The Problem

Food consumption in America is largely a matter of choice. However, our food choices are influenced by many factors including taste, texture, money, time, family, cultural heritage, social pressures, or even stress levels. Ultimately, the type and volume of food we consume is determined by our learned behaviors or habits. Today, America is faced with several fundamental nutritional problems:

1. The daily calorie intake for the average American is too high, and exceedingly hooked on refined carbohydrates.
2. Our food supply has become heavily dependent upon mechanically processed food items, increasing calories, reducing nutritional value, and putting the health of American's at risk.
3. Hectic, stress-filled lives have lead to poor food choices.
4. Nutrition and Health Illiteracy has become widespread, reducing the decision-making skills for most Americans.
5. Food choices in America are largely influenced by major corporations which focus on profit and loss, not consumer health.
6. Government subsidies have resulted in low cost, calorie-dense, nutritionally poor foods, which are widely available.
7. Meal planning and preparation, food shopping, and label reading take time, money, and effort.

Know the Terms:

1. **Amino Acids**: The building blocks of proteins; organic compounds that combines to form proteins.
2. **Antioxidant**: Substance which can prevent or slow the oxidative damage to body cells caused by free radicals; acting as free radical scavengers, they help prevent and repair damage.
3. **Appetite**: The desire to eat food, felt as hunger.
4. **Aspartame**: Artificial sweetener sold under the brand names NutraSweet® and Equal®; composed mainly of 2 amino acids, aspartic acid and phenylalanine.
5. **Calorie**: Unit of heat or energy.
6. **Carbohydrates**: Essential nutrient that supplies the body with glucose; referred to as simple or complex, depending on their chemical structure.
7. **Carotenoids**: Colorful plant pigments containing high levels of antioxidants.
8. **Complete Proteins**: Proteins that contain all nine essential amino acids.
9. **Complex Carbohydrates**: Carbohydrates having three or more linked sugars; provides a more sustainable source of energy than simple carbohydrates.
10. **Daily Values (DVs)**: Dietary reference on food labels; developed by the U.S. Food and Drug Administration (FDA) to help consumers determine the level of various nutrients in a standard serving of food in relation to their approximate requirement for it.
11. **Fat**: Referred to as a lipid, a basic nutrient composed of carbon and hydrogen atoms; classified as either saturated or unsaturated.
12. **Fiber**: Indigestible portion of plants; helps move food through the digestive system; naturally softens stool by absorbing water.
13. **Glycogen**: A polysaccharide that is the principal storage form of glucose.
14. **Hunger**: Sensation experienced when one feels the physiological need to eat food.
15. **Macronutrients**: Nutrients that the body uses in large amounts, carbohydrates, fats, and proteins.
16. **Micronutrients**: Nutrients that the body requires in smaller amounts, such as vitamins and minerals.
17. **Minerals**: Inorganic elements essential for physiological processes.
18. **Monounsaturated Fat**: Fat having one double-bonded (unsaturated) carbon in the molecule; most commonly derived from plant source; liquid at room temperature. Example: Olive oil.
19. **Organic**: Foods produced without the use of pesticides, chemicals, hormones, or genetically modified organisms.
20. **Polyunsaturated Fat**: Fat having more than one double-bonded (unsaturated) carbon in the molecule; most commonly derived from plants and fish; liquid at room temperature.
21. **Proteins**: A primary component or building-block in nearly all body cells; builds, maintains, repairs, and replaces tissues of the body.
22. **Recommended Dietary Allowances (RDAs)**: The average daily level of intake sufficient to meet the nutrient requirements of nearly all (97%-98%) healthy people.
23. **Saturated Fats**: Derived mostly from animal sources, has a chemical makeup in which the carbon atoms are saturated with hydrogen atoms; solid at room temperature.
24. **Simple Carbohydrates**: Referred to as simple sugars, they have one (single) or two (double) sugars and are quickly broken down and absorbed.
25. **Trans Fats**: Also referred to as trans fatty acids, created in food processing when adding hydrogen to liquid oils (vegetable) to make them more solid at room temperature.
26. **Triglycerides**: Derived from glycerol and three fatty acids it is the most common form of lipid in the body; unused calories are converted to triglycerides and stored as body fat. Blood triglycerides are an important measure of heart health.
27. **Vitamins**: Organic compounds that promote growth, development, and maintain health; must be taken in from outside sources such as diet.

