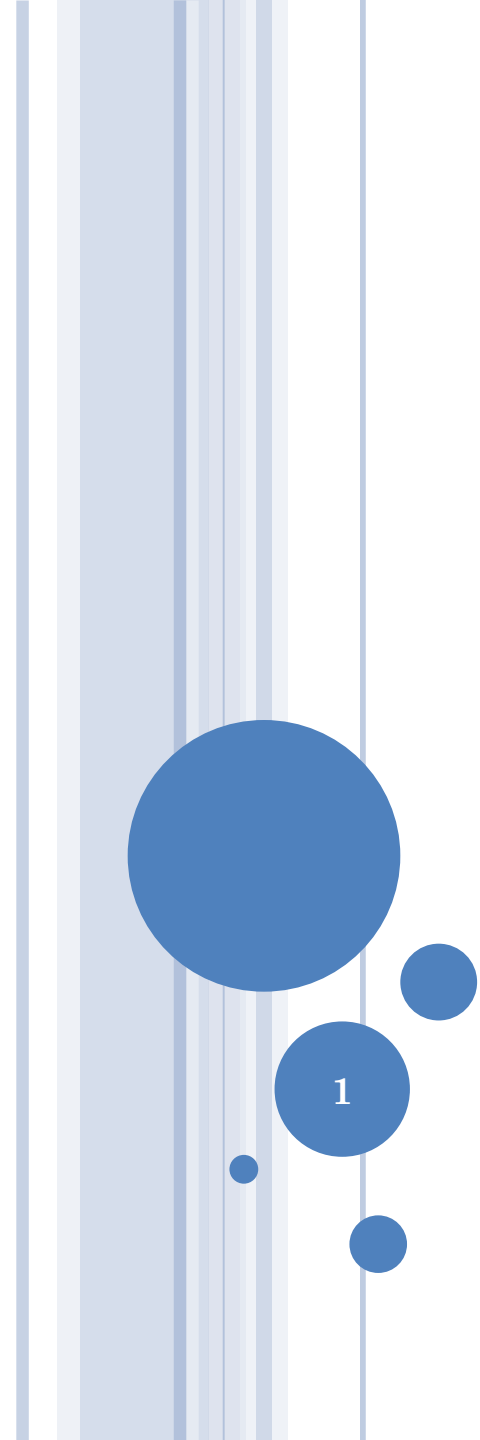




NUTRITION AND EXERCISE

DR CHARMAINE BRIGHT

1

FOOD AND ITS FUNCTION

- Substance or materials we eat and drink to provide nutritional support for the body or for pleasure.
- Food is necessary for
 - Growth
 - Repair
 - Energy
 - Protection from disease

WHAT IS A HEALTHY DIET?

COMPONENTS OF FOOD

- Carbohydrate
- Proteins
- Fat
- Fibre
- Water
- Trace Elements

WHAT IS A HEALTHY DIET? COMPONENTS OF FOOD

Carbohydrates

- Sugars - **2 main forms** - simple & complex.
- Also referred to as simple sugars & starches.
- Differences in how quickly carbs **digested & absorbed**.

1. Simple carbohydrates:

- Found in refined sugars, like **white sugar (absorbed quicker)**.
- Also in **nutritious foods - fruit & milk (absorbed slower)**. **Healthier** to get simple sugars from foods like these.
- Simple sugar **raise blood glucose** levels quickly.

WHAT IS A HEALTHY DIET? COMPONENTS OF FOOD

2. Complex carbohydrates:

- Include grain products, e.g. **bread, crackers, pasta, & rice**.
- As with simple sugars, some complex carbohydrates **better choices**.
- Strictly speaking, complex carbohydrate refers to any starches,
 - including highly **refined starches**
 - **e.g. white flour, white rice, cakes & pastries** that have been processed, removing nutrients & fibre.
- When dietitians & nutritionists advise having complex carbohydrates,
 - referring to **whole grain foods & starchy vegetables** - more **slowly absorbed** than refined carbohydrates.
 - Rich in **fibre**, helps digestive system work well - helps you feel full, less likely to overeat.
 - A bowl of oatmeal fills you up better than sugary candy.

WHAT IS A HEALTHY DIET?

COMPONENTS OF FOOD

○ Proteins

- Important for the **body's synthesis** of new material
- Composed of **amino acids**

WHAT IS A HEALTHY DIET? COMPONENTS OF FOOD

Fats:

- Saturated fats **raise** LDL (bad) **cholesterol** levels.
- High LDL (low-density lipoprotein) cholesterol - risk for heart attack, stroke, other major health problems. Avoid/limit foods high in saturated fats.
 - E.g. butter, cheese, whole milk, ice cream, cream, & fatty meats.
 - Some **vegetable oils**, such as coconut, palm, and palm kernel oil, also contain saturated fats. These fats are **solid at room temperature**.
 - Coconut oil? – 92% saturated fat
- <https://www.pritikin.com/your-health/healthy-living/eating-right/1790-is-coconut-oil-bad-for-you.html>

WHAT IS A HEALTHY DIET? COMPONENTS OF FOOD

Fats:

- Unsaturated fats can help lower your LDL cholesterol.
- Most vegetable oils that are liquid at room temperature have unsaturated fats:
 - **Mono-unsaturated** fats, which include olive & canola oil
 - **Polyunsaturated** fats, which include safflower, sunflower, corn, & soy oil
- Another unsaturated fat that is **unhealthy**
 - **Trans-unsaturated fatty acids** - unhealthy fats form when vegetable oil hardens in a process called hydrogenation.
 - limit foods made with hydrogenated and partially hydrogenated oils (e.g. hard butter & margarine). They contain high levels of trans-fatty acids.

