Aboriginal Traditional Food –
An Environmental Public Health Perspective

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Introduction

Traditional (country) Food is defined as:

• Food that is both plant and animal and is harvested from the local environment and culturally accepted, as opposed to market food. (Receveur, Boulay & Kuhnlein, 1997)

• Sources are unique and almost always culturally and geographically specific. (Kuhnlein, Receveur, Soueida & Egeland, 2004)

• Although typically used to describe Aboriginal food, traditional food can be applied to other cultures as well.
Introduction

• Up until the last 50 years or so, aboriginal populations obtained food by relying on the land.
  • Harvesting, trapping, hunting or fishing.
  • Seasonal cycles would dictate food variety.

• Despite traditional foods still representing a portion of the diet, Aboriginal communities obtain most of their food from supermarkets.
Introduction

• With no means of refrigeration or freezing, First Nations communities had to be resourceful:
  • Employ alternate preservation methods:
    – Smoking
    – Drying
    – Salt-curing
    – Canning
  • Waste nothing
Drying Meat
Smoking
Benefits of Traditional Food

• Traditional food is an excellent source of energy; high in nutrients, fat, protein and essential vitamins.
  • Significantly higher nutritional value over market obtained food.

• Traditional foods are a key to Aboriginal cultural identity both historically and today. (Adelson, 2000; Power, 2008)
  • Additionally: well-being, health, leisure, closeness to nature, spirituality, share, pride, respect and education of children. (Van Oostam et al., 1999)
Benefits of Traditional Food

- Harvesting traditional/country food is physically demanding, the benefits of staying fit.
  - Researchers believe that the traditional Aboriginal diet, combined with the active lifestyle needed to hunt and forage, is protective for chronic disease. (Damman, Eide & Kuhnlein, 2008)
  - The reduction of traditional food consumption and a more sedentary lifestyle may be an important factor in the increased incidence of diabetes in the population.
Sources of Traditional Food

Sources of traditional food vary with:

• Culture
• Geographical location
• Regional growing seasons
Sources of Traditional Food

More than 250 species of plants and animals are part of the rich framework of traditional food systems of the First Nations, Métis and Inuit in Canada, ranging from:

• Deer, buffalo, wild sheep, goat, antelope, moose, caribou and bear; small game such as beaver, rabbit, squirrel, skunk, muskrat and raccoon, wild birds such as ptarmigan, ducks and geese; many varieties of fish; reptiles such as snakes, lizards and turtles, insects and eggs from a variety of species.

• For Aboriginals living near the sea, polar bear and seals (e.g. ringed and harp), whales (e.g. beluga, narwhal and bowhead), and/or walrus are part of the diet.
Examples of Traditional Food:
Large Game

Deer

Moose
Examples of Traditional Food: Large Game

Bison

Caribou
Examples of Traditional Food: Small Animals

Muskrat

Birds (Ruffed Grouse)
Examples of Traditional Food:
Fish
Examples of Traditional Food:
Berries

Saskatoon Berries

Blueberries
A Paradox

Policymakers and health professionals have recognized the importance and the benefits of traditional foods for Aboriginal populations and efforts are made to encourage Aboriginals to increase the consumption of traditional foods, however...

Public health professionals do not openly allow traditional food (mostly wild game) in a public setting, requiring that only foods obtained from approved and inspected sources be used for public consumption.
Why All the Fuss?

• The general population is at just as much at risk of foodborne illness with market purchased food.
  • There is little research to indicate that traditional foods are more likely to cause foodborne illness or intoxication, i.e. is riskier to consume than market foods.
  • There is little research comparing foodborne illness from market foods to foodborne illness from traditional foods.
• In some cases food safety appears to be inherent to traditional food practices.
  • Processes such as drying and salt-curing used to preserve animal meat removes moisture, an important factor preventing microbial growth.

• Outbreak of illness are often isolated events related to specific practices.
Enter Public Health…

The Public Health Approach:

Involves the identifying a hazard followed by effective and feasible risk management actions at the national and community level to reduce human exposures and risks, with priority given to reducing exposures with the biggest impacts in terms of the number affected and severity of effect.

Enter Public Health...

• Environmental Public Health has a role and responsibility to acknowledge and understand traditional food practices in order to effectively protect community members from the potential risks.
  • Public health is based on *prevention*; we would not be doing our duty if we waited until people became ill to intervene.

