*	*5.97*	*6.26*	*6.44*	*6.20*	*6.68*	*5.30*	*5.07*	*5.53*
EPA+DPA+DHA (%)	*9.56*	*9.31*	*9.81*	*8.10*	*7.94*	*8.27*	*8.57*	*8.30*	*8.85*	*7.25*	*6.99*	*7.50*
EPA (%)	*1.72*	*1.63*	*1.80*	*1.31*	*1.25*	*1.37*	*1.47*	*1.38*	*1.57*	*1.14*	*1.06*	*1.23*
DPA (%)	*2.17*	*2.13*	*2.21*	*1.99*	*1.96*	*2.01*	*2.13*	*2.08*	*2.18*	*1.95*	*1.91*	*1.99*
DHA (%)	*5.67*	*5.52*	*5.82*	*4.80*	*4.70*	*4.90*	*4.97*	*4.81*	*5.12*	*4.16*	*4.00*	*4.31*
Selenium (µmol/L)	*3.85*	*3.70*	*3.99*	*4.23*	*4.06*	*4.41*	3.62	3.47	3.78	3.46	3.28	3.65

GM: geometric mean; CI: confidence interval.
Geometric means in italics (colored cells) are statistically different between 2004 and 2017 at $p<0.05$
Geometric means are unadjusted and for adults (≥18 years) only.
EPA: Eicosapentaenoic acid; DPA: Docosapentaenoic acid; DHA: Docosahexaenoic acid; n-3 PUFA index: omega-3 polyunsaturated fatty acids index (sum of EPA+DHA).
n-3 PUFA were measured in red blood cells and are expressed as a % of total fatty acids. Selenium was measured in whole blood.

Table 43 Omega-3 fatty acids in red blood cell membranes and blood selenium concentrations by age group in Nunavik, 2004 and 2017.

	Age group															
	18 to 29 years						30 to 49 years						50 years and over			
	2004			2017			2004			2017			2004			2017		
	GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI	
n-3 PUFA index (%)	*5.12*	*4.92*	*5.33*	*4.71*	*4.53*	*4.88*	*6.91*	*6.66*	*7.16*	*5.61*	*5.39*	*5.84*	*10.19*	*9.78*	*10.61*	*7.17*	*6.85*	*7.50*
EPA+DPA+DHA (%)	*7.06*	*6.82*	*7.30*	*6.60*	*6.40*	*6.80*	*9.08*	*8.80*	*9.37*	*7.58*	*7.33*	*7.83*	*12.71*	*12.22*	*13.20*	*9.25*	*8.88*	*9.61*
EPA (%)	*0.91*	*0.85*	*0.97*	*0.90*	*0.84*	*0.95*	*1.49*	*1.40*	*1.59*	*1.20*	*1.12*	*1.28*	*3.07*	*2.84*	*3.30*	*1.71*	*1.56*	*1.86*
DPA (%)	*1.94*	*1.89*	*1.98*	*1.89*	*1.86*	*1.93*	*2.17*	*2.12*	*2.22*	*1.97*	*1.93*	*2.00*	*2.51*	*2.42*	*2.60*	*2.07*	*2.03*	*2.12*
DHA (%)	*4.21*	*4.05*	*4.37*	*3.81*	*3.68*	*3.94*	*5.42*	*5.25*	*5.58*	*4.42*	*4.25*	*4.58*	*7.13*	*6.90*	*7.35*	*5.46*	*5.26*	*5.66*
Selenium (µmol/L)	*3.22*	*3.08*	*3.36*	*3.52*	*3.32*	*3.74*	3.78	3.61	3.95	3.81	3.61	4.01	*4.78*	*4.41*	*5.18*	*4.28*	*4.00*	*4.57*

GM: geometric mean; CI: confidence interval.
Values in italics (colored cells) are statistically different between 2004 and 2017 at $p<0.05$.
Geometric means are presented as unadjusted means.
Comparisons were conducted with age-adjusted linear regression models.
EPA: Eicosapentaenoic acid; DPA: Docosapentaenoic acid; DHA: Docosahexaenoic acid; n-3 PUFA index: omega-3 polyunsaturated fatty acids index (sum of EPA+DHA).
n-3 PUFA were measured in red blood cells and are expressed as a % of total fatty acids. Selenium was measured in whole blood.

Table 44 Omega-3 polyunsaturated fatty acids in red blood cell membranes and blood selenium concentrations by ecological region in Nunavik, 2004 and 2017.

	Hudson Bay						Hudson Strait						Ungava Bay					
	2004			2017			2004			2017			2004			2017		
	GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI	
n-3 PUFA index (%)	*6.55*	*6.28*	*6.82*	*5.39*	*5.15*	*5.64*	*7.19*	*6.76*	*7.62*	*5.80*	*5.52*	*6.09*	*7.13*	*6.81*	*7.44*	*5.99*	*5.78*	*6.20*
EPA+DPA+DHA (%)	*8.45*	*8.15*	*8.75*	*7.22*	*6.95*	*7.49*	*9.50*	*9.01*	*9.99*	*7.90*	*7.58*	*8.22*	*9.47*	*9.10*	*9.84*	*8.03*	*7.80*	*8.26*
EPA (%)	*1.35*	*1.26*	*1.44*	*1.10*	*1.01*	*1.20*	*1.82*	*1.61*	*2.04*	*1.35*	*1.24*	*1.46*	*1.72*	*1.58*	*1.86*	*1.28*	*1.21*	*1.36*
DPA (%)	*1.90*	*1.85*	*1.94*	*1.83*	*1.79*	*1.87*	*2.31*	*2.25*	*2.38*	*2.10*	*2.05*	*2.15*	*2.35*	*2.28*	*2.41*	*2.04*	*2.01*	*2.08*
DHA (%)	*5.20*	*5.01*	*5.39*	*4.29*	*4.13*	*4.46*	*5.37*	*5.13*	*5.6*	*4.45*	*4.26*	*4.64*	*5.41*	*5.21*	*5.6*	*4.71*	*4.56*	*4.86*
Selenium (µmol/L)	*3.09*	*2.97*	*3.22*	*3.37*	*3.20*	*3.54*	5.78	5.27	6.34	5.35	4.93	5.81	3.42	3.28	3.55	3.50	3.35	3.65

GM: geometric mean; CI: confidence interval.
Values in italics (colored cells) are statistically different between 2004 and 2017 at $p<0.05$.
Geometric means are presented as unadjusted means.
Comparisons were conducted with age-adjusted linear regression models.
EPA: Eicosapentaenoic acid; DPA: Docosapentaenoic acid; DHA: Docosahexaenoic acid; n-3 PUFA index: omega-3 polyunsaturated fatty acids index (sum of EPA+DHA).
n-3 PUFA were measured in red blood cells and are expressed as a % of total fatty acids. Selenium was measured in whole blood.

5 DISCUSSION

Evaluating dietary habits and nutritional status is an important step to developing public health recommendations and interventions in Nunavik. In the past, several factors have been linked to country food consumption, including age, gender, ecological region, community size, community remoteness, and wildlife availability (Inuit Tapiriit Kanatami, 2017; Lemire et al., 2015; Little et al., 2020). Similarly, several factors influence market food consumption (Kenny et al., 2020). Although most Inuit adults nowadays eat a mixed diet of country food and market food, country foods remain central to optimal nutritional status as well as to Inuit resilience, food security, health and wellness (Inuit Tapiriit Kanatami, 2014, 2017; Kenny et al., 2018; Little et al., 2020). Therefore, it is important to collect and analyze detailed food consumption frequency data for country and market foods. This report presents the results of food questionnaires and nutritional biomarker analyses from the *Qanuilirpitaa*? 2017 survey in order to provide critical information on the dietary intake and nutritional status of Nunavimmiut.