NZ MINISTRY OF HEALTH – EATING GUIDELINES

<https://www.health.govt.nz/our-work/eating-and-activity-guidelines>

1. Enjoy a variety of nutritious foods every day including:

- plenty of vegetables & fruit
- grain foods, mostly whole grain & those naturally high in fiber
- some milk & milk products, mostly low & reduced fat
- some legumes, nuts, seeds, fish & other seafood, eggs, poultry (e.g., chicken) and/or red meat* with fat removed.

* If choosing red meat, eat less than 500 g of cooked red meat a week.

2. Choose and/or prepare foods & drinks:

- with unsaturated fats instead of saturated fats
- low in salt (sodium); if using salt, choose iodised salt
- with little or no added sugar
- mostly 'whole' & less processed.

3. Make plain water your first choice over other drinks.

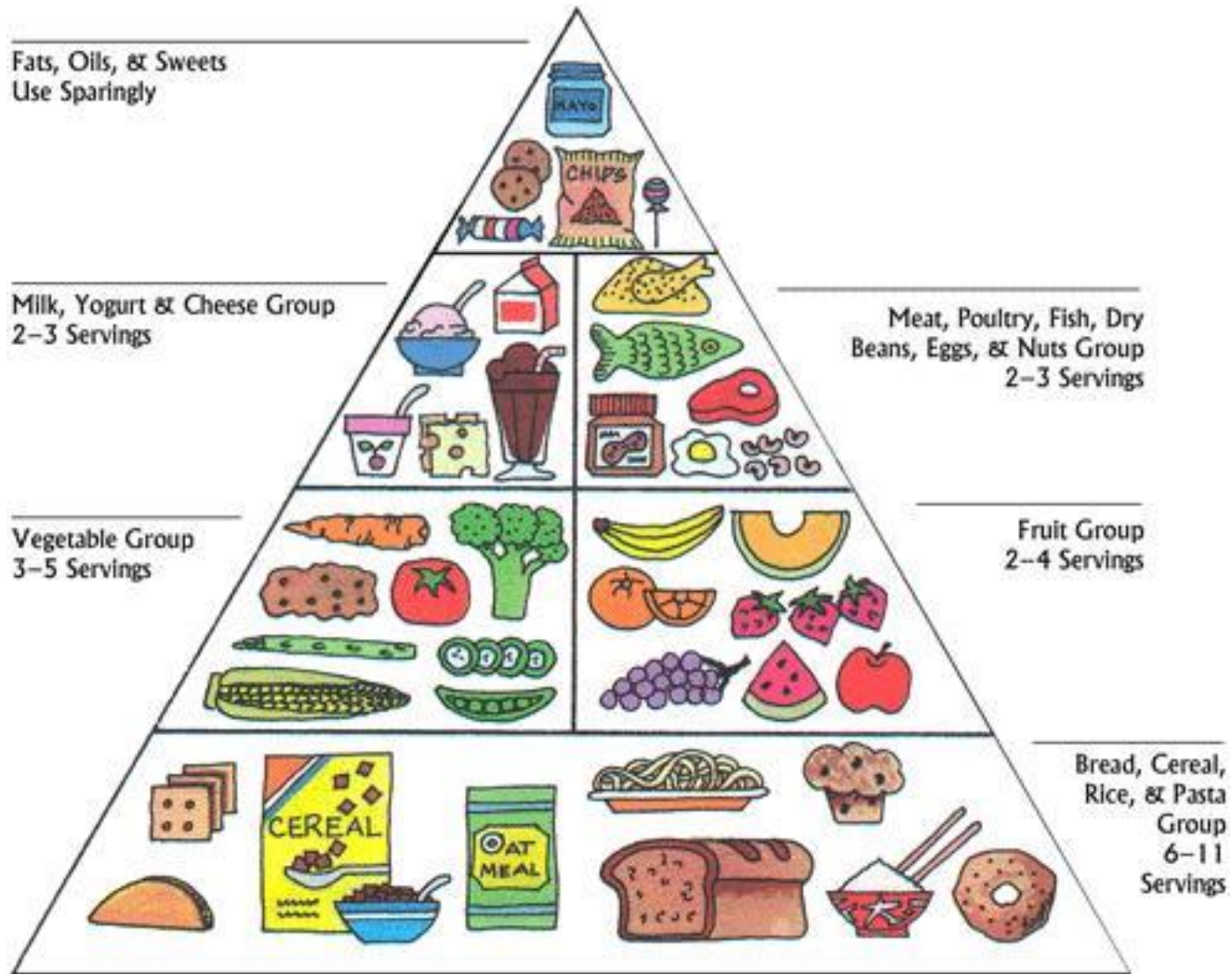
4. If you drink alcohol, keep your intake low.

