

Food-based dietary guidelines in circumpolar regions

Charlotte Jeppesen,
Peter Bjerregaard,
Kue Young

Circumpolar Health Supplements 2011; 8

International Association of Circumpolar Health Publishers:

Danish-Greenlandic Society for Circumpolar Health and
Greenland Institute of Health Research,
Institute for Circumpolar Health Research,
International Network for Circumpolar Health Research,
International Union of Circumpolar Health,
Nordic Society for Circumpolar Health,
University of Alaska, Anchorage,
University of Manitoba,
University of Oulu,
University of Tromsø

Contributing members:

Northern State Medical University, Arkhangelsk,
The Komi Branch of the Kirov State Medical Academy

Editorial board:

Tiina Ikaheimo
International Journal of Circumpolar Health
Oulu, Finland
tiina.ikaheimo@oulu.fi

Jon Øyvind Odland
Institute of Community Medicine
University of Tromsø
Tromsø, Norway
jon.oyvind.odland@ism.uit.no

Kue Young
Dalla Lana School of Public Health
University of Toronto
Toronto, Canada
kue.young@utoronto.ca

Original text: Charlotte Jeppesen, Peter Bjerregaard, Kue Young
Cover design: Riitta Aittamaa
Layout: Privat-Medi, Finland
Printing: Rannikon Laatupaino, Vihanti, Finland

Food-based dietary guidelines in circumpolar regions

Charlotte Jeppesen
Peter Bjerregaard
Kue Young

Supported by:



norden

Supported by the Nordic Council of Ministers

Contents

List of illustrations	5
Preface	6
1. Introduction	7
2. Nordic Countries	10
2.1. Faroe Islands	11
2.2. Sweden	14
2.3. Norway	15
2.4. Finland	16
2.5. Iceland	18
2.6. Greenland	19
3. Northern Canada	22
4. Alaska	32
5. Conclusions	36
References	39
Appendix	40

List of illustrations

- Figure 1.** Map of circumpolar countries and their northern regions
- Figure 2.** Keyhole label
- Figure 3.** Danish dietary compass
- Figure 4.** Food circle used in Sweden
- Figure 5.** Swedish plate model
- Figure 6.** Illustration of a healthy meal shown on the Norwegian website
- Figure 7.** Finnish plate model
- Figure 8.** “Eat 5 a day” poster from Iceland
- Figure 9.** Icelandic plate model
- Figure 10.** Another example of the “5 a day” poster from Iceland
- Figure 11.** “Healthy food to eat when you have diabetes”:
Brochure produced by Queen Ingrid’s Hospital, Nuuk
- Figure 12.** Health Canada’s logo for Canada’s Food Guide
- Figure 13.** Food and nutrition topics featured in Health Canada’s website
- Figure 14.** Illustration from Eating Well with Canada’s Food Guide:
First Nations, Inuit and Métis
- Figure 15.** Example of a portion illustration from Eating Well with Canada’s Food Guide:
First Nations, Inuit and Métis
- Figure 16.** First page of the Northwest Territories Food Guide
- Figure 17.** First page of the Nunavut Food Guide
- Figure 18.** Logo of MyPyramid.gov
- Figure 19.** Alaska’s calculator for safe fish consumption by women and children

PREFACE

The Arctic Human Health Expert Group (AHHEG) started its work as a newly formed group under the Arctic Council's Sustainable Development Working Group (SDWG) in 2009. One of the priorities of the AHHEG is "Diet and Nutrition" and, as a consequence of this, the preparation of a report comparing dietary guidelines in the Arctic was authorized as an Arctic Council project.

For logistical and linguistic reasons, the present report is confined to the Arctic regions of North America and the Nordic countries, and thus omits Russia. Furthermore, only information available through the Internet is included. This is a significant limitation and we hope to rectify it at a later stage. We invite readers to provide us with additional input and suggestions to help us with these improvements.

The authors would like to thank the anonymous reviewers who read and commented on this report. We would also like to thank Ms. Elva Gísladóttir of the Public Health Institute of Iceland for her special assistance with providing and translating the Icelandic guidelines, Dr. Marja Vanhala of the Department of Sports Medicine, Deaconess Institute of Oulu for providing information on Finland, and Dr. Pál Weihe and Dr. Gert Mulvad for their clarification of the recommendations regarding the Faroe Islands and Greenland.

The actual task of compiling the report was done at the National Institute of Public Health in Copenhagen. The statements and conclusions in the report are those of the authors alone. While Bjerregaard and Young are current co-chairs of AHHEG, this report does not represent those of AHHEG or its individual members.

*Charlotte Jeppesen, Peter Bjerregaard and Kue Young
Copenhagen, Nuuk and Toronto*

I. INTRODUCTION

“An apple a day – keeps the doctor away!”

This phrase might be the best known and most repeated dietary guideline ever. But as this report will show, even though food-based dietary guidelines have been developed in most countries, the reality is that it takes more than an apple a day to comply with these guidelines. This applies also to the circumpolar regions.

Food-based dietary guidelines and dietary recommendations

According to nutrition scientists (1), there are two types of nutrition recommendations:

- (a) Recommendations based on the physiological and scientific knowledge of the requirements of various nutrients.
- (b) Recommendations based on nutrient energy distribution that express the proportions of energy from fat, carbohydrate and protein as a percentage of the total energy intake.

Dietary guidelines, or more formally *food-based dietary guidelines* (FBDGs) according to the Food and Agriculture Organization (2), are guidelines primarily based on foods, but in some cases may also include nutrients. FBDGs provide short and simple messages that the majority of the population find easy to follow. FBDGs avoid providing

numerical values of micronutrient intake or nutrient energy distribution found in the two types of recommendations listed above. In this report, food-based dietary guidelines (FBDGs) are defined as *the overall set of recommendations that identify a healthy diet*. For example, they may recommend eating 600 grams of fruits and vegetables per day.

The recommendations set out in the FBDGs should be easy to achieve by the majority of the population. FBDGs are developed to assure public health and to give the public access to healthy recommendations which, when followed, will reduce the prevalence of over- and under-nutrition resulting from over-consumption or deficiencies of vitamins, minerals and other nutrients. Lately, many FBDGs have been revised and physical activity has been included to promote public health. The World Health Organization estimates that within the European region, 10–15% of healthy years lost can be attributed to nutritional factors (3). FBDGs are related to the nutritional and health status of the country and to the local availability of food. Furthermore, socioeconomic status and cultural traditions can influence health policies. Thus it is to be expected that there will be variation in the contents of FBDGs among countries.

Why compare food-based dietary guidelines?

FBDGs have become an important aspect of public health policy in most countries. It should be recognized that, in addition to nutrition, a country’s key food policy also include food safety and food security.

This report provides short and precise descriptions of the latest food-based dietary guidelines in selected circumpolar countries

and regions (Fig.1), with special focus on the public access to the guidelines.

This report includes all the FBDGs of the circumpolar countries (with the exception of Russia) for comparison, as well as specific northern regions where separate guidelines exist. The Nordic countries collectively are assigned a separate chapter to cover issues that are common to them. It should be emphasized that all the materials used for comparison in this report can be found on

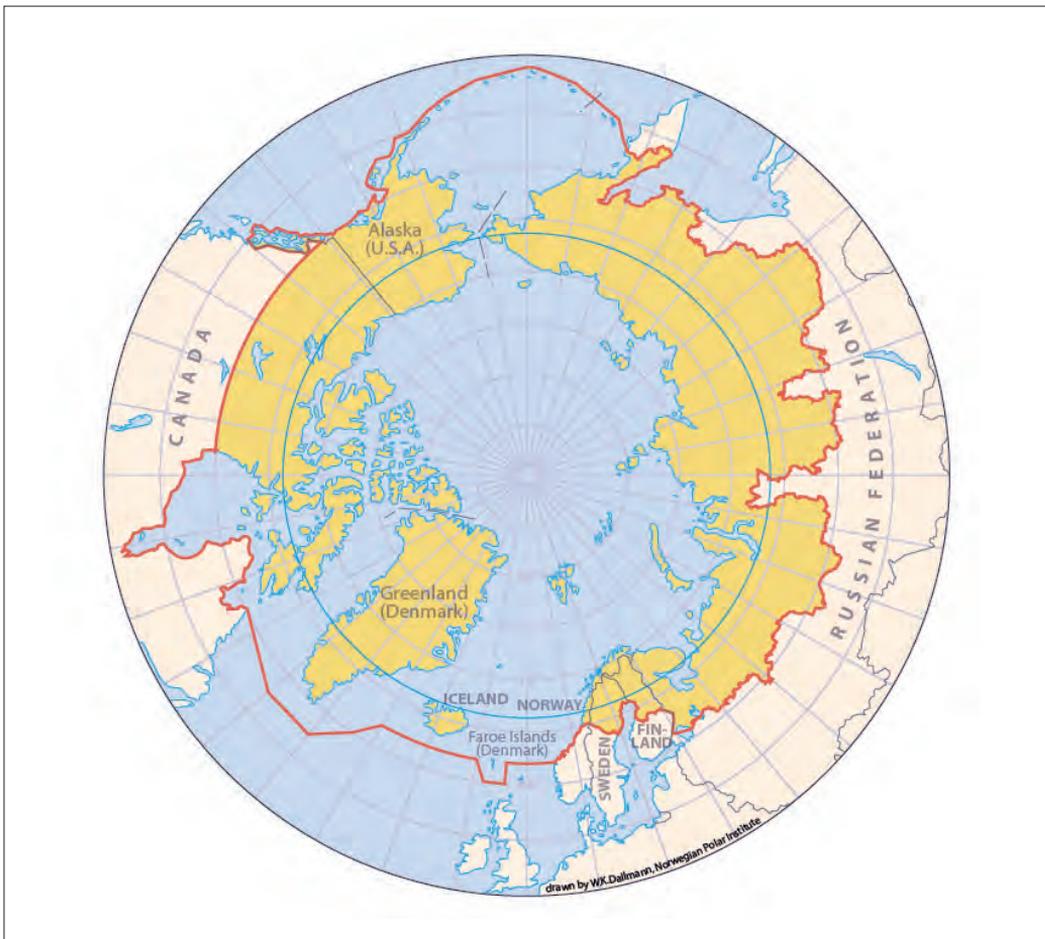


Figure 1. Map of circumpolar countries and their northern regions.

