Healthy Change

1.) **Health** is the ever-changing process of achieving individual potential in the physical, social, emotional, mental, spiritual, and environmental dimensions. There are **models of health** which give us an idea of how society and the people around us view our health. The **medical model** presupposes the existence of illness or disease. It therefore emphasizes clinical diagnosis and medical intervention in the treatment of disease or its symptoms. Under the medical model, health is defined as the absence of illness or disease. We are moving away from the medical model which focuses on an individual’s tissues or organs and disease treatment. The **ecological or public health model** views disease and negative health as a result of a person’s interaction with their physical and social environment. The **public model of health** is a model that addresses health or social problems in a comprehensive way. It considers human factors, characteristics of the source of harm, and the environment, identifying causes and suggesting possible ways to intervene.

2.) Your **wellness** is determined by how you are performing in each of the five dimensions of health: Physical, Social, Intellectual, Emotional, Spiritual, and Environmental.

   a.) **Physical:** Includes characteristics such as body size and shape, sensory acuity, and responsiveness, susceptibility to disease and disorders, body functioning, physical fitness, and recuperative abilities. This includes the ability to perform normal activities of daily living.

   b.) **Social:** How you get along with other people, how other people react to you, and how you interact with society. It can be difficult for someone with autism to form relationships and make friends due to difficulties with social skills.

   c.) **Intellectual:** Typically people think of intellectual health as academic knowledge, but in fact, it also entails creativity, general knowledge, and common sense. Our thoughts are influenced by each of these factors, which in turn influence our decisions.

   d.) **Emotional:** A positive sense of wellbeing which enables an individual to be able to function in society and meet the demands of everyday life; people in good mental health have the ability to recover effectively from illness, change or misfortune.

   e.) **Spiritual:** Your religious faith, values, beliefs, principles, and morals define your spirituality. If you are a person engaged in the process of spiritual wellness, you are willing and able to transcend yourself in order to question the meaning and purpose in your life and the lives of others.

   f.) **Environmental:** The branch of public health that is concerned with all aspects of the natural and built environment that may affect human health. Other terms referring to or concerning environmental health are
environmental public health, and public health protection / environmental health protection.

3.) **SMART Goals:** These goals are specific, measurable, achievable, realistic, and timely.

4.) **Models of Behavior Change:**
   a.) **Health Belief Model (HBM):** The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviors. This is done by focusing on the attitudes and beliefs of individuals. The HBM was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services.

   b.) **Social Cognitive Model (SCM):** Social cognitive theory is the view that people learn by watching others. In psychology, it explains personality in terms of how a person thinks about and responds to one's social environment.

   c.) **Transtheoretical Model:** Uses the Stages of Change to integrate the most powerful principles and processes of change from leading theories of counseling and behavior change; other models of behavior change focus exclusively on certain dimensions of change (e.g. theories focusing mainly on social or biological influences), the TTM seeks to include and integrate key constructs from other theories into a comprehensive theory of change that can be applied to a variety of behaviors, populations, and settings (e.g. treatment settings, prevention and policy-making settings, etc.)—hence, the name “transtheoretical”.

5.) **Health Disparities** can be defined as inequalities that exist when members of certain population groups do not benefit from the same health status as other groups. This may be due to a group’s race or ethnicity, inadequate health insurance, sex or gender, economics and education, geographic orientation, sexual orientation or gender identity, or any disabilities.

