ISC INDIGENOUS SERVICES CANADA

NOURISH TO FLOURISH

NUTRITION MONTH 2025

Nutrition Advisory Team
First Nations and Inuit Health Branch, AB Region
March 3, 2025

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Objectives

- Understand the connections between nutrition and mental wellness.

- Focus on food as more than nutrients.

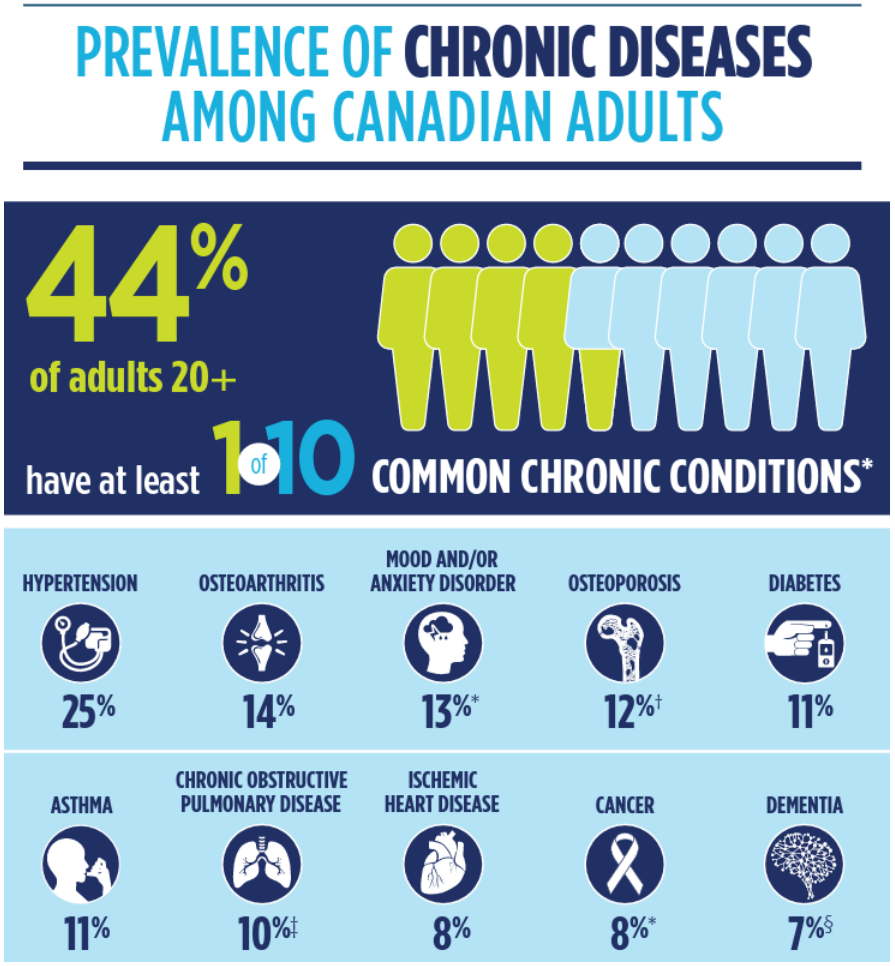
- Food is Medicine - The role of food in healthy bodies, minds, relationships and communities.

- Get inspiration on how you can promote Nutrition Month.

Part 1: Food and Mood

Mental illness in Canada

- 1 in 3 Canadians will be affected by a mental illness in their life
- Mood and or anxiety related disorders are the 3rd most prevalent chronic disease in Canada
- Mental illness can cut 10 to 20 years from a person's life expectancy
- Cost of mental illness in Canada $= ~51 billion per year.



Public Health Agency of Canada

Centre for Addiction and Mental Health (CAMH), Mental Illness and Addiction: Facts and Statistics, 2019

Known Brain Functions re Nutrition

Table 1: Known Brain Functions of Selected Major Nutrients, Vitamins, and Minerals

Nutrient	Brain Function
Major Nutrients	
Carbohydrates	Provides glucose, the preferred energy source for erythrocytes and nerve cells, including those of the brain. Eating carbohydrates triggers the release of insulin that helps blood glucose enter the cells. As insulin levels rise, more of the amino acid tryptophan crosses the blood brain barrier that affects levels of neurotransmitters such as serotonin.
Fat	The lipid concentration of the brain partly reflects the dietary intake. About 35% of the brain/nervous system tissue comprises polyunsaturated fatty acids that include the essential fatty acids, eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA). EPA and DHA form phospholipids in brain cell membranes and have important roles in signal transduction.
Protein	Provide amino acids; the precursors of neurotransmitters, and therefore facilitates neurotransmission and neuromodulation. The dietary precursors of serotonin (precursor is tryptophan), dopamine (precursor is phenylalanine), norepinephrine (precursor is tyrosine), and histamine (precursor is histadine) have been the main protein derivatives investigated.
Vitamins	
Thiamine (Vitamin B_1)	• Functions as a coenzyme in the synthesis of acetylcholine, γ-aminobutyric acid (GABA), and glutamate[54] • Can mimic action of acetylcholine[55]
Niacin (Vitamin B_3)	• Nicotinamide adenine dinucleotide (NADH) increases tyrosine hydroxylase activity and dopamine production in pheochromocytoma cells[56] • Involved in synthesis of serotonin (5-HT)[57]
Pyridoxine (Vitamin B_6)	• Role in the synthesis of many neurotransmitters (e.g., dopamine, serotonin, norepinephrine, epinephrine, histamine, GABA)[58] • Deficiency tends to reduce production of serotonin and GABA[59]
Folate, folic acid (Vitamin B_9)	• Functions as a cofactor for enzymes that convert tryptophan into serotonin and tyrosine into norepinephrine/noradrenaline • Can heighten serotonin function by slowing destruction of brain tryptophan[60] • Helps form compounds involved in brain energy metabolism[61] • Involved in the synthesis of dopamine[62;63]
Cobalamin (Vitamin B_{12})	• Involved in the synthesis of monoamine neurotransmitters[62] • Involved in maintaining myelin sheaths for nerve conductance[64] • Functions in folate metabolism
Pantothenic Acid	• Changes to coenzyme A that helps convert macronutrients into energy • Production of red blood cells, hormones, and nerve regulators[65] • Needed for the uptake of amino acids and acetylcholine • Is necessary to make vitamin D and works closely with B vitamins such as biotin, niacin, vitamins B_1, B_2, and B_6
Vitamin C	• Acts as part of the intracellular antioxidant network, and is an important neuroprotective constituent[66] • Acts as a neuromodulator[67] and enzyme cofactor in noradrenaline and dopamine synthesis[57]
Vitamin A	• Retinoids influence hormone pathways (steroid and thyroid hormones) known to cause mood elevation and depression[68]
Vitamin D	• 1,25-Dihydroxyvitamin D_3 affects cholinergic activity in several brain regions and may have a role in the neuroendocrine regulation of certain aspects of anterior pituitary function[69]
Vitamin E	• Alpha-tocopherol protects cells from damage by free radicals[70] • May reduce brain amyloid beta peptide accumulation, known to be relevant in Alzheimer's disease[70]

continued

Source: Dietitians of Canada - The Role of Nutrition in Mental Health Promotion and Prevention

Table 1: Known Brain Functions of Selected Major Nutrients, Vitamins, and Minerals - continued