the Internet if no other source is stated. All illustrations are taken from websites and are for illustrative purposes only. The search words used were as follows: the respective region, e.g., “Alaska” AND “dietary guidelines/recommendation*”/ “food based dietary guidelines”/“nutrition guidelines/recommendation*”/“dietary advice.”

It is intended that this report will lead to follow-up actions such as a comprehensive review of the scientific rationale behind the differences among dietary guidelines and a compilation of national and regional nutrition action plans and strategies. The report can be used to support the exchange of information among health planners, decision makers and researchers and stimulate further research into the development, implementation, monitoring and evaluation of FBDGs.

In the appendix, an overview of the FBDGs that have been reviewed in this report is summarized in a chart format, highlighting daily recommendations for a healthy diet: fruits and vegetables (fibre-dense products);

dairy products (rich in calcium); meat, fish and beans (high protein sources); traditional food, including fish and fish products (omega 3 fatty acid).

Issues regarding food labelling and contamination of marine food are included in this review if they constitute part of the national or regional FBDGs. As food labelling is covered extensively in the review of the Nordic countries, additional comments are included under the North American regions, in order to demonstrate how food labelling is handled differently by each of the countries. Environmental contaminants have attracted considerable attention from researchers and policy makers. The bioaccumulation of various contaminants in top predator marine mammals is of particular concern in the Arctic since marine food is one of the basic elements of the Arctic traditional diet. How much concern is given to the contamination of marine food varies between regions. In some regions extra materials have been developed, and these are also described in this report.

2. NORDIC COUNTRIES

Every fourth year the Nordic Nutrition Council revises the existing scientific dietary recommendations. The Council is composed of leading experts representing all the Nordic countries: Sweden, Denmark, Norway, Finland and Iceland. The previous revision from the Council was published in 2004, at which time a major change was the addition of physical activity as a recommendation. This is reflected in the title of the guideline: “Nordic Nutrition Recommendations – Integrating Nutrition and Physical Activity” (to be referred as NNR2004). This provoked a strong debate about the definition of dietary guidelines and whether physical activity was related to nutrition in such a way that it justified its inclusion as a recommendation. Another issue was regarding the word “nutritional,” which was suddenly given a broader meaning that not only related to diet but also encompassed “lifestyle” in general. Therefore, a part of the debate concerned the suggestion of changing dietary recommendations into lifestyle recommendations. The introduction of the new scientific material and the ensuing debate on definitions is a good example of how a dietary guideline should reflect the nutritional status of the public and take into account the special needs of the public. The Nordic countries all revised their public FBDGs when the NNR2004 was published. The populations in the Nordic countries are experiencing an increase in the prevalence of overweight and obesity and associated diseases such as type 2 diabetes and cardiovascular disease. Excess energy intake and phys-

ical inactivity are both risk factors that can lead to obesity, which justifies efforts to increase the public’s awareness of these factors and promote steps that individuals can take to change these behaviours.

Food labels

The use of food labels is commonplace in the Nordic countries, although not mandatory in the European Union as it is in the U.S. and Canada. There is one new label that is worth paying more attention to because it is commonly used in Sweden, Norway and Denmark (Greenland and the Faroe Islands in this context). The use of general food labels is not a part of food-based dietary guidelines, except in Sweden and Norway. It is worth considering that some labels target the same nutrition-based complications like obesity and type 2 diabetes as the FBDGs do.

The Nordic countries are known for their close cooperation in many spheres, including health. The Nordic Nutrition Council is one such example. Another area is cooperation in food labelling, which is logical since much of the food production and distribution crosses borders, e.g., Nordic Unilever (general foods), Arla (dairy products) and COOP (consumer goods retailer).

The most recent innovation in the labelling of food products is the creation of the keyhole label (Fig.2). The label was developed in Sweden in 1989, and then introduced in Norway and most recently (2009) in Denmark.

The intention of the label is to make it easier for the consumer to choose food products that ensure a balanced and nutritious diet based on the FBDG. In this way, by choosing products featuring the keyhole label, the consumer will purchase foods that have a higher content of fibre and a lower content of total fat, saturated fat, sugar and salt. The label helps consumers choose healthier alternatives. The energy density (energy content per 100 gram) of the product is also taken into consideration, since high energy dense products increase the risk of excess energy intake and therefore will not obtain the label. Products within the following food groups can be labelled with the keyhole:

(1) Low-fat milk and dairy products (milk, yoghurt, cheese) and vegetable-based products used in the dairy industry such as margarines and oils if the lipid profile is cardio-beneficial.

- (2) Meat, fish and ready-made dishes (such as pizza/pie, sandwiches and open sandwiches, wraps and soups) that contain lower fat and higher fibre than their counterparts.
- (3) Fruit, berries, potatoes and vegetables.
- (4) Bread and other cereal products (crisp bread, grain mix, pasta, flour, and mixes for porridge), again containing lower levels of fat and sugar and higher fibre than their counterparts.



Figure 2. Keyhole label.

2.1. FAROE ISLANDS

The Faroe Islands, an integral part of the Danish monarchy, have enjoyed Home Rule since 1948 and have considerable autonomy in domestic affairs. Some areas are still under the responsibility of Denmark, such as military defense, foreign affairs, health and justice. Therefore, the Danish FBDGs are used in the Faroe Islands. Unique to the Faroe Islands are specific guidelines for the consumption of pilot whale which is an important traditional food.

Availability of material

The Faroe Food and Veterinary Agency web page (www.hfs.fo) provides a nutrient table with typical food items available in the Faroe Islands. Various documents on the background of the guidelines for consuming pilot whale and on the contamination of salmon and cod are available in English. The website does not clarify if the Faroes make use of the Danish FBDGs, but the Faroes Board of Health

recommends that the public follows the 8 Danish FBDG. Background information on the Danish guidelines is available (only in Danish) at http://www.altomkost.dk/Viden_om/De_8_kostraad/forside.htm.

The FBDGs of Denmark were relaunched as 8 dietary guidelines in 2005 at which time the recommendation for regular physical activity was included. Like the FBDGs of other Nordic countries, the Danish guidelines are based on the Nordic Nutrition Recommendations published in 2004. Both governmental and non-governmental organizations play a significant role in the dissemination of dietary messages. For example, the campaign to eat 600 grams of fruits and vegetables per day was mounted by the Danish Veterinary and Food Administration, the National Board of Health, the Danish Fitness and Nutrition Council, the Danish Cancer Society, the Danish Heart Foundation, the Danish Fruit, Vegetable and Potato Board, the Danish Meat Association, Fællesforeningen for Danmarks Brugsforeninger (FDB – the Danish Co-operative Union) and Dansk Gartneri (Danish Horticulture). This campaign was launched before the FBDGs were revised and was based on findings from previous research. It focused on fruit and vegetable intake and proposed that individuals reach a goal of consuming 6 pieces or 600 grams of fruits and vegetables per day (called “6 a day”). In August 2002, the “6 a day” campaign won the “Columbus Egg” prize, awarded by the Danish advertising industry.

Description

The 8 FBDGs are for people above the age of 3. A key instrument in disseminating the guidelines and making them user-friendly for the consumer is the “Dietary Compass” (Fig.3). It is meant to help consumers balance their diet and physical activity by giving examples on what foods to eat and what foods to avoid and how to be physically active.



Figure 3. Danish dietary compass.

FOOD-BASED DIETARY GUIDELINES OF THE FAROE ISLANDS AND DENMARK

1. Eat fruit and vegetables – 6 pieces per day.
2. Eat fish and fish spread – several times a week.
3. Eat potatoes, rice or pasta and whole grain bread every day.
4. Limit your intake of sugar – especially from soft drinks, confectioneries and candy.
5. Limit your intake of fat – especially from dairy products and meat.
6. Eat a varied diet and maintain a normal weight.
7. Quench your thirst with water.
8. Engage in physical activity for at least 30 minutes per day.