Country foods

In the present survey, the country foods consumed most frequently by Nunavimmiut of all ages included caribou, fish (especially Arctic char and dried fish), wild berries and berry-based recipes (*suuvalik* or *uarutilik)*, wild birds and beluga. Many country foods were eaten more frequently by men. The differences in food consumption between men and women can often be attributed to a difference in energy intake because men consume more kilocalories on average than women (Willett, 2012). Conversely, some country foods were consumed at a similar frequency by both men and women, while country foods such as wild berries and *suuvalik* or *uarutilik* were reportedly consumed more frequently by women. This finding may be explained by the fact that Nunavimmiut women are more likely to participate in berry picking (see, for example, the thematic report "Sociocultural Determinants of Health and Wellness"). Compared to men, women presented higher concentrations of red blood cell n-3 PUFA and blood selenium, two key nutrients found in high concentrations in marine foods, which may suggest that men overreported their consumption of country foods compared to women. It is important to note that the country food frequencies detailed in this report pertain only to a period of three months prior to the survey (i.e., a period somewhere between mid-May and early October 2017, depending on when the FFQ was completed). Consequently, the consumption frequencies of certain country foods might have been different had they been assessed at another time of the year, as country food availability and accessibly vary seasonally (Blanchet & Rochette, 2008; Pontual et al., 2021).

The results of this survey also indicate that several country foods (including caribou, beluga meat, and *suuvalik* or *uarutilik*) were consumed more frequently among younger Nunavimmiut. This finding contrasts with the results of other studies in the Inuit Nunangat and may suggest a revitalization of traditional food harvesting among youth in Nunavik (Egeland, 2010a, 2010b, 2010c; Galloway et al., 2015; Inuit Tapiriit Kanatami, 2017; Little et al., 2020). The trends in biomarker concentrations partly support these observations. Indeed, even if n-3 PUFA decreased in all age categories between 2004 and 2017, the mean selenium concentration increased slightly among the 16 to 29 age group and decreased slightly among the 50 years and over age group. Such findings may reflect the tendency of young Nunavimmiut to undertake hunting activities. In fact, in the case of caribou, other authors have reported increases in caribou hunting among younger Nunavimmiut (Pearce et al., 2011). Persistent and increasing consumption of country foods among young people reflects the crucial importance of these foods to Nunavimmiut culture, health and wellness, and ways of life over generations (PARNASIMAUTIK, 2014).

Country foods available locally change according to ecological regions, as reflected in the survey results. Indeed, beluga consumption was markedly greater in the Hudson Strait region, which is not surprising considering the accessibility of this region to productive beluga hunting grounds. Indeed, these results align with reports that Hudson Strait communities hunt beluga in greater numbers in comparison to the communities of Hudson Bay and Ungava Bay (Department of Fisheries and Oceans Canada, 2018). Caribou was consumed more frequently by Nunavimmiut from Hudson Bay and Hudson Strait communities, probably because the Leaf River caribou

herd migrates through these regions and is more abundant than the George River caribou herd and the Torngat Mountain caribou herd, which are found in the Ungava region and the Kangiqsualujjuaq region, respectively (COSEWIC, 2018). Shellfish and seaweed were more frequently consumed in Hudson Strait and Ungava Bay villages than in the Hudson Bay region, which may reflect the ease of access to such foods in those regions, which are known to have some of the highest tides in Canada (Rapinski et al., 2018). Furthermore, elders from Ivujivik and Kangiqsualujjuaq previously reported that these local marine foods accessible all year round from the shore (known as *Tinninimiutait*), which include blue mussels (*uviluq*) and seaweeds (*kuanniq*), play a key role in local culture, food security, health and well-being (Rapinski et al., 2018). Residents of the Hudson Bay region more frequently reported eating wild berries, goose and lake trout in comparison to the residents of other regions. It should be noted that Hudson Bay is recognized as an important ecological region along the migratory route of Canada geese during the spring and fall migrations (Leafloor et al., 2000). Arctic char, the fish most preferred by Nunavimmiut, is not often found in the rivers of the villages in the southern part of Hudson Bay (Kuujjuaraapik, Umiujaq and Inukjuak) (Martin, 2011) and consumption of Arctic char in those villages is known to be surpassed by that of lake trout and other fish species. Finally, several country food species were eaten by a larger proportion of Nunavimmiut and/or were eaten more frequently by Nunavimmiut living in small communities, where certain traditional activities (i.e., fishing and berry picking) are engaged in more often than in large communities (see the thematic report "Sociocultural Determinants of Health and Wellness"). Indeed, Nunavimmiut who participated more in traditional activities, such as going on the land, reported eating country foods more frequently.

Some associations between Nunavimmiut characteristics and country food consumption are challenging to interpret and will require additional multivariable analyses. For example, income is most likely associated with education and employment. However, although frequency of caribou consumption was significantly higher among people with lower income or lower education, there was no difference in caribou consumption between people who were employed versus those who were unemployed. Levels of food insecurity might be expected to have been greater among individuals who were unemployed and had lower incomes. However, differences in caribou consumption frequencies were only observed between people who were food secure and those who were moderately food insecure, whereas differences with severely food insecure individuals were not statistically significant. Finally, marital status did not appear to influence reported frequencies of most country food consumption. Hunter support programs often prioritize single parent families or widowed individuals when distributing country food, and this might partly explain the absence of association with marital status.

Market foods

The market foods that were consumed most frequently included beverages (sweet and hot), grains, meat and alternatives, fruits and vegetables, milk products and snacks/fast foods. Refined grains were consumed more frequently than whole grains. The majority of individuals reported consuming processed and red meat daily, while eggs were reportedly consumed 2 to 3 times per week, and poultry, canned fish, as well as legumes and nuts only about once per week, on average.

Obtaining high quality fresh vegetables and fruit is a challenge in Nunavik, so it is not surprising that respondents reported infrequent consumption of leafy greens and other perishable foods. Potatoes were the most commonly consumed vegetable, perhaps because they are energy-dense and easier to transport and store and can be preserved longer than many other vegetables. As in 2004, there was a low intake of milk products in 2017. Many Nunavimmiut report being lactose intolerant, which might explain the low consumption of milk products (NRBHSS, personal communication). A high prevalence of lactose intolerance (80%) has been likewise documented in Alaskan Inuit (Duncan & Scott, 1972).

Dietary changes characterised by an increase in store-bought market foods consumption have been occurring across Inuit Nunangat for the past several decades (Blanchet & Rochette, 2008; Little et al., 2020). These changes may be particularly pronounced among youth. Indeed, the results of *Qanuilirpitaa?* 2017 suggest that younger Nunavimmiut consume market foods more often than older individuals given that the consumption frequency of processed and red meats, snacks/fast foods, sweets/ice cream and sweet beverages was higher among younger individuals. Such results are similar to trends in the general Canadian population (Garriguet, 2019).

As expected, vegetables and fruit were reportedly consumed less frequently by people with lower incomes. Meanwhile, employed individuals and those who were not severely food insecure (i.e., food secure and moderately food insecure) reported more frequent consumption of vegetables and fruit. Such findings suggest that access to nutrient-dense market foods is dependent on socioeconomic status, probably because of the expensive nature of such foods. Although Nutrition North Canada, a subsidy program launched in 2011, endeavours to improve the affordability of healthy market foods, our survey

findings indicate that there remain crucial gaps in the ability of individuals and households to access and afford fresh fruits and vegetables.

The Nunavik Regional Board of Health and Social Services strongly promotes the consumption of country foods and nutrient-dense market foods. The *Nunavik Food Guide* recommends numbers of daily servings of a reference portion size (quantity) for specific food groups (Nunavik Regional Board of Health and Social Services, 2020c). However, since the 2017 FFQ measured consumption frequency and not portion sizes, we are unable to determine the number of reported daily servings of food groups as per the food guide. Nevertheless, for the sake of comparison, frequencies of consumption were considered in the analyses to be equal to numbers of servings consumed. The results show that the only food group for which respondents met the recommendations in 2017 was that of meat, fish, and alternatives. Conversely, Nunavimmiut consumed about 50% of the recommended number of servings (in frequencies) of milk alternatives and met about one third of the recommendation for vegetables, berries and fruit as well as for grain products. Interestingly, country foods represented a significant proportion of the food groups recommended in the *Nunavik Food Guide*. Indeed, they provided about one third (38%) of meat, fish and alternatives and about one sixth (16%) of vegetables, berries and fruit, thus highlighting the substantial role played by country foods in the diet of Nunavimmiut in 2017.