**Nutrition: Basic Training:**

1. **The Basics Defined**:
   - **Nutrient**:
     - A substance that provides nourishment for growth or metabolism.
   - **Essential Nutrients**:
     - Nutrients required for normal body function that cannot be synthesized by human cells and must be obtained from diet.
     - Essential nutrients include carbohydrates, fats, proteins, vitamins, minerals, and water.
   - **Nutrition**:
     - The science or study of food elements and human physiology.
     - The process by which the body takes in and uses nutrients.
   - **Hunger (the need for food)**:
     - The body's physiological response to a lack (or shortage) of basic foods needed to provide the energy and nutrients that support health.
     - An instinctive response
   - **Appetite (the desire for food)**:
     - The psychological desire to eat that may or may not have anything to do with hunger.
     - A learned and/or conditioned response.
   - **Daily Value (DV)**:
     - The Percent Daily Value on the Nutrition Facts label is a guide to the nutrients in one serving of food.
     - The Daily Values are established by the U.S. Food and Drug Administration.
     - DV is used in food labeling as a reference point to help people get a perspective of what their overall daily dietary needs should be.
     - Daily Values are based on a 2000 calorie intake for adults and children 4 years and older.
     - Depending on your personal calorie needs, your daily values may be higher or lower.
   - **Calorie**:
     - A unit of energy supplied by food.
     - 1 calorie = the amount of energy it takes to raise the temperature of 1 gram of water 1 degree Celsius.
     - Food types and the number of Calories per gram:
       - Carbohydrate contains 4 Calories per gram.
       - Fat contains 9 Calories per gram.
       - Protein contains 4 Calories per gram.
- Alcohol contains 7 Calories per gram (*alcohol, is not a macronutrient, as it has no nutritional value and is not needed for survival*)

- Empty Calories:
- Foods containing calories but no nutritional value, such as vitamins, dietary minerals, antioxidants, amino acids, or dietary fiber, are referred to as empty calories.
- Possible examples may include, soft drinks, candy, cookies, donuts, ice cream, margarine, deep-fried fatty foods., etc.

- Macronutrient:
  - *Macro* meaning large, dietary nutrients that provide calories or energy, and are needed in large amounts
  - Include Carbohydrates, Fats, and Proteins

- Micronutrient:
  - *Micro* meaning small; nutrients that are needed in smaller amounts such as vitamins and minerals.

- Phytonutrients:
  - *Phyto* is a Greek word meaning plant; phytonutrients are organic components in plants that are thought to promote human health, including:
    - Carotenoids
    - Flavonoids (Polyphenols), including Isoflavones (Phytoestrogens)
    - Inositol Phosphates (Phytates)
    - Lignans (Phytoestrogens)
    - Isothiocyanates and Indoles
    - Phenols and Cyclic Compounds
    - Saponins
    - Sulfides and Thiols
    - Terpenes

2. Essential Nutrients:
   - Carbohydrates:
     - The primary function of carbohydrates is to provide energy for the body, especially the brain and the nervous system.
     - An enzyme called amylase helps break down carbohydrates into glucose (blood sugar), which is used for energy by the body.
     - Your body can use glucose immediately or store it in your liver and muscles for when it is needed.
     - Carbohydrates are classified as simple or complex.
     - The classification depends on the chemical structure of the food, and how quickly the sugar is digested and absorbed.
     - Simple carbohydrates have one (single) or two (double) sugars. Complex carbohydrates have three or more sugars.
   - Simple Carbohydrates:
     - Also called simple sugars, they are made of just one (monosaccharide) or two (disaccharide) sugar molecules.
     - They are the quickest source of energy, as they are very rapidly digested.
       - Most foods high in simple carbohydrates contain few nutrients other than calories, and commonly lack fiber, causing sugar to pass into the bloodstream quickly.
     - Examples of single (monosaccharide) sugars from food include:
       - Fructose (found in fruits)
       - Galactose (found in milk products)
     - Examples of double (disaccharide) sugars from food include:
       - Lactose (found in dairy)
       - Maltose (found in certain vegetables and in beer)
       - Sucrose (table sugar)
       - Honey (unlike table sugar, it contains a small amount of vitamins and minerals)
       - Note: Honey should not be given to children younger than 1 year because of the risk of infant botulism.
o **Complex Carbohydrates:**
  - Also referred to as *starches or good carbs*.
  - A complex carbohydrate is a chemical structure consisting of three or more sugars which are usually linked together to form a chain. Two types of complex carbohydrates include:
    - Oligosaccharide, a carbohydrate that contains a small number of component sugars, and
    - Polysaccharide, a carbohydrate that contains a large number of component sugars
  - They digest slowly, keeping blood sugar more stable than do simple carbohydrates.
  - They are often rich in fiber, are more satisfying (filling), and more health promoting.
  - Complex carbohydrates are commonly found in whole plant foods which contain high levels of vitamins and minerals.