The Danish guidelines have the highest recommendations of fruits and vegetables of the Nordic countries. In Denmark and the Faroe Islands, the recommended intake is 600 grams or 6 pieces per day. Also, Denmark is the only Nordic country that includes physical activity in the guidelines.

Guidelines for the consumption of pilot whale and blubber

The issue of mercury and PCB pollution has been debated for a long time in the Faroe Islands. Since 2008, pilot whale is not recommended for consumption. In 1998, the Chief Medical Officer, the Faroe Food and Veterinary Agency, and Department of Occupational Medicine and Public Health published science-based recommendations for the consumption of pilot whale meat and its blubber, which are highly preferred traditional foods. It was recommended that the consumption of whale meat was limited to at most twice a month for adults. Women were advised not to consume pilot whale meat for 3 months before pregnancy or while pregnant and nursing. The same limitation was recommended for the blubber, i.e., a maximum of twice a month for adults, and not at all for girls or for women of child-bearing age. In 2008, the Chief Medical Officer and Department of Occupational Medicine and Public Health suggested new recommendations for the consumption of pilot whale. Due to pollution, it is today recommended that the entire population should not eat pilot whale. These are only guidelines and not rules since pilot whale is a popular and important traditional food for the population of the Faroe Islands.

Consumer access

The website of the Faroe Food and Veterinary Agency includes the short report “Dried Meat in the Faroe Islands, the Process and Microbiological Aspects – Hygiene and Safety Aspects.”, from the proceedings of

the International Dry-Cured Meat Conference held in 2006. The report discusses issues related to the process of drying meat, such as lamb, whale, goose and fish. Most drying of meat takes place in private households, which is the rationale for an increase in the dissemination of information on this issue. The report focuses on how to prevent the growth of microorganisms, especially yeasts and moulds, on meat after drying. Considering the highly technical language used in the report, it should be considered more of a tool for professionals and researchers than for the general public. The information on recommendations on consumption of pilot whale can be found in Medical Report 2008 from the Chief Medical Officer in the Faroes (4).

Nutrition information for the average consumer is available mainly on the Internet and through health education campaigns. The main web page for food and food-related issues is the Ministry of Food, Agriculture and Fisheries in Denmark (<http://www.uk.foedevarestyrelsen.dk/forside.htm>) or the nutrition website hosted by the Ministry at http://www.altomkost.dk/Viden_om/De_8_kostraad/forside.htm (in Danish). Dissemination of the recommendations is done through placing posters in public places, television and radio campaigns and written material for children. The main web page for nutrition provides information on the consumption of milk, fruits and vegetables; how to prepare lunch; information for institutional kitchens and for parents; information on food labelling; appraisals of products; meat consumption and the risk of cancer; nutrient supplementation and many other issues.

2.2. SWEDEN

Availability of material

The Swedish FBDGs are published by the National Food Administration (Livsmedelsverket): <http://www.slv.se/sv/gruppl/Mat-och-naring/Kostrad/>.

Description

Together with the 5 FBDGs, a “Food Circle” (Fig. 4) is included that illustrates the food categories as well as a “Plate Model” that shows the proportions of food for a general meal (Fig. 5). The plate is divided into 3

parts: 2/5 for vegetables, 2/5 for potatoes, rice, pasta or bread and 1/5 for meat or fish.

Consumer access

The website of the National Food Administration is easy to navigate and has abundant information on specific nutrition topics. Within the section of “Recommendations,” the content covers (in headlines) food to eat while pregnant or breast feeding, guidelines for school lunches, general Swedish nutrition recommendations, and the campaign



Figure 4. Food circle used in Sweden.

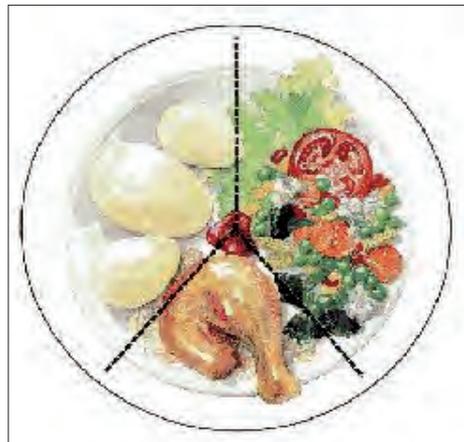


Figure 5. Swedish plate model.

FOOD-BASED DIETARY GUIDELINES OF SWEDEN

Do you want to eat a healthy diet?

1. Eat a lot of fruit and vegetables – recommend 500 grams per day.
2. Include bread in every meal, preferably whole grain.
3. Choose products labelled with the “keyhole.”
4. Eat fish often – at least 3 times per week.
5. Choose fluid margarines and oils to cook with.

for fruits and vegetables. The website also includes a food database, material about the keyhole label, action plans for healthy eating and results from national dietary surveys.

As an extra service for the population, the material of the 5 dietary guidelines and the

information on the use of the Plate Model are available in sign language. Almost all the topics are available in a separate section in an easy-to-read style that uses short sentences, simple and easy-to-understand headlines and avoids the use of scientific terms.

2.3. NORWAY

Availability of material

The FBDGs of Norway are available from the website of the Norwegian Directorate of Health: <http://www.helsedirektoratet.no/ernaering/kostholdsrad/>

The FBDGs were published in 2005 and, like most other Scandinavian countries, are based on the Nordic Nutrition Recommendations. On the Directorate of Health's website, readers will find an action plan for diet, physical activity and health (published in May 2004) and a strategic plan for a healthier diet for implementation during 2007–2011.

Description

In Norway, the FBDGs consist of 10 pieces of advice and are meant for everyone from the age of 2 years and up, regardless of gender. Similar to the Swedish FBDGs, the Norwegian guidelines include advice on how to choose products with the keyhole label when they are available. The website has a section with publications and materials for the public. In this section there is a variety of folders with general information, such as "Mat og mosjon i hverdagen" ("Diet and physical activity during work days"). Other more specific folders focus on diet in relation to infants and children, allergies, high blood pressure and diabetes.

FOOD-BASED DIETARY GUIDELINES OF NORWAY

1. Eat at least 3 portions of vegetables and 2 portions of fruit per day.
2. Choose baked or cooked potatoes instead of potato chips and French fries.
3. Choose whole grain bread and cereals.
4. Eat more fish – both for lunch and dinner.
5. Choose low-fat meat and dairy products.
6. Choose vegetable-based margarines and oils instead of hard margarines and butter.
7. Choose products that have a keyhole label.
8. Cut down on the consumption of sugar, especially from soda pop and candy.
9. Be careful with the salt.
10. Water is the best drink.

Interestingly enough, Norway includes specific advice on the consumption of potatoes (#2 of the guidelines). This small difference reflects the different food habits within the Nordic countries, even though the overall patterns are very similar.

Consumer access

The website of the Norwegian Directorate of Health is easy to navigate and the target group is broad since it addresses the average population, specialists within research institutions, and so on. The site also includes policy documents such as action plans and strategies. There are separate sections on nutrition and physical activity. The nutrition section covers – like the Swedish website – themes that focus on dietary guidelines, the content of nutrients in food, and results from national dietary

surveys. The dietary guideline provide recommendations on fruit and vegetable consumption; specific advice for pregnant and breast-feeding women, people with food allergies or intolerances, and people who have a high level of physical activity; and information on folate (supplementation and dietary sources) and vitamin D (recommended intake, population vitamin D status and sources for vitamin D). Figure 6 is an illustration from the website to demonstrate the picture of what a healthy meal can look like.



Figure 6. Illustration of a healthy meal shown on the Norwegian website.

2.4. FINLAND

Availability of material

The Finnish FBDGs are similar to the recommendations for the Nordic countries that were published in 2005. The guidelines are available from the State Advisory Board on Nutrition website: http://www.suomi.fi/suomifi/english/subjects/health_and_nutrition/food_and_nutrition/index.html or from the VRN (National Nutrition Council) website: http://www.ravitsemusneuvottelukunta.fi/portal/en/nutrition_recommendations/.

Description

The Finnish FBDGs contain 7 recommendations that are very similar to those of the other Scandinavian countries. What is unique about the Finnish FBDGs is that they include a recommendation on the consumption of alcohol (#7). Like the Danish recommendations, they also target physical activity. The Plate Model is also used in Finland as in most other Nordic countries (Fig. 7).

FOOD-BASED DIETARY GUIDELINES OF FINLAND

1. Maintain a balance between energy intake and energy expenditure.
2. Maintain a balanced intake of nutrients.
3. Increase the intake of carbohydrates with high fibre content.
4. Decrease the intake of refined sugars.
5. Decrease the intake of hard fat and increase the proportion of soft fats.
6. Decrease the intake of salt.
7. Drink a moderate amount of alcohol.



Figure 7. Finnish plate model.

Consumer access

The State Advisory Board of Nutrition's website provides FBDGs, food composition tables, results of nutritional surveys, recommendations for people with special diets and a recommendation regarding fish consumption, since contamination from the Baltic Sea is a problematic issue. Each one of these sections

has a link to an external web page, which could confuse the consumer while he/she is searching for information.