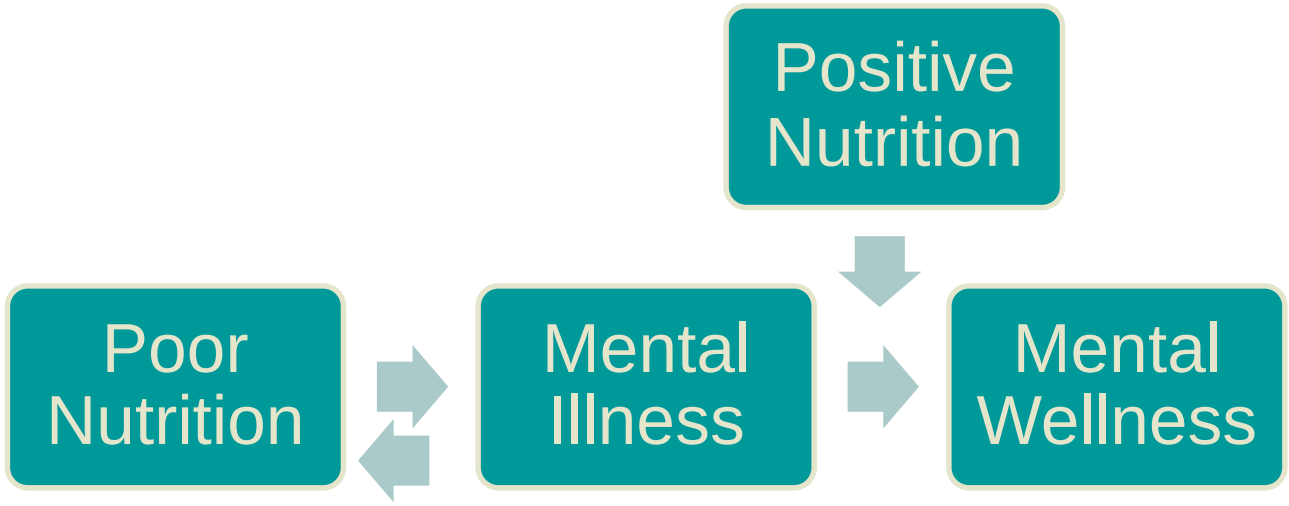
Nutrient	Brain Function
Vitamins - continued	
Vitamin K	• Involved in the development of the nervous system[71] and affects calcium regulation in the brain through osteocalcin[72]
Choline	• Essential roles in structural integrity of cell membranes, cell signalling (precursor to acetylcholine), and nerve impulse transmission • Major source of methyl groups for methylation reactions[73]
Minerals	
Calcium	• Important intracellular messenger, cofactor for enzymes[74] and release of neurotransmitters
Copper	• Modulator of NMDA-receptor activity
Chloride	• Negatively charged chloride ions cause influx of sodium ions and reverts the brain cell to its resting state
Chromium	• Involved in glucose and lipid homeostasis[75]
Iron	• Essential cofactor for the production of ATP[64] • Plays an essential role in hemoglobin for ensuring there is sufficient oxygen in the brain for oxidative metabolism[64] • Functions in the enzyme system involved in the production of serotonin, norepinephrine, epinephrine, and dopamine[60]
Magnesium	• Functions as a coenzyme; roles in the metabolism of carbohydrates and fats to produce ATP, and in the synthesis of nucleic acids (DNA and RNA) and proteins[64] • Important for the active transport of ions (such as potassium and calcium) across cell membranes, and for cell signalling[64]
Manganese	• Manganese deficiency results in lowering the catecholaminergic content of the brain[76]
Phosphate	• Helps maintain membrane potential and role in energy metabolism[57]
Potassium	• In the brain, potassium channels regulate neuronal signalling. Potassium channels may also regulate cell volume and protect neurons under metabolic stress. Role in energy metabolism[57].
Selenium	• Glutathione peroxidase maintains the integrity of the cellular and subcellular membranes. This antioxidative protective system of glutathione peroxidase depends heavily on selenium[64].
Sodium	• Voltage-gated sodium channels allow sodium ions to enter the brain cells[77]
Vanadium	• Inhibits Na+-K+-ATPase pump activity
Zinc	• Roles in protein synthesis, as well as structure and regulation of gene expression[76] • Serves in neurons and glial cells. Certain zinc-enriched regions (e.g., hippocampus) are especially responsive to dietary zinc deprivation, which can cause learning impairment and olfactory dysfunction[78;79]

Note: ATP = adenosine triphosphate; DNA = deoxyribonucleic acid; RNA = ribonucleic acid.

*Table adapted from Kaplan BJ, Crawford SG, Field CJ, Simpson JSA (2007). Vitamins, Minerals and Mood. *Psychological Bulletin*, *133*(5), 747-760.

Source: Dietitians of Canada - The Role of Nutrition in Mental Health Promotion and Prevention

Link Between Nutrition and Mental Wellness

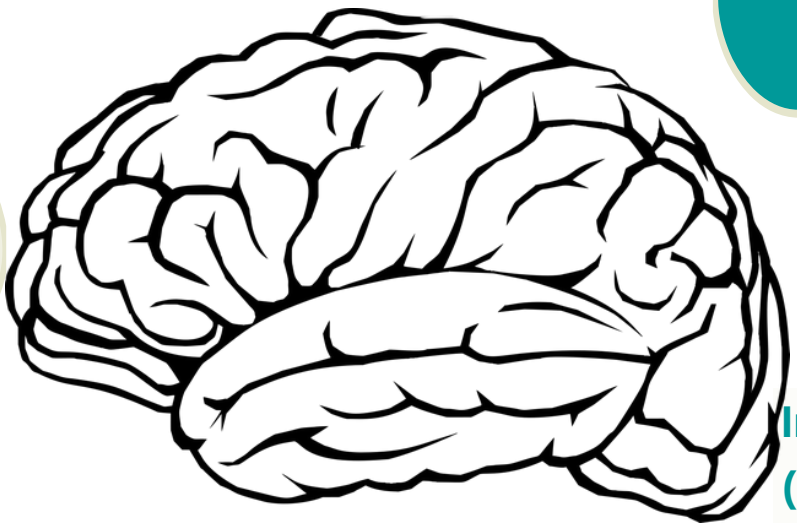


A well-nourished body and brain is better able to respond to stress and recover from illness.

Nutrition matters greatly as rates of mental illness are on the rise.

Have you ever stopped to think what your brain is made of?

We are what we eat



Ingredients: Water, fat, protein… (lasagna, tuna sandwich, orange juice, cornflakes, double double)

Your brain is made up of the nutrients we take in from food.