COMPARISONS WITH 2004

There were differences between the food questionnaires used in the 2004 and 2017 surveys. In 2004, consumption of country foods was reported seasonally for the year prior to the survey along with estimated portion sizes, while the frequency of market food consumption was estimated for the three months prior to the survey (Blanchet & Rochette, 2008). In 2017, the reporting period of the food questionnaire covered only the three months prior to the survey for both country foods and market foods. In addition, information on portion sizes was not collected in 2017, as these were judged to be imprecise and unreliable in the Inuit context, where country foods are often not eaten using personal serving dishes but are shared instead (e.g., by placing the meat on a cardboard box on the floor, or by sometimes taking it directly from the animal carcass). Information on frequency of food consumption was collected using a categorical scale in 2017 (i.e., never or less than once a month, 1 to 3 times per month, etc.) rather than asking respondents to provide an estimated frequency as was done in 2004. Lastly, the questions sometimes differed slightly between the two questionnaires in their description of the foods concerned. For example, *igunak* was mis-characterized as a seal meat preparation in 2004, whereas it was more accurately described as being mostly prepared from walrus in 2017. Additionally, data on the consumption of organs from some animals was collected in 2004 but not in 2017. These differences may have introduced bias that affected our ability to compare the results of the 2017 survey with those of 2004. Therefore, it is difficult to tell whether reported changes in food frequencies reflect reality or are related to differences in data collection. However, both surveys were conducted at the same period of the year (mid-August to October), when consumption frequencies for many country foods are highest (Blanchet & Rochette, 2008; Pontual et al., 2021).

Country foods

Contrary to the clear downward trend observed between 1992 and 2004, the consumption of several country foods apparently increased between the 2004 and 2017 surveys. Consumption frequencies of most country foods (caribou, beluga, geese, wild berries, and dried fish) rose slightly during this period, whereas, Arctic char consumption remained widespread and generally constant and shellfish consumption fell slightly between the surveys. The proportion of seal meat consumers also declined during this period. Interestingly, as detailed in the next section, although n-3 PUFA levels in the red blood cells of Nunavimmiut slightly declined between 2004 and 2017, blood selenium levels remained quite stable over this duration, suggesting that the consumption of marine foods rich in selenium (i.e., beluga *mattaaq*, walrus, shellfish, fish eggs (used in *suuvalik*) and marine fish) (Lemire et al. 2015) remained relatively constant.

Year-to-year comparisons of country food intake are dependent on the abundance and availability of wildlife in the various regions (Inuit Tapiriit Kanatami, 2017; Little et al., 2020; Mead et al., 2010). Climate change may have also impacted country food availability and access in the 13 years that intervened between the two surveys (Ford, 2012; Ford et al., 2010; Little et al., 2020). To capture abundance and availability information on the different species consumed in Nunavik, researchers and local organizations will have to seek input from hunters, fishers and berry pickers across Nunavik or examine harvesting calendars and their change over time, particularly for key species such as caribou, a staple of the Nunavimmiut diet in 2017.

Market foods

Frequency of vegetable and fruit consumption was higher in 2017 compared to 2004, but remained relatively low. Whole bread consumption increased, whereas white bread, bannock and pasta consumption decreased. Consumption of red meat and processed meat rose, while that of sweet beverages, milk and tea fell. The increase in the consumption of vegetables, fruits, red meat and whole grains may be attributed to subsidies from both the Kativik Regional Government cost of living program and Nutrition North Canada (Kativik Regional Government, 2016; Nutrition North Canada, 2018), while the decline in sweet beverages consumption could be partly attributed to different healthy food promotion initiatives in Nunavik, such as the "Drop the Pop" and *Imatsiaq* campaigns. More targeted studies are needed to adequately evaluate the impact of federal and regional dietary intervention and health promotion programs on market food consumption patterns.

NUTRITIONAL BIOMARKERS

Because of the latitude, it can be assumed that vitamin D in Nunavik is primarily obtained from dietary sources (El Hayek Fares & Weiler, 2016). Local food sources of vitamin D include seal and beluga, especially the fat (*ursuk* and *misirak*), caribou, and marine fatty fish species such as Arctic char (Blanchet & Rochette, 2008). In 2004, country meats (mainly fish and caribou) supplied 24% of total vitamin D intake, while milk supplied 22% and margarine and country fats 14% (Blanchet & Rochette, 2008). Based on the association between selected food consumption variables and nutritional biomarkers, country foods (i.e., beluga *misirak*, dried fish, Arctic char, shellfish and *suuvalik/uarutilik*) appeared to be the main contributors of vitamin D intakes in 2017. Consumption of margarine, grains and wild berries was also associated with vitamin D concentrations. However, whereas margarine is a source of vitamin D, grains and wild berries are not. These associations might reflect, in the case of grains, the concomitant use of margarine and, in the case of wild berries, the effect of sun exposure during berry picking or dietary patterns associated with wild berries consumption that include such foods as *suuvalik* (made of berries, seal fat or vegetal oil and fish eggs) (National Institutes of Health, 2021). Around 7% of the Inuit population were identified as vitamin D deficient and almost one quarter (23%) as having insufficient serum concentrations. The proportion of Nunavimmiut with vitamin D suboptimal values (30%) was elevated, but similar to that of the general Canadian population between 2009 and 2011 (32%) (Statistics Canada, 2015). It should be noted that, because the survey took place from mid-May to early October 2017, sun exposure during spring and summer likely had a positive effect on vitamin D concentrations. In 2017, serum vitamin D levels were not different between sexes, but increased with age and were considerably higher among residents of the Hudson and Ungava Bay regions and those living in small villages. In summary, low vitamin D status was an important nutritional issue identified in 2017, despite the fact that the timing of the data collection was optimal with regard to sunlight exposure, which enhances vitamin D synthesis, and to seasonal country food availability and consumption. More in-depth multivariable analyses are needed to identify country foods and other determinants associated with vitamin D status in Nunavik.

Similar to what is observed in the general Canadian population, folate deficiency was almost nonexistent in the Nunavik population in 2017 (Colapinto et al., 2011). However, 92% of Inuit women of childbearing age experienced folate concentrations under the optimal value for this specific age group in 2017. In comparison, 22% of women of childbearing age in the rest of Canada showed below optimal concentrations between 2007 and 2009 (Colapinto et al., 2011). Sources of folate include leafy greens, eggs, beets, citrus fruit and juices, nuts, seeds and legumes (Harvard School of Public Health, 2021). Moreover, since November 1998 in Canada, white flour and pasta have been fortified with folate to prevent neural tube defects (Ray, 2004). According to the present findings, consumption of these foods appears insufficient to provide Nunavimmiut women of childbearing age with the recommended folate status. In the present survey, beluga *nikku* (dried meat) and *mattaaq*, shellfish and butter consumption was associated with folate concentrations. Therefore, access to and consumption of foods naturally rich or enriched in folate should be encouraged among women of childbearing age in Nunavik. Although not consumed very often according to the 2017 survey, seaweeds are known to contain folate (Rodríguez-Bernaldo de Quirós et al., 2004). Further analyses of brown seaweed species (*kuanniq*) found in Nunavik are needed to confirm this. In addition, as folate is light and heat sensitive, research is needed to determine folate concentrations in seaweed after boiling, drying or cooking (Beaulieu, personal communication). Plasma folate levels were higher among men and regional differences were found, with the residents of Ungava Bay and Hudson Strait villages exhibiting higher values than the residents of Hudson Bay communities. Further analyses are needed to explain these differences.

Dietary intake of vitamin B12 comes mainly from animal foods. In this survey, vitamin B12 concentrations were positively associated with the consumption of country

foods, namely, beluga (dried meat, *mattaaq, misirak*), dried caribou, dried fish, Arctic char and *suuvalik/uarutilik,* but not with that of any of the selected market foods considered as key sources of vitamin B12 in the retail food sector. Unsurprisingly, serum levels of vitamin B12 were high in the survey population, as Nunavimmiut frequently consume animal foods (Institute of Medicine, 1998a). Accordingly, the prevalence of vitamin B12 deficiency was very low (<1%), while that of vitamin B12 insufficiency was around 5%. The prevalence of vitamin B12 deficiency among Nunavimmiut in 2017 was lower than that observed in the general Canadian population aged 20 to 79 years old between 2007 and 2009 (8%) (Zinck et al., 2015). Women had higher values than men, as is consistently reported in other populations (Institute of Medicine, 1998a; MacFarlane et al., 2011; Margalit et al., 2018). Vitamin B12 levels were higher among younger and older Nunavimmiut compared to those aged 30 to 49 years old, and highest among residents from Hudson Strait villages.