- Stop drinking alcohol if could be pregnant, are pregnant or trying to get pregnant.

5. Buy or gather, prepare, cook & store food in ways that keep it safe to eat.

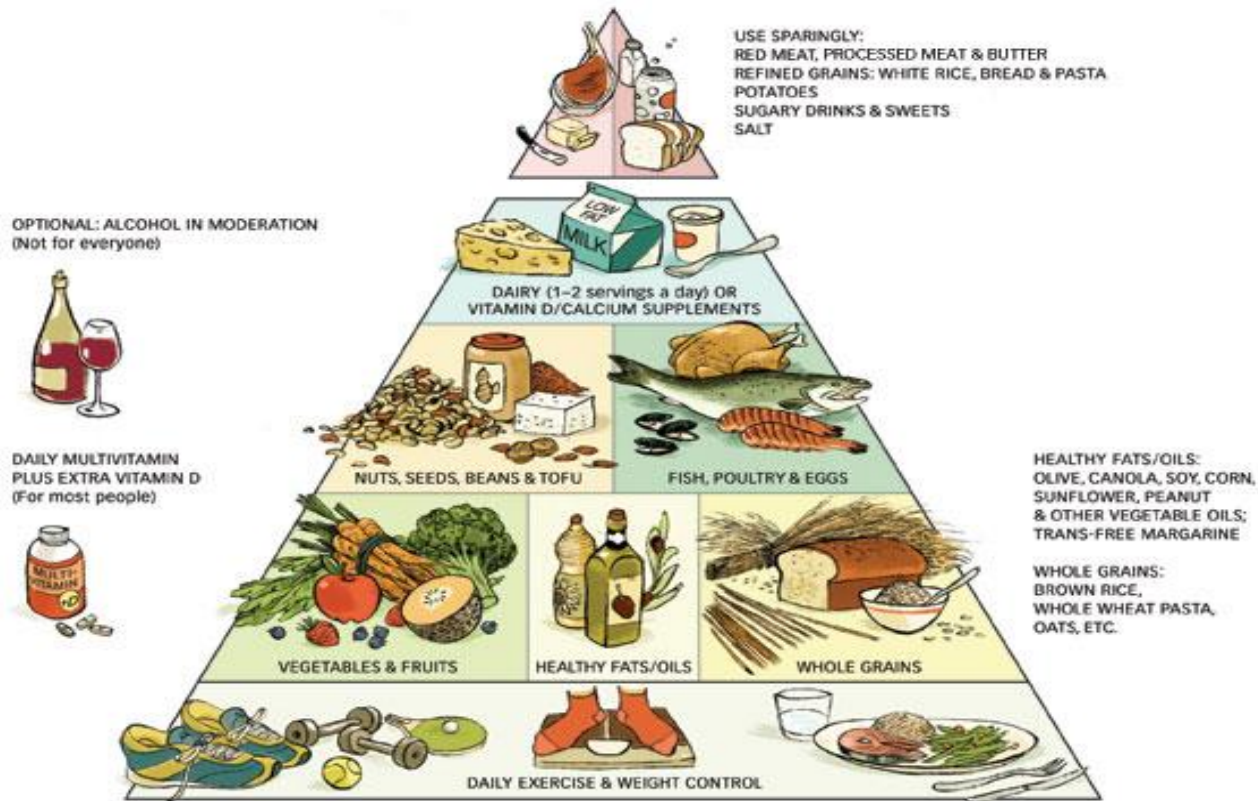
https://www.health.govt.nz/system/files/documents/publications/eating-activity-guidelines-for-new-zealand-adults-oct15_0.pdf

FOOD PYRAMIDS & PLATES: WHICH ONE IS THE RIGHT ONE?



THE HEALTHY EATING PYRAMID

Department of Nutrition, Harvard School of Public Health



For more information about the Healthy Eating Pyramid:

WWW.THE NUTRITION SOURCE .ORG

Eat, Drink, and Be Healthy
by Walter C. Willett, M.D. and Patrick J. Skerrett (2005)
Free Press/Simon & Schuster Inc.

<http://www.hsph.harvard.edu/nutritionsource/pyramid/>

HEALTHY EATING PLATE

Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.



The more veggies—and the greater the variety—the better. Potatoes and french fries don't count.

Eat plenty of fruits of all colors.



STAY ACTIVE!