**Medical Terminology:**

1. Prefixes
   a. “A” means without or an absence of
   b. “Anti” means against
   c. “Auto” means self
   d. “Brady” means slow
   e. “Cardio” means pertaining to the heart
   f. “Cerebro” means pertaining to the brain
   g. “Contra” means against
   h. “Hyper” means above normal
   i. “Hypo” means below normal
   j. “Macro” means large
   k. “Micro” means small
   l. “Retro” means behind or backward
2. Suffixes
   a. “-ectomy” means removal of
   b. “-itis” means inflammation
   c. “-pathy” means disease
   d. “-tension” means pressure
3. Root Words
   a. “Athero” means a plaque or fatty substance
   b. “Carcino” means cancer
   c. “Gluco” means glucose
   d. “Homeo” means same
   e. “Myo” means muscle
   f. “Patho” means disease
   g. “Schizo” means split or division
   h. “Sclero” means hardening
4. How do we create medical terminology?
   a. Word Root: The main part of a word which contains the basic meaning.
   b. Prefix: Words attached to the beginning of a word that alters the meaning.
   c. Suffix: Word parts attached to the end of a word that alters the meaning.
   d. Combining Forms: The word root and a combining vowel that enable two parts to be connected.

Infectious Conditions:
1.) Infections
   a.) An infection is the invasion and multiplication of microorganisms such as bacteria, viruses, and parasites that are not normally present in the body.
2.) Risk Factors: These are things that increase a person’s chance of infection. There are two types: controllable and uncontrollable.
   a.) Controllable: managing stress, good nutrition, adequate sleep, avoiding drug use, good hygiene, and avoiding high risk behaviors.
   b.) Uncontrollable: heredity and genes, age, environmental conditions, organism virulence, and drug resistance.
3.) Prevention: Avoiding risk factors for an infection, and taking vaccines against them when possible.
4.) Types: Types of infections are based off of where they are in the body and their duration. There are five types: localised, systemic, acute, chronic, and latent.
   a.) Localised infections are restricted to one part of the body.
   b.) Systemic infections affect many organs or organ systems.
   c.) Chronic infections are slow to develop and usually have more mild systems. These types of infections last longer.
d.) **Latent infections** are symptom free. In a way, they are “hidden”.

5.) **Modes Of Transmission**
   
a.) Across the placenta, skin contact, contaminated food, air, water, blood, insect (or other vectors), and sexual.

6.) **Pathogens**
   
a.) **Bacteria**: Microscopic, single-celled organisms. Harmful ones release poisonous chemical substances, or toxins.

b.) **Viruses**: A protein structure containing either RNA or DNA. These cannot metabolise food or perform other life functions. They are the smallest pathogen. To reproduce, they inject their genetic material into a host cell. Cells provide genetic code needed for virus to make copies. Then, the new virus erupts out of the cell to see new cells to take over.

c.) **Fungi**: Primitive plants, such as yeasts and molds. They are heterotrophs, and they reproduce through spores.

d.) **Protozoans**: Single-celled organisms; they can multiply in humans. They feed by engulfing other microbes and organic matter.

e.) **Prions**: Self replicating, protein based agents that are found in brain tissue. They appear to alter the function or shape of other proteins.

f.) **Parasitic Worms**: These are multicellular parasites that flourish in the intestines. However, they can be found throughout the human intestinal tract, urinary tract, or bloodstream.

**Food Safety**

1. **Foodborne Illness**
   
a. Normally **associated with symptoms such as** diarrhea, vomiting, abdominal cramps, and fever.

b. Bacteria are **responsible for most cases**; however, other causes include viruses and mycotoxins.

c. The “**Danger Zone**” for food is between 40° and 140°; however, the most dangerous temperatures are between 80° and 120°.

d. The foods most commonly **associated** with illness are raw meat, raw eggs, unpasteurised milk, raw shellfish, raw fruits, and raw vegetables.

2. “**Four Simple Steps To Food Safety**”
   
a. **Clean**
      i. Wash hands, surfaces, and foods as needed.

b. **Separate**
      i. Don’t cross contaminate foods.

c. **Cook**
      i. Cook all items thoroughly and to a good temperature.

d. **Chill**
i. Refrigerate right after eating, and thaw items in the fridge.

