Champ:

Childhood Obesity:

- 31.5% of 5- to 17 year old children overweight (19.8%) or obese (11.7%) - compared to 15% in 1978
- Linked to insulin resistance, type 2 diabetes, discrimination and decrease social well-being
    - 85% of affected children with type II diabetes are either overweight or obese at diagnosis
    - Tracks to adulthood -> important to intervene during childhood

Health intervention:

" Health intervention is an act performed for, with or on behalf od a person or population whose purpose is to asses, improve, maintain, promote, or modify health, functioning or health conditions"

CHAMP:

Childrens Health and activity modification program

- Community and family based lifestyle intervention for children with obesity

Project Description:

- 2 year pilot project funded by the Lawson foundation (diabetes funding opportunity)

General purpose:

- Develop, implement, asses the effectiveness of a 4 week lifestyle intervention for children with obesity and their families

Specific objectives:

- Primary objection: increase physical activity behavior during and following intervention
- Improve physiological and psychological outcomes, as well as dietary patterns and self-efficacy

Participants:

- Year 1 (2008) - 15 children (8 females, 7 males) ages 8-14
- Year 2 (2009) - 25 children (12 females, 13 males) ages 10-12
- BMI > 95^{th} percentile for age and sex

Intervention:

- 4 week group based lifestyle intervention (august 2008 and 2009)
- Mon – Fri 9am-4pm children
- Sat family sessions 10 am – 2pm
- Monthly post intervention support - "booster sessions"
- Follow up assessment – 6 and 12 months post intervention
    - Intervention Components:
        - Group based physical activity for children

- Group based educational; sessions related to nutrition, physical activity, and behavior modification
- Weekly family training sessions for guardians
- Post intervention support for children and families

Group Based Intervention Components:

- Group names, logos, cheers, flags
- Sacrifice behavior (older campers pairing with helping younger ones
- CHAMP road trip across Ontario – team goal setting
- Daily completion of passports with sections devoted to enhancing cohesion during program and social support after program end
    - Martin et al. Reading

Program Details:

- Children attend CHAMP camp for 4 weeks
- Transportation murphy's bus was provided
- Family members attended 4 weekend family education sessions
- Locations: CCA and YMCA Central branch
- Weekly field trios
- Cost per family was 200$ including everything but lunches
    - Aerobic, resistance training, sports/fitness based activities and nutrition/education sessions were incorporated everyday

Week 1: Sports week
Week 2: Healthy eating around the clock
Week 3: Olympic week
Week 4: Adventure Week

Recruitment Strategies:

- Physicians
- Newspaper: London Free Press, The Londoner
- Radio: Babm, CBC Radio Interview
- Posters displayed in community settings
- Television: Rogers TV interview

Research Components:

1. Initial Meeting: (Exercise and Health Psychology Lab, UWO)
    - Letter of Informant, Assent, Consent
    - Demographic Questionnaire
    - Quality of Life (PedsQL. 4.0) - child report and parent report
    - Acticals (worn for 7 days prior to camp if possible)
    - DXA scan (body composition
    - Vessel Wall imaging

2. Bloodwork and Physical Assessment (CHWO)
    - Fasting bloodwork (glucose, insulin, lipid panel)
    - Physical assessment (medical clearance

3. Phone conversation with CHAMP Dietician
    - Child lifestyle questionnaire
    - Childs self-efficacy towards healthy living questionnaire

4. First Day of CHAMP
    - Physical activity questionnaire for children
    - Theory of planned behavior and self-efficacy scales
    - Fitness testing (cooper 12 minute walk test)

5. Mid CHAMP assessments
    - Counsellor monitoring sheets
    - Weekly fidelity checks (children/guardians)
    - Cohesions/perceptions of belongingness

AFTER CHAMP:

- Focus group interviews
    - Separate focus groups for children and parents were conducted to explore and discuss the perceived impact of champ

<u>Key learnings from Focus groups:</u>

- CHAMP camp well received by parents and children
- Parents: heightened awareness
    - Empowered/in control
    - Equipped with tools/knowledge to help and support their children
- Kids:
    - Overwhelming theme = increased self esteem

<u>Perspectives:</u>

- Increase awareness in nutrition
- Increased self-awareness
- Positive team impact
- Future recommendations

Summary and Future Research:

- CHAMP was a feasible community based program for children with obesity than can be translated into the community
- This 4 week program was effective at improving:

    - Childrens body composition
    - Childrens fitness, resting, and exercise HR
    - Parents proxy and child physical, emotional, and social QOL
- Future Directions:
    - Improve post program support
    - Improve family component
    - Modified program

Next Steps:

- Champ families -> evaluating the impact of a parent focused pilot intervention targeting childhood obesity

- Parents are critical partners in pediatric obesity treatments for the following reasons:
    - Primary decision makers about household food and meals
    - Children learn lifestyle behaviors from parents
    - Parenting and feeding styles can influence children's weight
- Parent only Interventions have been shown to be more effective in treating childhood obesity than parent child or child only interventions

What is CHAMP families?