What we eat, impacts brain's overall health

Our brain is only 2% of our body weight, but uses 20-25% of body's energy

First Nations Food, Nutrition and Environment Study

Some Key Results For Participating First Nations in Alberta:

1. The diet of First Nations adults in Alberta does not meet nutrition needs, but the diet is healthier when traditional foods are eaten
2. Over 50% of intake was ultra-processed food
3. Household food insecurity affects half of households on reserve

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Nutrition, Depression and ultra-processed foods

- Recent research has found a link between eating Ultraprocessed Foods (UPF) and a higher risk of depressive symptoms

- What are **Ultraprocessed Foods**?
  - Sugar sweetened beverages (pop, iced tea, drink crystals, fruit drinks, etc.)
  - Cookies, cakes, pastries
  - Chips, cheezies
  - Candy, chocolate
  - Sweetened breakfast cereal
  - Packaged soups, chicken nuggets, hotdogs, fries, pizza

Nutrition Recommendations FNFNES

- Choose more vegetables and fruit, including wild plants and berries
- Choose whole wheat grains more often. Make baked bannock with whole wheat flour.
- Choose milk and milk products (such as cheese or yogurt) or beverages fortified with calcium and vitamin D (such as soy beverages) more often
- Choose leaner meats, including game and fish

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Correlation does not equal causation – quality of evidence

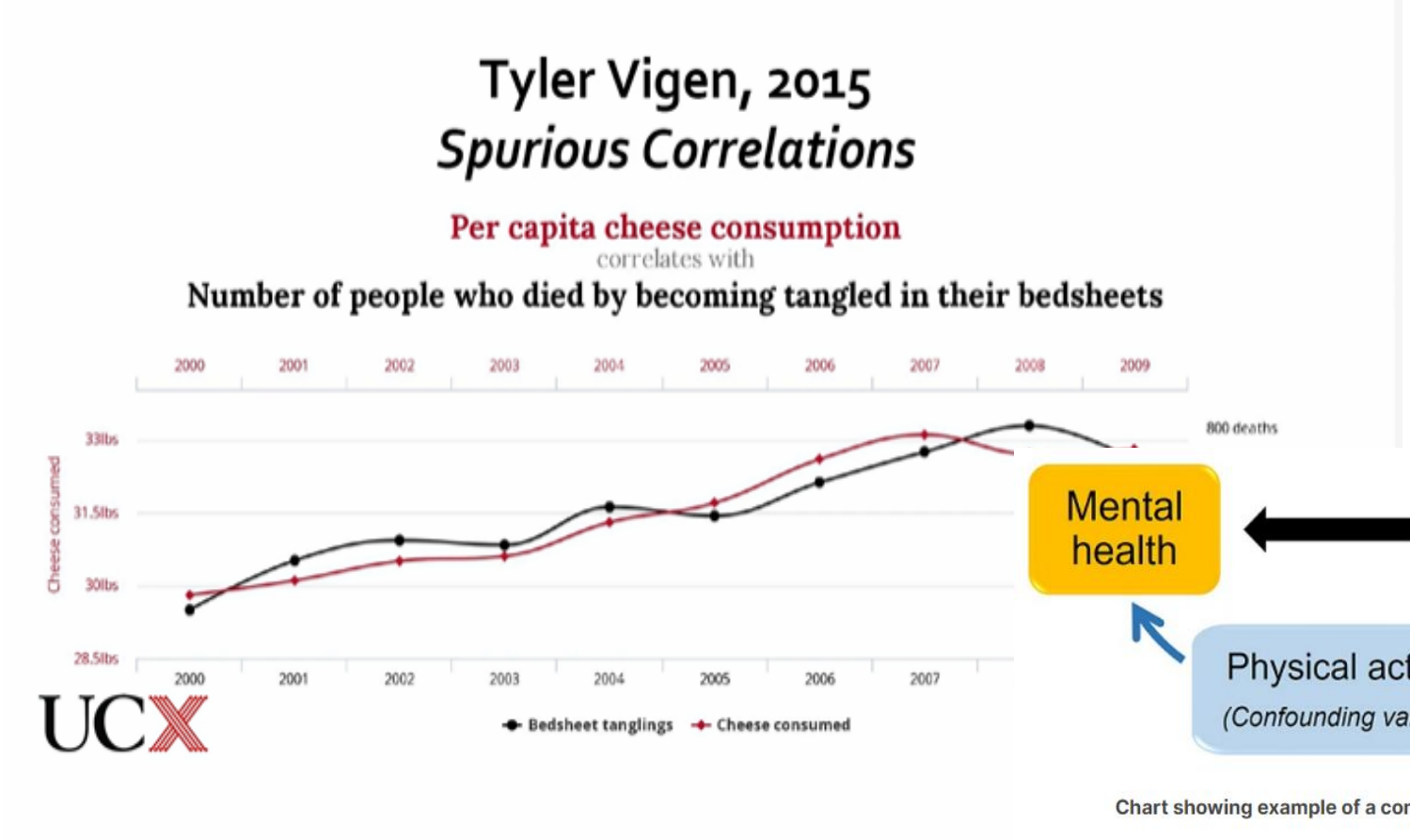
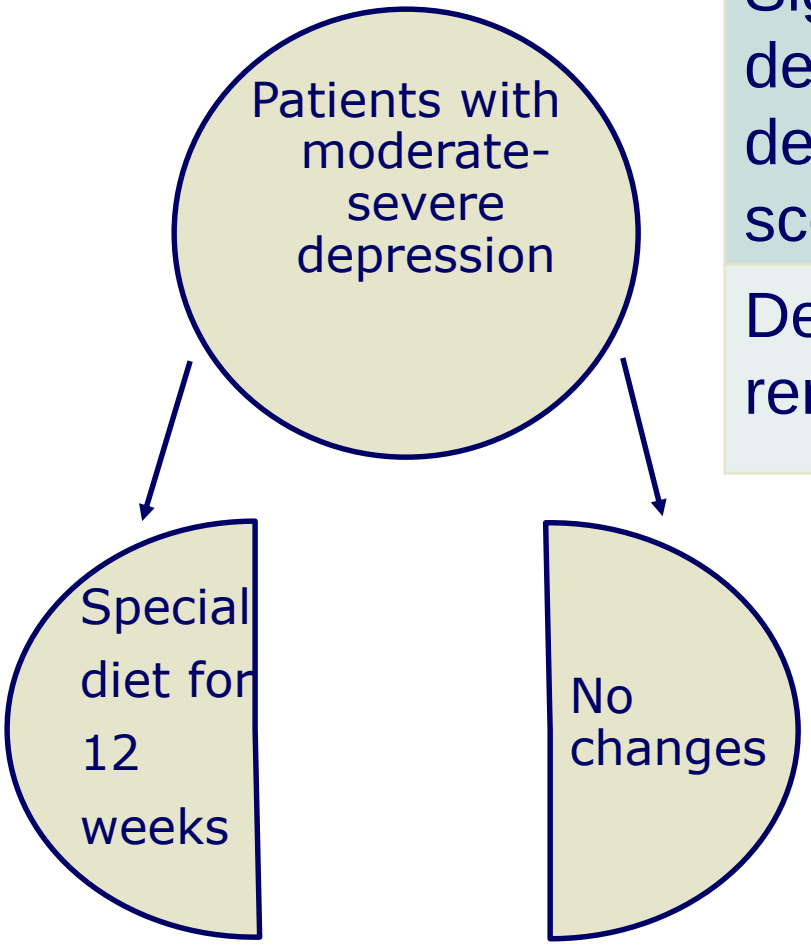


Chart showing example of a confounding variable

- Common sense tells us diet is important to mental health; evidence needed
- Randomized Control Trials (RCT) are gold standard for causality

SMILES Trial



Special diet group	No changes group
Significant decrease in depression scoring scale	Only small decrease in depression scoring scale
Depression remission 32%	Depression remission 8%

- Second larger study confirmed these finds using similar diet + fish oil for 12 weeks