3. Most Common Types Of Foodborne Illness
   a. Norovirus
      i. Transmitted by the contact of vomit or feces of infected people.
      ii. Incubation period of 12 to 48 hours.
   b. Salmonella
      i. Transmitted by foods such as undercooked or contaminated meat. Also by raw milk, eggs, or contaminated peanuts.
      ii. Incubation period of 12 to 72 hours.
   c. Clostridium perfringens
      i. Transmitted by foods such as meat or meat products, or casserole where oxygen has been removed.
      ii. Incubation period of 8 to 12 hours.
   d. Staphylococcus aureus
      i. Sources include the human nose, pimples, skin, or cuts. It may be transmitted through foods such as dairy products, pastries, and salads.
      ii. Incubation period of 1 to 8 days, but usually 3 to 4 days after consumption of a contaminated food.

Nutrition
1. Daily Caloric Needs:
   http://www.cnpp.usda.gov/sites/default/files/usda_food_patterns/EstimatedCalorieNeedsPerDayTable.pdf
   a. Digestion is the process by which food is converted into substances that can be absorbed and assimilated by the body, especially that accomplished in the alimentary canal by the mechanical and enzymatic breakdown of foods into simpler chemical compounds.
   b. Recommended Intake of Nutrients
      i. Recommended Dietary Allowances (RDAs)
      ii. Adequate Intakes (AIs)
      iii. Tolerable Upper Intake Levels (ULs)
      iv. Acceptable Macronutrient Distribution Ranges (AMDRs)
   c. A calorie is a unit of measure that indicated the amount of energy obtained from a particular food.
   d. A kilocalorie is a measure used to quantify energy in food.
2. The Six Essential Nutrients
   a. Water
      i. About 18 cups a day is recommended for men; 9 for women.
      ii. Dehydration is a state of abnormal depletion of body fluids.
      iii. Extra amounts of water should be taken before, during, and after exercise. However, you do not want to become overhydrated; this can prove fatal.
b. **Proteins** are the most abundant substances; they are your “body builders”.
   i. To calculate daily amount needed, divide your body weight in pounds by 2.2 to get your weight in kilograms. Then, multiple by .8.
   ii. Your essential **amino acids** are required by your body, but cannot be produced by it. They must be obtained through the diet. These are complete proteins.
   iii. Animal sources of protein are almost all **complete proteins**. These include eggs, meat, milk, cheese, and yogurt.
   iv. Plant sources of protein are nearly all **not complete**. These include legumes such as beans, peanuts, peas, and soy products. They also include grains such as corn rice, and oats, seeds, and nuts.

c. **Carbohydrates** supply us with energy needed to sustain normal daily activity.
   i. **Simple Carbohydrates**
      1. Found naturally in fruits, many vegetables, and dairy.
      2. **Monosaccharides** (glucose and fructose)
      3. **Disaccharides** (sucrose, lactose, and maltose)
      4. Avoid products that contain added or unnatural sugars.
   ii. **Complex Carbohydrates**
      1. Found in grains, cereals, legumes, and other vegetables.
      2. Starches and glycogen
      3. Fiber (soluble or insoluble)
      4. Be aware of what a product means when it says it is whole grain or refined. They might not be as healthy as you think.

d. **Fats**
   i. **Triglycerides** are the most common form of fat circulating in the blood.
   ii. **Saturated fats** come from animal sources.
   iii. **Unsaturated fats** are liquid at room temperature, come from plants, and include most vegetable oils.
      1. **Monounsaturated fatty acids**
      2. **Polyunsaturated fatty acids**
   iv. **Trans fats** are produced by adding hydrogen molecules to liquid oil, making it solid or semi-solid at room temperature. These should be avoided because they are made with **partially hydrogenated oils** (PHOs) which the FDA has issued a preliminary determination that they are no longer safe for consumption.
   v. **High density lipoproteins** (HDLs) remove cholesterol from dying cells and plaques from blood vessels.
   vi. **Low density lipoproteins** (LDLs) can stick to the lining of blood vessels, contributing to the plaque that causes heart disease.
e. **Vitamins** are organic compounds that promote growth and help maintain life and health.
   i. Maintain nerves and skin, produce cells, build bones and teeth, heal wounds, and convert food energy to body energy.
   ii. Vitamins A, D, E, and K are **fat soluble** in the body.

f. **Minerals** are the inorganic, indestructible elements that aid physiological processes within the body.
   i. Without minerals, vitamins could not be absorbed.
   ii. Sodium, Calcium, Phosphorous, Magnesium, Potassium, Sulfur, and Chloride.