© Harvard University



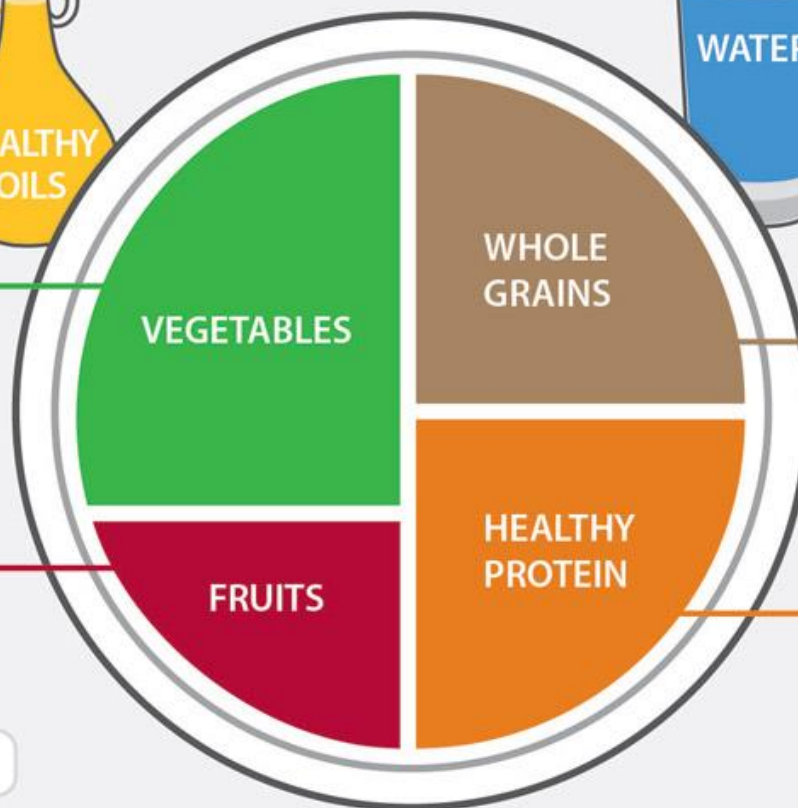
Harvard School of Public Health
The Nutrition Source
www.hsph.harvard.edu/nutritionsource



Drink water, tea, or coffee (with little or no sugar). Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day). Avoid sugary drinks.

Eat whole grains (like brown rice, whole-wheat bread, and whole-grain pasta). Limit refined grains (like white rice and white bread).

Choose fish, poultry, beans, and nuts; limit red meat; avoid bacon, cold cuts, and other processed meats.



Harvard Medical School
Harvard Health Publications
www.health.harvard.edu





**Dietary
Guidelines for
Americans
2015-2020**

Canada's Food Guide

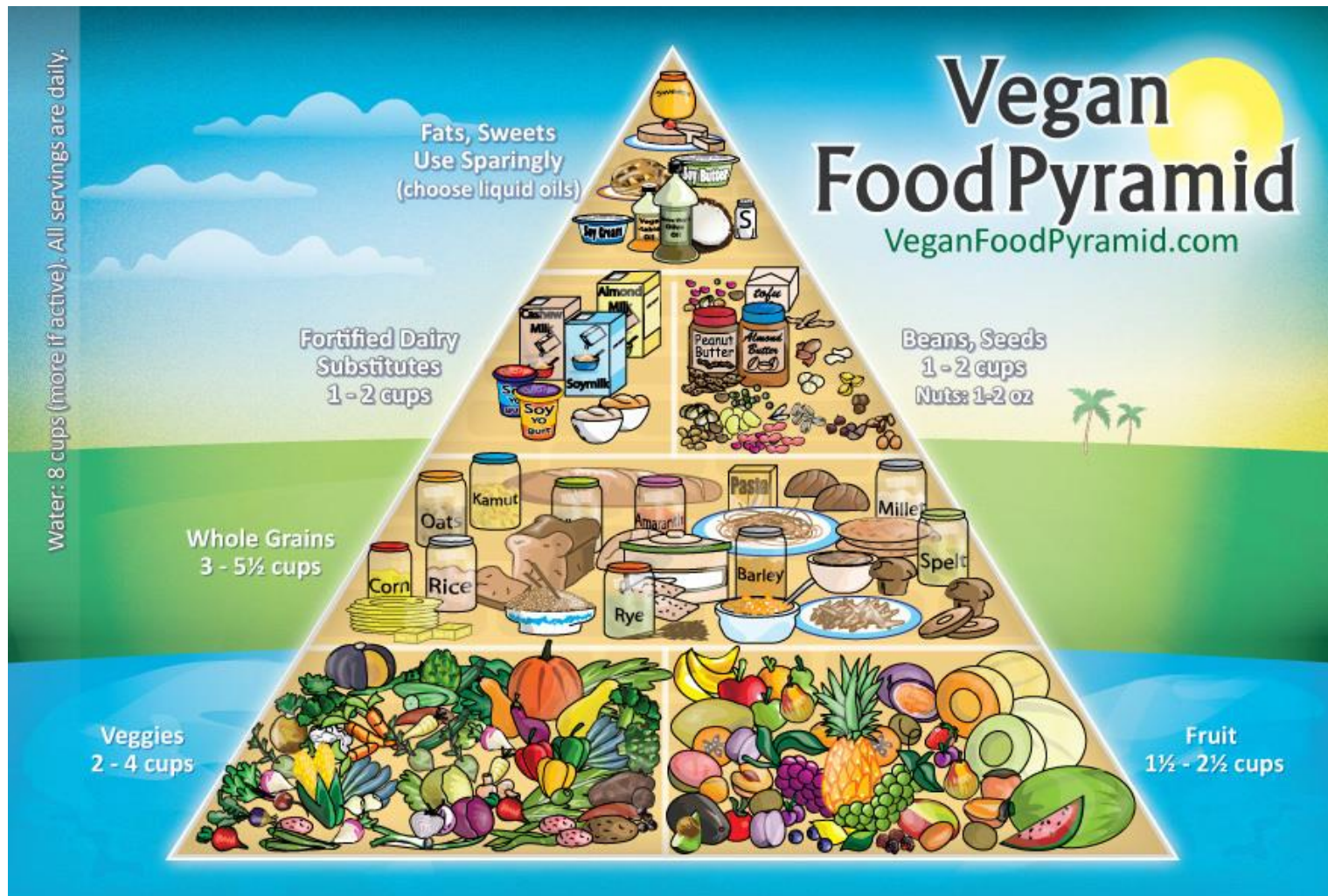
Eat plenty of vegetables and fruits, whole grain foods and protein foods. Choose protein foods that come from plants more often.