o **Fiber:**
  - Also referred to as *bulk or roughage*, fiber is the indigestible portion of plant food that:
    - Helps move food through the digestive system,
    - Delays absorption of cholesterol and other nutrients.
    - Softens stools by absorbing water.

o **Fats:**
  - Dietary fats belong to a group of substances called lipids.
  - The fat in foods and the adipose tissue on our bodies serve many important functions.
    - **In food, fat serves the following roles:**
      - Nutrient: Fat supplies essential fatty acids, which are needed for normal growth of infants and children and for production of hormone-like compounds (called eicosanoids) that regulate a wide range of body functions and keep you healthy.
      - Transport: Fat carries fat-soluble vitamins (A, D, E, and K) and assists in their absorption.
      - Sensory: Fat contributes to the smell and taste of food.
      - Texture: Fat helps make foods tender (especially meats and baked goods).
      - Satiety: Fat gives food satiety, so you feel full and satisfied longer after a meal.
      - Concentrated source of Calories: This is good if you are traveling long distances, expending a lot of energy, and carrying your own food (i.e. hiking, backpacking, hunting). It’s also good for people with high Calorie needs who are trying to gain lean body mass.
    - **In the body, fat serves the following roles:**
      - Fats are the body’s main form of stored energy (important in times of illness and diminished food intake).
      - Fats provide most of the energy to fuel muscular work.
      - Fat pads internal organs and insulates our bodies against temperature extremes.
      - Fats form the major material of cell membranes (especially brain and nerve cells).
      - Fats are converted to many important hormones (including sex hormones)
  - There are two general categories of fats based on their chemical structure; each of the two categories have very different effects on your health:
    - **Saturated Fats:**
      - Saturated fats are generally associated with poor health.
      - They are associated with the increase of “bad” cholesterol in your blood and increase your risk of heart disease.
        - Cholesterol is found only in foods of animal origin.
- Saturated fats are generally solid at room temperature, and are most concentrated in animal sources of fat (including butter, cream, beef fat, chicken skin, whole fat milk, cheese, and ice cream).
  
  - Exceptions: Tropical oils (including coconut, palm, and palm kernel oil) are very high in saturated fats.

- **Unsaturated Fats:**
  - Unsaturated fats are generally associated with good health.
  - They tend to lower blood cholesterol levels and decrease your risk of heart disease.
  - Unsaturated fats are generally liquid at room temperature, and are most concentrated in plant sources of fat (including vegetable oils, olives, avocados, nuts, and peanut butter).
    - Exception: See Trans Fatty Acids and Hydrogenated Fats below
  - There are two general subdivisions of unsaturated fats:
    - **Monounsaturated fats** are generally regarded as the most heart healthy.
      - Good food sources include olive and canola oils, most nuts, peanut butter, avocados, and olives.
      - For optimal health, most of the fat in your diet should come from these sources.
    - **Polyunsaturated fats** include the omega 6 and omega 3 families of fat.
      - Much of the unsaturated fat in the typical American diet is from the omega 6 family (since most food products use corn, soybean, safflower, and sunflower oils).
      - For optimal health, however, we should try to include more omega 3 fats in our diet.
      - The best food source of omega 3 fat is fatty fish (like salmon and mackerel). Smaller amounts can also be found in plant foods like walnuts, flaxseeds, soy, and canola oils.
    - While unsaturated fats are generally good for your heart health, they have the same number of calories as saturated fat. Thus, keep portion sizes small, and use them in place of saturated and trans fats.

- **Fats in Processed-Foods:**
  - Trans Fatty Acids:
    - These fats form when vegetable oil hardens (a process called hydrogenation) and can raise LDL levels.
    - They can also lower HDL levels ("good cholesterol").
    - Trans fatty acids are found in fried foods, commercial baked goods (donuts, cookies, crackers), processed foods, and margarines.
  - Hydrogenated, or Partially Hydrogenated Oils:
    - Refers to oils that have been hardened through a process of forcing hydrogen gas into the oil at high pressure and temperature. allowing the liquid oil to stay solid at room temperature.
    - Examples include butter and margarine.
    - Hydrogenated oils should be avoided because they contain high levels of trans fatty acids, which are linked to heart disease. (Look at the ingredients in the food label).
    - Partially hydrogenated means the oils are only partly hardened, but include the same health hazards.