Other sections cover food monitoring aspects, such as radioactivity in food and food control; food safety issues related to hygiene and packaging; regulations of organic foods and organic logos; and issues regarding genetically modified food labelling and regulations.

2.5. ICELAND

Availability of material

All documents are available only in Icelandic except for a brochure for pregnant and lactating women, which is available in English. The main FBDGs and an extensive amount of literature, brochures and teaching materials are available from the website of the Public Health Institute of Iceland: <http://www.lydheilsustod.is/naering/>.

Description

The FBDGs of Iceland are for everyone 2 years of age and older.

Iceland revised its FBDGs in 2005 and

they are based on the 6 food groups, which are illustrated as a food circle. The “Plate Model” shows the proportion of vegetables, rice, potatoes or pasta, and meat or fish included in an ideal meal. The usual proportions can be seen in Figure 9. There is no mention of contaminants in food but there is a lot of information about salt and sugar intake and how to increase the daily fruit and vegetable intake. Target groups are the elderly living in their own homes and children in schools and institutions. A special characteristic of the Icelandic nutritional guidelines is the recommendation of vitamin D through supplements or the intake of vitamin D dense food items.

FOOD-BASED DIETARY GUIDELINES OF ICELAND

1. Consume a varied diet.
2. Eat fruit and vegetables daily: 500 grams/day, at least 200 grams of fruit and 200 grams of vegetables.
3. Eat fish at least twice a week.
4. Eat whole grain products and fiber-rich food.
5. Eat low-fat dairy products (1.5 grams or less/100 grams) with as little added sugar as possible.
6. Use vegetable oils instead of hard margarine and butter.
7. Reduce your intake of salt (max 6 grams/day for women and 7 grams/day for men).
8. Consume fish oil or other vitamin D sources daily (10 micrograms of vitamin D/day from the age of 6 months).
9. Water is the best drink.
10. Maintain a healthy body weight.



Figure 8. “Eat 5 a day” poster from Iceland.



Figure 9. Icelandic plate model.



Figure 10. Another example of the “5 a day” poster from Iceland.

Iceland has also had a campaign to promote the intake of fruits and vegetables. Iceland recommends 500 grams of fruits and vegetables a day. In most of the illustrations, examples are shown of how 500 grams of fruits and vegetables can be obtained on a daily basis (Fig. 10).

Consumer access

The material from the Public Health Institute of Iceland is very extensive and covers all age groups of consumers in the population. Areas of nutrition include nutrient tables of the Icelandic diet, extensive recipes, campaign materials for intake of vitamin and minerals, fruits and vegetables, ways to avoid trans-fatty acids in the diet and how to stay lean. Additional information is available on physical activity and alcohol-abuse prevention.

2.6. GREENLAND

Availability of material

The FBDGs of Greenland were launched in 2005, with a colourful pamphlet that outlines the 10 dietary recommendations. The FBDGs can be viewed at www.peqqik.gl or www.paarisa.gl together with a scientific evaluation of the impact of environmental pollution on the recommendations for traditional food intake (5). A promotion campaign followed the publication of the 10 FBDGs and the campaign has recently been evaluated. All materials are in Danish or Greenlandic. Additionally, it should be mentioned that the campaign included various illustrative tools other than the use of the Internet, e.g., a CD-Rom (which can be ordered from Paarisaa) and a board game meant as a teaching tool in schools to disseminate the awareness of the 10 FBDGs among students.

Description

The FBDGs of Greenland belong to the category of “lifestyle guidelines,” as they include recommendations on physical activity and the social aspects of meals and eating. For instance, paying attention to what kinds of food products are being purchased and the nutritional value of these foods; passing on good food habits and cooking traditions to the next generation by asking parents to include their children in the cooking of meals. The Greenlandic FBDGs are very similar to the Danish FBDGs, and consist of 10 separate pieces of advice on several food items, including fruits and vegetables, traditional foods, consumption of whole grains, low fat intake, low sugar intake and water intake.

The Greenlandic guidelines are quite general and avoid details about how often

FOOD-BASED DIETARY GUIDELINES OF GREENLAND

1. First and foremost eat a varied diet.
2. Eat traditional foods, and fish and fish products often. Follow the season and vary between terrestrial animals and marine animals. Make use of berries and vegetables. Eat fish and fish products for lunch.
3. Eat fruit and vegetables every day. Bring a piece of fruit or a vegetable to work or school. Make it a habit to eat vegetables with your hot meals. Frozen fruits and vegetables are just as nutritious as raw ones.
4. Eat whole grain breads and grains every day; eat potatoes, rice or pasta often. Dark rye bread is more satisfying than plain white bread. Whole- grain crisp bread is also suitable. Vary between including rice, pasta and potatoes in your hot meals.
5. Eat fat in moderation. Choose milk, cheese and meat with a low fat content. Use plant-based margarines and oils when you cook.
6. Limit the intake of sugar, candy, snacks and cake. Drink coffee or tea without sugar. Fruit and vegetables give a better sensation of satiety than candy, snacks and cakes. Limit your intake of candy, snacks and cake to one time per week.
7. Drink water – limit consumption of lemonade and soft drinks. Lemonade and soda pop are high in sugar and are only recommended at special events or at parties. Drink fresh tap water or water from the river.
8. Eat frequently – but not much. Eat 3 meals per day. Breakfast is important. Eat a small snack in between, like a piece of fruit or a vegetable, crisp bread or dried fish.
9. Be active at least 1 hour per day through activities like biking, walking, hunting, cleaning the house or participating in sports.
10. Consider what you eat – it starts with your groceries, unite the family at supper time and cook together with your children.

or how much of the main food groups to consume. Only one recommendation mentions frequency: that the intake of candy and salted snacks be limited to one day per week. None of the other guidelines specify the amount or frequency. The FBDGs recommend that traditional foods and fish be consumed on a “frequent” basis. It is noteworthy that Greenland has the highest recommendation for physical activity, i.e. 60 minutes of activity per day, compared to the Faroe Islands, which recommends 30 minutes a day for adults and 60 minutes for children. The FBDGs have been promoted by a campaign that uses the public media, the health care system, shops and schools.

Consumer access

The FBDGs main target is the general public and the guidelines have been disseminated through television and radio shows and a variety of printed information. Greenland’s FBDGs place a special focus on three special groups: children and adolescents, pregnant women, and people with diabetes.

For children and adolescents, the focus is on sugar and sugar-dense soft drinks. Children and adolescents are divided into three groups. For the first group, children 0–3 years of age, an information booklet is available for parents and staff at institutions. For the second group, children 4–10 years

of age, the Greenland Nutritional Board has published a booklet primarily for parents, school teachers and other professionals. For the third group, children 11–16 years of age, 2 approaches have been used in the schools: a comic strip conveys the message of the 10 FBDGs to children; and the teachers use extensive printed materials that focus on a “healthy lifestyle.”

For pregnant women, the main concern is the contamination of traditional foods and whether there is a risk in the development of the foetus if the mother is exposed to various contaminants. The advice is that pregnant women and smaller children should eat traditional foods but avoid or limit the intake of polar bear, toothed whales, elderly seals and sea birds. A small paper was published in 2007 for the public focusing on the issues of contamination and how to deal with contamination when eating traditional foods (5).

For people with diabetes, special guidelines have been prepared by the Department of Health. The guidelines are contained in a brochure (Fig.11) titled “Healthy food to eat when you have diabetes,” produced by Queen Ingrid’s Hospital in 2006 (6). The advice to people with diabetes are similar to the general FBDGs, except that there are recommendations to eat a higher amount of fruits



Figure 11. “Healthy food to eat when you have diabetes”: Brochure produced by Queen Ingrid’s Hospital, Nuuk.

and vegetables (2-3 pieces of fruit per day) and to have 13 smaller meals in between regular meals. There is advice on how to lose weight, which is simply to eat less than usual, and a recommendation to limit the intake of dairy products to a maximum of half a litre of milk per day. Limiting the consumption of alcohol is also recommended.

All this information is available at www.peqqik.gl or www.paarisa.gl.

3. NORTHERN CANADA

Northern Canada generally refers to the 3 territories located north of the 60th parallel – Yukon, Northwest Territories (NWT) and Nunavut – although some regions inhabited predominantly by Inuit such as Nunavik in northern Quebec and Labrador are often also included. In discussing FBDGs, it should be recognized that there are “federal” (national) and “territorial” guidelines, as health care is a shared responsibility between these 2 levels of government. In this section, 4 separate FBDGs will be discussed:

- (1) *Canada’s Food Guide* is used by Canadians everywhere, including some of the population living in the northern regions such as Yukon, which does not have its own territorial FBDG, and in the NWT and Nunavut (7).
- (2) *Eating Well with Canada’s Food Guide: First Nations, Inuit and Métis* is designed for use by Aboriginal communities. These guidelines have been adopted by regions such as Nunavik and by individual First Nations communities in the North (8).
- (3) *The Northwest Territories Food Guide* was designed in 1988 by the NWT Department of Health and Social Services for use within its jurisdiction. The NWT has a

population that is approximately 50% non-Aboriginal, 9% Inuit and the remainder First Nations and Métis (9).