• Health risks associated with certain practices in the gathering, preparation and consumption of some traditional food are scientifically supported.
Enter Public Health...

- Accordingly there is a need to identify these potential food safety hazards reduce the risk to Aboriginal communities.

- Despite the food safety risks that exist with traditional/country food preparation practices, there is minimal information and research on the matter.

- Public health professionals and Aboriginal communities should work together in this respect.
Risks Factors Related to Traditional Food

- Aboriginal populations are at greater risk of acquiring infections related to wildlife because of their lifestyle and food habits.

- Slaughter, preparation, preservation and storage methods of traditional food differs greatly from methods used in commercially available food.

- Despite its cultural importance, traditional knowledge is not necessarily based in scientific evidence, but rather proven practice.
  - The creates this conflict between traditional food practices and public health – which is based science based.
Risks Factors Related to Traditional Food

• Demographically speaking, Canada’s Aboriginal population is growing at 2 times the rest of Canada with an average age of 26 and a large percentage (half) the population being children and youth – population at greater risk for foodborne illness. (Statistics Canada, 2006)

• Food sharing practices in the community puts a large number of people at risk.
Food Safety Considerations with Wild Game

• Uncertainty over the health of the animal.
  • Cannot be determined without proper live assessment by a veterinarian.

• Uncertainty over chemical contamination.
  • Harmful chemicals may accumulate in the fat and visceral organs.
Food Safety Considerations with Wild Game

- Food Handling Concerns
  - Method of killing, dressing and butchering in the field.
    - Specifically contamination from gut contents.
  - Transport
    - Time/temperature violations.
- Preparation & Cooking
  - Time/temperature violations.
Food Safety Considerations with Wild Game

- Zoonoses
  - Wild game associated use for traditional food has the potential to spread diseases from the animal to humans.
  - Animals which may appear otherwise healthy may be harbouring pathogens.
  - Hunters may be exposed by contact with animals blood, organs and brain tissue; consumption of animal meat.
Zoonoses

• Tularaemia
  • A (relatively rare) bacterial disease common in muskrats and beavers.
  • Humans may be exposed by handling infected animal waste and consuming infected tissue.

• Chronic Wasting Disease (CWD)
  • A prion related to neurologic disease with unknown potential to cross species barrier.
  • Possible link between consumption of infected meat by hunters.

• Others: Toxoplasmosis, Trichinella, Brucellosis, Anthrax, Tuberculosis,
Specific Risks in Preparation Traditional Food*

The 3 main food safety concerns with traditional food**:

1. Fermentation processes
2. Consumption of raw product***
3. Consumption of visceral organs

*Risks from chemical contamination will not be discussed.

**According to a March 2009 Review by Food Safety Network.

***Does not refer to all Aboriginal populations.
Food Safety Risks with Traditional Food

1. Certain traditional practices such as fermentation (which may be intentional or not) are high risk.
   • For example Stink Eggs and Muktuk
Food Safety Risks with Traditional Food

- Fermentation methods used by Canadian Aboriginals is not a true fermentation.
  - No conversion of carbohydrates into acid or alcohol occurs.
  - True fermentation includes the production of lactic acid, acetic acid, or ethanol, all of which inhibit the growth of pathogenic organisms to varying degrees.
- This process is directly and indirectly associated with a large number of outbreaks of botulism in Inuit communities.
Food Safety Risks with Traditional Food

2. Consumption of raw meat (in some cultures).
   - Raw meat poses a health risk from parasites and other pathogens normally destroyed by cooking (e.g. Trichinella)
   - Thoroughly cooking food provides a barrier of protection against microbiological hazards.
Food Safety Risks with Traditional Food

3. Consumption of animal organs.
   - All efforts are made to use all parts of an animal, including organs.
   - Studies suggest organ consumption is a course of calcium and vitamin A for aboriginals.
   - Certain organs will have higher levels of contaminants.
     - E.g. Mercury in fish, Cadmium in liver and kidney of large game
   - Prolonged consumption may lead to accumulation of toxins.
Addressing Safety of Traditional Food