Vitamin A deficiency was very low in Nunavimmiut in 2017 (<1%). Butter, margarine and country fats were identified as the main dietary sources of vitamin A in 2004 (Blanchet & Rochette, 2008). Eggs, meat, poultry, fish and marine mammal fat and meat were also important contributors (Blanchet & Rochette, 2008). In 2017, vitamin A was associated with the consumption of beluga *misirak,* dried fish, Arctic char, eggs from the market and butter. Average vitamin A levels were higher in men and older individuals, perhaps reflecting the relatively high proportion of seal liver consumers, a country food high in vitamin A, in these population subgroups.

Levels of beta-carotene (an antioxidant and vitamin A precursor found mainly in vegetables and fruits) were higher among women, but did not differ by age. Compared to the data available in other populations, Nunavimmiut exhibited low concentrations of beta-carotene in 2017, and this may reflect the low frequency consumption of vegetables and fruit reported in 2017. For example, the concentration of beta-carotene in a healthy adult sample of the NutriNet-Santé study conducted in France was approximately nine times higher than in Nunavimmiut (Lassale et al., 2016). In other populations, serum concentrations of beta-carotene are consistently higher in women than in men (Al-Delaimy et al., 2005; Galan et al., 2005; Lassale et al., 2016) — a situation also observed in the Nunavik population in 2017. In the present survey, beta-carotene was associated with the consumption of vegetables and fruit, legumes and nuts, milk products and butter in 2017. Beta-carotene levels were higher in large communities, which may suggest a greater availability of vegetables and fruit. Indeed, Nunavimmiut living in large communities reported more frequent consumption of vegetables and fruit. Interestingly, the flesh of Arctic char and other salmonid species (salmon and brook trout) are known to be rich in carotenoid pigments, including astaxanthin (another antioxidant) and beta-carotene (Martinkappi et al., 2009). More in-depth analyses are needed to identify the country and market foods responsible for vitamin A and beta-carotene intake in 2017.

Vitamin E deficiency is very rare in humans, although few guidelines are available to classify this type of deficiency (Institute of Medicine, 2000). Vitamin E is present in fatty foods (Institute of Medicine, 2000) and Inuit have a high intake of fats from country foods. In 2017, vitamin E was associated with the consumption of beluga *misirak*, vegetables, eggs from the market, legumes and nuts, and butter. Higher serum vitamin E levels were found in residents of Ungava Bay and small communities as well as in older Nunavimmiut. The age-related difference might reflect the preference for marine mammal fats among elders.

Several marine foods praised by Nunavimmiut are exceptionally rich in n-3 PUFA (Lemire et al., 2015; Martinez-Levasseur et al., 2020). Therefore, we expected to observe elevated blood concentrations of n-3 PUFA, as previous work had indicated that concentrations of these fatty acids were substantially higher among Nunavimmiut than in more southerly populations in Quebec (Dewailly et al., 2001; Proust et al., 2014). Indeed, although the average omega-3 index of Nunavimmiut in 2017 (5.7%) was lower than in 2004 (6.9%), it was still slightly higher than that of the general Canadian population in 2012-2013 (4.5%) (Langlois & Ratnayake, 2015). In the 2004 survey, marine mammal blubber and Arctic char were highlighted as exceptional sources of n-3 PUFA in Nunavik (Lemire et al., 2015). In the present survey, consumption frequencies of these country foods were correlated to total n-3 PUFA concentrations in red blood cells, as were consumption frequencies of shellfish, dried fish (mostly made of Arctic char) and *suuvalik* or *uaurutilik*. Interestingly, small communities reported a greater intake of marine mammals and Arctic char than large communities, as reflected by their higher levels of n-3 PUFA in red blood cells.

Our observations that women (compared to men) and older (compared to younger) Nunavimmiut had a greater proportion of n-3 PUFA in their blood is consistent with earlier findings in 2004 (Blanchet & Rochette, 2008). Research has shown that there are physiological differences in n-3 PUFA metabolism between women and men, which could explain in part these results (Childs, 2020; Childs et al., 2008; Decsi & Kennedy, 2011). However, a more likely explanation for these sex and age differences in n-3 PUFA blood concentrations lies with differences in preferences for different country foods. Older individuals reported more frequent consumption of marine mammal fats (*misirak/ursuk*), which are very high in n-3 PUFA, whereas younger individuals reported more frequent

consumption of caribou and goose, which are low in n-3 PUFA. There were no differences between men and women with regard to the consumption frequency of foods rich in n-3 PUFA. However, because the food questionnaire was not exhaustive, it is possible that it did not capture other country foods high in n-3 PUFA that are consumed by women.

In Nunavik, many country foods are also good sources of selenium, especially those of marine origin. In particular, beluga skin (a component of beluga *mattaaq*) and fish eggs are exceptionally high in selenium (Lemire et al., 2015). Nunavimmiut exhibit one of the highest blood selenium statuses in the world (Lemire et al., 2015), and in 2017, blood selenium levels in Nunavik were considerably higher than those reported in the general Canadian population in 2016-2017 (3.8 vs. 2.2 µmol/L) (Health Canada, 2019). In beluga *mattaaq* and Inuit blood, selenium is mostly found in the form of selenoneine, a potent antioxidant that may contribute to methylmercury detoxification (Achouba et al., 2019; Little et al., 2019).

Contrary to n-3 PUFA, blood selenium concentrations have not declined since the last survey, indicating that the consumption of marine foods, and specifically of beluga, has not declined over time. This assertion is further supported by data from the FFQ. In particular, selenium concentrations were higher among consumers of beluga, dried fish, Arctic char, shellfish and *suuvalik/uarutilik* (fish eggs are high in selenium) in 2017. Moreover, the highest blood selenium concentrations in 2017 were found in Hudson Strait villages, which are located on an important migratory route for the Eastern and Western Hudson Bay beluga stocks. Beluga hunting and consumption are very important to Nunavimmiut in these villages, as previously documented in 2004 (Lemire et al., 2015). Both in 2004 and 2017, women had higher average blood selenium concentrations than men, and concentrations among women increased between 2004 and 2017. These differences may be due to gender-specific food preferences and consumption habits that were not captured by the FFQ, or to metabolic differences between sexes. Finally, as already mentioned above, selenium increased slightly among younger Nunavimmiut, remained stable among adults but decreased slightly among elders, supporting FFQ findings showing a positive trend for higher country food consumption among younger generations in Nunavik. Further research is needed to investigate these findings.

Country foods are the most important contributors of dietary iron. Indeed, as previously reported in the thematic report "Iron Deficiency and Anemia", iron deficiency was associated with a lower frequency consumption of country meats (including marine mammals, terrestrial animals and birds, and fish and shellfish), but a higher frequency consumption of sweet beverages.

In summary, country foods appeared to be important sources of a variety of nutrients, mainly vitamin A, folate, vitamin B12, vitamin D, n-3 PUFA, selenium and iron, in the Nunavimmiut diet. Healthy market foods such as vegetables and fruit, eggs, grains, legumes and nuts, and butter were also dietary contributors of several vitamins.

LIMITATIONS

The limitations inherent in the assessment of country and market food consumption by the food questionnaire must be acknowledged. The FFQ used in *Qanuilirpitaa*? 2017 was developed following the results of the *Qanuippitaa*? 2004 survey in order to better reflect the dietary habits of Nunavimmiut. This questionnaire was not exhaustive and was not validated against a reference method (Cade et al., 2002). Nevertheless, the frequency consumption of some food items assessed by the FFQ was concordant with concentrations of associated dietary biomarkers. No information on serving portion size was collected, but the goal was not to determine the exact quantity of food items consumed, but rather food consumption patterns as well as geographical and temporal trends.

