

Serving Country Food

in Government-Funded Facilities
and Community Programs



NUNAVUT
FOOD SECURITY
COALITION





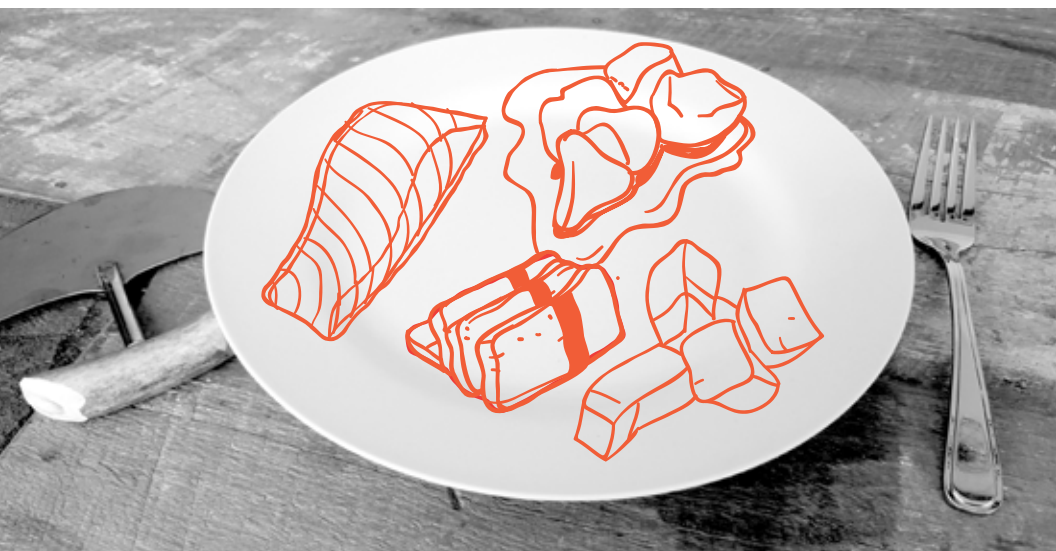
Country food is a healthy choice!

Government of Nunavut (GN)-funded facilities and community programs are encouraged to serve more country food. The suggestions in this booklet are made specifically for GN community programs and facilities that serve country food.

If you are a GN-funded facility or community program, you may be able to get support to buy more country food.

To find out more, talk to:

- ✓ your regional nutritionist
- ✓ your community economic development officer or the regional economic development and transportation office



Guide for Government-Funded Facilities
and Community Programs Serving Country Food

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Introduction

Part 1 of this guide shows ways for GN-funded facilities and community programs to keep country food safe. The information in Part 1 is useful for keeping all foods safe.

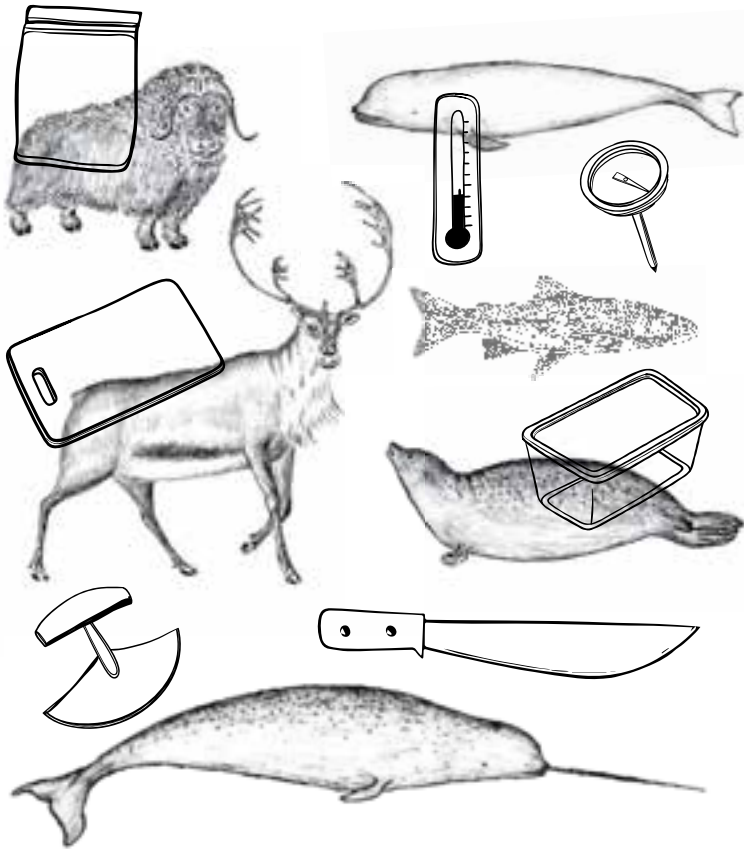
Part 2 of this guide provides information about specific country food like char and caribou. It provides recommendations for GN community programs and facilities that serve these country food.

The recommendations in this book are for food being served to high-risk populations, like people who are already sick or who have weak immune systems.



Serving Country Food in Government-Funded Facilities and Community Programs

Part 1



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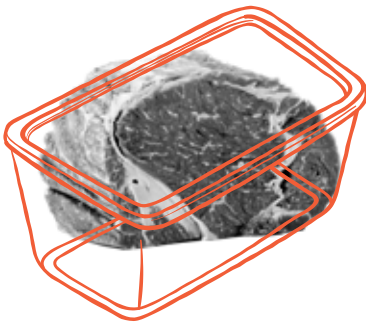
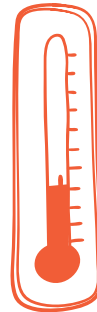


Introduction to Part 1

Country food harvested by experienced hunters is safe!

But, even safe food can be put at risk:

Changing weather, like warmer temperatures, can increase the risk of food going bad or causing sickness.



Some ways of storing food increases the risk of food causing sickness. For example, it is not safe to age meat or fat in a plastic container with a tight lid at room temperature.

Experienced Hunters

Experienced hunters use Inuit traditional knowledge when harvesting. This has kept food safe for a long time. Programs and facilities should buy country food from experienced hunters.

Together with Inuit traditional knowledge, this guide provides steps to keep food safe.

To find out who the experienced hunters are in your community, contact your local hunters and trappers organization (HTO).



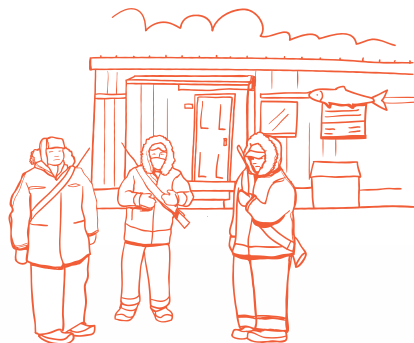
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Buying country food

You can buy country food from:



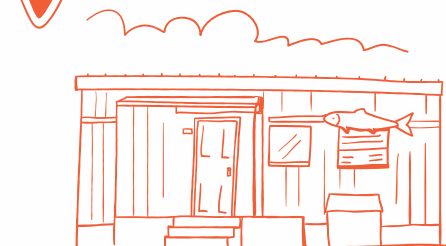
HTOs



Experienced hunters



**Stores and fish/
meat processing facilities**

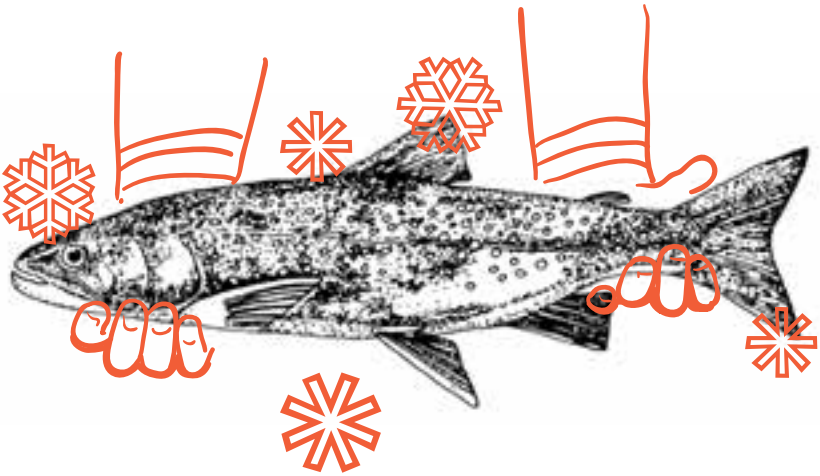


Donations

GN-funded facilities should accept donations of country food.