<https://food-guide.canada.ca/en/healthy-food-choices/>

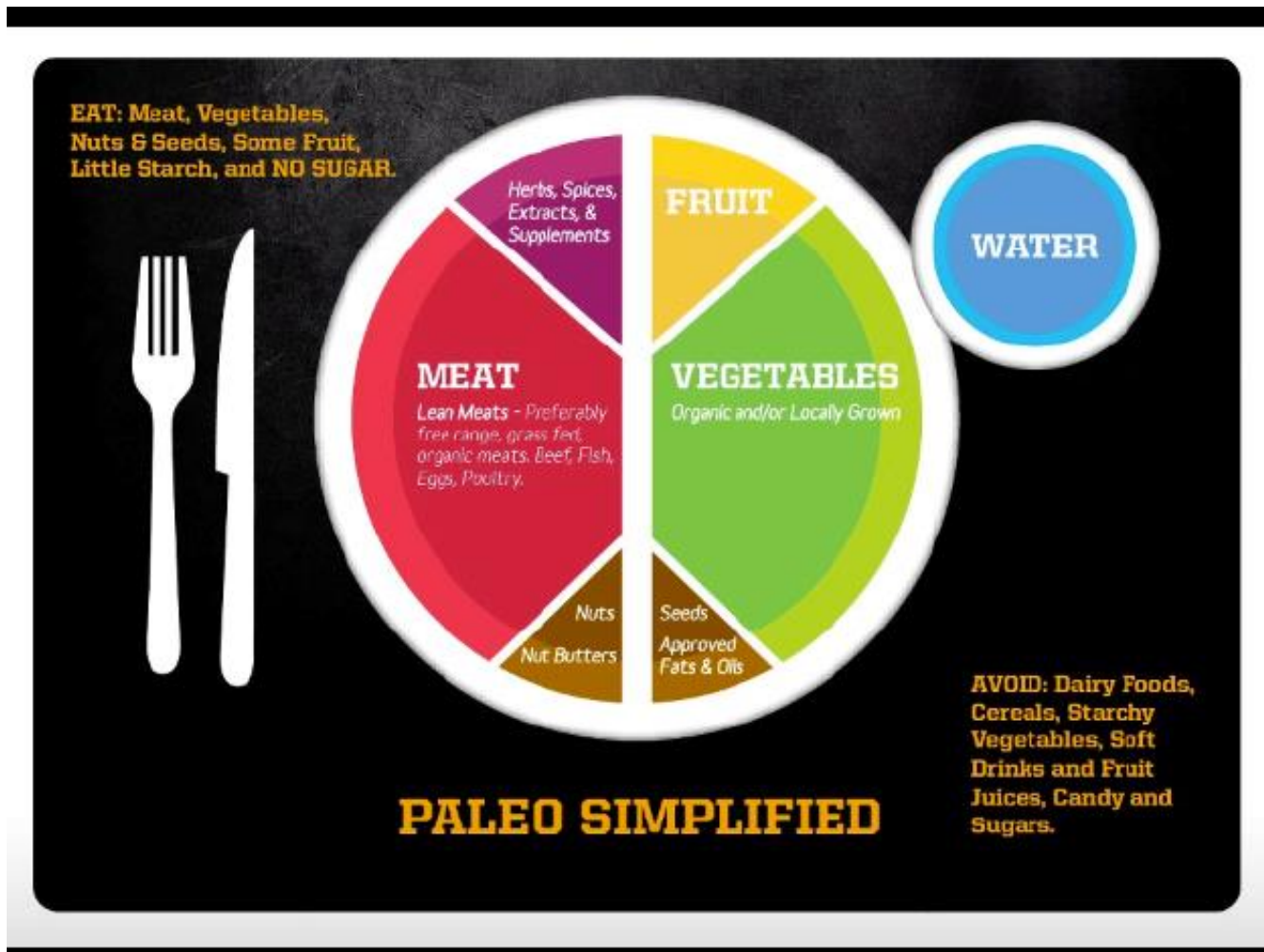
VEGAN

No animal products



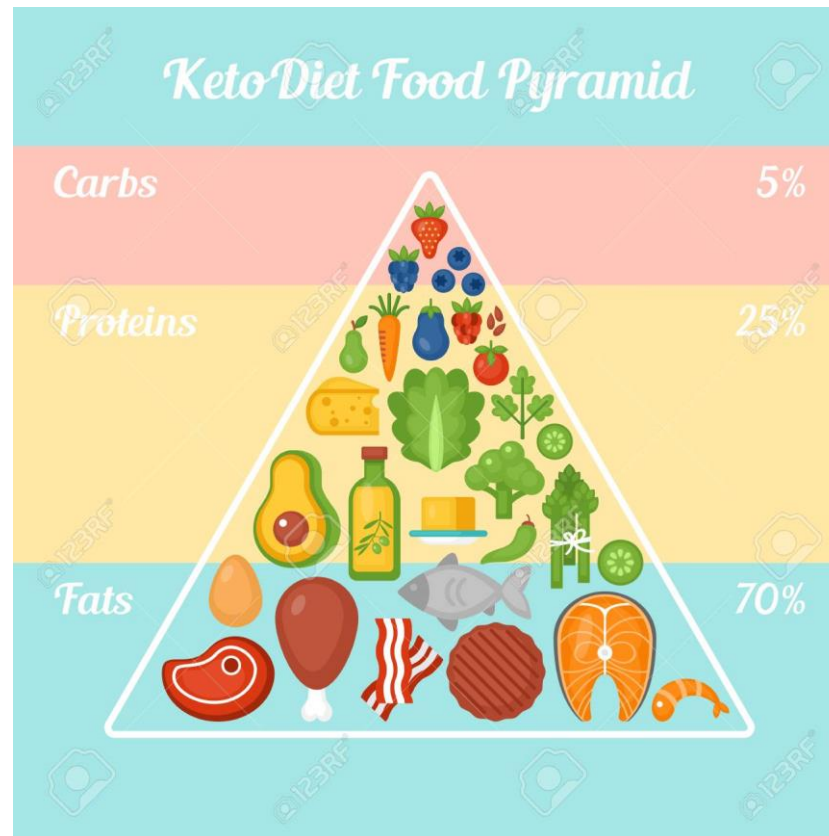
PALEO:

A paleo diet typically includes lean meats, fish, fruits, vegetables, nuts & seeds — foods that in the past could be obtained by hunting & gathering. It limits foods that became common when farming emerged about 10,000 years ago. These foods include dairy products, legumes & grains.



KETO

The *ketogenic* diet - very low-carb, high-fat diet - shares many similarities with Atkins & low-carb diets. Involves drastically reducing carbohydrate intake & replacing it with fat. This reduction in carbs puts your body into a metabolic state called *ketosis*.



<https://www.healthline.com/nutrition/ketogenic-diet-101>

BIOINDIVIDUAL NUTRITION

- Bio Individual Nutrition is the **science & clinical application of nutrition intervention** (food & nutrient choices) based on individual **biochemical** needs of unique person.
- Bio-individuality, meaning that a “**one size fits all**” approach to nutrition **does not exist**.
- **Joshua Rosenthal** is responsible for coining and trademarking “Bio-Individuality” as a term.
- **Critique:** When born healthy, humans anatomically similar, warranting a natural diet [lifetime food, not a weight-loss plan] intended for human anatomy & physiology.