SMILES Trial Diet

Low fat/sugar dairy daily

Nuts daily

Beans 3-4x/week

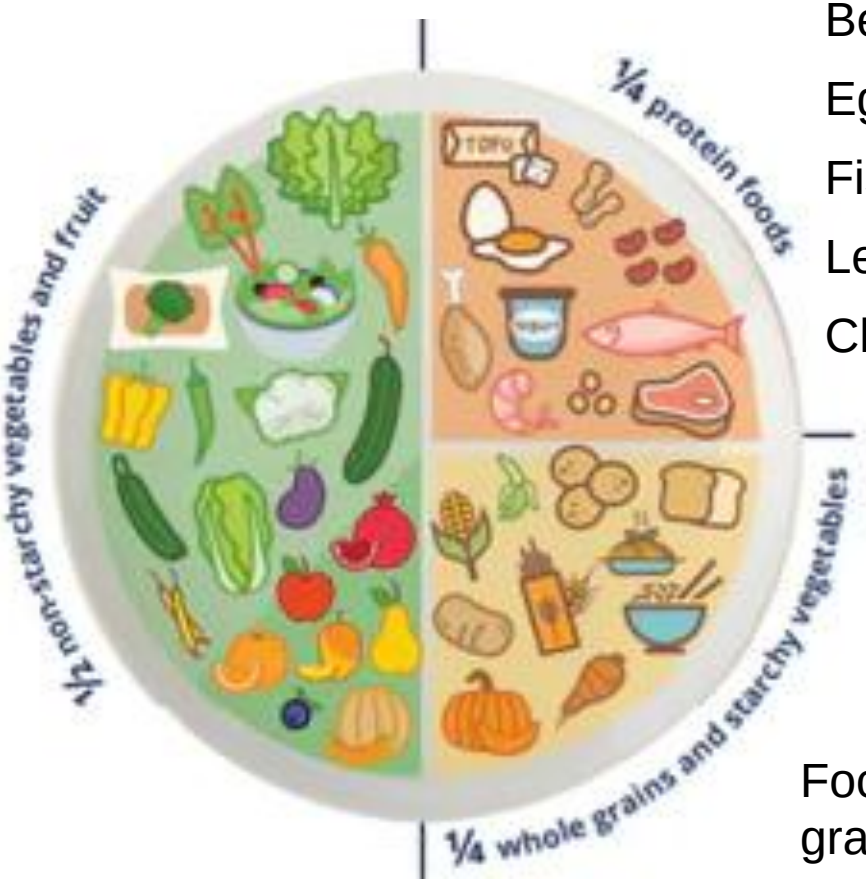
Eggs <7/week

Fish 2x/week

Lean red meat 3-4x/week

Chicken 2-3x/week

Focus on vegetables over fruit (eat twice as many vegetables



Focus on whole grains

Diabetes Canada - 'Balanced plate'

Olive oil daily

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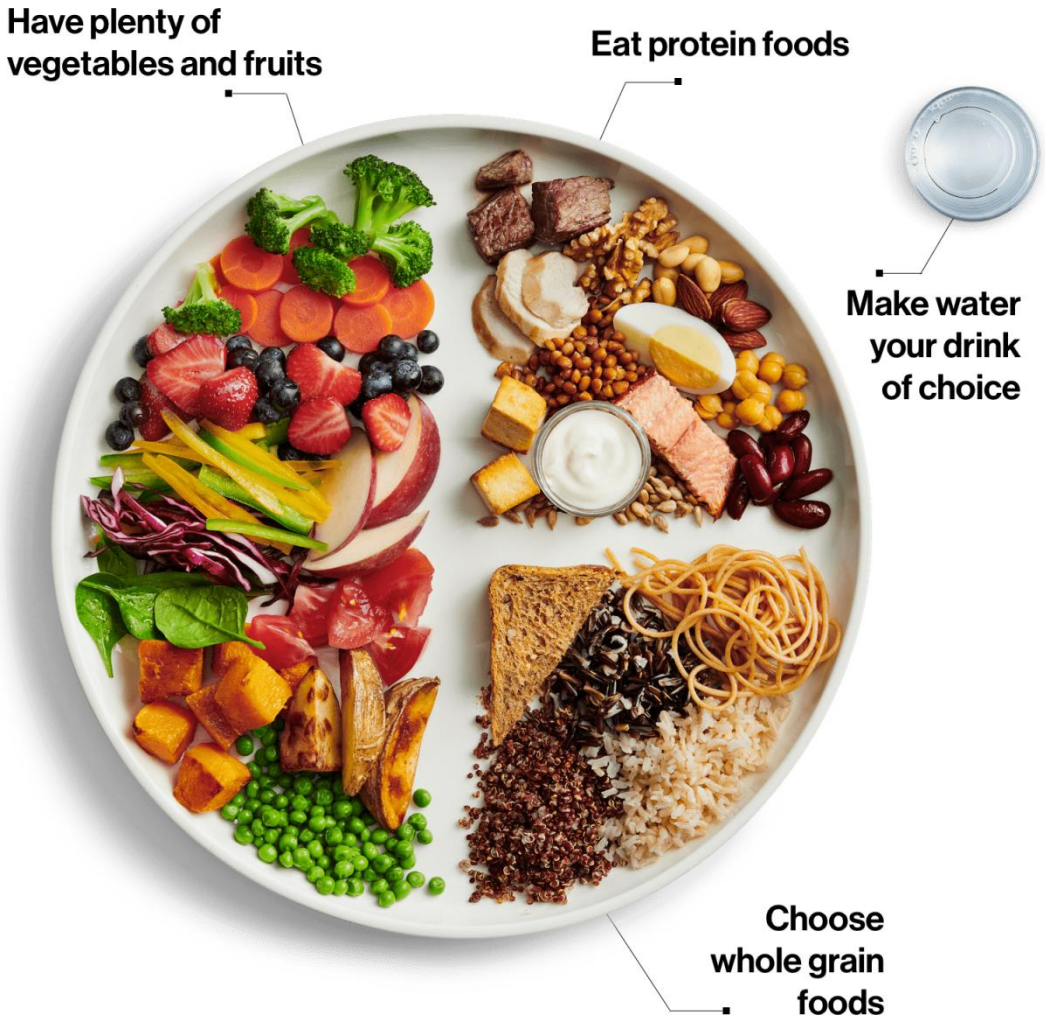
Canada's Food Guide



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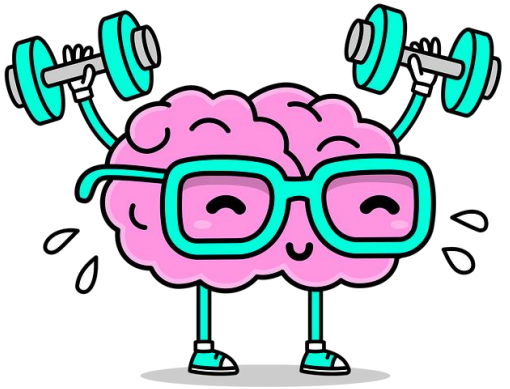
Put it into practice



WHAT'S ON THE MIND DIET?