Donations from HTOs and experienced hunters are encouraged.

You should handle and track country food donations in the same way as country food that you buy.



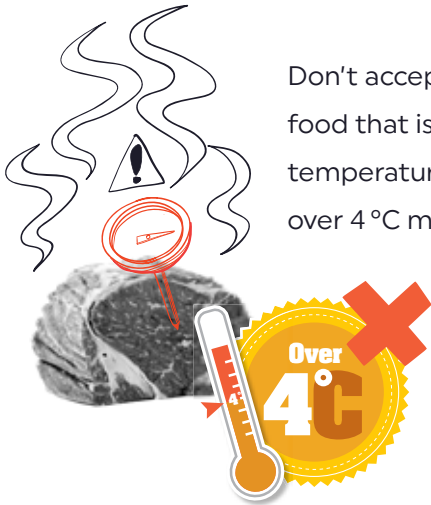
Receiving country food

Inspection

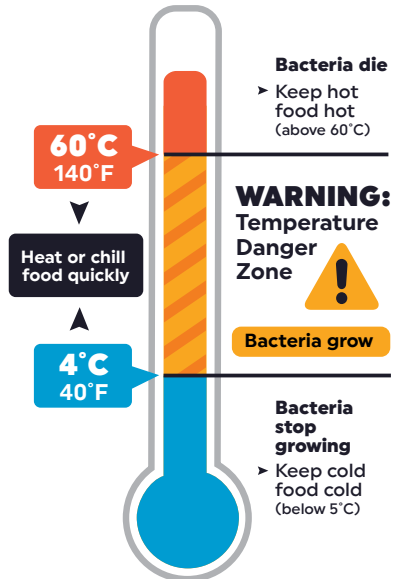
You should look at the country food when you receive it to make sure it is in good condition. It should be clean and not bruised. It should be at a temperature of 4°C or colder (or completely frozen).



Don't accept country food that is over the temperature of 4°C. Food that is over 4°C may have started to spoil.



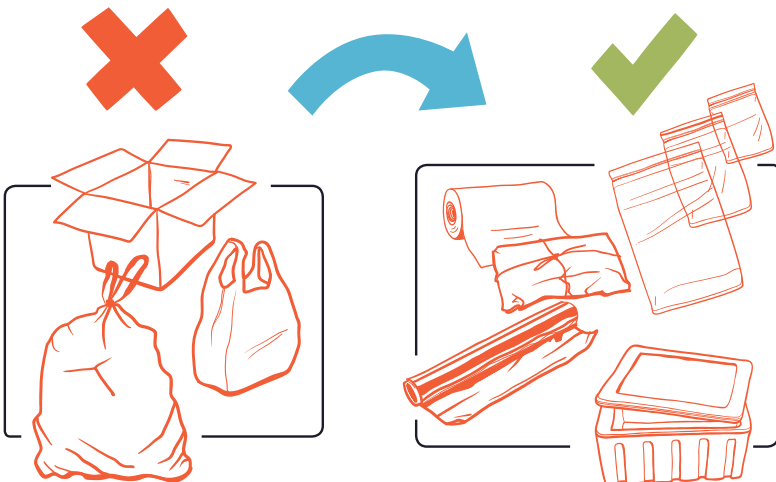
Facilities and programs should have thermometers to check the temperature of meat.



Food Safe

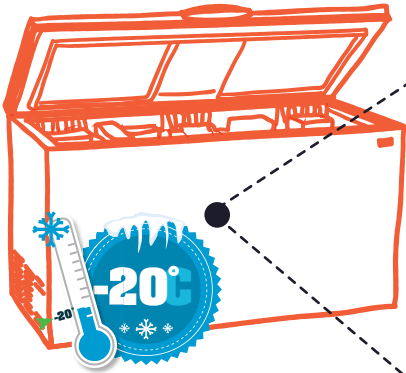
Packaging

- Food-safe packaging is material that is safe for storing food, including butcher paper, aluminum foil and food-safe plastics (like resealable bags).
- Packaging that is not safe for storing food is cardboard, grocery bags and garbage bags.
- At your facility or program, if you receive country food that is not in food-safe packaging, you should put it in food-safe packaging for storage. For example, if country food arrives in garbage bags, it should be repackaged in food-safe wrapping.
- Garbage bags and grocery bags have chemicals in the plastic that can get into the food. Grocery bags and cardboard that have been used before may also have germs from other foods.



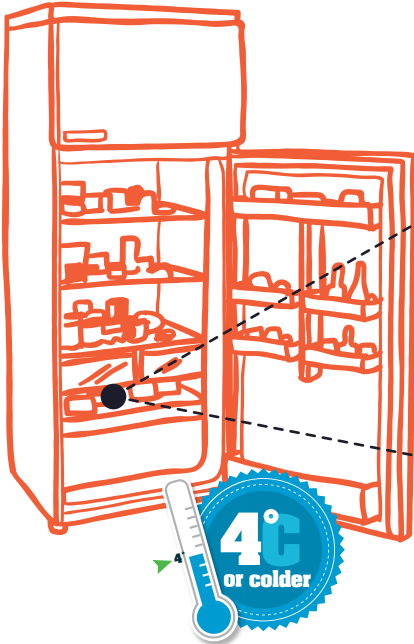
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Storing country food



Store country food

in a country-food freezer. Country food can also be stored in a freezer with store-bought food. It is good to keep country food separate from store-bought food in the freezer.



Frozen country food

should be stored at -20°C (deep freezer).

Fresh country food

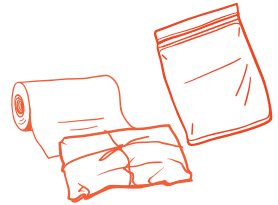
should be stored at 4°C or colder (refrigerator temperature).

Uncooked meat should always be stored on the bottom shelf of a refrigerator to make sure it does not drip on other foods.

Equipment

These things are useful for keeping country food safe:

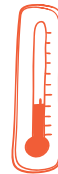
- ✓ food-grade packaging (like butcher paper, food-safe plastic bags)



- ✓ thermometers to keep track of the temperature of meat



- ✓ thermometers to make sure refrigerators and freezers are at a safe temperature



- ✓ country food tracking form (found at the back of this guide)



- ✓ labels for country food



Contact your Environmental Health Officer to find out how to get this equipment.

Preparing and Serving County Food

Country food should be served in ways that people like to eat it. Ask what the local customs are!

Here are ways to find out more about cooking with country food:

- recipes under "Resources" at www.livehealthy.gov.nu.ca



- Inuit Broadcasting Corporation's country-food recipe book *Niqitsiat!*



- recipes from programs like the Canada Prenatal Nutrition Program





Seal Broth

Recipe

(Provided by Pitsiula Kilabuk, Pangnirtung)

Cut up seal meat and put in stockpot.