3. **Functional Foods**
   a. **Antioxidants** are substances that appear to protect against oxidative stress.
   b. **Phytochemicals** are antioxidants occurring naturally in plants that are thought to protect against radiation, pests, and other threats.
   c. **Superfoods** include yogurt, cocoa, red beans, blueberries, blackberries, prunes, raspberries, pecans, plums, avocado, salmon, and artichoke.

4. **In Order To Be Healthy…**
   a. Understand serving sizes
   b. Eat **nutrient dense** foods
   c. Reduce **empty calorie** foods
   d. Limit intake of sugary drinks, and sugar and fat-laden items.
   e. Physical activity
   f. Strive to be active at least 30 minutes per day, preferably with **moderate to vigorous activity** most days.

5. **Healthy Diet**
   a. **Organic foods** are foods and beverages developed, grown, or raised without the use of synthetic pesticides, chemicals, or hormones. However, just because a label claims it is organic, it might not be. It must comply with FDA regulations.
   b. A **vegan** is someone who does not consume animal meat or products (such as milk or eggs).
   c. A GMO is a **genetically modified organism**. These are living organisms whose genetic material has been artificially manipulated in a laboratory through genetic engineering.
   d. **Celiac disease** is an autoimmune disorder causing malabsorption of nutrients from the small intestine in genetically susceptible people.
   e. A **food allergy** is an abnormal response to a food that is triggered by the immune system.
   f. **Food intolerances** can cause symptoms of gastric upset, but are not the result of immune system responses.
Weight Management

1. Overweight Risks
   a. Increased risk of numerous health issues
   b. Can expose individuals to increased social, educational, and economical disadvantages.

2. Underweight Risks
   a. Low body protein and fat stores
   b. Weakened immune system
   c. Reduced muscle strength
   d. Lack of adequate intake of nutrients

3. Genes
   a. Hormonal Influences: Many people have attributed obesity to problems with the thyroid gland and resultant hormone imbalances.
   b. Ghrelin: Helps regulate appetite, food intake control, gastrointestinal motility, gastric acid secretion, endocrine and exocrine pancreatic secretions, glucose and lipid metabolism, and cardiovascular and immunological processes.
   c. Leptin: Produced by fat cells; its levels in the blood increase as fat tissue increases. Scientists believe leptin signals when you are getting full, slows food intake, and promotes energy expenditure. When levels of leptin in the blood rise, appetite levels drop.

4. Physiological Factors
   a. The basal metabolic rate (BMR) is the minimum rate at which the body uses energy when working to maintain basic vital functions.
   b. The resting metabolic rate (RMR) includes BMR plus any additional energy expended through sedentary activity.
   c. The exercise metabolic rate (EMR) accounts for all remaining calorie expenditures.
   d. Set Point Theory
      i. Our Bodies Fight to Maintain our Weight at a Set Point.
      ii. Controlled by our “internal thermostat”
      iii. Energy expenditure increases and decreases with weight loss and gain

5. Obesogenic refers to environments that promote increased food intake, unhealthful foods, and physical inactivity.
   a. Toxic Food Environment
      i. There are more calories per capita than ever before.
      ii. Eating out is increasingly common.
      iii. Misleading food labels.
      iv. Bigger fast food items.
      v. Portion sizes are exploding.
vi. Advertising of healthy food and eating campaigns are dwarfed by the food industry.

b. **Toxic Physical Environment**
   i. Time spent in front of a television or computer screen is on the rise.
   ii. Non-motorised travel to work and school is declining.
   iii. Jobs are more sedentary, leading to a less active work force.
   iv. Technology has more sedentary influences.