AT LEAST **THREE SERVINGS** OF WHOLE GRAINS EACH DAY

AT LEAST ONE DARK GREEN SALAD AND ONE OTHER VEGETABLE EACH DAY

BERRIES AT LEAST TWICE A WEEK

AT LEAST A ONE-OUNCE SERVING OF NUTS EACH DAY

BEANS OR LEGUMES AT LEAST EVERY OTHER DAY

POULTRY AT LEAST TWICE A WEEK

FISH AT LEAST ONCE A WEEK

48%
of households are **food insecure**, i.e. they lack economic access

24-60%
range of food insecurity by ecozone

3-5X higher
household **food insecurity rates** compared to general Canadian population (12%)

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Put it into practice

Choose whole grains

- Not the same as multigrain, look for ‘whole grain’
- Choose brown bread/rice/pasta over white
- Whole grain crackers, breakfast cereals

Fish and vegetables/fruit

- Canned and frozen are nutritious choices
- Benefits of traditional foods (fish/berries) go beyond physical aspects of health

Put it into practice

Eat nuts and legumes (beans)

TOMATO BEAN SOUP

INGREDIENTS

- 1 can diced tomatoes
- 1 can beans in tomato sauce
- 1 cup water
- 1 teaspoon dried basil OR italian seasoning
- 1 teaspoon dried parsley OR italian seasoning
- optional - ½ cup grated cheddar cheese
- optional - 2 tablespoons chopped chives/ green onion or yellow onion

DIRECTIONS

1. Turn on the stove to medium-high heat. Put tomatoes, beans, water, basil and parsley into a medium saucepan. Heat to boiling.
2. Turn down heat and simmer soup, uncovered, for 10 minutes. Stir several times.
3. Serve in bowls with grated cheese on top. Optional: add chopped green onions/chives on top for extra flavour.

Recipe from the Basic Shelf Cookbook

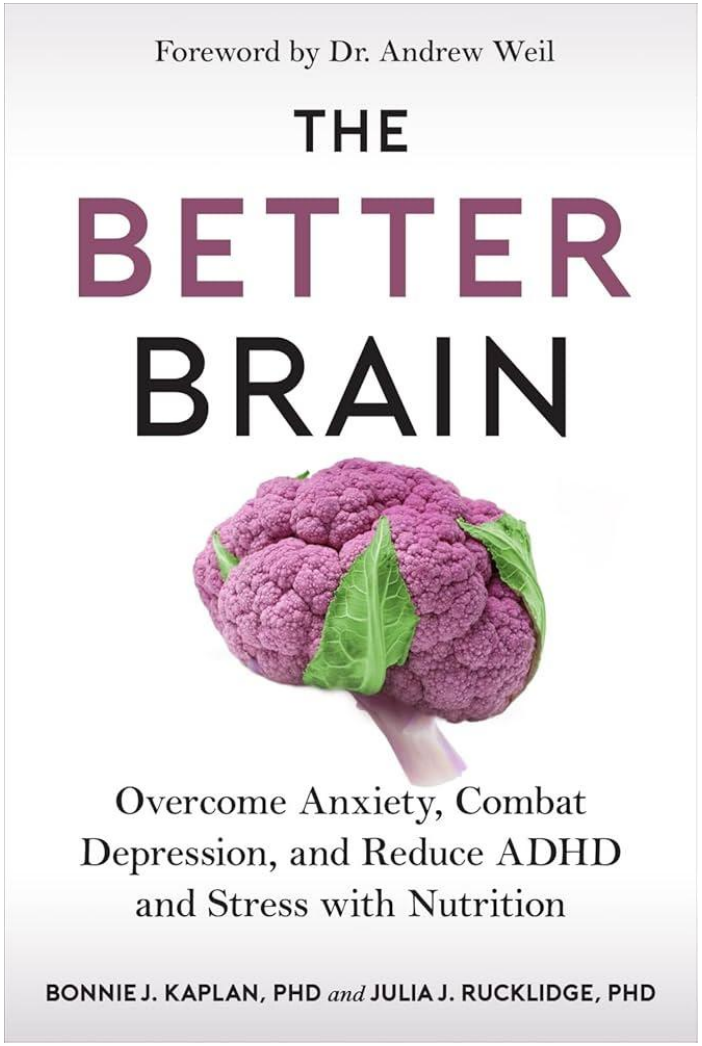
- Add beans to soups, stews and chili
- Use them in a dip (hummus, bean dip)
- Offer nuts as snacks (includes peanuts/peanut butter)

Put it into practice – Diet comparison

Making small changes

	Standard American Diet 'SAD Diet'	Mind Diet
Breakfast	Rice Krispies with banana	**Shreddies** with **frozen berries**
Snack	Granola bar	Apple and **peanut butter**
Lunch	Ham sandwich on white bread with tomato soup	**Tuna** sandwich on **brown bread** with tomato **bean** soup
Snack	Ritz and cheese	**Triscuit** and cheese
Dinner	Iceberg lettuce salad, chicken, white rice	**Spinach salad, chicken, brown rice**

Want to learn more?



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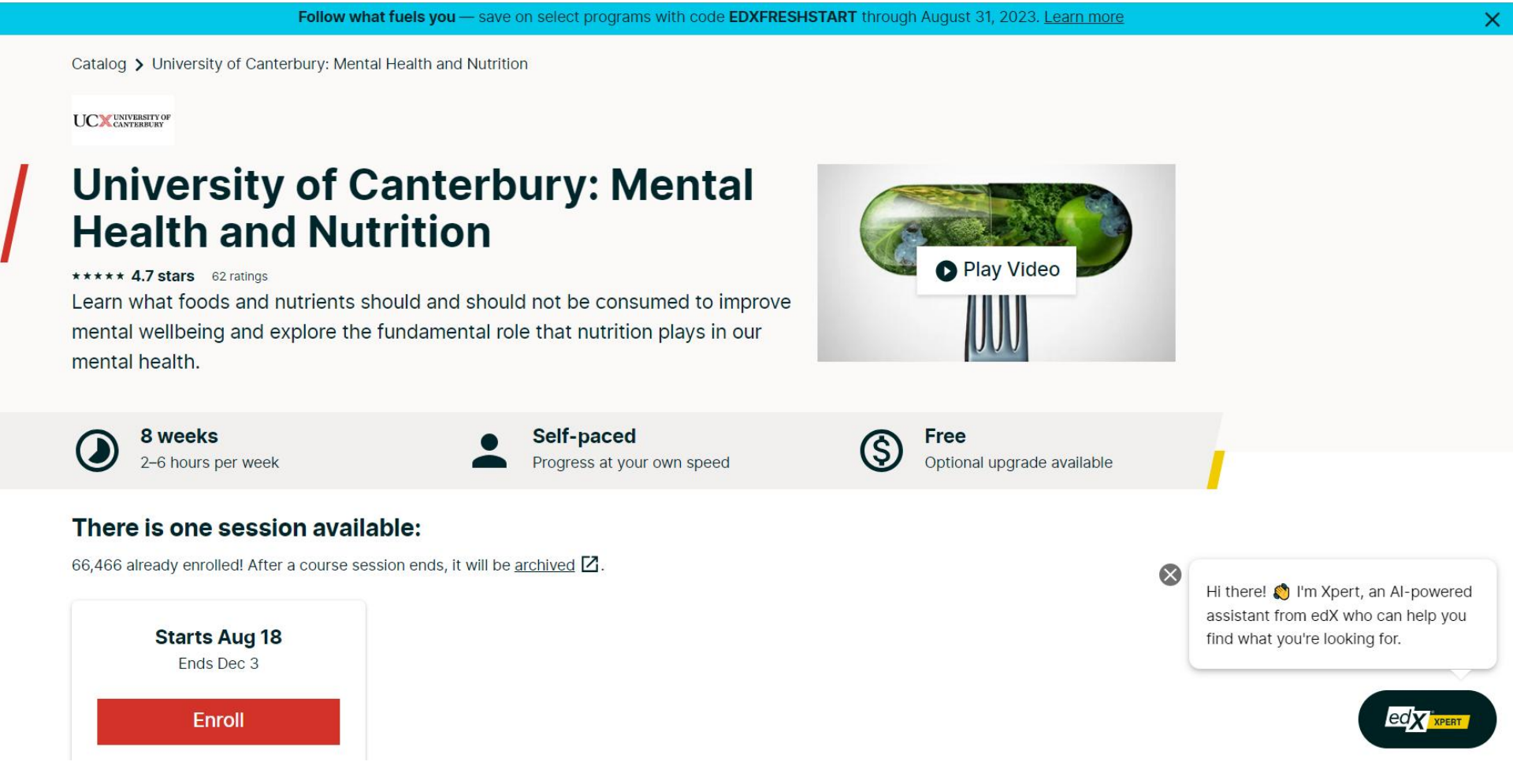
Want to learn more?