Add at least 8 cups (2 liters) of water to cover, then add:

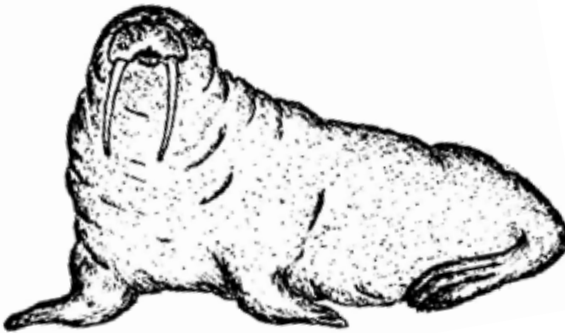
- **2 packages dry soup mix** (such as tomato vegetable) or low sodium vegetable broth
- **1 chopped onion**
- **4-5 potatoes, carrots or turnips**, chopped

Boil until the seal meat is cooked and the vegetables are tender. Seaweed dipped in seal broth is delicious!

Fermented or Aged Food

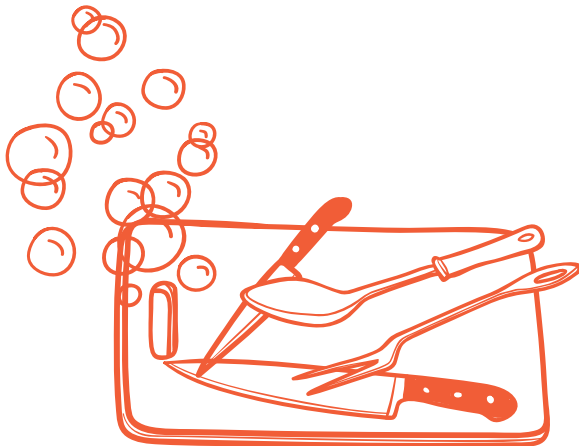
Fermented and aged country food that is not prepared in the right way can cause serious sickness. This is a concern especially for people who are already sick.

It is recommended that facilities and programs **do not** buy or accept donations of fermented or aged country food (like igunaq).



Preparing Food - Kitchen

- Facilities and programs should prepare country food in the kitchen of the facility. Country food can also be prepared in a clean space that is reserved for country food.
- Country food should be butchered on surfaces that are clean and can be cleaned after. For example, a good surface is a cutting board that can be washed. You can also use clean ice and snow to butcher meat.
- Some surfaces are hard to clean and trap germs (like plywood and tarps). These are not recommended to use for cutting meat that will be served to people in programs and facilities.



Food safety reminders for all foods

1. Keep foods separated.

Raw foods should be kept separate from cooked foods.



2. Clean tools and disinfect them (get rid of germs on tools).

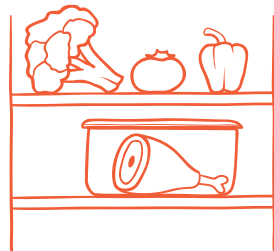
Knives, ulu and cutting boards should be cleaned after butchering or preparing foods.

It is a good idea to have cutting boards that are only used for cutting meat and separate cutting boards for cutting vegetables. Running a dishwasher on the hot cycle is a good way to disinfect kitchen tools.

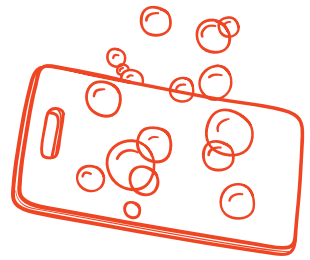


3. Thaw meat properly.

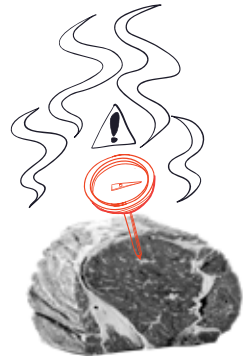
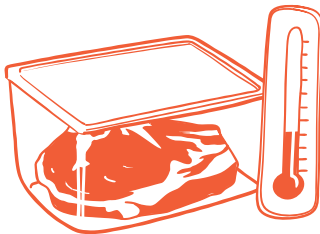
A safe way to thaw meat is to put it on the bottom shelf of a refrigerator on a plate or tray. Food should not be thawed at room temperature. Talk to an Environmental Health Officer about the best way to thaw meat in your facility.



- 4. Clean and disinfect all surfaces after cutting meat.** It is best to cut meat on cutting boards. Wash cutting boards using soap and run through the dishwasher if possible.



- 5. Keep track of temperatures using thermometers.** Use thermometers to know when food is cooked, and to make sure that it is stored at the right temperature.



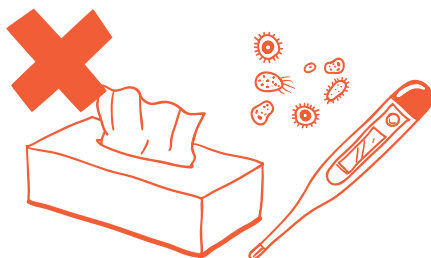
6. Wash your hands often when handling food. You should wash your hands with soap at these times:



- ✓ before you handle food
- ✓ after you handle raw food
- ✓ after you use the washroom
- ✓ after you smoke or use the telephone
- ✓ after you sneeze or cough
- ✓ any time you wonder if you should wash your hands

7. Do not handle food if you are sick. You should not handle food if you have any of these:

- fever
- coughing and sneezing a lot
- diarrhea or vomiting



Serving Country Food

Checklist



- Buy** country food or accept donations from HTOs, experienced hunters, or stores/fish and meat processing facilities.



- Inspect** country food that you receive.



- Track** country food. Fill out tracking form and labels before storing or serving country food.



- Store** country food properly.



- Prepare** country food the way people like it.



- Follow food safety rules** in the kitchen or where you prepare foods. Remember to keep foods separate, check temperatures, clean and disinfect (get rid of germs).

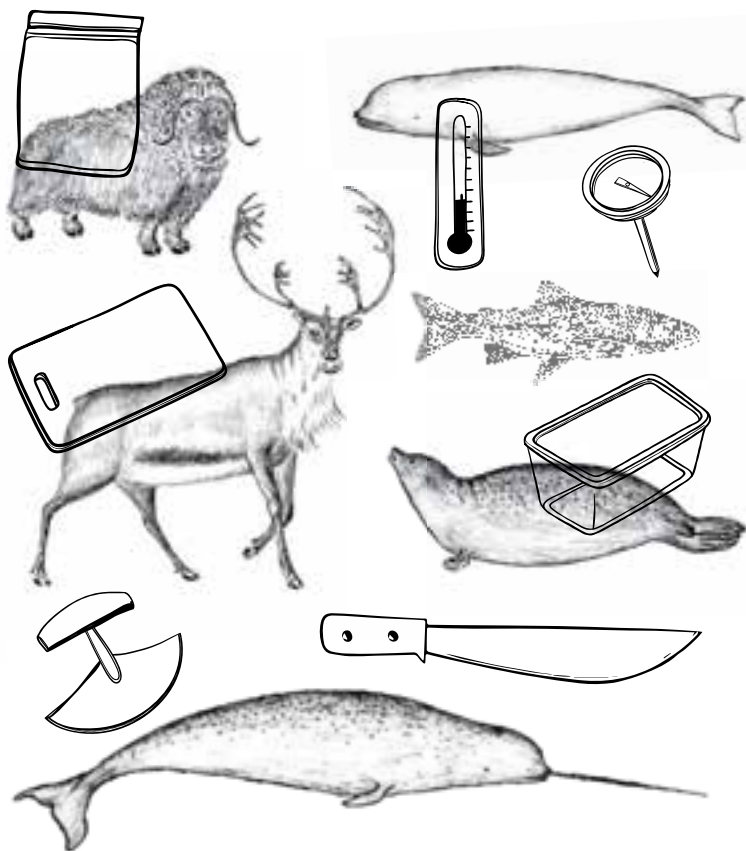
Keeping country food safe at feasts

Here are things to keep in mind when having a feast:

- Keep country food at room temperature for no longer than two hours. It is a good idea to put out the food right before the feast starts. If food is to be thawed (or partially thawed) before it is eaten, it should be thawed in a refrigerator.
- Keep hot food hot, and cold food cold. Hot food (like stew) should be kept on the stove until right before it is served. Put any leftovers in the fridge right away.
- It is important to know what country food is being served. Label country food when it is put into a freezer, so you know what is being served at the feast.