6. Understanding And Assessing Body Weight
   a. **Weight** can be a deceptive indicator. More accurate measure of evaluating healthy weight and disease focus on a person's percentage of body fat and how that fat is distributed in his or her body.
   b. **Body Mass Index Measures**
      i. **Underweight**: Being a male with 3-7 percent body fat or a female with about 8-15 percent body fat.
      ii. **Healthy Weight**: Defined as having a BMI of 18.5 to 24.9, the range of statistically lowest health risk.
      iii. **Overweight**: Increased body weight due to excess fat that exceeds healthy recommendations. A BMI of 25 to 29.9; potentially significant health risks.
      iv. **Obesity**: Refers to body weight that greatly exceeds health recommendations. A BMI of 30 or more.
      v. **Morbidly Obese**: People who are 100 percent or more above their ideal weight. A BMI of 40 to 49.9. Nearly three percent of obese men and almost seven percent of obese women are morbidly obese.
      vi. **Overly Obese**: Having a BMI of 50 or higher.
   c. **Measures Of Body Fat**
      i. **Underwater (Hydrostatic) Weighing**: Measures the amount of water a person displaces when completely submerged. Fat tissue is less dense than muscle or bone, so body fat can be computed within a 2-3% margin of error by comparing weight underwater and out of water.
      ii. **Skinfolds**: Involves “pinching” a person’s fold of skin (with its underlying layer of fat) at various locations of the body. The fold is measured using a specially designed caliper. When performed by a skilled technician, it can estimate body fat with an error of 3-4%.
      iii. **Bioelectrical Impedance Analysis (BIA)**: Involves sending a very low level of electrical current through a person’s body. As lean body mass is made up of mostly water, the rate at which the electricity is conducted gives an indication of a person’s lean body mass and body fat. Under the best circumstances, BIA can estimate body fat with an error of 3-4%.
      iv. **Dual-Energy X-Ray Absorptiometry (DXA)**: The technology is based on using very-low-level X-ray to differentiate between bone tissue, soft (or lean) tissue, and fat (or adipose) tissue. The margin of error for predicting body fat is 2-4%.
v. **Bod Pod**: Uses air displacement to measure body composition. This machine is a large, egg-shaped chamber made from fiberglass. The person being measured sits in the machine wearing a swimsuit. The door is closed and the machine measures how much air is displaced. That value is used to calculate body fat, with a 2-3% margin of error.

d. **Waist Circumference And Ratio Measurements**
   i. Waistlines larger than 40 inches (men) or 35 inches (women) may indicate greater health risk.
   ii. Waist-to-hip ratio measures greater than 1 in men and 0.8 in women indicate increased health risks.

7. **Balancing Calories And Energy Intake**
   a. To reach and maintain a weight at which you will be healthy and feel your best, develop a program of exercise and healthy eating that you can maintain.
   b. Number of calories spent depends on the number and proportion of muscles used, the amount of weight used, and the length and time the activity takes.
   c. People who want to gain weight need to consume additional kilocalories through energy-dense food to take in more energy than they expend.

8. **How Fat Cells Grow**
   a. Average Adult has 25-35 billion fat cells, moderately obese can have more.
   b. Growth of fat cells (adipocytes) occur in two ways.
      i. Can expand to store more fat (**hypertrophy**).
      ii. Once filled to capacity, stimulate the production of more fat cells (**hyperplasia**).
      iii. Weight loss leads to shrinking the size of adipocytes, but no change in the number of cells.
   c. Hyperplasia slows with age, but growth and production of fat cells continues throughout life.