- 13 week pilot intervention offered to parents and caregivers of children aged 6-14 years with overweight and obesity (I.e. BMI more than or equal to 85^{th} percentile for age and sex) in London Ontario

3 components to Intervention:

1. Group based:
    - 8, 90 minute group based health education sessions for parents at local YMCA
        i. Content delivered by researchers, health professionals, and community organizations
        ii. Evidence based materials, information, and resources provided at each session
        iii. Interactive learning environment
        iv. Comprehensive curriculum
    -
2. Home based
    - Worksheets assigned after each educational session to reinforce concepts discussed
    - Worksheets were to be completed as a family unit and encouraged parents to engage in:
        i. Family focused discussions about health
        ii. Family goal setting related to health behaviors
    - Worksheets were discussed as a group at subsequent education sessions

3. Follow Up:
    - 2 group based champ families booster session at 3 and 6 month post interventions
        - Reiteration of intervention education related to healthy eating physical activity in a fun family oriented structured environment
        - Opportunity for parents and children to reconnect nd socialize with other families
        - Provisions of additional information related to community resources and activities

Purpose:

- Asses impact of CHAMP families on:
    - Children health related quality of life
    - Children physical activity levels
    - Childrens standardized BMI
    - Family cohesion communication and satisfaction
    - Parental self-efficacy for supporting health behaviors
    - Overall perceptions of program and potential impact on their families health and wellbeing

Methods:

- Participant recruitment: parents of children were recruited May – September 2017 via multiple strategies as mentioned before
- Data analysis data collected at 4 time points; baseline, mid-intervention, post-intervention, and 6 month follow up

Results:

- Participants at baseline (n= 11 parents)
    - Drop out (n=1 parent)
    - Missing data (n=1)
    - Data collection complete (n= 9 parents)
- Demographic Information:
    - Mean age = 41.5 years, SD= 6.1
    - Female = 88.9%
    - White, Caucasian = 77.9%
    - Married= 66.7%
    - Uni degrees = 55.6%
    - Employed, fulltime – 55.6%

CHAPTER 5

- In lifetime you will spend 6 years eating (70 000 meals, 54 metric tons of food)

Diet and Nutrition:

- Area which you have high control
- Provide body with nutrients required to produce energy, repair damaged tissue, promote tissue growth, regulate physiological processes

Choosing healthy diet involves:

1. Knowing nutrients that are necessary and in which amounts
2. Translating those requirements into a diet consisting of foods you enjoy and that are available and affordable

What won't be talked about:

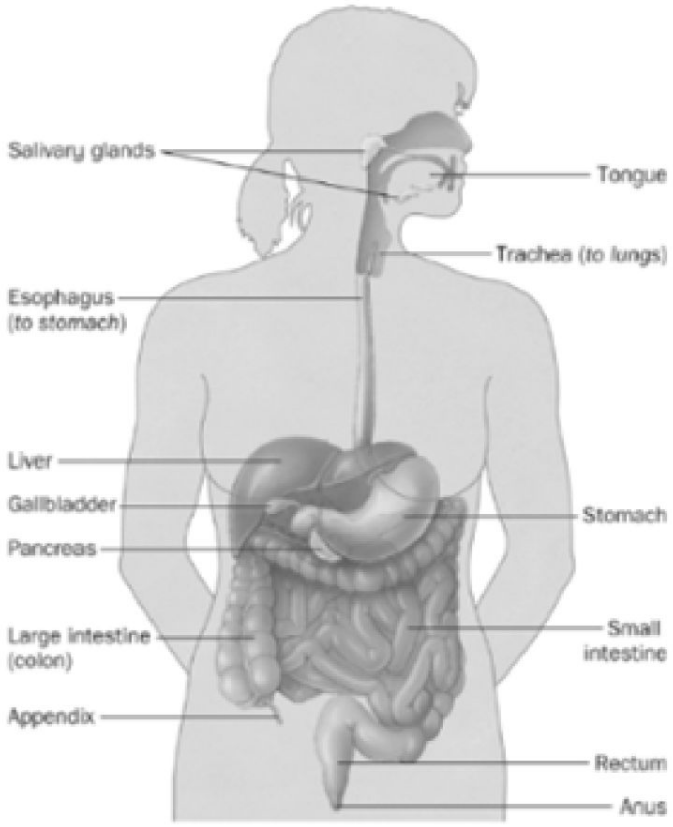
- Fad diets, food documentaries, or popular diet books
    - There is no one healthy way to eat -> no way to truly test it
    - Extremes demonize certain foods and misrepresents science about relationship between food and disease
    - Difficult to study health impact of individual foods or diets because:
        - No practical to conduct RCT where large groups of people are randomly assigned to different diets and are forced to stick with them for long enough to determine if certain foods or diets cause certain diseases
        - Observational studies tend to be used
        - Experts do agree that certain dietary patterns seem to be healthier
        - Foods and food groups can be combine in a variety of flexible ways to achieve health
        - Can be tailored to meet needs of individual health needs, preferences, and cultural traditions