Serving Country Food in Government-Funded Facilities and Community Programs

Part 2



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Introduction to Part 2

This section of the guidebook talks about how to serve country food at government facilities and community programs. There are recommendations for:

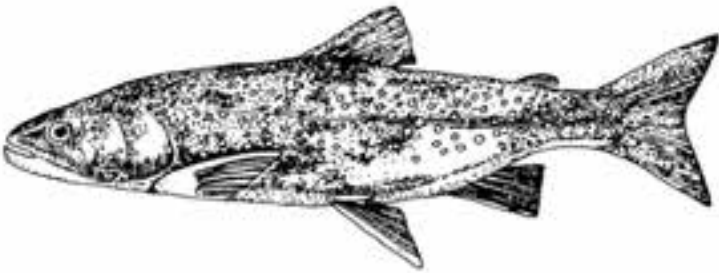
- fish
- caribou
- muskox
- seal
- whale

There is also some information about walrus and polar bear.

Fish

At GN facilities and programs:

- You can serve cooked fish. Cooking fish will kill any roundworms that might be in the fish. Cook fish to an internal temperature of more than 70°C.
- You can serve uncooked fish. To serve uncooked fish, first freeze the fish for seven days at -20°C. Freezing for this length of time should kill any roundworms, so the fish will be safer to eat raw.



Important information

about fish

- The roundworm larva (immature roundworms) in fish can make people sick. Eating the larva can cause illness in the stomach and intestines. It is not known how often roundworms are found in fish in Nunavut, and they are sometimes too small to see.



- It is not known if drying fish kills the roundworms.



When fish is served frozen, like Arctic char, it should not be served partially thawed. Many people enjoy fish when it is well frozen. Some people like to cut frozen fish by themselves.

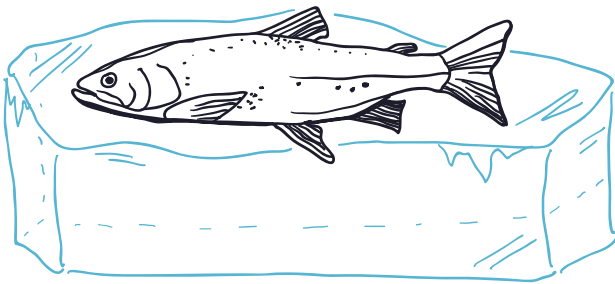


Suggestions from veterinarians about fish:

Fish harvested from nets must be alive when taken from the net. It is suggested that nets be checked every three hours.

In winter: After removing fish from the net, let the fish freeze on clean ice. Do not gut the fish in winter. Pack the frozen fish in food-grade boxes or bags.

In summer: Gut the fish immediately to stop any worms in the guts from moving into the flesh. Keep fish at a temperature of 4° Celsius or colder with clean ice, in clean food-grade containers.



Caribou

At GN facilities and programs:

- You can serve cooked caribou. Cooking caribou kills all the germs that caribou might have. Cook caribou until juices run clear and the meat is no longer pink in colour. Caribou should be cooked to an internal temperature of more than 75°C.
- You can serve uncooked caribou to some people. People who are immunocompromised (cannot fight off infections) should not be served raw caribou.
- Before serving uncooked caribou, freeze the caribou for at least three days at -20°Celsius. Freezing caribou for three days kills a germ called toxoplasma that might be a risk to pregnant women.
- Freezing caribou does not kill all germs that may be found in caribou. Make sure to read the information on the next page when planning to serve uncooked caribou.



Caribou meat can be stored in a freezer at -20°Celsius for 6-12 months.



Immunocompromised

Some sickness can cause a person to become immunocompromised, which means they have trouble fighting off germs and infections.

People who are immunocompromised need to be more careful about what foods they eat. These are some examples of people who are considered to be immunocompromised:

- people who are having cancer treatment like chemotherapy
- people with HIV/AIDS

Important information about caribou

Brucella

Brucella is a germ (bacteria) that has been found in some caribou herds in Nunavut. Brucella can cause sickness in humans. The only way to kill brucella is to cook the caribou. Freezing, drying or smoking caribou will not kill brucella.

Government facilities and community-based programs should follow these guidelines:

- ✓ Do not serve uncooked caribou if the caribou is from a herd that is known to have brucella. Some animals in that herd might be infected with brucella but not show signs of sickness.
- ✓ Do not accept or handle caribou with brucella because it could contaminate the kitchen or other food. Wash your hands with soap if you do.



Suggestions from veterinarians about caribou:

If there is swelling in the knuckles, joints or reproductive organs of the caribou, these are signs of brucella. The caribou should not be eaten. Cutting off the infected knuckle or joint and eating the rest of the caribou is not safe because there is likely brucella in all parts of the animal.

Toxoplasma

Toxoplasma is a germ (parasite) that has been found in caribou. Toxoplasma can cause serious illness for people who cannot fight infections and for pregnant women. Cooking caribou meat kills toxoplasma. Freezing meat for three days also kills toxoplasma. At facilities and programs, make sure to freeze caribou meat for three days at -20°Celsius before serving it raw.



Giardia

Giardia is a germ (parasite) that has been found in caribou. Giardia can cause sickness in humans. The only way to kill giardia is to cook the meat.

Hydatid disease

Hydatid disease shows up in caribou as cysts in the organs or meat. Usually the caribou do not appear sick, but you can see the cysts in the caribou after butchering. Do not feed meat with cysts to dogs. Humans do not get the disease from caribou, but can get the disease from contact with dog feces if dogs have been fed caribou meat with cysts in it.



Suggestions from veterinarians about caribou:

Feces (stool) from the caribou can have giardia, so it is important to keep caribou feces away from the meat and be careful not to cut into the intestines while butchering. Even a small cut of the intestines can expose the meat to giardia.

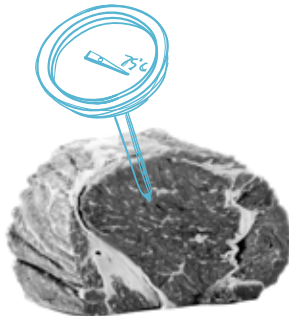
Muskox

At GN facilities and programs:

- You should serve muskox cooked. Cook muskox until juices run clear and the meat is no longer pink in colour. Muskox should be cooked to an internal temperature of more than 75°C.



People in Nunavut have said that they prefer eating muskox cooked. Cooking muskox kills the germs that might be found in muskox. Muskox should be cooked when served in GN facilities and community programs.



Guide for Government-Funded Facilities
and Community Programs Serving Country Food

Important information about muskox



Germes that have been found in some muskox in Nunavut are brucella, erysipelothrux, giardia and toxoplasma.