**Body Image**

1. Negative feelings about one's body can contribute to behaviors that can threaten your health—and your life. A healthy **body image** can contribute to reduced stress, and increased sense of personal empowerment, and more joyful living.
   a. Factors influencing body image include celebrity photos, social media, and interactions with others such as family and peers.
   
   b. **Body Image Disorders**
      i. **Body Dysmorphic Disorder** (BDD)
         1. Persons with BDD are obsessively concerned with their appearance and have a distorted view of their own body shape, body size, and so on. Although the precise cause of BDD isn’t known, and anxiety disorder such as obsessive-compulsive disorder is often present. Contributing factors may include genetic susceptibility, childhood teasing, physical or sexual abuse, low self-esteem, and rigid sociocultural expectations of beauty.
      
      ii. **Social Physique Anxiety**
          1. The desire to “look good” is so strong that it has a destructive effect on one’s ability to function effectively in interactions with
others. People suffering from SPA may spend a disproportionate amount of time fixating on their own bodies, working out, and performing tasks that are ego centered and self-directed. Experts speculate that this anxiety may contribute to disordered eating behaviors.

2. **Components Of Body Image**
   a. How you see yourself in your mind
   b. What you believe about your appearance
   c. How you feel about your body
   d. How you sense and control your body as you move

3. **Eating Disorders**: Any of a range of psychological disorders characterized by abnormal or disturbed eating habits (such as anorexia nervosa).
   a. **Other Specified Feeding or Eating Disorder**: The American Psychiatric Association (APA) has defined several eating disorders: *anorexia nervosa, bulimia nervosa, binge-eating disorder*, and a cluster of conditions referred to as other specified feeding or eating disorder (OSFED).
   b. **Anorexia Nervosa**: This is a persistent, chronic eating disorder characterised by deliberate food restriction and severe, life-threatening weight loss. It involves self-starvation motivated by an intense fear of gaining weight along with an extremely distorted body image. Initially, most people with anorexia nervosa lose weight by reducing total food intake, particularly of high-calorie foods. Eventually, they progress to restricting their intake of almost all foods. The little they do eat, they may purge through vomiting or use of laxatives. Although they look weight, people with anorexia nervosa never seem to feel thin enough.
   c. **Bulimia Nervosa**: People with bulimia nervosa often binge on huge amounts of food and then engage in some kind of purging or “compensatory behavior”, such as vomiting, taking laxatives, or exercising excessively, to lose the calories they have just consumed. People with bulimia are obsessed with their bodies, weight gain, and appearance, although their problem is often “hidden” from the public eye because their weight may fall within a normal range or they may be overweight.
   d. **Binge-Eating Disorder**: Individuals with this disorder gorge, but do not take excessive measures to lose the weight they gain; they are often clinically obese. As in bulimia, binge-eating episodes are characterised by eating large amount of food rapidly, even when not feeling hungry, and feeling guilty or depressed after overeating.

4. **Exercise Disorders**
   a. **Compulsive Exercise**: Also known as *anorexia athletica*, this is characterised not by a desire to exercise, but a compulsion to do so, with guilt and anxiety if the person doesn’t work out. This can contribute to injuries to joints and bones. It can also put significant stress on the heart, especially if combined with disordered eating. Psychologically, people who engage in compulsive exercise are often plagued by anxiety and/or depression.
   b. **Muscle Dysmorphia**: This appears to be a relatively new form of body image disturbance and exercise disorder in which a man believes that his body is
insufficiently lean or muscular, Men with muscle dysmorphia believe that they look “puny”, when in reality they look normal or may even be unusually muscular. Behaviors characterising muscle dysmorphia include comparing oneself unfavorably to others, checking one’s appearance in the mirror, and camouflaging one’s appearance. Men with muscle dysmorphia are also likely to abuse anabolic steroids and dietary supplements.

c. **Female Athlete Triad**: This is a cluster of three interrelated health problems that occur when a female athlete over exercises and/or under eats. This is characterised by menstrual dysfunction, low bone density, and low energy availability.