The Digestive system:

- **Body obtains nutrients through digestion -> food is broken down into compounds and gastrointestinal tract absorb and your body can use**

FIGURE 5.1

The Digestive System



Nutritional Requirements:

- Body requires ~ 50 essential nutrients
    - Proteins, fats, carbs, vitamins, minerals, and water
- Essential = must get substances from food because body is unable to manufacture them
- Body obtains nutrients through digestions
- Macronutrients: needed in relatively large amounts -> protein fat and carbs
- Micronutrients: smaller amounts-> vitamins and minerals

Calories:

- Energy in food is expressed in Kilocalories = scientific expression of energy value on a food
    - 1 kilocalorie = 1000 calories
    - 1 kilocalorie = amount of heat it takes to raise the temperature of 1 liter of water in one degree Celsius

- Individuals need approx. 2000 kcals per day to meet their energy needs

3 classes of essential nutrients supply energy:

1. Fat = 9 calories per gram
2. Protein = 4 calories per gram
3. Carbohydrates = 4 calories per gram

- Alcohol = 7 calories per gram
- Calorie intake > energy needs _> converted to fat and stored

Proteins:

- 4 cal/gram
- Promote growth and maintenance of muscle and connective tissues, provide energy
- Form important part of bloods, enzymes, some hormones, and cell membranes
- Composed of chains of amino acids
    - 9 essential amino acids:
        - Isoleucine
        - Histidine
        - Lysine
        - Leucine
        - Methionine
        - Phenylamine
        - Threonine
        - Tryptophan
        - valine
- Foods containing 9 essential amino acids are complete proteins
- Essential acids can be obtained from combinations of incomplete protein sources
- Major sources: meat, fish, poultry, eggs, milk, legumes, nuts
- Adequate daily intake of protein for adults is 0.8 grams per kilogram of body weight
- Very high intake of protein can lead to kidney dtrain

Fats (lipids)

- 9 cal/g
- Supply energy; insulate support and cushion organs
- *3 types of fat based on chemical composition:*
    a. Saturated
        - Solid at room temp
        - Found naturally in animal products
    b. Monounsaturated
        - Liquid at room temp
        - Usually in plant sources
    c. Polyunsaturated
        - Typically liquid at room temperature

        - Usually from plant sources
        - Includes two essential fatty acids

- Trans fatty acids -> unsaturated fatty acids produced by hydrogenation
- Increases stability of oil so it be reused for deep frying, to increase texture of foods, and to increase shelf life
- Leading sources are deep fried food, baked snacks and stick margarine
    - Small amounts in meat and milk
- Found in animal foods, grains, nuts, seeds, fish, vegetables

Fats and Heart Health:

- Low density lipoprotein cholesterol
    - Bad cholesterol
        - Saturated and trans fatty acid increase blood levels
        - Unsaturated fatty acids lower blood levels
- HDL cholesterol
    - Good cholesterol
        - Monounsaturated fatty acids may increase blood levels
        - Trans fatty acids may decrease blood levels in large amounts
- Types of fat vs presence of fat seems to contribute most to CV disease
    - Trans fat is associated with higher risk of coronary heart disease
    - Unsaturated fats seem to be most beneficial in terms of cardio protection

- Trans fat gaining popularity CBC 2018
    - Trans fat replacing animal food as it increases shelf life and cuts cost -> allows companies to claim low cholesterol
    - Studies have showed that eating partially hydrogenated veg oil increase risk of heart attacks
    - Canadians have one of the highest intakes of trans fat
        - 8.4 g/day which is more than 4 times the recommended limit
    - Health Canada requires nutrition fact labels to break down types of fat
    - 2018 – health Canada adds partially hydrogenated oils to list of contaminants and other adulterating substances -> retailers have until 2020 to clear these products from stores

Carbohydrates:

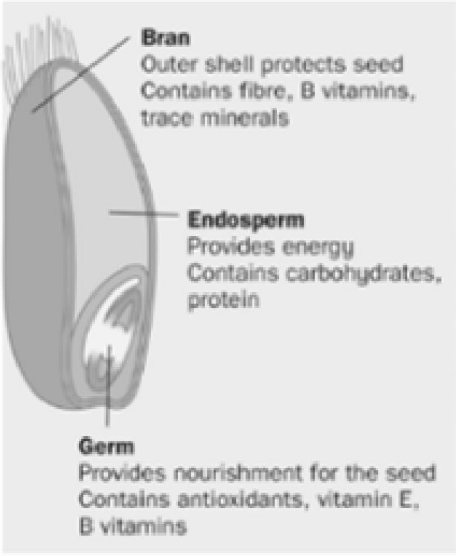
- 4 cal/gram
- Combination of saccharides
- Used primarily for energy
- 3 forms:
    1. Monosaccharides (one unit) e.g. glucose -> blood sugar
    2. Disaccharides (two units) -e.g. sucrose -> table sugar