Government facilities and programs should not accept or handle muskox with erysipelothrux. Touching a muskox with erysipelothrux can cause a rash and other health issues in humans.



Muskox has been shown to carry brucella, but brucella is less common in muskox than in caribou. Muskox with brucella may have swollen knuckles or joints. If there is swelling in the knuckles or joints, the muskox should not be eaten. Government facilities and community-based programs should not handle muskox with brucella because it could contaminate the kitchen or other food.



Muskox can be stored in freezers at -20°C for 6-12 months.





Suggestions from veterinarians about muskox:

- Some muskox in Nunavut have a disease called erysipelothrix. This may show up in muskox as abnormal hair or skin. Humans can catch erysipelothrix by touching muskox that have the disease.
- Some muskox do not show any signs of illness, but may die from erysipelothrix very suddenly. People should avoid touching dead muskox. Erysipelothrix can cause painful skin sores in humans.
- If a muskox shows signs of illness, do not touch it, especially with your bare hands. Wash or disinfect your hands with soap if you do touch parts of the muskox showing illness.
- Muskox with erysipelothrix should not be eaten.



Seal and Whale

At GN facilities and programs:

- You can serve cooked seal and whale. Cooking kills the germs that have been found in some seal and whales in Nunavut. Cook seal or whale to an internal temperature of hotter than 75 °C. If the meat or juice is still red, it has not been cooked long enough. Cook seal or whale until juices run clear and the meat is no longer pink.
- You can serve uncooked seal and whale to some people. People who are immunocompromised (cannot fight off infections) should not be served raw seal or whale.

- Before serving uncooked seal and whale, freeze for at least three days at -20°Celsius. Freezing seal or whale for three days kills a germ called toxoplasma that might be a risk to pregnant women.



- Freezing seal and whale does not kill all germs that may be found in the animal. Make sure to read the information on the next page when planning to serve uncooked seal or whale.



Immunocompromised

Some sickness can cause a person to become immunocompromised, which means they have trouble fighting off germs and infections. People who are immunocompromised need to be more careful about what foods they eat. These are some examples of people who are considered to be immunocompromised:

- people who are having cancer treatment like chemotherapy
- people with HIV/AIDS

Important information about seal and whale



- Some seal and whales in Nunavut may carry germs that can cause sickness in humans

(including botulism, giardia, toxoplasma, and brucella). It is not known how often trichinella occurs in seal in Nunavut. More information is needed to know how often these germs appear in seal and whale.

- Freezing does not kill some of the germs that have been found in seal and whale (botulism, brucella, trichinella and giardia). Cooking kills all of these germs. Seal and whale should be cooked when it is served to people who are not able to fight off infection.



The Department of Health recommends that women of childbearing age who may become pregnant, are planning to get pregnant, or are pregnant eat ringed seal meat instead of ringed seal liver. This is suggested because of some environmental contaminants found in seal liver.



Seal and whale can be stored in freezers at -20°C . There are no reported guidelines on how long seal and whale should be stored in a freezer.



Suggestions from veterinarians about seal:

- Signs of illness or weakness in seal may be a bald coat or parasites on the skin. Seals that are sick may also have white dots on liver or inside the liver. Seals showing signs of illness or weakness should not be eaten.
- Gut a seal immediately after it is killed (or within several hours) to stop any bacteria in the intestines from getting into the meat or fat. Butcher seals on clean surfaces, like clean snow and ice.
- Even if the seal appears healthy:
 1. Do not cut into the gut during butchering
 2. Make sure that none of the contents of organs or intestines are in contact with the meat or the fat of the seal




Walrus and Polar Bear



Walrus can have a roundworm called trichinella. These worms can make people very sick. Testing a walrus tongue can show if the walrus has trichinella or not.

Walrus should always be tested for trichinella before it is served uncooked or fermented.

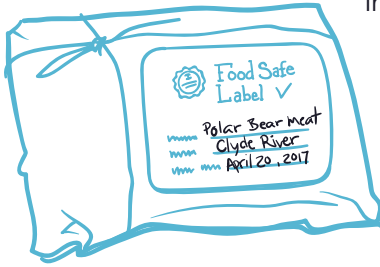
Testing a walrus tongue for trichinella is the best way to know if that animal is safe to eat uncooked.

A black and white photograph of a laboratory setting. In the foreground, a microscope is prominently displayed on a table. To its left, a pair of safety glasses is visible. In the background, there are various laboratory equipment and a person's legs in white lab coats, suggesting a busy lab environment.

Walrus tongue testing is free. For more information on walrus tongue testing, contact your Environmental Health Officer.



Most polar bear carry trichinella. Polar bear should always be very well cooked if it is being served in facilities and programs. Polar bear should be cooked to 75°C or hotter. Polar bear meat should be cooked until there is no pink or red in the meat and no blood coming out of the meat.



Always make sure polar bear meat is labelled so no one eats raw polar bear meat by mistake.



Information from veterinarians:

- The majority of polar bears may carry the trichinella germ. This means that if polar bear meat is eaten uncooked, there is a good chance that people could become sick with trichinella.
- Trichinella is not killed by freezing, drying or fermenting meat. It is only killed by cooking the meat.



FOOD SAFETY SUGGESTIONS FROM VETERINARIANS

Keeping Country Food Safe

Suggested practices

The following recommendations are based on ways that veterinarians suggest handling animals to keep food safe. Nunavut hunters already take many of these actions based on their own knowledge of traditional practices. Inuit traditional knowledge keeps food safe. Many traditional practices that keep food safe are not written down.

These recommendations are here to make sure that the highest quality country food is served in facilities and programs in Nunavut.



Harvesting

- Harvest using Inuit harvesting practices (by an experienced hunter, or under the guidance of an experienced hunter).
- Do not harvest animals if there are any signs of illness, weakness or abnormal appearance.
- Visually inspect the animal after harvest to identify any signs of illness, weakness or abnormalities.
- Report sick, weak or abnormal animals to the conservation officer.





FOOD SAFETY SUGGESTIONS FROM VETERINARIANS

Maintaining Temperatures

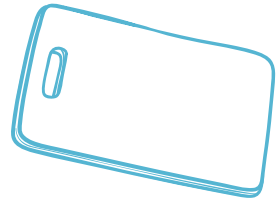
- Chill meat to 4°C or colder within three to four hours of harvest.
- If the air temperature is above 4°C, ice or snow may be used to keep carcasses cool.



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Butchering Country Food

- Meat should be butchered on surfaces that are clean. If the surface is going to be used again, it is important that it is easy to clean after butchering.
- These are good surfaces for butchering:
 - clean snow and ice
 - skin of harvested animal
 - clean tundra
 - trays and cutting boards made for food
- The following surfaces are hard to clean and are not good for butchering: cardboard, wooden boards, painted surfaces, polypropylene tarps and canvas.
- Clean and disinfect butchering tools and equipment after each use.
- Do not cut into the guts of an animal when butchering the animal because there can be exposure to giardia and other germs from animal feces. Even a small cut of the intestines can expose the meat to giardia.
- Do not feed meat with cysts to dogs. Humans can catch disease from parasites that are in dog feces after a dog eats meat with cysts.





FOOD SAFETY SUGGESTIONS FROM VETERINARIANS

Transportation

- No fuel or other contaminants should come into contact with harvested animals during transport.
- Harvested animals and butchered meat should be transported in a sled and/or boat that is only used for transporting animals.
- If animals are shipped between communities, carcasses should stay frozen at all times. If country food is not frozen when shipped, the temperature should always be 4°C or colder.