- (4) *The Nunavut Food Guide* was designed by the Nunavut Department of Health and Social Services for use within Nunavut, which has a population that is about 85% Inuit. The guide was revised in 2005 to incorporate new guidelines from Health Canada (10).

Canada’s Food Guide

Canada’s first food guide, the Official Food Rules, was introduced to the public in 1942. Nutrition labelling became mandatory in Canada for all prepackaged foods in 2007.

Availability of material

Canada’s Food Guide and Canada’s Physical Activity Guide to Healthy Active Living are available from Health Canada’s website: www.healthcanada.gc.ca/foodguide (Fig.12). Information is also provided on bottled water safety and regulations, food labelling, prenatal nutrition for pregnant women, and food allergies and intolerances (Fig.13). Canada’s Food Guide is available in 12 languages.



Figure 12. Health Canada’s logo for Canada’s Food Guide.



Figure 13. Food and nutrition topics featured in Health Canada's website.

Description

In Canada's Food Guide, the FBDGs are divided into 4 groups: fruits and vegetables; starchy foods and grains; dairy products; and protein rich foods such as meat, fish eggs and beans. The FBDGs give advice for each of the 4 food groups with frequency per day and examples of portion sizes for all food items included in the food group. Guidelines for the number of portions per day vary between 3 population groups: children 2–3 years; children 4–13 years; and adolescents and adults, separately for men and women.

Consumer access

All the resources for Canada's Food Guide are available on the Health Canada website. There are many features on the website, e.g., a guided tour of the food guide and steps on how to build a personal edition of the food guide.

In addition to the Food Guide and related materials, Health Canada's website provides the consumer with information that covers every subject within nutrition and physical activity – in *one single* website, without having to link up to other information providers.

Mercury contamination

Health Canada has published extensively on mercury contamination in fish. In March 2007, it completed a review of all scientific literature on this topic, and the result was the inclusion in the Food Guide of additional advice for all Canadians on balancing the risks and benefits of eating fish. Compared to the original guidelines on fish consumption published in 2002, the 2007 edition included advice on the consumption of predator fish and canned albacore tuna. It recommends that the maximum level of predator fish that

can be consumed is 150 grams for the general population, 125 grams for children aged 5–11 years old, and 75 grams for children aged 1–4 years old. For women who plan to become pregnant, are pregnant or are breastfeeding, the maximum amount allowed is 150 grams per month. Health Canada decided to make specific recommendations for canned tuna because it is a popular product with Canadian consumers. Most often the content is made of light tuna, which has a lower level of mercury level because of the age and weight of the fish. The additional advice for canned tuna targets pregnant women, breastfeeding women and women who plan to become pregnant, who should consume a maximum of 300 grams a week, while children 5–11 years of age should eat 150 grams per week, and children 1–4 years of age should consume 75 grams per week (11-14).

Food labelling

Another focus of Health Canada is food labelling. Since December 2007, it has been mandatory to include nutrition labelling on prepackaged foods (15). These regulations include the following:

- Nutrient Facts Table that provides information on energy content (kcal or kJ) and 13 nutrients, macronutrients and some micronutrients. The new regulations made a standard design and content of the nutrient table. There are exceptions for the mandatory nutrition labelling. For example, raw meat, poultry, seafood and fish, fresh fruits and vegetables and alcoholic beverages.
- Nutrient content claims that can be printed on the package. For example, low in saturated fat, low in sodium or free of trans fat are acceptable claims.
- Diet-related health claims that include benefits for high blood pressure, heart disease, some types of cancer and osteoporosis. This is a new addition; the old regulations did not allow diet-related health claims at all.

Eating Well with Canada's Food Guide: First Nations, Inuit and Métis

Availability of material

The Eating Well with Canada's Food Guide: First Nations, Inuit and Métis was published in 2007. It is available from the Health Canada website: <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/fnim-pnim/index-eng.php>.

Description

The FBDGs are published in a 3-page colour pamphlet with numerous drawings and pictures. In general, the Eating Well with Canada's Food Guide: First Nations, Inuit and Métis is designed like Canada's Food Guide with similar colours, food groups, serving sizes and portions. What differentiates the First Nations, Inuit and Métis food guide is that it reflects both traditional and store-bought foods available to Aboriginal peoples in rural and remote areas of Canada. The guide promotes traditional lifestyle activities such as fishing, canoeing, hunting cooking and gathering (Fig.14).



Figure 14. Illustration from Eating Well with Canada's Food Guide: First Nations, Inuit and Métis.

FOOD-BASED DIETARY GUIDELINES FOR FIRST NATIONS, INUIT AND MÉTIS

This example is for an adult male.

1. Eat at least 1 dark green and 1 orange vegetable each day. Choose vegetables and fruits prepared with little or no fat, sugar or salt. Have vegetables and fruits more often than juice.
2. Make at least half of your grain products whole grain each day. Choose grain products that are low in fat, sugar and salt.
3. Drink 500 ml (2 cups) of skim, 1% or 2% milk each day. Select low-fat milk alternatives. Drink fortified soy beverages if you do not drink milk.
4. Have meat alternatives such as beans, lentils and tofu often. Eat at least 2 Food Guide servings of fish each week. Select lean meat and alternatives prepared with little or no added fat and salt.

Specific guidelines are given for women of childbearing age; people who do not consume dairy products; and people over the age of 50 years. There is also a list of food items to avoid or to limit. These foods include alcohol, chips and salted snacks, sugar-dense drinks and candy, ice cream, cakes and energy bars.

Consumer access

Another resource developed to complement the First Nations, Inuit and Métis food guide is the care provider section which provides a slide show for educational use. Slides with speaker's notes are provided. A sample slide illustrating the serving size for meat and fish is shown in Figure 15.

The Northwest Territories Food Guide

Availability of material

The FBDGs of the Northwest Territories are available on the Northwest Territories Health and Social Services website: http://www.hlthss.gov.nt.ca/pdf/brochures_and_fact_sheets/health_eating_and_active_living/2005/english/nwt_food_guide.pdf.

The NWT Food Guide is available in English, French and Dogrib (Fig.16). It was revised in March 2005 to incorporate recommendations regarding the number of servings from Health Canada. The Northwest Territories Traditional Food Fact Sheets, a guide of 106 pages describing the traditional food of the Indigenous Dene and Inuit, are available. The Fact Sheets are meant to be used as a communication tool in teaching and in nutrition programs.

Description

The NWT Food Guide is divided into 4 food groups: milk and milk substitutes; meat, fish, birds and eggs and all edible parts; bannock, bread and cereal; and fruits and vegetables. The NWT Food Guide provides servings per day and examples of food products with estimated portion sizes. The guide is meant for people of all ages and is not gender or age specific. The message on physical activity gives no recommendations on level, frequency or amount of time that should be spent on physical activity.

FOOD-BASED DIETARY GUIDELINES OF THE NORTHWEST TERRITORIES

Eat a VARIETY of foods from each food group and drink plenty of water every day for good health.

REMEMBER: To control your weight, BALANCE the food energy eaten with physical activity, try to LIMIT foods containing a lot of sugar, salt and fat.

1. Milk and milk substitutes: children up to 11 years: 2–3 servings; adolescents: 3–4 servings; adults: 2 servings; pregnant and nursing mothers: 3–4 servings
2. Meat, fish, birds and eggs and all edible parts: 2–3 servings every day.
3. Bannock, bread and cereal: 5–12 servings every day.
4. Fruits and vegetables: 5–10 servings every day.

The Traditional Food Fact Sheets are presented as a series of 5 resources: the Inuit Traditional Food Fact Sheets, the Dene/Metis Traditional Fact Sheets, the Inuit Nutrient Fact Sheets, the Dene/Metis Nutrient Fact Sheets and the Pictorial Nutrient Fact Sheets. The first two cover traditional food for Inuit,



Figure 15. Example of a portion illustration from Eating Well with Canada's Food Guide: First Nations, Inuit and Métis.



Figure 16. First page of the Northwest Territories Food Guide.

Dene and Metis people, respectively. They are very similar. Part 3 and 4 deal with micronutrients and give examples of foods dense in the respective nutrient. Every fact sheet ends with nutritional characteristics, cooking and hygiene tips and a textbox depicting where to find more information. The Nutrient Fact Sheets review micronutrients and list the food sources for the individual nutrient and the recommended daily intake. As for the Food Fact Sheet, a text box gives the option of searching for additional information and also gives consumer facts about the physiological importance of the specific nutrient. The Pictorial Fact Sheets offer similar information but in a visual format, which is helpful to consumers with literacy concerns.

NWT Food Models

In the late 1980s, 91 photographic food models were developed of actual traditional foods, e.g., seal head and flipper, berries, dried meat, and of a few common store foods in the North. The food models are an excellent educational resource for teaching nutrition, traditional eating styles, meal planning and other nutrition topics.

Mercury in fish

In the summer of 2010, the Northwest Territories Health and Social Services published a short paper entitled “The Health Effects of Mercury in Fish.” This paper describes the idea of bioaccumulation of mercury in fish, its health effects and the most typical symptoms related to mercury poisoning (16).