3. Polysaccharides (more than two units) e.g. starches

- Starches -> most important sources of dietary carbohydrates
    - Found in grains, legumes, potatoes, and yams
    - Unrefined whole grain complex carbs are high in fibre, vitamins, minerals, and other compounds
    - Longer to chew and digest 0> enter bloodstream more slowly

- Refined carbs vs Whole grains:
    - All grains are whole grain before processing
    - During processing germ and bran are removed leaving starchy endosperm
    - The refinement of whole grains transforms wheat and brown rice to white flour and rice

PARTS of WHOLE GRAIN



Carbs and weight Management:

- Low carb diets (e.g. atkins) contain less than 30 g carbs / day _> adherence difficult with less than 35% of energy from carbs
- People can like a lot of weight at start of atkins type diet -> using up glycogen stores
- Weight loss ; Low Card and Low fat diets not significantly different after 12 or 24 months
- Type of carb in diet is important:
    - Complex, whole grain carbs high in fiber associated with high satiety compared to refined carb which [produce rapid increase in insulin

Fibre:

- Nondigestible carbs provided by plants
- Can lower risk of type 2 diabetes and heart disease increasing gastrointestinal health

- Comes from food including fresh fruits and vegetable and those made from whole grains

1. Soluble (viscous) fibers
    - Turns into a gel in intestinal tract, binds to liver bile made from body's cholesterol
    - Help lower blood glucose and cholesterol levels
2. Insoluble fibers
    - Absorb water in intestinal tract
    - Increase fecal bulk, help prevent constipation

Vitamins:

- Organic micronutrients required in small amounts for growth, reproduction, and maintenance of health
- Often coenzymes facilitating action of enzymes to help initiate a variety of body responses
    - Energy production
    - Use of minerals
    - Growth of healthy tissue
- 14 essential vitamins (4 fat soluble and 9 water soluble)

Water Soluble Vitamins:

- Dissolve in water -> absorbed directly into bloodstream
- 8 B-complex vitamins (thiamin, riboflavin, niacin, vitamin B-6, folate, vitamin B-12, biotin, pantothenic acid) and vitamin C
- Excess consumption results in elimination from body in urine
- Important not to lose during preparation of fresh fruits and veggies

Fat Soluble Vitamins:

- Capable of being dissolved in fat or lipid tissue
- Vitamins a, d, e, k
- Vitamin A: vision, skin, linings or organs, immune function
- Vitamin D: bone and teeth and promotion for calcium absorption
- Vitamin E: protection and maintenance of cellular membranes
- Excess consumption results in storage in liver and fat tissue
- Possible to consume toxic amounts particularly vitamins A and D

Vitamin Deficiency:

- If diet lacks particular vitamin, characteristic of deficiency can develop
- Vitamin C: scurvy
- Vitamin D: rockets
- Vitamin A: blindness
- Vitamin B6: Seizures
- Vitamin B6+B12: increased risk of heart disease

- Vitamin K : bone brittleness

Minerals:

- Inorganic micronutrients
- Nearly 5% of the body composed of minerals
- Function primarily as structural elements in teeth muscles hemoglobin and hormones
- Critical in regulation of body processes;
    - Muscle contraction
    - Heart function
    - Blood clotting
    - Protein synthesis
    - Red blood cell formation
- 17 essential minerals
- MAJOR MINERALS (Macrominerals):
    - Body need more then 100mg/day
    - Exists in high amounts in body tissues
    - Examples: Calcium, Phosphorus, magnesium, sulphur, sodium, potassium, chloride
    - Calcium difficult to obtain in adequate amounts if diet does not emphasize milk or dairy
- TRACE MINERALS:
    - Minute amounts required
    - Relatively small amounts in body tissues
    - Examples: Zinc, iron, copper, selenium, iodine, flouride
    - Required in very small quantities but are essential for good health

Water:

- Foods and fluid typically make up ~80-90% daily water intake ; remainder is generated through metabolisms
- Health Canada:
    - All fluids including those containing caffeine can count toward total daily fluid intake
    - Men; 3.7 L/day
    - Women; 2.7 L/day

Other Substance in Food:

- **Antioxidants:**
    - A free radical is a chemically unstable molecule that reacts with fats, proteins, and DNA, damaging cell membranes and mutatin genes
        - Implicated in aging, cancer, cardiovascular disease, and other degenerative diseases
    - Antioxidants help protect body from damage by free radicals

        - Some prevent formation, others remove from body, and some repair damage
    - Some include vitamin C, E, and selenium
- **Phytochemicals:**
    - Antioxidants fall into phytochemicals which are substances found in plant food that may help prevent chronic disease
    - Certain substances in soy food may help lower cholesterol levels
    - Sulphurated, compound in cruciferous vegetable may render some carcinogenic compounds harmless
    - More research needs to be done

Nutritional Guidelines:

<u>Dietary Reference Intakes:</u>

- Dietary standards
- Frequently reviewed
- Focus on preventing nutritional deficiency deficiencies and role of nutrients in promoting health
- Either recommended dietary allowance or adequate intake and tolerable upper intake level

Food and Nutrition in Weight Management:

- A major predictor for weigh management is adherence to the dietary plan -> must be individualized
- Keep accurate food diary
- Eat meal or snack including protein every 2-3 hours to help stabilize blood sugars reduce hunger and aid in weight management
- Re-engineer your food environment using tools that work to support goals of healthy lifestyle
    - Examples:
        - Keep healthy foods in view
        - Cook and eat food at home as often possible
- Three practical areas to start with include:
    - Regular meals and snacks
    - Assessment and reduction of liquid calories
    - Switch on meal out per week with one meal cooked at home

Guidelines for Healthy Eating:

- Eating well with canadas food guide:
    - Launched feb 2007
    - Developed with 7000 dietitians, scientists, physicians, public health personnel
    - Emphasizes importance of combining physical activity with healthy eating
    - Provides information on amount, types, and quality of recommended food for age and gender

Revisions of Food Guide:

- Challenges in understanding and applying certain aspects such as the serving sizes
- Current format wasn't meeting needs of all audiences
- Scientific basis for the 2007 guide is generally consistent with latest evidence
- However topics needed changing such as:
    - Replacement of sat fat with unsat fat which may decrease risk of heart disease
    - High intakes of sugar sweetened beverages that are related to increase risk of obesity
- In 2017 some guiding principles were released:
    - Regular intake of vegetables, fruits, whole grains, protein rich foods -> especially plant based
    - Unsaturated fats
    - Eating more plant based food
    - Limit intake of processed foods
    - Avoid processed drinks
    - Sharing meals with family and friends
    - Planning and preparing healthy meals and snacks

New Food Guide:

- Released in Jan 2019
- Does not include food groups or recommended serving size
- Emphasizes fruits and vegetables, whole grains, proteins, and food skills
- Encourages what to eat regularly, what to avoid, and importance of homecooked meals
- Proportion vs portion (plate)
- Context of eating in addition to nutrients

Nutrition Labelling:

- Mandatory from December 2005
    - Nutrition facts table
    - Ingredients list
    - Nutrition claims

Nutrition Facts Table:

- Specific amount of food compare to amount you eat
- Includes calories and 13 nutrients
- Always listed in same order
- %daily value provides quick overview of nutrient profile
    - Strengths and weaknesses of food products

List of Ingredients:

- Ingredients present in greatest amounts listed first

- Nutrients such as saturated and trans fats, sugar and sodium may appear under different names:
    - Lard, palm oil, shortening, butter -> sat fat
    - Corn syrup, dextrose, honey, molasses -> sugar

- Health Canada making changes to improve the nutrition facts table and list of ingredients based on feedback from Canadians (2017-2022)
- Examples: making serving sizes more consistent and realistic, increasing font size of serving sizes and calories, adding bold line under calories, adding potassium to list of nutrients, grouping sugar-based ingredients in after the name 'sugars' in list of ingredients, etc.

Dietary Challenges for Special Population Groups:

1. Childrens and teens:
    - Many enjoy fast food
        - Encourage to choose healthiest choices from fast food
        - Provide a nutrient dense diet
2. College and uni students:
    - Buffet style dining halls are not high in essential nutrients
3. Older Adults:
    - People become less active and they require fewer calories to maintain body weight
    - Nutrient absorption decrease
4. Athletes:
    - Meeting energy requirements and drinking enough fluids can be hard
5. Low income:
    - Not enough income to support healthy diet
6. First Nations:
    - Reserves face challenges in maintain traditional food preparation and eating practices to promote health
    - Higher risks of mental health issues, chronic diseases, and addictions
7. Special health concerns:
    - Ex pregnant women or those breastfeeding

Food Bourne Illness:

- Caused by pathogens disease causing microorganisms
- Can be contaminated through the improper preparation and storage of food

MARKETING

Halloween Health Bite:

- $550.7 million – The value of sales of cookies, confectionery, and snack foods at retail in October 2017
- 7% - average daily sugar intake of children that is derived from confectionery items
- 8% - average daily sugar intake of adolescents that is derived from confectionery items
- 5% - percentage of average daily sugar intake of adults that is derived from confectionery items

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- Multi-million dollar industry focused on marketing food and beverage products to children

- Children are inundated with advertisement across diverse channels
    - Screen-Related sources:
        - Tv, online games, music videos, video games, websites, social media
    - Other Sources:
        - Endorsements, sponsorship, athletic events, concerts

Why do food and beverage companies target children and youth?