Guide for Government-Funded Facilities
and Community Programs Serving Country Food

Appendix 1



Country Food Tracking Form

This form should be completed each time a program or facility receives country food. Keep all forms in one confidential location. The information will help to keep food in facilities and programs safe.

Name of Facility or Community-based Program		Community	
Name of hunter (with contact information) or Commercial Supplier:			
Location of harvest (place name or GPS coordinates)		Date animal was harvested	
		DD	MM YY
Date country food was received		Check one:	
DD	MM	YY	<input type="checkbox"/> Purchase
		<input type="checkbox"/> Donation	
Please describe the country food (type, part of animal, quantity) and any observations regarding the animal:			
Who butchered this animal?		<input type="checkbox"/> Hunter named above or commercial supplier <input type="checkbox"/> Facility/ program staff <input type="checkbox"/> Other person (name: _____)	
What was the temperature of this food when it was received?			
For walrus, was the animal tested for trichinella?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Form completed by		Date	
		DD	MM YY

* "Commercial supplier" refers to a country food processing plant or seller like Kivalliq Arctic Foods or Iqaluit Country Food Store

Appendix 2

Zoonotic disease

Zoonotic disease is a disease that can be passed between animals and humans. Zoonotic diseases can be caused by viruses, bacteria, parasites and fungi.

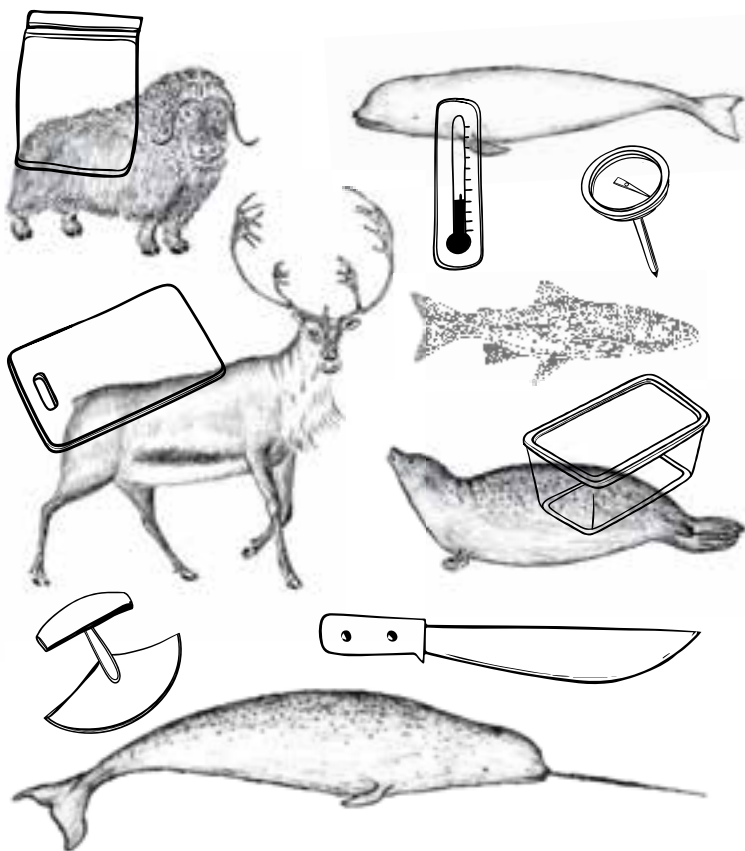
Germ name and animal it is found in	How to tell if an animal is sick and how to prevent sickness in humans	Killed by	Effect on human health
Anasakid Nematodes (roundworms) <ul style="list-style-type: none">Arctic char may be infected with immature roundworms (larvae) that can cause disease in humans.Seal and whale may carry adult roundworms, which do not cause disease in humans.	<ul style="list-style-type: none">Higher risk if fish are not frozen before eating or if they are not gutted right after harvest.Immature roundworms (larvae) may or may not be visible. If you see larvae, freeze fish for seven days before eating it.	Cooking to an internal temperature of 70°C or freezing at -20°C for seven days.	This can cause mild to moderate gastrointestinal (stomach) illness.
Botulism <ul style="list-style-type: none">Fish, seals, walrus, whales.It is not known how often botulism-causing bacteria are in an animal. When meat has no oxygen (when no air can get in) the bacteria can make a toxin that causes human illness.	<ul style="list-style-type: none">There are no signs of illness in animals that have the botulism bacteria.Botulism may happen if food is not properly aged, canned, dried or pickled.Food should NOT be stored at room temperature or at temperatures warmer than a refrigerator (above 4°C).Food should NOT be stored in airtight containers (such as plastic bins with tight fitting lids).	Cooking to an internal temperature of 75°C.	Botulism causes a life-threatening sickness that can develop very quickly.
Brucella <ul style="list-style-type: none">Caribou (somewhat common)Muskoxen (less common than in caribou)Possible in marine mammals	<ul style="list-style-type: none">Brucella is not killed by freezing, smoking, pickling or drying meat.In animals, brucella may be associated with abortions in caribou, low fertility in animals, swollen joints or reproductive organs, or poor body condition (weak or thin animals). Sometimes animals show no signs that they are ill with brucella.	Cooking to an internal temperature of 75°C.	Brucella in humans can range from mild flu-like symptoms to severe fevers that keep coming back.

Germ name and animal it is found in	How to tell if an animal is sick and how to prevent sickness in humans	Killed by	Effect on human health
<p><i>Echinococcus granulosus</i> (Hydatid disease)</p> <ul style="list-style-type: none"> Caribou (not known how often this happens) Muskox (not known how often this happens) 	<ul style="list-style-type: none"> Generally there are no signs of illness in animals, but cysts are seen in organs (and sometimes meat) after harvest. Cut out areas with cysts and throw away. DO NOT FEED cysts to DOGS. Humans can get the disease from contact with dog feces that has the cysts. Do not eat or cut into fluid filled cysts. 		<p>Humans get infected from contact with dog feces (of dogs that have eaten cysts in caribou). Humans do not get infected directly from the cysts. Generally mild symptoms, may lead to formation of large cysts (mostly in the liver).</p>
<p><i>Erysipelothrix rhusiopathiae</i></p> <ul style="list-style-type: none"> Muskox (common on Victoria Island and Banks Island) 	<ul style="list-style-type: none"> Touching the skin or hide of animals with skin sores and abnormal hide, hair or coat. 	<p>Animals should not be eaten.</p>	<p>Painful skin sores, occasionally arthritis or septicemia (blood infection).</p>
<p><i>Giardia</i></p> <ul style="list-style-type: none"> Any species except fish (How often an animal has giardia depends on the location. Giardia is common.) Exposure to <i>Giardia</i> occurs from the contact of meat with feces 	<ul style="list-style-type: none"> There are no signs of illness in animals. To prevent sickness in humans, make sure that meat does not get feces on it during gutting. Also, gutting an animal as soon as possible after harvesting helps to lower risks of getting giardia. 	<p>Cooking to an internal temperature of 75°C.</p>	<p>Generally mild gastrointestinal (stomach) illness.</p>
<p><i>Toxoplasma</i></p> <ul style="list-style-type: none"> Polar bear (common) Seal (varies) Walrus (less common than in polar bear) Caribou (common) Muskoxen (not very common) Whale 	<ul style="list-style-type: none"> There are usually no signs of illness in animals. It may be linked to abortions in the animals. 	<p>Cooking to an internal temperature of 75°C, or freezing the meat at -20°C for at least three days.</p>	<p>There are mild (or no) signs of sickness in adults. Toxoplasma can cause severe disabilities for babies when the mother is exposed for the first time when she is pregnant.</p>
<p><i>Trichinella</i></p> <ul style="list-style-type: none"> Polar bear (common) Walrus (somewhat common) Seal (not very common) 	<ul style="list-style-type: none"> There are no signs of illness in animals that have <i>Trichinella</i>, and it is not visible in the meat. Tests are available for walrus if the meat will be eaten raw. <i>Trichinella</i> is not killed by freezing, drying or fermenting meat. 	<p>Cooking</p>	<p>Illness in humans ranges from mild to severe.</p>

Germ name and animal it is found in	How to tell if an animal is sick and how to prevent sickness in humans	Killed by	Effect on human health
NOT ZOO NOTIC			
<p>Muskox lungworm (NOT ZOO NOTIC – IS NOT TRANSFERRED TO HUMANS)</p> <ul style="list-style-type: none"> Commonly seen when butchered. Muskox with lungworm may appear sick or weak, can be associated with muskox die-offs. 	None	N/A	Lungworm from muskoxen does not cause illness in humans or in dogs.