The time it took to complete the questionnaires in this survey may have adversely affected the quality of responses due to respondent fatigue. Moreover, this situation may have been compounded by the fact that fact that the food questionnaire was one of the final sections of the main questionnaire. Also, the interviewer's facial expressions, body language, tone, style of language, age, social status, ethnicity and gender may have influenced certain answers to questions and induced a form of bias known as the "interviewer effect" (Davis et al., 2010).

Food frequency questionnaires are prone to systematic errors, which are driven by the challenge of remembering long-term intake and are associated with the presence of a finite food list (National Cancer Institute, 2021; Shim et al., 2014). In addition, people may not pay attention to certain details related to the food they consume. Frequency of consumption of some traditional foods may have been difficult to estimate since foods are often shared and not typically eaten in regular portion sizes. In fact, they are sometimes eaten directly from the animal carcass following the harvest. Thus, systematic errors may have induced variability in the estimated frequency consumption of country foods.

Social desirability bias in dietary self-reporting assessments is known as the tendency to report food consumption depending on the social desirability of foods (Hebert et al., 1997; Tooze et al., 2004). In the 2017 survey, the consumption frequency of country foods reported by young Nunavimmiut was indeed higher than expected based on previous studies in Inuit Nunangat (Egeland, 2010a, 2010b, 2010c; Galloway et al., 2015; Inuit Tapiriit Kanatami, 2017; Little et al., 2020). It is also possible that young individuals overreported their frequency consumption of country foods more often than older respondents, but this bias is difficult to confirm and adjust for.

The data presented in this report reflect the dietary habits of Nunavimmiut during a short period of time, from mid-May to early October 2017. Inuit diets vary according to local monthly wildlife species availability (Blanchet & Rochette, 2008; Pontual et al., 2021), with the result that the dietary habits presented in this report cannot be generalized over the entire year.

Finally, the nutritional status of Nunavimmiut was assessed using a series of nutritional biomarkers. Although biomarkers are useful to provide an assessment of nutrient intake adequacy at the population level, values may be influenced by genetic variability, lifestyle factors, health status, the biological sample used for measurement purposes and the analytical methodology (Jenab et al., 2009). A more detailed analysis and interpretation of nutrient biomarker data should be conducted to further understand the nutritional status of Nunavimmiut.

6 CONCLUSION

Nunavimmiut continue to regularly consume country foods such as caribou, Arctic char and dried fish (*pitsik*), wild berries, *suuvalik* or *uarutilik* (berry-based recipes), wild birds and and beluga. There is no indications that country food consumption had declined between 2004 and 2017, in fact, most country foods were reported being consumed at a higher frequency in 2017. In 2017, younger Nunavimmiut reported consuming several country foods more often than older Nunavimmiut. Moreover, beluga was consumed more frequently in the Hudson Strait region, whereas caribou was consumed more frequently in Hudson Bay and Hudson Strait communities. The market foods eaten most frequently on a daily basis were beverages (sweet and hot), grains, meats and alternatives, vegetables and fruit, milk products and fast food. Refined grains were eaten more frequently than whole grains. A majority of Nunavimmiut reported eating processed and red meats daily, whereas eggs were reported to be consumed 2 to 3 times per week and poultry, canned fish, as well as legumes and nuts, about once per week. Globally, according to levels of nutritional biomarkers, several country foods and healthy market foods appeared to be important sources of a variety of nutrients that are central to optimal nutritional status in Nunavik.

More in-depth analyses are needed to further identify the multiple determinants of country and market food consumption, food consumption profiles and optimal nutritional status as well as the association between diet, nutritional biomarkers, food security and health outcomes in Nunavik. There is also a need to reflect on the most effective and accurate ways to continue to document the food consumption patterns of Nunavimmiut in the future.

Meanwhile, the core findings of this report highlight the fact that country foods remain central to the Nunavimmiut diet, most likely thanks to the many efforts in the region to promote traditional activities and the transmission of Inuit knowledge to younger generations. These findings also reveal the importance of global and local initiatives to support access to and promote consumption of country foods and nutrient-dense market foods and to thereby improve nutritional status, especially vitamin D status, among all Nunavimmiut and iron and folate status among childbearing women.

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APPENDIX 1

FOOD FREQUENCY QUESTIONNAIRE

In the last 3 months, how often on average do you eat this food?

Country foods		Never or less than once a month	1-3 times a month	Once a week	2-6 times a week	Once a day	2-3 times a day	4 times and more a day
Marine mammals								
Beluga	1. Dried meat (nikku)							
	2. Meat 2.1 Do you often eat this raw? ◯ Yes ◯ No							
	3. Misirak/Ursuk (blubber only)							
	4. Mattaaq (skin and blubber)							
Seal	5. Meat (fresh, cooked, frozen) 5.1 Do you often eat this raw? ◯ Yes ◯ No							
	6. Misirak/Ursuk (blubber only)							
	7. [8] Liver 7.1 Do you often eat this raw? ◯ Yes ◯ No							
8. [9] Walrus meat, igunak 8.1 Do you often eat this raw? ◯ Yes ◯ No								
Game Animals and Birds								
Caribou	9. [10] Dried meat (nikku)							
	10. [11] Meat 10.1 Do you often eat this raw? ◯ Yes ◯ No							
11. [12] Polar bear								
12. [13] Muskox								

Country foods	Never or less than once a month	1-3 times a month	Once a week	2-6 times a week	Once a day	2-3 times a day	4 times and more a day
13. [14] Ptarmigan, partridge 13.1 Do you often eat this raw? ◯ Yes ◯ No							
14. [15] Goose (Canada or white goose) 14.1 Do you often eat this raw? ◯ Yes ◯ No							
15. [16] Eggs of game bird 15.1 Which ones do you usually eat? (check all that apply) ◯ Duck ◯ Geese ◯ Murre/Seagulls							
Fish and seafood							
16. [17] Dried fish (nikku, pitsik) 16.1 Which ones do you usually eat? (check all that apply) ◯ Char ◯ Brook trout ◯ Lake trout ◯ Other							
17. [18] Lake trout (fresh, cooked or frozen, NOT dried)							
18. [19] Brook or sea trout, or salmon (fresh, cooked, canned or frozen, NOT dried)							
19. [20] Arctic char (fresh, cooked or frozen, NOT dried)							
20. [21] Pike or walleye							
21. [22] Other fish, e.g. Lake whitefish (Coregone), Sculpin (Ugly fish)							
22. [23] Mollusks (Mussels, scallops, clams, etc.) and urchins 22.1 Do you often eat this raw? ◯ Yes ◯ No							
23. [24] Seaweed (kuanniq, qirquak, etc.)							

Country foods	Never or less than once a month	1-3 times a month	Once a week	2-6 times a week	Once a day	2-3 times a day	4 times and more a day
Wild berries							
24. [25] Wild berries 24.1 Which ones do you usually eat? (check all that apply) ◯ Cloudberries (arpik) ◯ Blueberries (kigutangirnaq) ◯ Blackberries (paurngaq) ◯ Redberries or Cranberries (kimminaq)							
Traditional recipes							
25. [26] Bannock Check the one usually eaten: ◯ Deep fried ◯ Oven-baked ◯ Pan fried							
26. [27] Suuvalik or Uarutilik Check the one usually eaten: ◯ Suuvalik (fish eggs, blackberries or blueberries, fat) or ◯ Uarutilik (cooked fish, blackberries or blueberries, fat) 26.1 Which fat do you usually use? ◯ Ursuk (blubber) ◯ Misirak ◯ Mayonnaise ◯ Vegetable oil (Crisco canola oil, etc.) ◯ Vegetable shortening (Crisco but solid) ◯ Animal shortening (Tenderflake solid)							

Market foods	Never or less than once a month	1-3 times a month	Once a week	2-6 times a week	Once a day	2-3 times a day	4 times and more a day
Store bought meats, eggs, etc.							
1. [1A] Sliced or processed meat (ham, salami, bologna, Kam/Spam, etc.), Sausage (small links or canned)							
2. [3] Hot dogs (Beef or pork)							
3. [4] Bacon							
4. [5] Beef Jerky or (dried, canned, stewed or corned)							
5. [6] Hamburger, lean or regular							
6. [7A] Beef or Pork as main dish (steak, roast, chops, etc.)							
7. [9] Chicken/turkey (breast, legs)							
8. [10] Chicken nuggets, wings, fried chicken							
9. [11] Canned fish (salmon, sardines, tuna)							
10. [12] Eggs (chicken)							
11. [13] Beans, lentils, Chickpeas (baked, canned)							
12. [14] Peanut butter							
13. [15] Nuts (almonds, etc.), Peanuts, sunflower seeds							
Fruits							
14. [21A] Fruits (orange, banana, apple, pear, store-bought berries, etc.) (fresh or frozen)							
15. [22] Canned fruit							
16. [23] Applesauce, Fruit puree							