1. Children have money to spend (aka buying power)
    - Children ages 9-14 spend 2.9 billion annually

2. Children influence their parents to buy
    - In 2006, children determined 20 billion of their parents spending
    - Marketers call this "pester power" or "kidfluence"

3. Children can become a lifelong customer
    - Advertisements can help companies foster brand loyalty

4. Children and youth are easy targets
    - There are 4-5 food and beverage ads per hour on TV
    - Kids see over 25 million food and beverage ads per year on websites

5. Children have less developed critical thinking skills and may not understand the persuasive messaging of ads

6. Children and youth's emotions and impulsivity can be manipulated to reduce their ability to make a good decisions about food

Marketing Techniques:

- Food and beverage companies spend millions of dollars conducting research to determine the most effective methods for advertising to kids
- Advertisements contain several sophisticated marketing techniques and strategies to promote to kids:
    a. Color meanings and associations
    b. Images and spokes characters
    c. Brand names, taglines, and health symbols

1. Color meanings and associations

- Color is used to influence product perception and encourage specific associations
- Children perceive food in less colorful or plain packages as healthy
- Example: green = healthy, natural, organic

2. Images and Spokes characters:

- Images and spokescharecters attract children's attention to the package while distracting them from the actual product contents
- Images of ingredient not in the food are used make products appear more Healthy
    - Reduces child's ability to assess contents and health qualities of packages foods
-

3. Brand names, taglines, and health symbols

- Brand names, tag lines, and health symbols highlight the key attributes of a product, but do not reflect overall nutritional quality of food
- Brand names (or family of brands) influence children's perceptions about the health of packaged food
    - Ex. Quaker oats vs Quaker dips

Health implications of food and beverage marketing:

- 90% of the food and beverage products marketed to children are high in salt sugar and fat
- Food and beverage advertising directly affects kids' food preferences, choices, and eating habits
    - Meta-analysis showed exposure to unhealthy food marketing significantly increased children's consumption of, and preferences for, unhealthy food and beverage products
- Food advertising contributes to: unhealthy weight, type 2 diabetes, hyper tension, and heart disease

CAI:

- 2007 – Canadian children's food and beverage advertising initiative, was implemented by food and beverage companies to:

1. Reduce advertising to children under the age of 12, and
2. Improve the nutritional quality of products

- This method of self-regulation has not been effective because:

1. Participation in this initiative is no mandatory, an
2. Companies are selective about what criteria they adhere to

- 75% of unhealthy advertisements viewed by children are from companies that are members of the CAI

Stop M2K Coalition:

- The stop marketing to kids coalition was founded by the hart and stroke foundation and childhood obesity foundation in 2014
    - 12 non-governmental organization
    - 100 addition organizations and individuals
- The coalition's goal is to support the federal government's policy efforts to restrict the marketing of unhealthy food and beverages to children in Canada

<u>Bill S-228: Child health protection Act</u>

- This enactment amends the food and drugs act to prohibit food and beverage marketing directed at persons under 12 years of age
    - This includes packaging, advertising, and all other forms of promotion directed at children
- Bill introduced by Sen. Nancy Greene Rain in September 2016
- Bill passed by The Senate of Canada in September 2017
- Bill under consideration in House of Commons
    - 1st reading – sep 2017
    - 2nd reading – feb 2018
    - 3rd reading – sep 2018

Policy Action Quebec:

- Quebec banned commercial advertising to kids under 13 in 1980 and now has the lowest childhood obesity rate, highest rate of vegetable and fruit consumption, and a 13% reduction in fast food purchases

Policy in Action Chile:

- Chilean lawmakers have implemented on of the most comprehensive policy strategies to reduce obesity and improve eating habits, which includes:

1. Banning cartoon characters from cereal boxes and the sale of Candy like Kinder surprise use trinkets to lure young consumers

2. Prohibiting the sale of junk food like ice cream, chocolate and potato chips in schools
3. Banning unhealthy products from being advertised during television programs o on websites aimed at young audiences
4. 18% tax on beverages high in sugar
5. Warming labels o foods high in salt, sugar, calories, and saturated fat

Local Action:

- Social justice summer camp for adolescents (12-16)
- The goal of the be the change was to increase adolescents' awareness of local and global issues, and to provide them with the told and confidence necessary to create and advocate for change in their communities

Development of Teen Coding Tool to Measure the Power of Food Advertisement:

Research Context:

- Teens especially vulnerable to marketing
- Lack teen directed coding guidelines
- Call for research on exposure and power
- Need to consult teens to understand advertising perceptions

Methods:

- Food environment audits
- Near secondary schools in London, ON
- Collected photos of all outdoor advertisements:
    - Billboards, transit shelters, food vendors, school café signage
- Youth Advisory Council consultations to unconver teen perceptions
    - 14 teens from across the city
- Created a teen-coding tool to measure the power of advertisements from a teen perspective

Teen Directed Criteria:

- Identified top 10 criteria that are teen directed
- Importance of each criterion is relative to the others
- Teens are not likely influenced by food advertising in same way as children
- Size of each feature was also important
- Coded as small, medium/large, NA