- Elephants in India don’t need totally different food than elephants in Africa

bio-individuality:
recognizes that there's no one-size-fits-all diet. Each person is a unique individual with highly individualized nutritional requirements, based on factors that include personal tastes and inclinations, natural shapes and sizes, blood types, metabolic rates and genetic backgrounds.

NUTRITION PSYCHOLOGY

◦ Nutritional Psychology

- the intersection of **human behaviour and cognition** in relation to the consumption of food and drink.

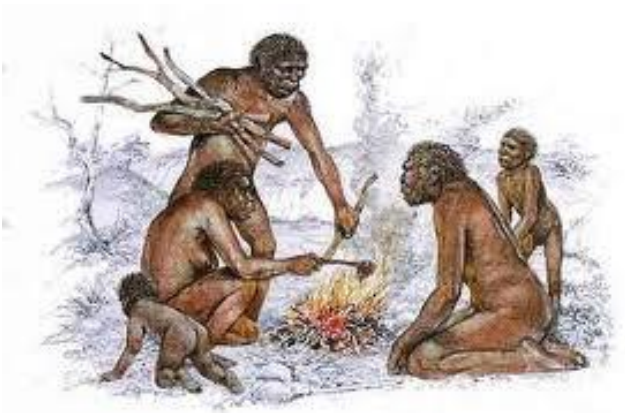
◦ Applied to:

- **Treatment**
 - obesity, cancer, heart disease, eating disorders, in palliative care
- **Health Behaviours**
 - healthier diet, vegetarianism



EVOLUTIONARY PSYCHOLOGY AND EATING

- Human body **evolved** to be highly efficient at **storing excess energy** from food in-take.
- Originally humans were **solitary eaters**.
- **Social settings** increase food intake
- **Taste preferences**
 - foods high in **sugar, salt and fat** were on short supply in ancestral times – therefore humans evolved a predisposition to eat such foods
- **Seasonal variation in food consumption**
 - people tend to eat more in Autumn



MEASURING NUTRITION

- Household Surveys
- Food Diaries
- 24-hour dietary recall
- Food Frequency Questionnaire
- Diet History
- Supermarket Receipts