Market foods	Never or less than once a month	1-3 times a month	Once a week	2-6 times a week	Once a day	2-3 times a day	4 times and more a day
Vegetables							
17. [24] Green, leafy vegetables (iceberg, romaine or leaf lettuce, spinach)							
18. [25] Carrots							
19. [26] Broccoli, cauliflower, cabbage							
20. [27] Tomatoes (whole or canned) or V8 juice							
21. [31] Other vegetables (pepper (green, red, yellow), onions, corn, cucumber, celery, mushrooms, mixed vegetables) (fresh, frozen, canned)							
Bread, cereals, starches							
22. [32] Bread, white							
23. [33] Bread, whole wheat or other whole grains							
24. [34] Cold cereals (cornflakes, special K, etc.)							
25. [35] Hot cereals (oatmeal, etc.)							
26. [36] Pasta, e.g. macaroni, spaghetti							
27. [37] Pizza							
28. [38] Bowl noodle soup							
29. [39] Rice							
30. [40] Potatoes, mashed, baked or boiled							
31. [41] French fries or poutine							
32. [42] Potato chips or corn Tortillas chips							
33. [43] Popcorn							
34. [44] Crackers (Ritz, etc.)							

Market foods	Never or less than once a month	1-3 times a month	Once a week	2-6 times a week	Once a day	2-3 times a day	4 times and more a day
Sweets, baked goods							
35. [45] Cookies, cakes, muffins (homemade or ready made)							
36. [46] Chocolate (Hershey's, Aero, M&M's, etc.) or Candy bars (Snickers, Reeses, Mars, etc.) (bar or pack)							
37. [47] Candies (Gummies, Jelly, etc.)							
38. [48] Chocolate spread (Nutella), jam (homemade or ready made, marmalade							
39. [49] Artificial sweetener (Splenda, NutraSweet, Sweet'N Low, etc.)							
40. [50] Ketchup							
Dairy foods							
41. [51] Milk 41.1 Which one do you usually use? ◯ whole ◯ 2% ◯ 1% ◯ skim ◯ Grand Pré ◯ milk made from powder ◯ Canned milk (evaporated, unsweetened condensed)							
42. [53] Coffee-mate, non-dairy coffee whitener							
43. [54] Chocolate milk 43.1 Which one do you usually use? ◯ powder ◯ ready to drink							
44. [55] Yogurt (drink, container)							
45. [56] Ice cream							
46. [57] Cheese, plain or as part of a dish (cheddar, mozza)							
47. [58] Processed cheese, Kraft Singles or Cheez Whiz							

Market foods		Never or less than once a month	1-3 times a month	Once a week	2-6 times a week	Once a day	2-3 times a day	4 times and more a day
Beverages								
48. [59] Water								
Carbonated beverages	49. [60] Diet soft drinks, low-calories (sugar-free types)							
	50. [61] Soft drinks, regular type NOT DIET (not sugar-free)							
	51. [62] Energy drinks (Red Bull, Monster, etc.)							
Other beverages	52. [63] Real fruit juices (100% pure), bottled or canned, frozen concentrate and diluted							
	53. [64] Fruit cocktail (Punch, Sunny D), powdered drinks (Kool-Aid), sport drinks (Gatorade, Powerade)							
Hot beverages	54. [65] Regular coffee (with caffeine)							
	55. [66] Decaffeinated coffee							
	56. [67] Tea with caffeine (Salada, green tea)							
	57. [68] Labrador tea or traditional tea							
Others								
58. [69] Butter, added to food or bread; exclude use in cooking								
59. [70] Margarine, added to food or bread; exclude use in cooking								
60. [71] Regular mayonnaise or Miracle Whip								
61. [72] Salad dressing								

62. [73] For each day, how many teaspoons of sugar do you add to your beverages or food?

◯ zero ◯ 1 tsp. ◯ 2 tsp. ◯ 3 tsp. ◯ 4 tsp. ◯ 5 tsp. ◯ 6 tsp. ◯ 7 tsp. ◯ 8 tsp. ◯ 9 tsp. ◯ 10 tsp.

More than 10 (write the number): _____

63. [79] At the table, do you add salt to food? ◯ Yes ◯ No

Market foods	Never or less than once a month	1-3 times a month	Once a week	2-6 times a week	Once a day	2-3 times a day	4 times and more a day

64. [74] How often do you eat <u>fried food</u> at home? ◯ Less than once a week ◯ 1–3 times per week ◯ 4–6 times per week ◯ Daily ◯ Never (go to 65)

64.1. Kind of fat used to fry food: ◯ Margarine ◯ Vegetable oil (Crisco canola oil, etc.) ◯ Vegetable shortening (Crisco but solid) ◯ Animal shortening (Tenderflake solid) ◯ Ursuk (blubber) ◯ Other, specify: _____

65. [75] What kind of fat is usually used for <u>baking</u> at home

◯ Margarine ◯ Real butter ◯ Vegetable oil (Crisco canola oil, etc.) ◯ Vegetable shortening (Crisco but solid) ◯ Animal shortening (Tenderflake solid) ◯ Ursuk (blubber) ◯ Other, specify: _____

APPENDIX 2

SUPPLEMENTARY TABLES

Table A Comparison of monthly consumption frequency of country foods by sex in Nunavik, 2004 and 2017.

Country food	Women						Men					
	2004[1]			2017			2004[1]			2017		
	GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI	
Beluga												
Beluga dried meat	*0.40*	*0.40*	*1.50*	*0.80*	*0.70*	*0.90*	*0.40*	*0.40*	*1.40*	*1.00*	*0.90*	*1.20*
Beluga *mattaaq*	*0.60*	*0.50*	*1.70*	*1.40*	*1.20*	*1.50*	*0.60*	*0.50*	*1.70*	*1.50*	*1.30*	*1.70*
Beluga *misirak*	*0.80*	*0.70*	*2.10*	*1.50*	*1.30*	*1.80*	*0.70*	*0.60*	*1.90*	*1.50*	*1.20*	*1.80*
Caribou												
Caribou dried meat	*1.20*	*1.00*	*2.80*	*3.00*	*2.70*	*3.30*	*1.20*	*1.00*	*2.70*	*3.70*	*3.20*	*4.30*
Caribou meat (fresh, cooked, frozen)	*2.40*	*2.10*	*8.30*	*3.90*	*3.50*	*4.30*	*2.30*	*1.90*	*6.90*	*3.80*	*3.30*	*4.40*
Wild birds												
Goose	*0.60*	*0.50*	*1.70*	*1.20*	*1.10*	*1.30*	*0.60*	*0.50*	*1.70*	*1.60*	*1.40*	*1.80*
Fish												
Dried fish (*pitsik*)	*1.00*	*0.90*	*2.50*	*1.60*	*1.50*	*1.80*	*1.00*	*0.90*	*2.40*	*1.90*	*1.60*	*2.20*
Arctic char	2.10	1.80	6.00	2.50	2.20	2.70	2.50	2.20	8.80	2.70	2.30	3.20
Shellfish	*2.70*	*2.20*	*9.50*	*1.00*	*0.90*	*1.10*	*2.50*	*2.10*	*7.80*	*1.00*	*0.90*	*1.10*
Wild berries	*1.20*	*1.00*	*2.70*	*4.20*	*3.70*	*4.70*	*0.90*	*0.80*	*2.20*	*3.10*	*2.70*	*3.60*

GM: geometric mean; CI: confidence interval.
Geometric means in italics (colored cells) are statistically different between 2004 and 2017 at $p<0.05$
Geometric means are unadjusted and for adults (≥18 years) only.
Only food items consumed by at least 50% of the Nunavik population in 2017 are presented here.
1. Summer data were used for 2004.