Consumer access

All of the above resources can be found on the website of Northwest Territories Health and Social Services: http://www.hlthss.gov.nt.ca/english/services/health_promotion/health_eating_active_living/default.htm.

The website also provides separate information for infants and toddlers; children; youth; adults; and seniors. Under each age group information is available in 2 sections: nutrition and physical activity with links connecting to other websites providing more detailed information. Examples of external contributors are the Public Health Agency of Canada, Voices for Children, Dietitians of Canada, Canadian Association for the Advancement of Women and Sport and Physical Activity. Overall, the information available covers all population groups and a wide range of nutritional subjects and is of high quality.

The Nunavut Food Guide

Availability of material

The FBDGs for Nunavut are published on a two-sided colour sheet called the Nunavut Food Guide and can be viewed on the webpage of the Nunavut Department of Health and Social Services: http://www.gov.nu.ca/healthylivinginnunavut/FG_english.pdf.

The Food Guide is available in 3 languages.

In addition to the popular edition of the guidelines, the Nunavut Department of Health and Social Sciences published “Nutrition in Nunavut: A Framework for

Action” in 2007 (17), which includes goals and objectives and strategies on how to accomplish these objectives by the year 2015. A few objectives have target dates even before 2015.

Description

The Nunavut Food Guide categorizes food into 4 groups each with a desired physiological effect: 1. Meat, fish, eggs and beans for strong muscles. 2. Milk, yoghurt, cheese and bones for strong bones and teeth. 3. Berries, fruits and vegetables for good eyes, skin and fewer infections. 4. Bannock, bread, cereal, rice and pasta to provide energy. (See Figure

17 for an illustration of the first page of the recommendations). The Food Guide gives examples of what 1 serving could be for each of the food groups. In each food group, a frequency is given for the number of servings recommended per day. In this way the guidelines are converted into both amount and frequency per day/week. The FBDGs are not age or gender specific, but are guidelines for everyone from the age of 4 years and up. The FBDGs give examples of portion sizes and a range of frequency of consumption (servings per day). There are examples in the text of who should choose the smallest value in the frequency range and who should choose the highest value. Additionally, the Food

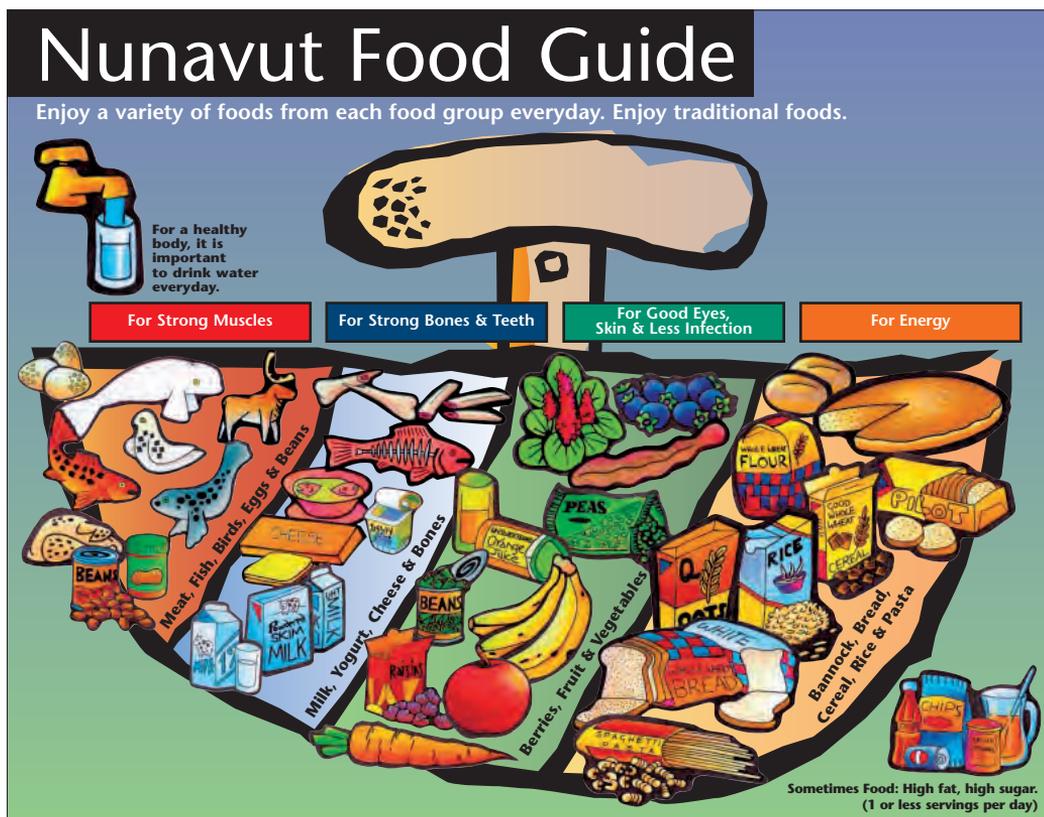


Figure 17. First page of the Nunavut Food Guide.

Guide promotes physical activity, but it does not recommend the frequency or amount of time.

The Nunavut framework for action came about as a result of the problem with food insecurity that Nunavut is facing. According to this paper, 49% of households in Nunavut experience food insecurity. The Framework's action plan is meant as a strategy with steps to ensure health and well-being and at the same time advocate for investment in nutrition. The Framework offers a few suggestions for action and the objectives for action, but does not provide examples of initiatives that could fulfil these objectives.

Consumer access

The information available for the consumer in Nunavut consists of the Nunavut Food Guide and "Nutrition in Nunavut: A Framework for Action," both of which can be found under the subtitle "Healthy Living in Nunavut" on the website. The Food Guide itself is available as a pdf document, but with no further explanation or guidance on how to interpret it. "A Framework for Action" is probably a document meant for a professional audience rather than the general public.

FOOD-BASED DIETARY GUIDELINES OF NUNAVUT

1. Bannock, bread, cereal, rice and pasta. 5–10 servings per day. Choose whole-grain products often.
2. Berries, fruits and vegetables. Aim for 5 or more servings per day. Choose dark green and orange vegetables and orange fruit often.
3. Milk, yoghurt, cheese and bones. 2–4 servings per day. Choose low-fat milk products often.
4. Meat, fish, birds, eggs and beans. 2–4 servings per day. Choose lean meat, fish, birds and beans often.

4. ALASKA

For the State of Alaska, 2 FBDGs are available. One is the general set of guidelines describing the components of the diet. The other is for Alaskan women and children regarding fish consumption. These guidelines are unique for Alaska.

Availability of material

The FBDGs in use in Alaska are the U.S. Department of Agriculture's (USDA) "Dietary Guidelines for Americans 2005," the science-based nutrition recommendations for the general American public age 2 years and older (18). In 2005, the USDA also developed MyPyramid.gov, an online tool consumers can use to calculate calories and food choices. It can be found at www.mypyramid.gov/. The USDA has also released the *Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010* (19).

MyPyramid.gov (Fig. 18) is designed to help the consumer personalize the guidelines for his/her daily diet recording to his/her sex, age, weight, height and level of physical activity. In addition, the website includes a 3-page pamphlet that lists many options for activities. Separate sections feature information for the general population, for pregnant or nursing women and for children, for whom school and learning materials and posters can be downloaded. A total of 28 items on how individuals can change their lifestyles and maintain good dietary habits are available as podcasts,

e.g., advice on what to eat in restaurants, healthy working environments and how to live a more physically active life.

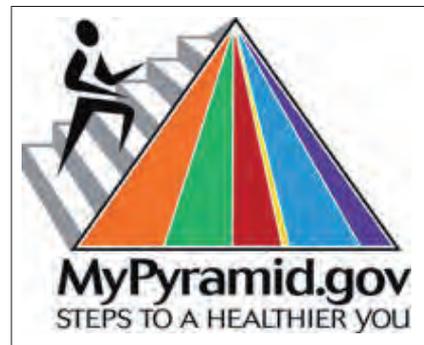


Figure 18. Logo of MyPyramid.gov.

Description

MyPyramid.gov is divided into 6 food groups: grains, vegetables, fruits, oil, milk, and meat and beans. Each group is illustrated by a separate colour and the width of the box in the food pyramid indicates the recommended proportion of those foods in the daily diet. The website attempts to describe the key messages in a way that is easy for the consumer to remember. MyPyramid.gov bases the recommendations on a 2,000 calories/day diet. No other guideline mentions an average daily energy intake as a recommendation. One of the major differences when comparing the North American recommendations is that MyPyramid.gov has 6 food groups instead of 4 food groups as in Canada. As well, MyPyramid.gov has

separated the group of fruits and vegetables into 2 groups while most other recommendations do not. The other difference is the ability to modulate the recommendations in a way that takes weight loss into account. The guideline for physical activity is designed for 3 groups of individuals: those who want to lose weight; those who want to prevent weight gain; and children and teenagers.