• Despite the need, very few studies on food safety in Aboriginal communities have been conducted.
• The information that exists is
  • Old and usually limited to botulism in fermented food.
  • Focused on chemical toxicity.
• Information materials are not geared towards First Nations.
• Accordingly public health should be proactive on research into safety of traditional food practices.
Addressing Safety of Traditional Food

• Efforts aimed at addressing safety of traditional food should involve:
  • Engage community members.
    – Incorporate traditional knowledge/anecdotal evidence in addressing food safety to balance culture and modern science.
    – Developing culturally appropriate educational materials.
  • Aboriginals practicing traditional food have managed to circumvent foodborne illness for centuries.
    • Need to review specific practices in traditional foods to identify hazards and to develop risk reduction measures.
Addressing Safety of Traditional Food

• Better surveillance and communication between First Nations and Public Health.
  • For example, Walrus meat sampling program was implemented in a Northern Quebec community following outbreaks of trichinosis.
  • Before meat could be consumed or shared with the community it was sent for testing.
Addressing Safety of Traditional Food

• Another innovative way to address safety of traditional food has been to commercialize traditional food from the North.
  • Kivalliq Arctic Foods Ltd. manufactures and distributes traditional food prepared in approved facilities using retail, wholesale and online stores.
  • Allows for access to traditional food by urbanized Aboriginals and standardizes preparation processes that ensure food safety.
Role of Environmental Public Health

• Environmental public health professionals must recognize traditional food consumption and address the issue by working closely with communities to provide education and consultation on the potential risks, without discouraging the practice.

• The position of public health will likely not change, but acknowledging the role of traditional food and facilitating its incorporation into the community is important in ensuring it is done in a safe and approved manner.
Role of Environmental Health

- The EHO and First Nation should work together to find the balance between food safety, the interpretation and application of regulations, and the cultural needs of the community.
Incorporating Traditional Food into a menu at a Head Start

As part of the hunting unit in November, children learned how to traditionally smoke deer jerky. Knowledge of this process and how to build the smoker was given to cultural teacher Rosalind Williams by band elder Emmeline Clemah.

For the preparation of the deer jerky, staff took many precautionary steps to prevent any chance of food-borne illness. The meat was donated by the husband of the cultural teacher, who could verify that it was properly cleaned and processed at a local meat processor and that the deer meat had been frozen properly and was not out-dated (or freezer-burned). The meat was still frozen when sliced thinly for the jerky and immediately refrigerated once the marinade was put on. The centre used a tested marinade recipe from a cook book. The meat was taken from the refrigerator and immediately put on the traditional smoker to dry into jerky, and smoked with cottonwood chips. The process of dry-smoking the jerky took approximately four hours.

Head Start staff also had a traditional meat luncheon that day where ‘Elk Roast’ and ‘Moose Stew’ was served to parents and children. Staff knew that the meat was processed at a local meat processing store and had first-hand knowledge that the hunters who donated the meat were trusted hunters who follow good food-safe and processing techniques. The traditional food was cooked in the Head Start inspected kitchen by their ‘Food Safe’ cook.

The children all had signed permission slips from parents acknowledging that they could eat the traditional meats.
• A Head Start Program in BC incorporated traditional foods into the menus at child care centres. Children learned how to traditionally smoke deer jerky (BC First Nations Head Start, 2003).
Case Study: Traditional Food at a Head Start

Key elements in this example

• Initiative by a community member.
• Consultation with the Environmental Health Officer.
• Traditional knowledge provided by a trusted elder.
• Deer meat was cleaned and processed at an approved facility.
• Food was prepared by a trained individual.
• Parental consent was required for children to participate.
Conclusions

- Traditional Foods are important to the culture and health of Aboriginal people.
- The risks associated with traditional food practices needs to be acknowledged.
- Environmental Public Health Services has a role in addressing traditional food safety issues.
- Under the right circumstances, traditional food and public health can exist together, as illustrated by the example.
References


Traditional Methods of Canning and Preserving: Recipes and Tips from Alberta’s First Nations.

References

Centers for Disease Control and Prevention. Wild Game Hunting and Food Safety. (http://www.cdc.gov/features/huntingsafety/)

Yet, maintaining cultural traditions, including food choices and preparation methods necessitates an examination of food safety risks and new recommendations for food preparation and storage using a blend of cultural tradition and modern science, with recommendations based upon available evidence, not theories.