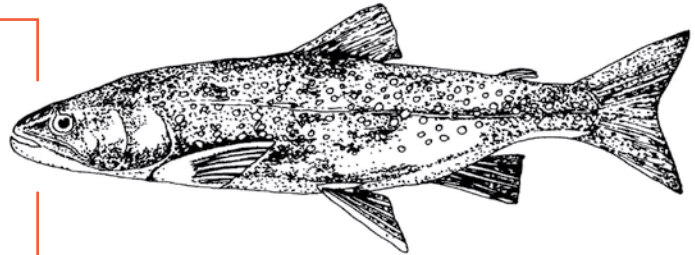


# Anasakid Nematodes and Fish

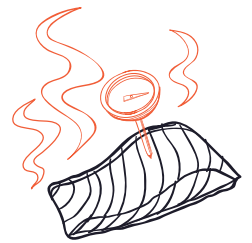
## Why should we be concerned?

- ➔ 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.



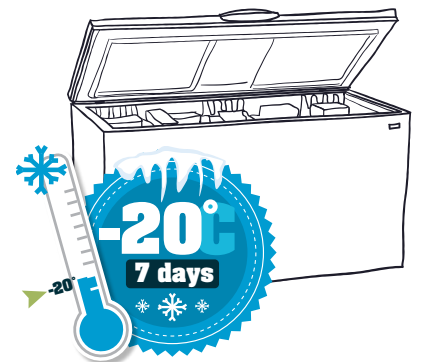
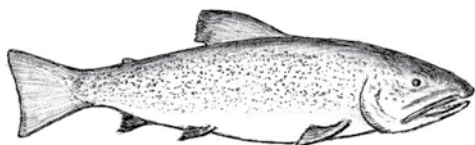
## What can we do to keep safe from these nematodes?

- ✓ 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  $-20^{\circ}\text{C}$  before eating raw.



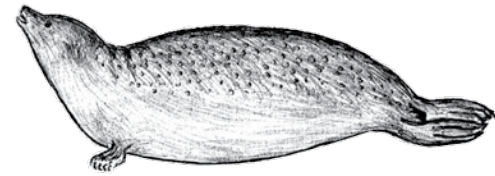
## How does it make people sick?

- 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).



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

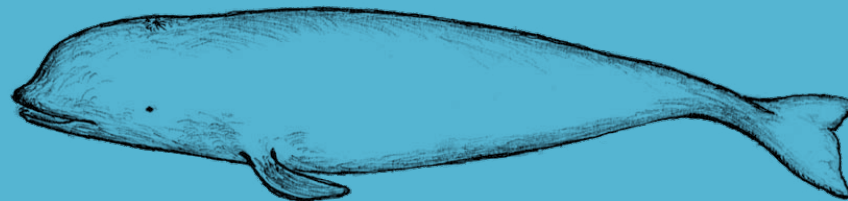


## What can we do to keep safe from botulism?

- ✓ 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.



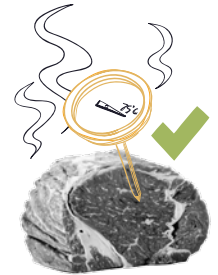
## How does it make people sick?



- 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 erysipelothis?

- ✓ 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

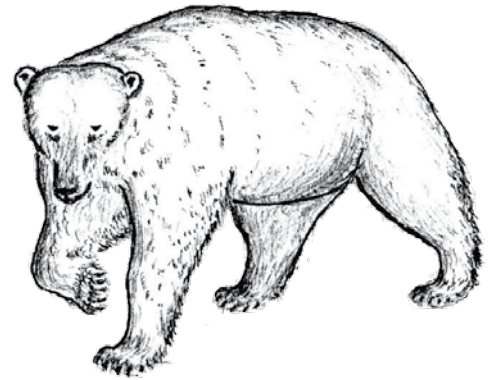


## Why should we be concerned?

- ➔ 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.

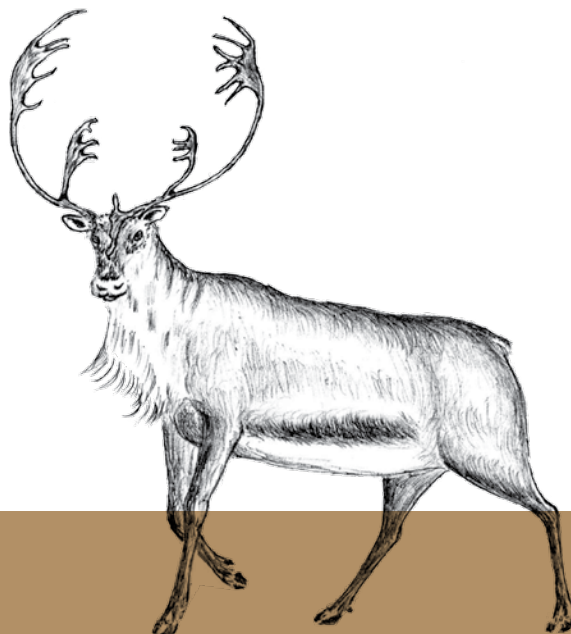
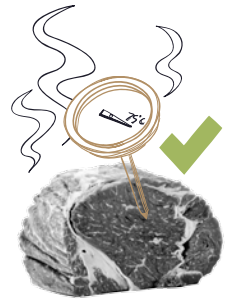
## How does it make people sick?

- 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?

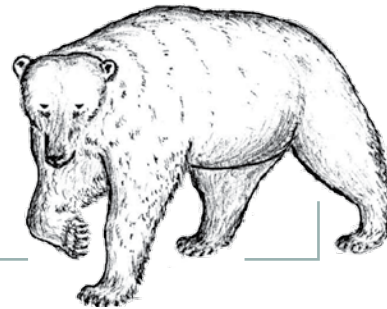
- ✓ Cooking kills toxoplasma. Cook meat to an internal temperature of hotter than 75°C.
- ✓ Freezing kills toxoplasma. Meat can be frozen at -20°C for at least 3 days before it is eaten raw.



# 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.