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Part 2: Food – More than Nutrients

Healthy eating is more than the foods you eat

It is also about where, when, why and how you eat

- **Be mindful of your eating habits**
- **Take time to eat**
- **Notice when you are hungry and when you are full**
- Cook more often
- Culture and food traditions are part of healthy eating
- Enjoy meals with others

Mindful Eating

- Listening to your body
- Understanding why you eat
- Enjoying Food
- Paying Attention

- Less likely to overeat, less likely to restrict food, more likely to enjoy a positive relationship with food

Why we eat….Stop and ask yourself…

- Is it STOMACH hunger?

- Is it MOUTH hunger?

- Is it HEART hunger?

Stomach Hunger

- Physical need for food
- Stomach is growling
- It’s been 5-6 hours since you last ate
- Medication side effects or appetite changes (e.g., prevent a low blood sugar if on insulin)

Listening to Our Bodies Hunger Cues

- Eating while distracted limits our ability to listen to hunger cues
- Eating while looking at a screen or completing an activity, our cue to finish eating is when the food is gone
- Study conducted with students distracted while eating found that those who were watching TV (vs not) ate about 300 more calories
- Variety can override our hunger cues (mouth hunger)

Why We Eat More When We're Tired

- A poor night's sleep or regular exhaustion = cravings for sugar or other carbs. WHY?

Hormones!

- When tired our body releases more "Grehlin" (our hunger hormone) and less "Leptin" (our full hormone)
- Our body is searching for quick and easy energy (carbohydrates = carbs)
- Carbohydrates = release of "Serotonin", the feel-good hormone

Mouth Hunger

- Food craving
- You want something salty, sweet, crunchy, smooth, creamy
- Common at celebrations given link with food
- Role of food advertising in mouth hunger
- Can be from a smell
  - Someone is baking cookies

Heart Hunger

- Eating because of emotions
- You're angry, stressed or tired
- Can also be a learned behaviour
  - You always have dessert after supper
  - Celebrations are tied to food (birthday cake at birthdays)
  - It's time to eat
- Often comfort food is a heart hunger

Heart Hunger

*We all have a deep connection to food. Food can bring back memories, remind us who we are, and **make us feel safe**. When we are away from home, few things can be more **comforting** than the familiar scent and taste of our foods.*

https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/feedbc/indigenous-and-traditional-foods/why_is_serving_indigenous_foods_so_important_web.pdf

Heart Hunger: Nurture Yourself

- Find ways to nurture yourself instead of nourishing yourself
  - Take deep breaths
  - Take a walk
  - Do some physical activity
  - Talk to a friend
  - Read a book
  - Write in a journal
  - Listen to music
  - Do something you enjoy doing

Healthy eating is more than the foods you eat

It is also about where, when, why and how you eat

- Be mindful of your eating habits
- Take time to eat
- Notice when you are hungry and when you are full
- **Cook more often**
- **Culture and food traditions are part of healthy eating**
- **Enjoy meals with others**

A ‘Magic’ pill

If I told you there was one ‘magic pill’ that could do all this for youth, would you believe it?

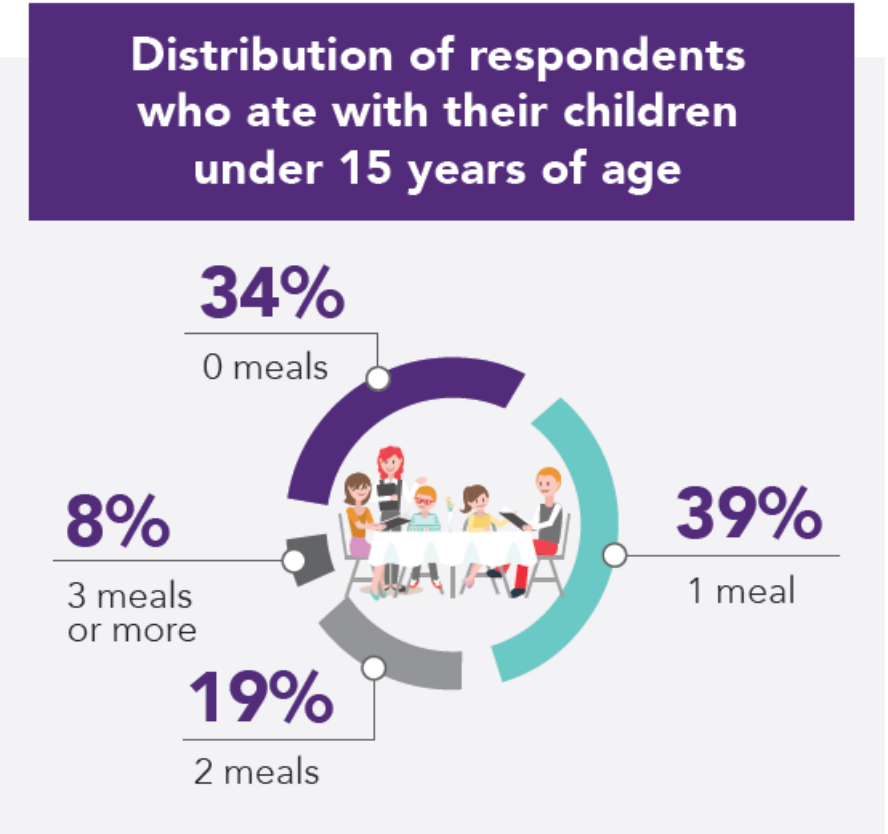
- Creates structure and stability
- Help build emotional maturity
- Better grades in school
- Enhanced language development
- Healthier eating
- Less disordered eating
- Lower risk of obesity
- Less risk of using drugs, alcohol or smoking
- Less likely to experience depression
- Better relationship with family
- Less behavioral issues
- Contributes to traditions and culture
- Greater quality of life[1]

1 American College of Pediatricians. (2014, May). The Benefits of the Family Table. Retrieved February 8, 2018, from American College of Pediatricians: https://www.acpeds.org/the-college-speaks/position-statements/parenting-issues/the-benefits-of-the-family-table

A ‘Magic’ pill?