Table B Comparison of monthly consumption frequency of country foods by age group in Nunavik, 2004 and 2017.

Country food	18 to 29 years						30 to 49 years						50 years and over					
	2004[1]			2017			2004[1]			2017			2004[1]			2017		
	GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI	
Beluga																		
Beluga dried meat	*0.4*	*0.4*	*0.4*	*1.2*	*1.0*	*1.4*	*0.4*	*0.4*	*0.4*	*0.8*	*0.7*	*0.9*	*0.4*	*0.4*	*0.5*	*0.8*	*0.7*	*0.9*
Beluga *mattaaq*	*0.7*	*0.6*	*0.8*	*1.8*	*1.6*	*2.1*	*0.6*	*0.5*	*0.6*	*1.2*	*1.1*	*1.4*	*0.5*	*0.5*	*0.7*	*1.2*	*1.0*	*1.5*
Beluga *misirak*	*0.6*	*0.5*	*0.7*	*1.2*	*1.0*	*1.5*	*0.8*	*0.7*	*0.9*	*1.7*	*1.4*	*2.0*	1.3	1.0	1.7	1.9	1.4	2.4
Caribou																		
Caribou dried meat	*1.2*	*1.0*	*1.5*	*5.1*	*4.3*	*6.1*	*1.2*	*1.0*	*1.4*	*2.7*	*2.3*	*3.2*	*1.0*	*0.8*	*1.3*	*2.5*	*2.1*	*2.9*
Caribou meat (fresh, cooked, frozen)	*2.2*	*1.9*	*2.6*	*4.7*	*4.1*	*5.5*	*2.4*	*2.1*	*2.8*	*3.5*	*3.0*	*4.1*	*2.3*	*1.9*	*2.9*	*3.3*	*2.8*	*3.9*
Wild birds																		
Goose	*0.6*	*0.5*	*0.7*	*1.6*	*1.4*	*1.9*	*0.6*	*0.5*	*0.7*	*1.2*	*1.0*	*1.4*	*0.6*	*0.5*	*0.8*	*1.3*	*1.2*	*1.6*
Fish																		
Dried fish	*1.0*	*0.8*	*1.2*	*1.9*	*1.6*	*2.2*	*1.0*	*0.9*	*1.2*	*1.6*	*1.3*	*1.8*	*1.2*	*0.9*	*1.5*	*1.9*	*1.6*	*2.3*
Arctic char	1.9	1.6	2.2	2.4	2.0	2.8	2.5	2.1	2.9	2.6	2.2	3.0	2.6	2.1	3.4	2.9	2.4	3.4
Shellfish	*2.1*	*1.6*	*2.7*	*1.0*	*0.8*	*1.1*	*2.9*	*2.4*	*3.5*	*1.0*	*0.8*	*1.1*	*3.1*	*2.3*	*4.1*	*1.0*	*0.9*	*1.2*
Wild berries	*1.1*	*0.9*	*1.3*	*3.7*	*3.2*	*4.4*	*1.0*	*0.9*	*1.2*	*3.4*	*2.9*	*4.1*	*1.0*	*0.8*	*1.3*	*3.6*	*3.0*	*4.4*

GM: geometric mean; CI: confidence interval.
Geometric means in italics (colored cells) are statistically different between 2004 and 2017 at $p<0.05$
Geometric means are unadjusted and for adults (≥18 years) only.
Only food items consumed by at least 50% of the Nunavik population in 2017 are presented here.
1. Summer data were used for 2004.

Table C Comparison of monthly consumption frequency of country foods by region in Nunavik, 2004 and 2017.

Country food	Hudson Bay						Hudson Strait						Ungava Bay					
	2004[1]			2017			2004[1]			2017			2004[1]			2017		
	GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI	
Beluga																		
Beluga dried meat	*0.3*	*0.3*	*0.4*	*0.6*	*0.5*	*0.7*	*0.7*	*0.6*	*0.9*	*2.3*	*1.8*	*2.8*	*0.3*	*0.3*	*0.4*	*0.8*	*0.7*	*0.9*
Beluga *mattaaq*	*0.5*	*0.5*	*0.6*	*1.1*	*0.9*	*1.3*	*1.0*	*0.8*	*1.3*	*2.4*	*2.0*	*2.9*	*0.5*	*0.5*	*0.6*	*1.3*	*1.1*	*1.5*
Beluga *misirak*	*0.6*	*0.5*	*0.7*	*1.3*	*1.0*	*1.6*	*1.6*	*1.2*	*2.0*	*2.5*	*2.0*	*3.2*	*0.6*	*0.6*	*0.7*	*1.3*	*1.1*	*1.5*
Caribou																		
Caribou dried meat	*1.1*	*0.9*	*1.3*	*3.5*	*3.0*	*4.1*	*1.3*	*1.0*	*1.5*	*4.0*	*3.3*	*4.9*	*1.3*	*1.1*	*1.5*	*2.7*	*2.4*	*3.0*
Caribou meat (fresh, cooked, frozen)	*2.2*	*1.9*	*2.6*	*4.4*	*3.7*	*5.2*	*1.9*	*1.5*	*2.3*	*3.9*	*3.2*	*4.7*	2.8	2.5	3.3	3.3	2.9	3.7
Wild birds																		
Goose	*0.9*	*0.7*	*1.1*	*2.0*	*1.7*	*2.4*	*0.4*	*0.4*	*0.5*	*1.2*	*1.0*	*1.4*	*0.5*	*0.4*	*0.5*	*0.9*	*0.8*	*1.1*
Fish																		
Dried fish	*0.9*	*0.7*	*1.0*	*1.5*	*1.2*	*1.7*	*1.0*	*0.8*	*1.2*	*2.0*	*1.6*	*2.4*	*1.3*	*1.1*	*1.5*	*2.0*	*1.8*	*2.3*
Arctic char	2.8	2.4	3.3	2.8	2.3	3.3	*1.6*	*1.3*	*2.0*	*2.7*	*2.3*	*3.3*	2.3	2.0	2.7	2.3	2.0	2.6
Shellfish	*1.8*	*1.4*	*2.3*	*0.7*	*0.6*	*0.8*	*3.8*	*3.0*	*4.8*	*1.6*	*1.3*	*1.9*	*3.0*	*2.4*	*3.8*	*1.1*	*1.0*	*1.2*
Wild berries	*1.1*	*0.9*	*1.4*	*4.5*	*3.7*	*5.4*	*0.8*	*0.6*	*1.0*	*3.0*	*2.5*	*3.6*	*1.1*	*1.0*	*1.3*	*3.2*	*2.8*	*3.6*

Geometric means in italics (colored cells) are statistically different between 2004 and 2017 at $p<0.05$

Geometric means are unadjusted and for adults (≥18 years) only.

Only food items consumed by at least 50% of the Nunavik population in 2017 are presented here.

1. Summer data were used for 2004.

CI: confidence interval.

Table D Comparison of monthly consumption frequency of country foods by community size in Nunavik, 2004 and 2017.