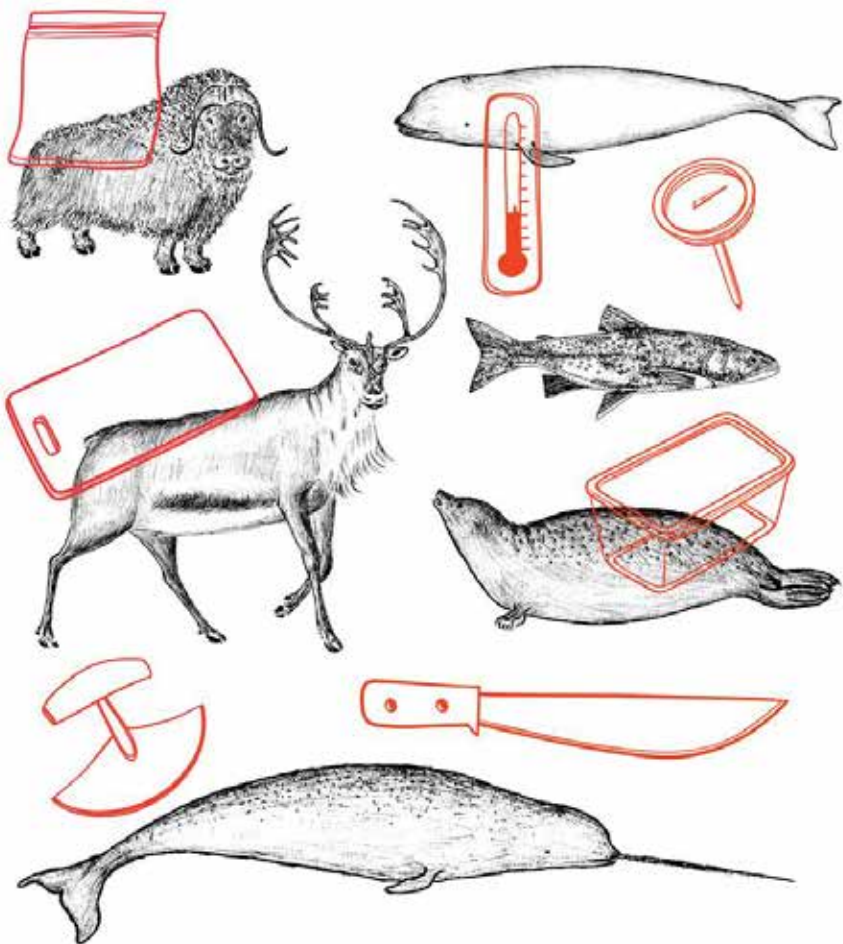
Serving Country Food in Government-Funded Facilities and Community Programs

Fact Sheets



NUNAVUT
FOOD SECURITY
COALITION





Country Food Safety Fact Sheets



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COALITION



Anasakid Nematodes and Fish

Why should we be concerned?



- ➔ Anasakid nematodes are small, round worms. The larvae (immature worms) and adult worms can sometimes be seen in the organs or flesh of fish, but sometimes not.
- ➔ It is not known how often there are nematodes in fish in Nunavut.
- ➔ If the larvae in the fish are not killed, they can cause sickness in humans who eat the fish.

How does it make people sick?

- People who eat fish with nematode larvae can have tingling in the throat. People can also develop stomach ulcers (which cause pain in the stomach).



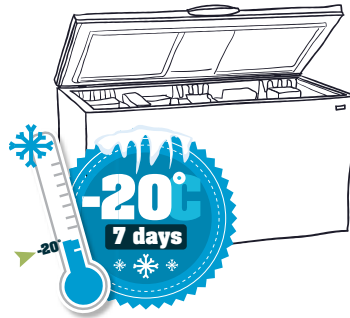
What can we do to keep safe from these nematodes?

- ✓ Gut fish as soon as they are killed. If you do not gut the fish right after harvesting, freeze the fish right away.



- ✓ Cook the fish. Cooking will kill the worms so they can not cause sickness.

- ✓ If you want to eat the fish uncooked, freeze it first. Freezing fish will kill both immature and adult worms. Freeze fish for 7 days at -20°C before eating raw.

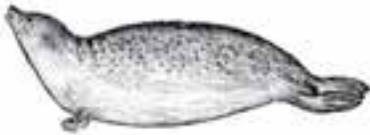


It is not known if drying fish kills the nematodes

Botulism

Why should we be concerned?

- ➔ The botulism bacteria are found naturally in walrus and seal. The bacteria may also be found in whale.
- ➔ Botulism bacteria can make toxins if they do not have air. The toxins from the bacteria can cause a sickness in humans called "botulism".
- ➔ Botulism sickness can be very serious in humans and can even cause death.



How does it make people sick?



- Bacteria can grow and make toxins **if they do not have air**. The bacteria itself does not make people sick. The toxin created by the bacteria makes people sick.
- Some ways of storing and aging meat can grow botulism toxin and make the meat unsafe to eat. Toxins are formed when the meat does not have contact with air. These ways of storing meat are unsafe and should **not** be used:
 - Keeping raw seal, walrus or whale in closed plastic containers or plastic bags at temperatures above 4°C (warmer than a refrigerator)
 - Leaving raw seal, walrus or whale in a closed plastic bag in the sunshine
 - Aging meat or fat in closed containers



What can we do to keep safe from botulism?

- ✓ Remove the stomach and intestines of seal, whale and walrus right after harvesting.
- ✓ Store raw meat and fat in cold conditions (4°C or colder).
- ✓ Do not age meat in closed containers. Country food should be aged in a cool place that lets air in. Plastic containers and plastic bags should not be used to age country food.
- ✓ Keep leftovers in a refrigerator, not on the stove or counter overnight. Do not keep food at room temperature for more than 2 hours. Leftovers (like seal broth, seal stew) should be cooked for at least 10 minutes before being served again.
- ✓ Botulism toxin can be killed by cooking. Eating well-cooked meat will not cause sickness.



REMEMBER: Botulism bacteria and toxins do not have a flavour or smell. Botulism toxin is not what makes the good flavour of aged meat.

Brucellosis

Why should we be concerned?

- ➔ Brucellosis disease is caused by a bacteria called *brucella*.
- ➔ *Brucella* is found in some caribou herds in Nunavut. *Brucella* has also been reported in muskox herds, but it is rare. Animals with brucellosis can have swollen joints and reproductive organs. They can be limping, or appear lame. Brucellosis can cause abortions in pregnant animals.
- ➔ Sometimes animals with *brucella* become thin or look sick. Sometimes there are no signs of *brucella*. Both male and female caribou can have *brucella*.
- ➔ Humans can get brucellosis from eating raw or undercooked meat from an animal that has *brucella* bacteria.