Ad Feature	Presence Yes(1) No (0)		Size ☐ NA (0)	☐ S (0.25)	☐ M/L (1)		Weight Totals (Presence x Size)
1. Price	____ x 29.11		☐	☐	☐		
2. Image of Food/Beverage	____ x 20.80		☐	☐	☐		
3. Taste Description	____ x 11.73	x	☐	☐	☐	=	
4. Sale/Deal/Special offers	____ x 9.98		☐	☐	☐		
5. Slogan/Description	____ x 8.52		☐	☐	☐		
6. Logo/Company Name	____ x 6.93		☐	☐	☐		
7. Directions/Location	____ x 4.27		☐	☐	☐		
8. Gamification	____ x 3.84		☐	☐	☐		
9. Loyalty Points/Rewards	____ x 3.30		☐	☐	☐		
10. Character, Celebrity or TV/Sports tie-in	____ x 1.52		☐	☐	☐		

BREASTFEEDING:

Postpartum Period:

- 3 months following childbirth
- Mother usually leave hospital within 24-48 hours for vaginal and 48 – 72 for caesarean
- Lactation will occur 3 days after birth before its colostrum

Postpartum Depression:

- 5-9% experience postpartum depression -> more disabling syndrome characterized by mood swings, guilt, and occasional hostility
- Rest, sharing feeling and concerns, relying on supportive peoplr helps in dealing with mild cases of baby blues or postpartum depression which usually only lasts a few weeks

Attachment:

- Strong emotional tie that grows between the baby and the adult carer
- Secure strong attachments in early weeks by responding sensitively to baby's needs
    - Establishes trust in their child
- A secure attachment helps child develop and function well socially emotionally and mentally

The Basics:

- Human milk is species specific; mother makes milk that is perfectly suited to her baby's requirement for growth and development
- Ultimate super food -> only single food for human that can independently sustain life for the first 6 months after birth
- Provides all fluid and nutrients for optimal growth and development
    - Protects infant from bacteria and viruses that the mother come in contact with
- Breast milk adapts to the age of infant
    - Constantly changes to meet nutritional needs
- Composition changes in the early postpartum period, from colostrum to mature milk

    - Colostrum – yellowish, sticky breast milk produced end of pregnancy -> recommended by who as perfect food for new born and feeding should be initiated within first hour of birth
- Hormones involved in breastfeeding:
    - Estrogen
    - Progesterone
    - Prolactin
    - Oxytocin

Breastfeeding recommendations:

- Early imitation (within 1 hour of birth)
- Exclusive breastfeeding for the first 6 months of life
- Introduction of nutritionally adequate and safe complementary solid foods at 6 months together with continued breastfeeding up to 2 years or beyond

Breastfeeding – Global Facts:

- Globally about 40% of infants 0-6 months of age are exclusively breastfed
    - First 2 years are critical as optimal nutrition during this time lowers morbidity and mortality, reduces risk of chronic diseases and improves overall development health
- Breastfeeding improves IQ, school attendance, and s associated with higher income in adult life

Benefits:

Short Term:

1. INFECTION:
    - Dose response relationship between duration and exclusivity of breastfeeding and protection from many types of infections
2. Sudden Infant Death Syndrome
3. Mortality:
    - Not breastfeeding higher a child's risk of dying in infancy
    - Developing countries -> infants who are not breastfed have higher rates of diarrhea and respiratory diseases (main causes of infant death)
    - More than 820,00 lives could be saved per year among children smaller than 5 years if all children 0-23 months were breastfed
4. Overweight and obesity:
    - Studies show relationship between obesity prevention and breastfeeding
    - Area of debate
    - 2014 -? Systematic review suggest that relationship is unclear; difficult to prove because of confounding maternal, genetic, cultural, child, and environmental variables
5. Issues related to temperature and respiratory regulation

    - Bottle feeding -> higher risk for physiological instability
    - Oxygen saturation and body temperature found to be significantly lower in preterm infants who were bottle fed vs. Breastfed
    - Importance of skin to skin
6. Pain:
    - Not breastfeeding higher infants response to pain
    - Analysis of 11 studies showed that both breastfeeding and human milk are pain relieving

<u>Long term Benefits:</u>

1. Reduced risk of some CHILDHOOD CANCERS
    - Several studies have found higher risk of some childhood cancers (leukemia, lymphoma, Hodgkin's disease) when children have not been breastfed
    - Addition research needed
2. Reduced risk of asthma
3. Increased Cognitive development
    - Debated issue
    - Breastfeeding associated with higher scores on development and cognitive screening tools
    - 2013 study -> babies breastfeed for one year were better able to understand others (receptive language) at 3 years of age had higher verbal and nonverbal intelligence at 7 years
4. Reduced risk of type 1 and 2 of diabetes:
    - Infant formula feeding appear to higher risk of diabetes

Benefits for Mother:

- Premature weaning or not breastfeeding are associated with health risks
- Degree to which health outcomes are realized depends on duration, frequency, and exclusivity of breastfeeding
- Health outcomes associated with NOT breastfeeding:
    - Higher prevalence of hypertension, diabetes, hyperlipidemia, cardiovascular disease, metabolic syndrome
    - Higher risk of breast cancer, ovarian cancer, rheumatoid arthritis, postpartum depression
    - Reduction in bone health
    - Increased sleep disturbances
    - Decreased postpartum weigh loss

Infant Formula Feeding:

- Milk based powdered infant formula serves as an ideal substrate for bacterial growth
- Pathogen contamination -> Enterobacter sakazakii has been detected in commercially produced powdered infant formula

- In 20018 thousands of children in Asia were affected by melamine added to 22 brands of infant formula which lead 50, 000 hospitalized and at least 6 died from acute renal failure
    - Melamine added to disguise low protein content resulting from diluting formula; higher nitrogen content, higher apparent protein content, and gave formula milky appearance
    - U.S. FDA and WHO established guidelines for tolerable upper limits for melamine ingestion; unclear how much is safe in young children
- Widespread distribution of infant formula exposes infants to higher risk of disease and death -> when clean water is scarce for mixing formula and bottle washing in emergency and disasters

Baby Friendly Initiative:

- Global campaign to promote, protect, and support breastfeeding
- Sponsored by WHO and UNICEF

History:

- 1920's – emancipation of women:
    - Other feeding allowed women to pursue other interests
    - WWII women moved into workforce
    - Canadian dairy industry grew and public officials promoted formula feeding
    - Massive campaign to educate mothers coincided with sharp decline in breastfeeding rates
- 1920's –1060's:
    - Majority of Canadian women abandoned breastfeeding
    - Increase in feeding cow's milk resulted in higher infant mortality rates -> scientists worked at improving artificial baby milk rather than increasing breastfeeding
- Early 70's
    - Breastfeeding rates were rising in Canada and other western nations along with increased recognition of importance of breastfeeding in the health of the nation
    - In developing regions breastfeeding rates continued to decline -> infant formula was marketed to mothers who could not afford it or were living in conditions that made formula reconstitution and feeding unsafe
    - Concern about marketing infant formula in developing countries increased
- 1979:
    - WHO and UNICEF held an international meeting concerning infant and young child feeding
- 1981:
    - The international code of marketing of breast milk substitutes was developed
    - WHO and UNICEF drafted this code which was adopted by WHA

The Internation Code of Marketing of Breast milk Substitutes:

- WHO code
- Minimum requirements to protect and promote appropriate infant and young child feeding practices
- Main focus is regulation of marketing of infant formula and products associated with bottle feeding
- WHO code focuses attention on how the infant formula industry influences health care providers and consumers to support the use of manufactured baby milk

Details of WHO code:

1. No ad of any ot these products to public
2. No free samples
3. No promotion of products in health care facilities, including distribution of free or low cost supplies
4. No campany sales representative to advise mothers
5. No gifts or personal samples to health care workers
6. No words of pictures idealizing artificial feeding or pictures of infants on labels of milk containers
7. Information to health care workers should be scientific and factual
8. All information should explain benefits of breastfeeding and cots and hazards associated with artificial feeding
9. Unsuitable products such as sweetened condensed milk should not be promoted
10. Products should be of high quality and take into account the climatic and storage conditions of the country where they are used

Canada and the WHO code:

- Canada gave approval in 1981
- Continues to many violations of WHO code as its not legislated in Canada

WHO + BFI:

- BFI endorses WHO code
- BFI is:
    - Evidence base
    - Outcomes oriented
    - Protects, promotes, and supports breastfeeding
    - Benefits all babies
- BCC is national authority for BFI in Canada
- Each province and territory has representatives on the BCC BFI implementation committee
- BCC BFI assessment committee is responsible for outlining the practice outcomes criteria for assessment and designation of baby friendly

WHO 10 steps to breastfeeding:

1. Written breastfeeding policy routinely communicated to all health care providers
2. All health care providers have the knowledge and skills necessary to implement the policy

3. Inform pregnant women and their families about the importance and process of breastfeeding
4. Place babies in uninterrupted skin to skin contact with their mothers immediately following birth for at least an hour encouraging mothers to recognize when their babies are ready to feed, offering help as needed
5. Assist mothers to breastfeed and maintain lactation should they face challenges including separation from their infants
6. Support mothers to exclusively breastfeed for the first 6 months, unless supplements are medically indicated
7. Facilitate 24 hr rooming in for all mother-infant dyads: mothers and infants remain together
8. Encourage sustained breastfeeding beyond 6 months with appropriate introduction of complementary foods
9. Support mothers to feed and care for their breastfeeding babies without use of artificial treats or pacifiers
10. Provide seamless transition between services provided by hospital, community health services, and peer support programs

Male Partners' role in breastfeeding:

- Support
- Care for infant
- Feeding the infant
- Housework
- Preparing pump equipment

- Education and access to partner specific information on breastfeeding
- Online or drop in support groups for men
- Alternative for breastfeeding