PLEASE PUT A TICK (✓) ON EVERY LINE

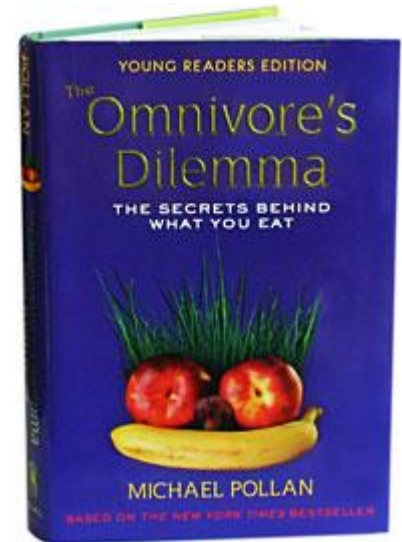
FOODS AND AMOUNTS	AVERAGE USE LAST YEAR								
DRINKS	Never or less than once/month	1-3 per month	Once a week	2-4 per week	5-6 per week	Once a day	2-3 per day	4-5 per day	6+ per day
Tea (cup)								✓	
Coffee, instant or ground (cup)						✓			
Coffee, decaffeinated (cup)	✓								
Coffee whitener, eg. Coffee-mate (teaspoon)	✓								
Cocoa, hot chocolate (cup)						✓			
Horlicks, Ovaltine (cup)	✓								
Wine (glass)	✓								
Beer, lager or cider (half pint)	✓								
Port, sherry, vermouth, liqueurs (glass)	✓								
Spirits, eg. gin, brandy, whisky, vodka (single)	✓								
Low calorie or diet fizzy soft drinks (glass)	✓								
Fizzy soft drinks, eg. Coca cola, lemonade (glass)						✓			
Pure fruit juice (100%) eg. orange, apple juice (glass)	✓								
Fruit squash or cordial (glass)							✓		
FRUIT (1 fruit or medium serving) For very seasonal fruits such as strawberries, please estimate your average use when the fruit is in season									
Apples				✓					
Pears				✓					
Oranges, satsumas, mandarins		✓							
Grapefruit	✓								
Bananas			✓						
Grapes			✓						
Melon	✓								
Peaches, plums, apricots				✓					
Strawberries, raspberries, kiwi fruit						✓			
Tinned fruit		✓							
Dried fruit, eg. raisins, prunes	✓								
	Never or less than once/month	1-3 per month	Once a week	2-4 per week	5-6 per week	Once a day	2-3 per day	4-5 per day	6+ per day

Please check that you have a tick (✓) on EVERY line

WHAT SHOULD WE BE EATING?

Michael Pollan's Food Rules

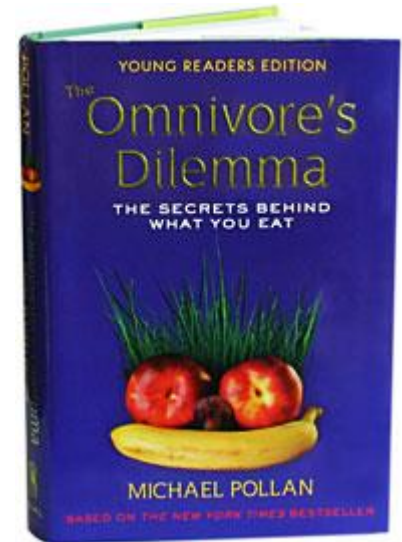
1. Don't eat anything your grandmother wouldn't **recognize as food**.
2. Don't eat anything with more than **5 ingredients**.
3. Stay out of the **middle** of the supermarket – shop the perimeter.
4. Don't buy anything that won't eventually **rot**.



WHAT SHOULD WE BE EATING?

Michael Pollan's Food Rules

5. Always leave the table a **little hungry**.
6. Enjoy meals with the ones you love – **not** in front of the TV.
7. Don't buy food where you buy your **fuel**.



Supermarket Secrets:

<http://www.youtube.com/watch?v=snP40-unO0A>

Carrot vs. Twinkie (2min clip):

<http://www.youtube.com/watch?v=JH-Qv3f73x4>



NUTRITIONISM

○ *Nutritionism* –

- Alleged **paradigm** that assumes that it is the **scientifically identified nutrients** in foods determine value of individual food stuffs in the diet.
- Idea that **nutritional value** of food is **sum** of all its individual nutrients
- implication that the **only point** of eating is to **promote** bodily health.
- “the widely shared but **unexamined assumption** that the key to **understanding food** is indeed the **nutrient**.”
- Arose for good reason – but now used for bad
- Not all calories are created equal
- Veggies vs Lollies



OKAY, SO WE SHOULD EAT PLANTS...