Family Meals

- Eat together as a family
- Doesn’t matter what you are eating
- ‘Unplug’ from technology (T.V., phones, tablets, computers, radio)
- Plug in to your family



Part 3: Food is Medicine

Food – A love story

Imagine your favourite food memory as a child

- What did you smell?
- What did you see?
- What did you eat?
- Who was there?
- What did you feel?

In 20 years will our kids have the same memories?

Food has a culture. It has history. **It has stories, it has relationships that tie us to our food.** Food is more than something you just buy at the store."

– Winona LaDuke, Anishinaabe activist and author

Food is more than physical nourishment

Food Is Land

Indigenous people who rely on Traditional foods for their daily meals gain a deeper connection to the land. When eating with seasonal cycles food connects us to what is taking place in the forests and seas around us. When we are away from these foods it can foster a feeling of disconnection. By providing Indigenous foods we foster a reconnection for Indigenous people and it is an act of reciprocity and reconciliation. At the same time, we create an environment where everyone can reconnect to the land through food.

Food Is Medicine

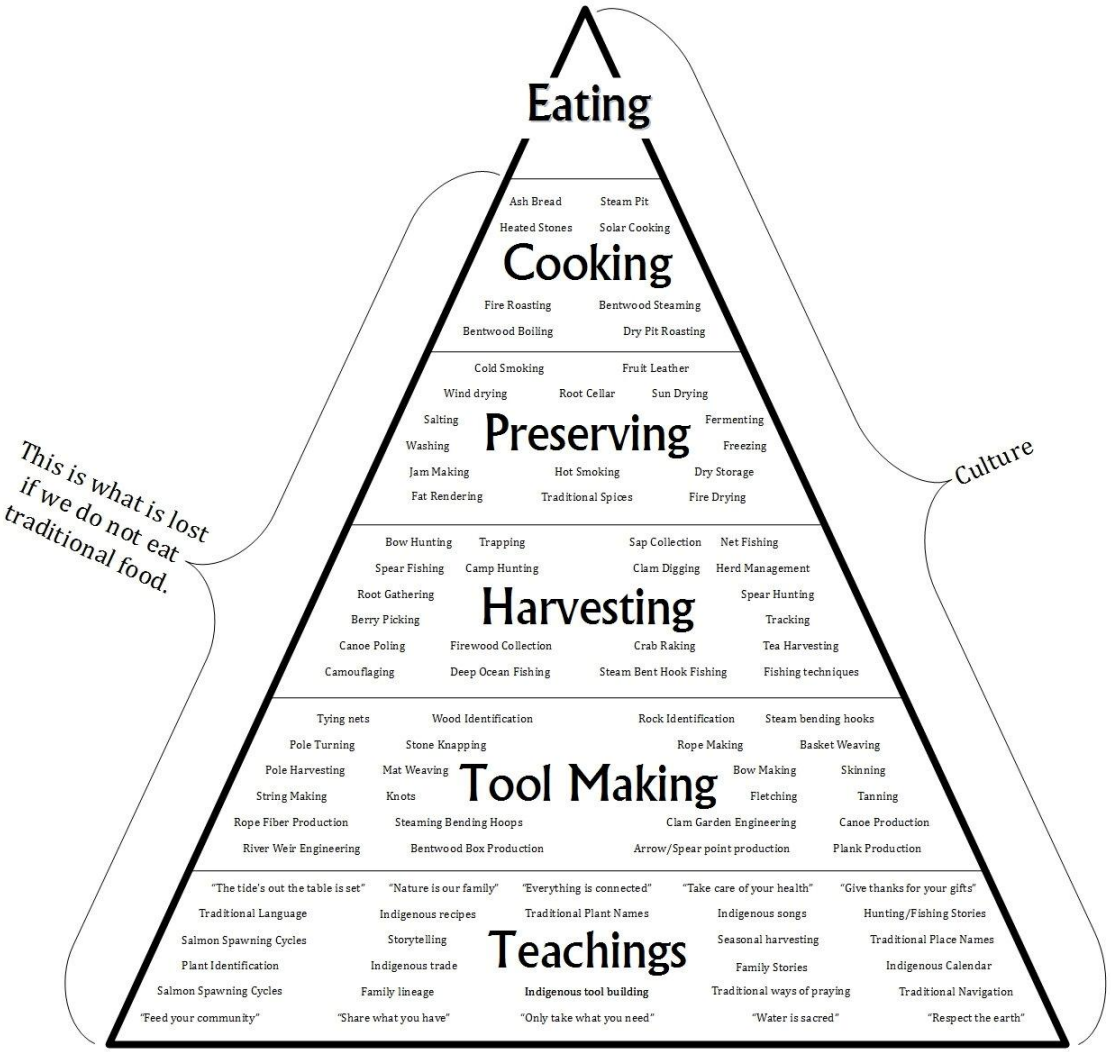
The teaching that food is medicine is a common part of Indigenous cultures. It combines the natural preventative medicine and nourishment paired with the activity of harvesting. In this way food is meant to nourish the body not only physically but mentally, emotionally, and spiritually as well. Fundamentally, eating Traditional foods is medicine. In some Indigenous communities Traditional foods are seen as a relation, or a relative, giving up their lives to sustain ours.

“***Healthy food has the most relationships***”

“Our food is our medicine, our food is healing, our food brings everybody together, our food creates family bonds when you eat it together, it triggers memories of long ago. There’s so many aspects of our Traditional foods that are so important.” – Jenny Cross, Haida Elder

Why is Eating Traditional Foods Important?

Diagram by Jared **Qwustenuxun** Williams



Traditional Food Production Fosters Culture

#myexistenceisresistance

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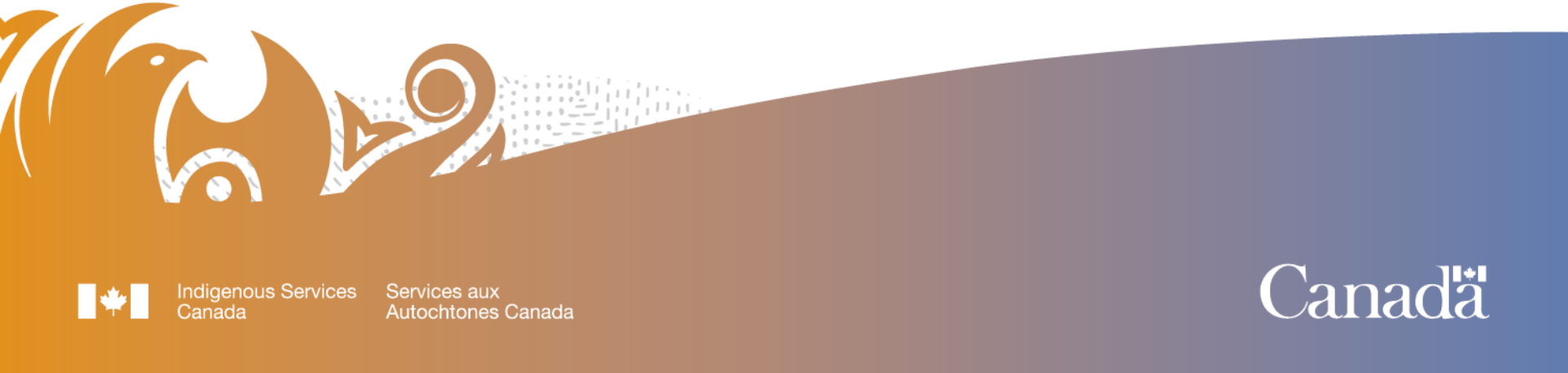
Thriving not just surviving: Indigenous Food Sovereignty

Indigenous food sovereignty is the act of going back to our roots as Indigenous peoples and using the knowledge and wisdom of our people that they used when they were in charge of their own survival. Food sovereignty highlights our innate ability to be in charge of our food system. This includes the ability to define one's own food sources and processes, such as the decision to hunt, trap, fish, gather, harvest, grow and eat based on Indigenous culture and ways of life. Food is sacred, and a gift of life from Creator. The inherent right to food sovereignty is reciprocal, thus demanding us as humans to nurture our interdependent relationships with the land, plants, and animals that give their lives for our sustenance

(Working Group on Indigenous

Food Sovereignty, 2010).