FOOD-BASED DIETARY GUIDELINES OF ALASKA

1. **GRAINS:** Make half your grains whole. Eat 6 oz. every day.
2. **VEGETABLES:** Vary your veggies. Eat 2½ cups every day.
3. **FRUITS:** Focus on fruits. Eat 2 cups every day.
4. **MILK:** Eat calcium-rich foods. Get 3 cups every day. For kids aged 2 to 8, it's 2.
5. **MEAT & BEANS:** Go lean with protein. Eat 5½ oz. every day.

Find your balance between food and physical activity.

Be sure to stay within your daily calorie needs.

Be physically active for at least 30 minutes most days of the week.

About 60 minutes a day of physical activity may be needed to prevent weight gain.

For sustaining weight loss, at least 60 to 90 minutes a day of physical activity may be required.

Know the limits on fats, sugars and salt sodium).

Make most of your fat sources from fish, nuts and vegetable oils.

Limit solid fats like butter, margarine, shortening and lard, as well as foods that contain these.

Check Nutrition Facts label to keep saturated fats, trans fats and sodium low.

Choose food and beverages low in added sugars. Added sugars contribute calories with few, if any, nutrients

The USDA also has specific information on food labelling. Various brochures can all be found on the U.S. Food and Drug Administration website: <http://www.fda.gov/Food/LabelingNutrition/ConsumerInformation/default.htm>. The general information is from 2004 and provides details on how to interpret nutrition labels. It can be found in the folder named "How to Understand and Use the Nutrition Facts Label": <http://www.fda.gov/Food/LabelingNutrition/ConsumerInformation/ucm078889.htm>.

There are also information for special groups that include older adults and people who want to lose weight. The brochure "Using the Nutrition Facts Label: A How-To Guide for Older Adults" (released August 2010) can be found at www.fda.gov/downloads/Food/LabelingNutrition/ConsumerInformation/UCM220878.pdf. People who need help to lose weight by using the nutrition facts label are directed to: www.fda.gov/Food/LabelingNutrition/ConsumerInformation/ucm114022.htm.

The USDA site also offers an interactive program called "*Make Your Calories Count*" (released in 2006) to be used to maintain a healthful diet while managing calorie intake. By using the program and referring to the nutrition facts labels, consumers can make decisions about which food choices are the healthiest ones. Furthermore, the U.S. Food and Drug Administration website provides information on labelling of fruits and vegetables, as well as fish, with a special focus on trans fatty acids.

Specific guidelines for the consumption of fish (women and children)

Fish are associated with mercury and heavy metal contamination. Because of their effects on the growth of children, the State of Alaska has specific guidelines for the consumption of fish and seafood for women of child-bearing age and for young children under the age of 12. The Alaska Division of Public Health launched a campaign for women and children with advice on how much fish to consume per week. The official recommendation for men, teenage boys and women above the childbearing age is a minimum of 2 meals of fish per week with no maximum limit.

Availability of material

The guidelines are available at www.epi.hss.state.ak.us, where the full report “Fish Consumption Advice for Alaskans: A Risk Management Strategy to Optimize the Public’s Health” can be viewed.

Description

The guidelines (calculator) use a point system to estimate the recommended intake of fish per week (Fig.19). The maximum number of points that should be reached per week is 24 in order to reduce the level of health risks caused by contamination. Points are given *per meal*. The number of points depends on the *size* or *weight* of the fish and the *type* of fish, which reflects the level of contamination.

Consumer access

Consumer advice for consumption of fish in Alaska is available at www.epi.hss.state.ak.us/eh/fish/default.htm#guidelines. In addition to the dietary guideline, information on the various nutrition programs in Alaska is available. These programs include the Women, Infants and Children Program (WIC), Commodity Supplemental Food Program (CSCF), Farmer’s Market Nutrition Program (FMNP) and Senior Farmer’s Market Nutrition Program (SFMNP). Under the theme “Family Nutrition,” most information targets issues of pregnancy and breastfeeding, children’s nutrition and the voucher system. The website is relatively easy to navigate, but the information in relation to nutrition and dietary advice for the average population is difficult to find.

Guide to Eating Fish Safely for Alaska Women and Children

Mix and match your fish meals* for up to:

12 POINTS PER WEEK

* A **meal size** is 6 ounces (uncooked weight) for adults and 3 ounces for children age 12 years and under.

Alaska fish is good for you. State health officials recommend that everyone eat fish at least twice a week. All fish contain some level of mercury, a toxic metal that can harm the developing nervous systems of unborn babies and young children.

Women who are or can become pregnant, nursing mothers and children 12 and under should follow these guidelines to limit their mercury intake. Everyone else can eat as much seafood as they like.

PER MEAL
0
Points

Unlimited amounts

- All species of AK salmon
- AK halibut under 20 pounds
- AK lingcod under 30 inches
- AK Pacific cod
- AK black rockfish
- AK walleye pollock
- Canned chunk light tuna
- AK Pacific ocean perch

Eat a **variety** of fish and other seafood as part of a balanced diet.

PER MEAL
3
Points

- AK halibut 20–39 pounds
- All store-bought AK halibut
- AK rougheye rockfish
- AK lingcod 30–39 inches
- AK black cod (sablefish)

PER MEAL
4
Points

- AK halibut 40–49 pounds
- Canned albacore tuna

PER MEAL
6
Points

- AK halibut 50–89 pounds
- AK lingcod 40–44 inches
- AK yelloweye rockfish

PER MEAL
12
Points

- AK halibut 90 pounds or more
- AK lingcod 45 inches or more
- AK salmon shark
- AK spiny dogfish

Avoid these fish: tilefish, king mackerel, swordfish, and shark



For more information:
www.epi.hss.state.ak.us/
(907) 269-8000



5. CONCLUSIONS

This report reveals that all the countries reviewed have updated and available FBDGs. When comparing the guidelines one finds that they are very different in several aspects, i.e., the number of recommendations, the amount of details, the access to web-based publications and the inclusion of specific advice for specific regions or population groups.

The advantage of comparing FBDGs among circumpolar countries and regions is that it offers the opportunity for health policy-makers, health care providers and researchers the opportunity to consider the experience of others, learn from each other, and adopt the positive aspects from other FBDGs.

In the following list, we highlight some important considerations of the FBDGs we evaluated.

1. Number of FBDGs

Some countries have formulated written guidelines that vary from 8 (Faroe Islands) to 10 (Greenland and Iceland) pieces of advice. In the written approach, the ideal number of advice can be debated and there are disadvantages and advantages with too many or too few advices. A balance needs to be struck between covering the diet adequately and being easy for the consumer to understand and recall. North American regions (northern Canada and Alaska) make extensive use of pictures, colours and drawings to illustrate their guidelines. A good example is the Canadian guidelines, which divide the diet into four colour-coded food groups. This is easy to remember and makes it simple to understand. The disadvantage is that the FBDG have to give detailed examples of portion sizes and food items within each of the four food groups. It might be problematic for a consumer to remember, that 175 grams of yoghurt is one serving from the group with milk and milk substitutes.

2. What message should be delivered in the FBDGs?

NWT and Nunavut assign physiological benefits to each of the 4 groups. However, this could result in rather illogical grouping; the FRUITS and VEGETABLES groups include organ meat and animal fats and oils, simply because vitamin A is present in all these food products. Combining these food items in one group could cause unnecessary confusion for the consumer. On the other hand, the NWT and Nunavut approach explains *why* one should eat from all the food groups and what physiological effect could be achieved from each food group. The grouping is made based on the *nutrients* that the foods in the same groups have in common. It is a good message, but the question is whether the consumer will remember what food items give a certain effect while recalling portion sizes and frequencies as well.

3. *The specificity of the FBDGs*

The number of specified guidelines is important in order to cover all population groups to be targeted for health promotion programs. In cases of individuals with certain diseases or for those at a particular stage in life, general health promotion messages are insufficient, as they need additional information. An example of a vulnerable group that is addressed in the guidelines is people with diabetes. In Greenland specific guidelines have been developed for this group. Other examples are pregnant and lactating women and small children who are vulnerable to environmental pollutants from fish and marine mammals. These 2 groups are addressed separately in the guidelines of Greenland, and Alaska. In the Faroe Islands, pilot whale is not recommended for consumption and especially not for women of childbearing age. In Alaska, fish is still recommended for women and children, but should be limited.

4. *Additional information for specific issues*

The idea in Alaska of converting the FBDGs into a point system is quite useful when delivering the message to the consumer. The guidelines become concrete and the consumer can convert the information into actual actions. The Icelandic website is an example of how information can cover every aspect of food and diet in all possible situations. The disadvantage of this way of communicating is that it runs the risk of confusion in the information-seeking process, compared to a website where information is limited and well prioritized. A lot of information demands a well-structured website that makes it easy for the viewer to embrace the message.

5. *Dietary needs and dietary guidelines*

A diet in transition requires changes in FBDGs that reflect new dietary requirements in the population. In Iceland, vitamin D is specifically addressed as 1 out of 10 guidelines. The need for additional material concerning the nutritional status of the population should be addressed. Diets high in fish and marine mammals would provide vitamin D additional to the exposure to sunlight, which is the primary source of vitamin D. However, the use of fish and traditional food is decreasing in all population groups, for example in Greenland (20). Furthermore the Arctic regions have long periods without sunlight during winter time. This highlights the need for all areas in the Arctic to pay special attention to this transition and rapid dietary changes that it is causing.