Insufficient Fruit & Veggie Consumption

- attributable to **2.8% of deaths** worldwide
- Estimated to cause **14%** of gastrointestinal **cancer** deaths globally
- **11% of ischemic heart disease** (reduced blood flow to heart muscle) globally
- **9% stroke** deaths globally

Challenges in Studying Fruit & Vegetable Consumption

- **Food content** depends on:
 - **Preparation** method
 - The **variety** of products
 - **Growing and storage** conditions

INADEQUATE PLANT INTAKE AMONG ADOLESCENTS

Neumark-Sztainer et al. (2002)

- Minnesota Adolescent Health Survey ($n = 36,284$)
- Studied adolescents age 12-17

Psychosocial Correlates of Inadequate Plant Consumption

- Low family **connectedness**
- **Weight** dissatisfaction
- Poor **academic** achievement
- Frequent **dieting** (only inadequate fruit consumption)
- Binge eating, substance abuse, past suicide attempts

PSYCHOLOGY OF VEGETARIANISM

Types of Vegetarianism (continuum)

- Vegan / Vegetarians
- Pesco-vegetarians – eat fish
- Semi-vegetarians – avoid red meat
- Flexitarians – occasionally ate red meat
- Omnivores

Psychosocial Factors in Vegetarianism

- Gender differences
- Pro-social behaviour, emotional well-being, more positive mood states, nature-relatedness

TYPES OF VEGETARIANISM

○ Forestell et al (2012)

- **Semi-vegetarians and flexitarians** –
 - more restrained than omnivores
- **Semi-vegetarians and flexitarians** –
 - motivated by weight control
- **Vegetarians and pesco-vegetarians** –
 - motivated by ethical concerns

○ Eating Pathology

- **Restrained eating patterns** associated with vegetarianism, food intolerances and allergies.

EATING PATHOLOGY AND VEGETARIANISM

○ Bardone-Cone et al. (2012)

- Compared vegetarianism behaviours among **females** with an **eating disorder** ($n = 93$) compared to **controls** ($n = 67$)
- Females with **ED** → more likely to be **vegetarian**, and to do so for **weight control** reasons

Therefore, vegetarianism may be a “smokescreen for more severe eating pathology.”



HEALTHY EATING GONE AWRY

- **Orthorexia** – obsession with the perfect diet

“orthos” = straight/proper

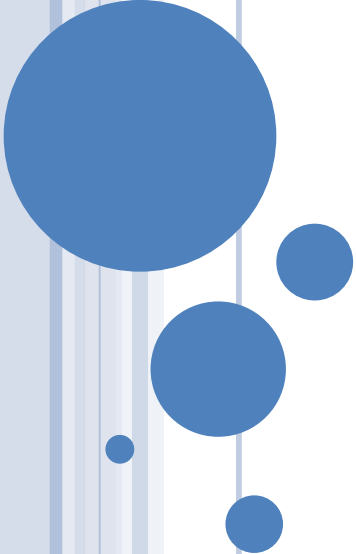
“orexia” = appetite

- Possibly a **new mental illness** – related to **OCD**

- However, **not** in the DSM.

- **Avoidance** of foods with any: artificial flavours or preservatives, pesticides, genetic modification, unhealthy fat, sugar or added salt





CHAPTER 6:

Exercise

OVERVIEW

- What is exercise?
- Why exercise?
- What factors predict exercise?
- Exercise relapse



WHAT IS EXERCISE?

○ Differentiated by intention

- Physical activity: a bodily movement resulting in **energy expenditure** –
 - intentional and automatic
- Exercise: repetitive movement –
 - **intentional**

○ Differentiated by outcome

- Physical activity for **fitness**
- Physical activity for **health**

○ Differentiated by location

- **Occupational** activity – at work
- **Leisure** activity – during leisure time



WHY EXERCISE?

○ Physical benefits

- Increased **longevity**
- Reduced **blood pressure**
- Reduction in **weight**
- Reduction in **diabetes**
- Protection against **osteoporosis**
- Reduction in **CHD**



WHY EXERCISE?

○ Psychological benefits

- Decreased **depression**
- Decreased **anxiety**
- **Stress** reduction
- **Self esteem** and self confidence
- Increased **social support**
- Increased **self efficacy**



WHAT FACTORS PREDICT EXERCISE?

○ Social / political climate

- Availability of **facilities**
- **Cultural** attitudes
- Local **funding** for sports centres
- GP **referral schemes**
- **Supervised** exercise schemes



INDIVIDUAL PREDICTORS

○ Non modifiable factors:

- Younger in **age**
- Better **educated**
- Low body **weight**
- **Access** to facilities
- Being **male**
- Having **money**



INDIVIDUAL PREDICTORS

○ Modifiable factors – beliefs:

- Perceived **social benefits** of exercise
- **Value** on health
- Beliefs about the **benefits** of exercise
- Exercise **self efficacy**
- Social **norms**



EXERCISE RELAPSE

○ Relapse predicted by:

- Lower SES
- Smoking
- A belief that exercise is an **effort**
- Lower **enjoyment**
- No **history** of exercise
- No **support** from a spouse
- No available **time**
- Poor **access** to facilities
- Lower **value** on health



NZ MINISTRY OF HEALTH – ACTIVITY GUIDELINES

<https://www.health.govt.nz/our-work/eating-and-activity-guidelines>

1. Sit less, move more! Break up long periods of sitting.
2. Do at least 2 ½ hours of moderate or 1 ¼ hours of vigorous physical activity spread throughout the week.
3. For extra health benefits, aim for 5 hours of moderate or 2 ½ hours of vigorous physical activity spread throughout the week.
4. Do muscle strengthening activities on at least 2 days each week.
5. Doing some physical activity is better than doing none.

TO CONCLUDE

- Exercise can take many **forms**
- Exercise has **physical & psychological** benefits
- Exercise is predicted by **social & individual** factors
- Exercise relapse also relates to **social & individual factors**