Part 4: Nutrition Month 2025



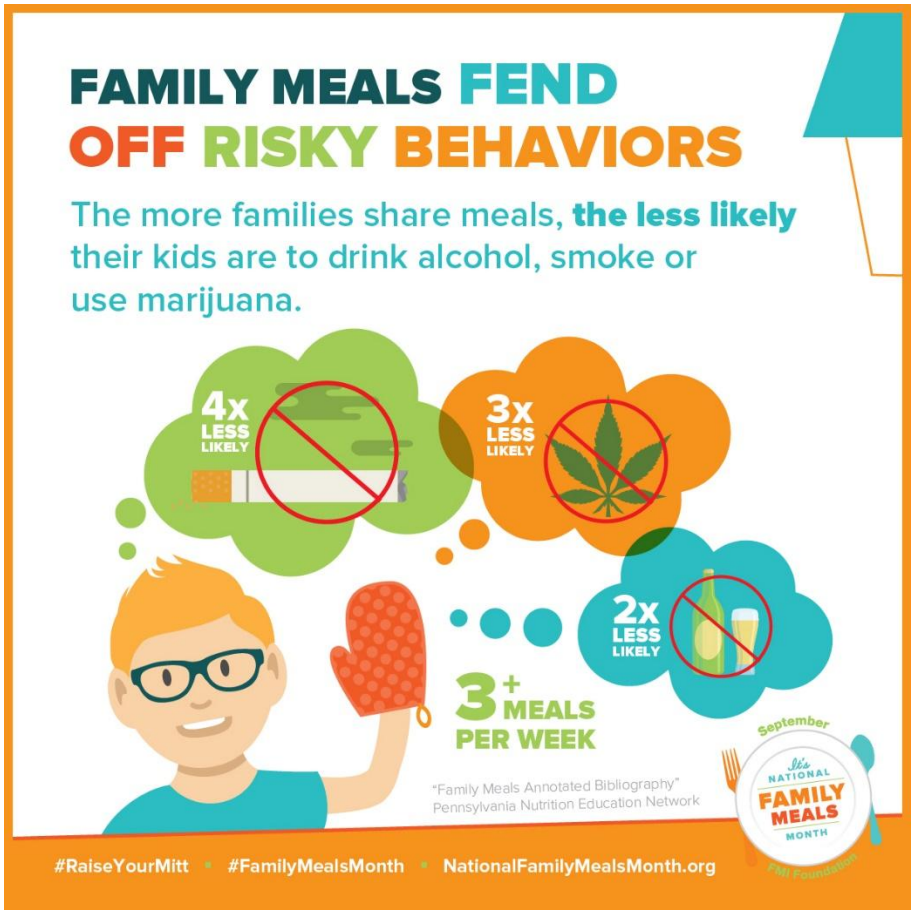
Nourish to Flourish – Nutrition Month Ideas

- Share handout on the MIND Diet and when providing snacks for events, try and include foods that will help people meet targets (berries, nuts, vegetables, whole grains)
- Instead of getting people to track calories, weight loss, or food intake – set up a challenge for people to record if they were responding to stomach, mouth or heart hunger when they eat
- Contact the FNIHB Nutrition Advisory Team to get a copy of childrens book to teach about stomach, mouth and heart hunger

Nourish to Flourish – Nutrition Month Ideas

- Host family cooking classes to promote the importance of family meals
- Have contest on social media asking people to ‘Guess the Food’ and promoting minimally processed foods closest to the way the creator made them
- Host events focused on the harvesting, preparation or preserving of traditional foods
- Hold a social media challenge asking people to submit their favourite food stories or favourite family recipes in order to win a prize

Promote Family Meals



https://www.fmi.org/family-meals

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Guess the Food?

Guess the Food??

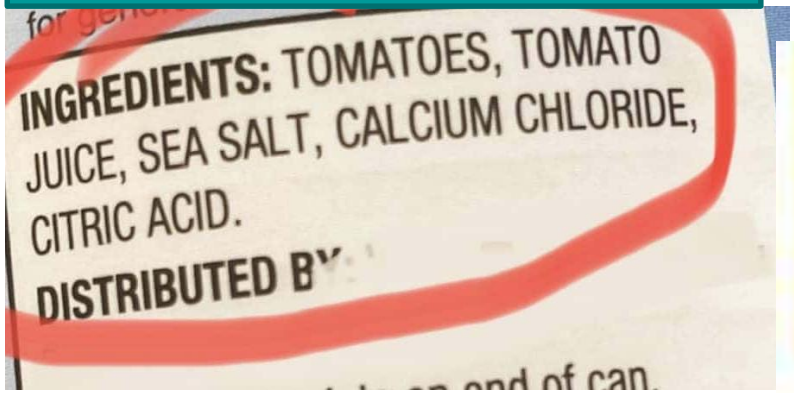
Ingredients: MECHANICALLY SEPARATED CHICKEN, PORK, WATER, CORN SYRUP, CONTAINS LESS THAN 2% OF SALT, SODIUM LACTATE, FLAVOR, SODIUM PHOSPHATES, AUTOLYZED YEAST, SODIUM DIACETATE, SODIUM ERYTHORBATE (MADE FROM SUGAR), SODIUM NITRITE, DEXTROSE, EXTRACTIVES OF PAPRIKA, POTASSIUM PHOSPHATE, SUGAR, POTASSIUM CHLORIDE.

Size: 16 oz
Upc: 4470000857

Guess the Food??

INGREDIENTS: PEARS FROM CONCENTRATE, SUGAR, MALTODEXTRIN, WATER, CORN SYRUP, PARTIALLY HYDROGENATED COTTONSEED OIL. CONTAINS 2% OR LESS OF: CARRAGEENAN, CITRIC ACID, ACETYLATED MONO AND DIGLYCERIDES, SODIUM CITRATE, MALIC ACID, XANTHAN GUM, LOCUST BEAN GUM, VITAMIN C (ASCORBIC ACID), POTASSIUM CITRATE, NATURAL FLAVOR, COLOR (YELLOW 5, RED 40, BLUE 1).

Guess the Food??



Guess the Food??

Summary

- Eat food to nourish the body and mind
- Mindful eating and eating together are part of healthy eating
- Food connects us to each other, the land and our communities
- Find ways to celebrate nutrition month celebrating food, laughter and connection