6. *Design and communicative options of the web site*

The use of communicative tools on websites and in campaigns should be balanced. An example of a good website, which is interesting for the consumer and still informative, is the Health Canada website. It is comparable in communicative value to the USDA's MyPyramid.gov. Both websites are easy to interpret and still detailed enough to cover all population groups and groups with unique needs.

7. Dissemination of information

We include this point even though the main scope of the report was to evaluate materials available on the Internet. We acknowledge the fact that some segments of the populations in the Arctic do not have Internet access. FBDGs are best implemented by good campaigns and by multiple ways of communicating the message. This was done, for example, in Greenland where the nutritional guidelines were disseminated in the form of school materials, television shows, board games and cartoon strips. The use of multiple methods is important because a website only reaches that part of the population who has access to a computer and the Internet, is capable of using the computer, is literate and is aware of the website with the information.

8. Social and cultural dimensions

Greenland has included FBDGs that address the social and practical issues of diet and nutrition by recommending that the consumer involve children when cooking meals (teaching the next generation good food habits) and carefully considering what foods to include when shopping. These are important aspects of diet and nutrition, and one can argue that they belong in a FBDG. One must ask, however, if such guidelines are more appropriately addressed in campaigns promoting nutrition and diet, rather than adding to the number of recommendations in a FBDG. After all, it is easier to remember 7 recommendations than it is to remember 10.

In conclusion, all regions and countries have developed FBDGs and, in most of the FBDGs, it is obvious that it takes more than an apple a day to keep a healthy mind and body. When considering nutrition as part of health promotion, it is the decision of individual regional and national health authorities to balance the resources spent on nutrition compared to other aspects of public health. Considering the challenges that some regions and countries face regarding public health, it is a positive sign that they have given nutrition such strong focus and made it a priority issue when it comes to improving public health and well-being.

REFERENCES

1. Nordic Council of Ministers. *Nordic Nutrition Recommendations – Integrating Nutrition and Physical Activity 2004*. 4th ed. Copenhagen: Nord; 2004.
2. Food and Agriculture Organization. *Preparation and Use of Dietary Guidelines*. 1998. Available from: http://www.fao.org/docrep/X0243E/x0243e04.htm#P223_20860.
3. World Health Organization. *Food and Health in Europe: A New Basis for Action: Summary*. 2002.
4. Landslæknin. Recommendation of discontinuation of the use of pilot whale for human consumption [English translation], in: *Sundhedsberetning for Færøerne 2008*. Tórshavn, 2009; p. 57-59. Available from: <http://www.landslaeknin.fo/Landslaegeembedet.aspx>
5. Grønlands Ernæringsråd. *Kan vi trygt spise vores traditionelle mad? Det meste af det*. 2007.
6. Dronning Ingrid's Hospital og Diabetesforeningen. *Sund mad når du har diabetes*. 2006.
7. Health Canada. *Canada's Food Guide*. 2007. Available from www.healthcanada.gc.ca/food-guide.
8. Health Canada. *Eating Well with Canada's Food Guide. First Nations, Inuit and Métis*. 2007. Available from <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/fnim-pnim/index-eng.php>.
9. Northwest Territories Health and Social Services. *Northwest Territories Food Guide*. 2005. Available from http://www.hlthss.gov.nt.ca/pdf/brochures_and_fact_sheets/healthy_eating_and_active_living/2005/english/nwt_food_guide.pdf.
10. Nunavut Department of Health and Social Services. *Nunavut Food Guide*. 2001. Available from http://www.gov.nu.ca/healthylivinginnunavut/FG_english.pdf.
11. Health Canada. *Mercury in Fish. Consumption Advice: Making Informed Choices About Fish*. 2007. Available from <http://www.hc-sc.gc.ca/fn-an/securit/chem-chim/environ/mercur/cons-adv-etud-eng.php>.

12. Health Canada. *Mercury in Fish – Questions and Answers*. 2007. Available from http://www.hc-sc.gc.ca/fn-an/securit/chem-chim/envIRON/mercur/merc_fish_qa-poisson_qr-eng.php.
13. Health Canada. Health Canada's revised assessment of mercury in fish enhances protection while reflecting advice in Canada's Food Guide. 2007. Available from http://www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/_2007/2007_31-eng.php.
14. Health Canada. Health Canada advises specific groups to limit their consumption of canned albacore tuna. 2007. Available from http://www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/_2007/2007_14-eng.php.
15. Health Canada. Frequently asked questions about nutrition labelling. 2007. Available from http://www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/label-etiquet/inl-eni-eng.pdf.
16. Northwest Territories Health and Social services. *The Health Effects of Mercury in Fish*. 2010. Available from http://www.hthss.gov.nt.ca/pdf/brochures_and_fact_sheets/environmental_health/2010/english/health_effects_of_mercury_in_fish.pdf.
17. Nunavut Department of Health and Social Services. *Nutrition in Nunavut. A Framework for Action*. Iqaluit: Government of Nunavut, 2007.
18. United States Department of Health and Human Services and United States Department of Agriculture. *Dietary Guidelines for Americans*. 2005. Available from <http://www.cnpp.usda.gov/DietaryGuidelines.htm>
19. United States Department of Health and Human Services and United States Department of Agriculture. *Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans*, 2010. Available from <http://www.cnpp.usda.gov/DietaryGuidelines.htm>
20. Rejnmark L, Jørgensen ME, Pedersen MB, Hansen JC, Heickendorff L, Lauridsen AL et al. Vitamin D insufficiency in Greenlanders on a Westernized fare: ethnic differences in calcitropic hormones between Greenlanders and Danes. *Calcif Tissue Int* 2004;74:255–263.

APPENDIX

Overview of additional territorial food-based dietary guidelines

	Fruits and vegetables (gram or servings)	Fish and traditional food	Meat products, beans or eggs	Dairy products	Sugar and salt	Exercise
The Faroe Islands	600 (g/day)	2 times/week Avoid pilot whale (meat and blubber)	-	-	Limit intake of sugar and fat	30 minutes/day (and keep a normal weight range)
Sweden	500 (g/day)	3 times/week	-	-	-	-
Norway	3 portions of vegetables and two portions of fruit/day 1 portion =100 g	Eat more fish	Choose low-fat meat	Choose low-fat dairy products	Cut down consumption of sugar; be careful with salt	-
Finland	Min 400 g/day	Fat fish min 2 times/week	Choose low-fat and low-salt meat and meat products	Eat fat-free or low-fat dairy products: 5dl/day; choose low-fat cheese	"Decrease intake of refined sugars." "Decrease the intake of salt."	"Find a balance between energy intake and expenditure"
Iceland	500 (g/day)	Fish min 2 times/week plus add vitamin D	-	Eat low-fat dairy products with no added sugar; no amounts given	Reduce intake of salt (max 6g/day women, 7gr/day men)	- Keep a healthy body weight
Greenland	- Eat fruit and vegetables every day	- Eat fish and traditional foods often	-	- "Choose milk with low fat"	"Minimize the intake of sugar and fat"	1 hr/day
NORTH AMERICA						
Northwest Territories	5-10 (serv./day) 1 serv. = 125 ml apple	2-3 serv. /day 1 serv. = 50-100 g fish	2-3 serv. /day 1 serv. = 50-100 g meat	Children up to 11 years: 2-3 serv. Adolescents: 3-4 serv. Adults: 2 serv. Pregnant women: 3-4 serv. 1 serv = 250 ml milk	Limit intake of foods high in sugar, fat and salt	Balance food intake with physical activity
Nunavik	7-10 (serv./day) e.g., 1 serv. = 125 ml green and orange vegetables	2-3 serv. /day e.g., 1 serv. = 75 g cooked fish or shellfish	Men: 3 serv./day Women: 2 serv./day e.g., 1 serv. = 75 g cooked meat	2 serv.<50 years> 3 serv./day e.g., 1 serv. = 250 ml milk	"Limit the intake"	"Be active every day"
Nunavut	Min. 5 serv./day e.g., 1 serv. = 1 middle size fruit	2-4 serv./day 1 serv. = 1 bowl fish head soup or 3"*1" piece of fish	2-4 serv./day 1 serv. = 3"*1" piece of meat	2-4 serv. /day preferably low fat 1 serv. =175 g yoghurt or 250 ml milk	Can be consumed "sometimes"	Active everyday lifestyle
Alaska	2½ cup vegetables +2 cups of fruit	Specific guidelines for fish intake	5½ oz./day = 156 g	3 cups/day, children 2-8 years 1 cup = 250 ml	"Choose low sugar, fat and salt dense products"	Min. 30 min. and extra activity when weight loss is needed

www.ijch.fi/CHS.htm



norden

Supported by the Nordic Council of Ministers

International Association of Circumpolar Health Publishers

Circumpolar Health Supplements

Aapistie 1

FI-90220 Oulu

FINLAND

ISSN 1797-2361 (print)

ISSN 1797-237X (online)