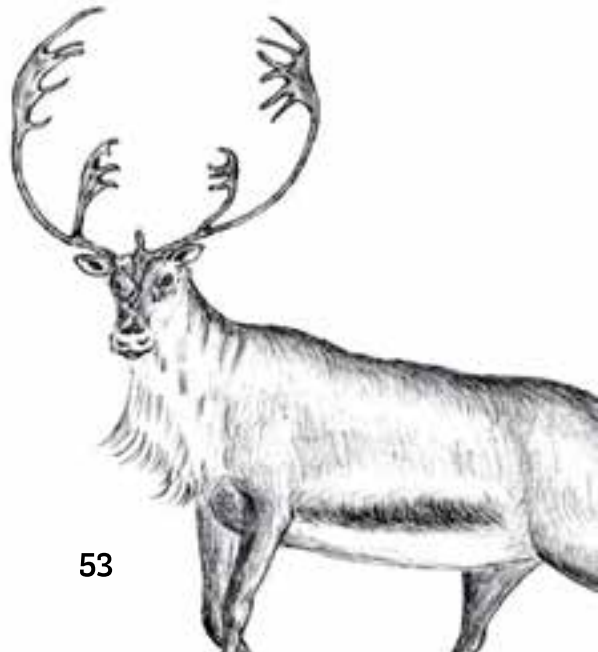
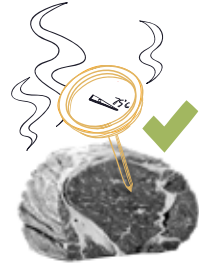
How does it make people sick?

- Brucellosis causes an illness in humans that is similar to the flu. It can cause people to have fevers, chills, sweating, a loss of appetite, headaches and joint pain.
- Brucellosis can be treated with antibiotics. If brucellosis is not treated, people can become very sick. Untreated brucellosis can lead to an infection in the brain, deafness, paralysis or death.



What can we do to keep safe from brucellosis?

- ✓ Cooking meat kills brucella bacteria. Cook meat to an internal temperature hotter than 75°C. Brucellosis is not killed by freezing, smoking, pickling or drying.
- ✓ People can get brucellosis from touching the bacteria when butchering or handling an animal with brucella. The bacteria can get into humans through cuts in skin or by the eyes, mouth or nose. Wear gloves when handling or butchering an animal and wash your hands after.
- ✓ Do not feed dogs any parts of an animal that you think is infected with brucella.



Erysipelothrix

Why should we be concerned?

- ➔ Erysipelothrix is a bacteria that can cause illness in humans. These bacteria are usually linked to animals like pigs and turkeys, but have recently been found in a few muskox on Victoria Island and Banks Island.
- ➔ Sometimes muskox don't show signs of erysipelothis. For example, a muskox that appears healthy may suddenly collapse and die.
- ➔ Some muskox with erysipelothis will look sick or weak. If a muskox looks weak or sick, it should not be eaten.

How does it make people sick?

- Humans can be infected by erysipelothis by touching the skin or hide of animals that have the bacteria.
- Erysipelothrix bacteria can cause an illness in humans called erysipeloid. Erysipeloid causes a throbbing, itching pain and swelling in the fingers or hands. Sometimes this illness can be more serious and cause arthritis or blood infections.
- Erysipeloid can be treated with antibiotics.



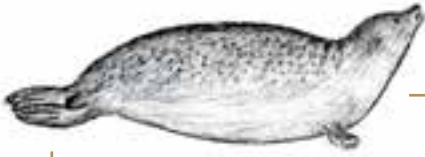


What can we do to keep safe from erysipelothrix?

- ✓ Do not touch dead muskox.
- ✓ Do not harvest muskox that appear weak or sick.
- ✓ Do not hunt or drink water in the area near dead muskox carcasses.



Toxoplasma



Why should we be concerned?

- ➔ Toxoplasma is a parasite found in several animals in Nunavut. It is somewhat common in polar bear, seal and caribou. There is less toxoplasma reported in walrus and muskox.
- ➔ There are usually no signs of illness in the animal, but toxoplasma may be linked to abortions in animals that have the parasite.

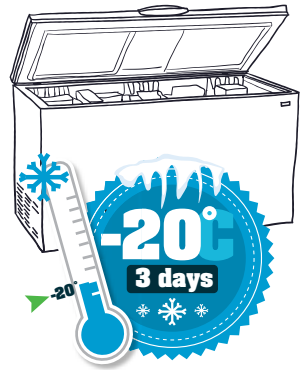
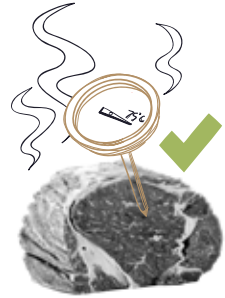
How does it make people sick?

- There are sometimes no signs of illness in adults, although some adults may have a sickness that is like the flu. Exposure to toxoplasma is not a concern for most people.
- Toxoplasma can be a serious concern for pregnant women. If a woman is *exposed to toxoplasma for the first time* during pregnancy, then the baby can be born with severe disabilities or develop severe symptoms after birth.



What can we do to keep safe from *toxoplasma*?

- ✓ Cooking kills *toxoplasma*. Cook meat to an internal temperature of hotter than 75°C.
- ✓ Freezing kills *toxoplasma*. Meat can be frozen at -20°C for at least 3 days before it is eaten raw.



Trichinosis

Why should we be concerned?

- ➔ Trichinosis is a disease that is caused by a worm. Most of the time, animals that have this worm look healthy. Sometimes the worms are too small to see.
- ➔ Sometimes, but not always, animals infected with the worm show the following when they are being butchered:
 - Small lumps or sacs (called "cysts") in the muscles of the jaw, tongue, or diaphragm (the large muscle below the lungs)
 - Swollen intestines with small bruises
- ➔ People can get trichinosis from eating raw, fermented (igunaq) or undercooked meat that has the worm. The worm is what causes sickness in humans.
- ➔ Trichinosis has been found in walrus and polar bear. The majority of polar bears carry the trichinella worm.



What are the signs of trichinosis in people?

- Sickness can start a few days after eating the infected meat. The first signs of trichinosis are vomiting, nausea, diarrhea, fever and pain in the stomach.

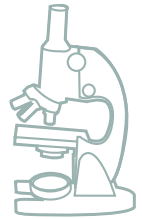


- More signs can show up 8-15 days later. People can have headaches, fever, chills, coughing, eye swelling, aching joints, muscle pain, diarrhea or constipation, and itchy skin.
- Trichinosis can be treated with medicine. If it is not treated, more serious infections can cause problems with the heart and lungs, and problems with body movements. If trichinosis is not treated it can cause death.

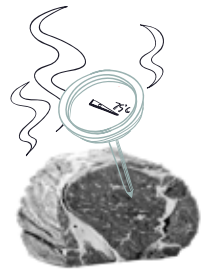
What can we do to keep safe from *trichinosis*?



Get walrus tongues tested before eating the meat raw. This is the best way to keep safe from trichinosis. The Government of Nunavut has a free program to test walrus tongues. Contact your HTO or Health Center to find out more.



If you don't get the tongue tested, cook the walrus before eating it. Cook the meat until it is grey/brown in colour and the juices are clear (to an internal temperature hotter than 75°C). Trichinosis is not killed by aging, freezing or drying. It is only killed by cooking.



Eat polar bear meat well cooked.



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