Country food	Large						Small					
	2004[1]			2017			2004[1]			2017		
	GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI	
Beluga												
Beluga dried meat	*0.4*	*0.3*	*0.4*	*0.8*	*0.7*	*0.9*	*0.4*	*0.4*	*0.5*	*1.1*	*1.0*	*1.3*
Beluga *mattaaq*	*0.6*	*0.5*	*0.6*	*1.3*	*1.2*	*1.5*	*0.7*	*0.6*	*0.7*	*1.6*	*1.4*	*1.8*
Beluga *misirak*	*0.8*	*0.7*	*0.9*	*1.6*	*1.4*	*1.9*	*0.8*	*0.7*	*0.9*	*1.4*	*1.2*	*1.6*
Caribou												
Caribou dried meat	*1.4*	*1.2*	*1.6*	*3.2*	*2.9*	*3.6*	*0.9*	*0.8*	*1.1*	*3.4*	*3.0*	*3.9*
Caribou meat (fresh, cooked, frozen)	*2.6*	*2.3*	*3.0*	*3.8*	*3.4*	*4.3*	*1.9*	*1.7*	*2.3*	*3.9*	*3.4*	*4.4*
Wild birds												
Goose	*0.6*	*0.6*	*0.7*	*1.4*	*1.2*	*1.6*	*0.5*	*0.5*	*0.6*	*1.3*	*1.2*	*1.5*
Wild bird eggs	*0.4*	*0.4*	*0.5*	*0.6*	*0.5*	*0.7*	*0.4*	*0.4*	*0.5*	*0.7*	*0.6*	*0.8*
Fish												
Dried fish	*1.0*	*0.8*	*1.1*	*1.5*	*1.3*	*1.7*	*1.1*	*1.0*	*1.3*	*2.2*	*1.9*	*2.6*
Arctic char	2.2	1.9	2.5	2.3	2.0	2.6	*2.4*	*2.0*	*2.8*	*3.1*	*2.7*	*3.5*
Shellfish	*2.0*	*1.6*	*2.4*	*0.8*	*0.7*	*0.9*	*3.8*	*3.1*	*4.6*	*1.4*	*1.2*	*1.5*
Wild berries	*1.1*	*0.9*	*1.2*	*3.3*	*2.8*	*3.7*	*1.0*	*0.8*	*1.2*	*4.1*	*3.6*	*4.7*

GM: geometric mean; CI: confidence interval.
Geometric means in italics (colored cells) are statistically different between 2004 and 2017 at $p<0.05$
Geometric means are unadjusted and for adults (≥18 years) only.
Only food items consumed by at least 50% of the Nunavik population in 2017 are presented here.
1. Summer data were used for 2004.

Table E Comparison of daily consumption frequency of market foods by sex in Nunavik, 2004 and 2017.

Market food	Women						Men					
	2004			2017			2004			2017		
	GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI	
Total fruits and vegetables	1.37	1.25	1.50	1.98	1.82	2.15	1.07	0.96	1.18	1.62	1.46	1.80
Fresh fruits	0.27	0.24	0.29	0.42	0.38	0.46	0.24	0.22	0.27	0.33	0.29	0.37
Total vegetables	1.00	0.91	1.10	1.16	1.06	1.26	0.77	0.69	0.86	0.96	0.85	1.07
Carrots	0.18	0.16	0.19	0.20	0.19	0.22	0.17	0.15	0.18	0.20	0.18	0.22
Broccoli	0.18	0.16	0.19	0.20	0.19	0.21	0.17	0.16	0.18	0.19	0.18	0.21
Tomatoes	0.17	0.15	0.18	0.21	0.20	0.23	0.16	0.14	0.17	0.19	0.18	0.21
Potatoes	0.20	0.18	0.22	0.24	0.22	0.26	0.19	0.18	0.21	0.26	0.23	0.29
Processed meat	0.24	0.22	0.26	0.45	0.41	0.49	0.29	0.26	0.32	0.65	0.58	0.72
Bacon	0.21	0.20	0.23	0.22	0.21	0.24	0.21	0.19	0.22	0.25	0.22	0.28
Red meat	0.19	0.17	0.21	0.26	0.25	0.28	0.19	0.17	0.20	0.30	0.27	0.33
Chicken	0.15	0.14	0.16	0.17	0.16	0.18	0.14	0.13	0.15	0.19	0.17	0.21
Eggs	0.26	0.24	0.29	0.37	0.34	0.40	0.30	0.27	0.33	0.39	0.35	0.43
Canned fish	0.18	0.17	0.19	0.19	0.18	0.20	0.16	0.15	0.18	0.17	0.16	0.19
Legumes and nuts	0.20	0.19	0.22	0.23	0.21	0.24	0.22	0.21	0.24	0.27	0.24	0.30
Milk products	0.86	0.76	0.96	0.88	0.80	0.97	0.93	0.81	1.07	0.95	0.86	1.05
Total milk	0.54	0.48	0.61	0.47	0.43	0.52	0.66	0.57	0.76	0.49	0.44	0.55
Yogurt	0.19	0.17	0.20	0.23	0.21	0.25	0.18	0.17	0.20	0.22	0.20	0.25
Cheese	0.19	0.17	0.20	0.24	0.22	0.25	0.18	0.17	0.20	0.24	0.22	0.26
Total grains	1.74	1.62	1.87	2.06	1.93	2.21	2.08	1.92	2.25	2.27	2.09	2.47
Whole grains	0.22	0.20	0.24	0.32	0.29	0.34	0.24	0.22	0.26	0.33	0.30	0.37
Whole bread	0.23	0.21	0.24	0.28	0.26	0.30	0.26	0.24	0.28	0.29	0.26	0.33
Hot cereals	0.21	0.20	0.23	0.22	0.21	0.23	0.20	0.19	0.21	0.23	0.22	0.25
Refined grains	1.55	1.44	1.66	1.73	1.62	1.85	1.80	1.66	1.95	1.88	1.74	2.04
White bread	0.53	0.48	0.58	0.47	0.43	0.51	0.65	0.59	0.72	0.56	0.50	0.63
Cold cereals	0.21	0.19	0.22	0.26	0.24	0.28	0.24	0.22	0.26	0.29	0.26	0.32
Pasta	0.25	0.23	0.27	0.21	0.19	0.22	0.23	0.21	0.26	0.20	0.18	0.22
Rice	0.25	0.24	0.27	0.32	0.30	0.35	0.22	0.20	0.23	0.27	0.24	0.30
Bannock	0.28	0.25	0.31	0.21	0.19	0.23	0.31	0.27	0.36	0.27	0.24	0.30
French fries	0.17	0.15	0.18	0.17	0.16	0.19	0.19	0.17	0.20	0.19	0.17	0.21
Fried chicken	0.18	0.17	0.19	0.16	0.15	0.17	0.19	0.18	0.20	0.16	0.15	0.18
Sweets	0.54	0.49	0.60	0.69	0.64	0.76	0.57	0.51	0.65	0.75	0.66	0.84

Market food	Women						Men					
	2004			2017			2004			2017		
	GM	95% CI		GM	95% CI		GM	95% CI		GM	95% CI	
Cookies	0.18	0.17	0.20	0.16	0.15	0.18	0.20	0.18	0.23	0.19	0.17	0.21
Chocolate bars	0.21	0.19	0.23	0.23	0.21	0.25	0.21	0.19	0.23	0.23	0.21	0.26
Candies	*0.26*	*0.25*	*0.28*	*0.23*	*0.21*	*0.25*	*0.24*	*0.22*	*0.26*	*0.21*	*0.19*	*0.23*
Spread, jams	0.21	0.19	0.23	0.21	0.20	0.23	0.21	0.19	0.23	0.21	0.19	0.23
Ice cream	*0.14*	*0.13*	*0.15*	*0.16*	*0.15*	*0.17*	*0.13*	*0.12*	*0.14*	*0.16*	*0.15*	*0.18*
Sugary beverages	*1.90*	*1.72*	*2.09*	*1.40*	*1.27*	*1.55*	*1.89*	*1.70*	*2.09*	*1.33*	*1.19*	*1.50*
Soft drinks	*0.79*	*0.71*	*0.89*	*0.62*	*0.56*	*0.69*	*0.80*	*0.71*	*0.89*	*0.53*	*0.47*	*0.60*
Juices, cocktails	*0.78*	*0.70*	*0.88*	*0.63*	*0.56*	*0.69*	*0.80*	*0.71*	*0.91*	*0.63*	*0.56*	*0.70*
Coffee	*0.64*	*0.57*	*0.71*	*1.21*	*1.10*	*1.32*	*0.62*	*0.55*	*0.70*	*1.14*	*1.01*	*1.28*
Tea	*0.66*	*0.59*	*0.75*	*0.43*	*0.39*	*0.48*	*0.76*	*0.67*	*0.86*	*0.60*	*0.52*	*0.68*

GM: geometric mean; CI: confidence interval.
Geometric means in italics (colored cells) are statistically different between 2004 and 2017 at p<0.05
Geometric means are unadjusted and for adults (≥18 years) only.


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RÉGIE RÉGIONALE DE LA SANTÉ ET DES SERVICES SOCIAUX DU NUNAVIK
NUNAVIK REGIONAL BOARD OF HEALTH AND SOCIAL SERVICES