- **Protein:**
  - Basic components of all body cells.
  - Essential for building and repairing tissue, regulating body functions, and providing energy and heat
  - Proteins are made up of 22 building blocks called amino acids.
    - **Complete proteins:**
      - Contain 9 of the amino acids that are essential to life.
- An essential amino acid is an amino acid that cannot be synthesized by humans, and therefore must be supplied in the diet.
- Found in meats, fish, milk, cheeses, eggs.
- Complete proteins can also be obtained through certain plants, such as soy, spirulina, hemp seed, amaranth, buckwheat, and quinoa.

- **Incomplete proteins:**
  - Contain any of the remaining thirteen amino acids and some of the nine essential amino acids.
  - Found in vegetable foods such as cereals, soybeans, dry beans, peas, and peanuts.

- **Vitamins:**
  - Organic (living) compounds that are essential to life
  - Vitamins are important for metabolism, tissue building, and regulating body processes
  - Vitamins allow the body to use the energy provided by carbohydrates, fats and proteins
  - Only small amounts of vitamins are required.
    - A well balanced diet usually supplies adequate amounts, however, most students do not consume a well-balanced diet.
  - Vitamins are classified as one of two types:
    - Water soluble: dissolve in water, are easily destroyed by cooking, air and light (vitamin C and B complex)
    - Fat soluble: dissolve in fat, can be stored in the body, are not easily destroyed by cooking, air and light, (Vitamins A,D,E,K)
  - Toxicity: Fat-soluble vitamins can be stored by the body in the liver and fatty tissues; excessive concentrations (mega doses) can be toxic and harmful to the body.

- **Minerals:**
  - Minerals are inorganic (non-living) elements found in all body cells.
  - Minerals regulate body fluids, assist in various body functions, contribute to growth, and aid in building tissues.
  - Without minerals, vitamins could not be absorbed.
  - Macrominerals are needed by the body in large amounts, such as calcium and sodium.
    - Sodium is necessary for the regulation of blood and body fluids, transmission of nerve impulses, heart activity, and certain metabolic functions.
      - Most Americans consume an excess of sodium.
      - Some suggest a link between sodium intake and hypertension.
    - Calcium plays a vital role in building strong bones and teeth.
      - Most Americans do not consume enough calcium in their diets.
      - Calcium is available in dairy products or calcium-fortified products such as orange juice fortified with calcium; some vegetables contain calcium.
  - Trace minerals are needed by the body in only very small amounts, such as iron and zinc.
    - Iron deficiency can lead to anemia, which is the most common nutrient deficiency in the world.

- **Water:**
  - Humans can survive much longer without food than without water; dehydration (abnormal depletion of body fluids), can cause serious problems in a matter of hours.
  - Water is found in all body tissues; between 50 and 60 percent of our total body weight is water.
  - Water essential for the digestion (breakdown) of food, makes up most of the blood plasma, helps body tissues absorb nutrients, and helps move waste material through the body.
  - The average person needs 6 to 8 glasses of water each day.

3. **Nutritional Buzz Words:**
   - **Antioxidants:**
     - Antioxidants came to public attention in the 1990s, when scientists began to understand that free radical damage was involved in the early stages of heart disease, and may contribute to cancer, vision loss, and a host of other chronic conditions.
     - Antioxidants are substances or nutrients in food which can prevent or slow the oxidative damage to our body.
When the body cells use oxygen, they naturally produce free radicals (by-products) which can cause damage.

- Antioxidants act as "free radical scavengers" and hence prevent and repair damage done by these free radicals.
- Health problems such as heart disease, macular degeneration, diabetes, cancer are all contributed by oxidative damage.
- Antioxidants may also enhance immune defense and therefore lower the risk of cancer and infection.
- For more information on antioxidants click here.

### Organic:
- Defined:
  - Food that is grown or produced without the use of pesticides, synthetic fertilizers, sewage sludge, genetically modified organisms, or ionizing radiation. Animals that produce meat, poultry, eggs, and dairy products do not take antibiotics or growth hormones. (USDA)
- **Identifying a Product as Organic:**
  - The USDA has identified for three categories of labeling organic products:
    1. **100% Organic**: Made with 100% organic ingredients.
    2. **Organic**: Made with at least 95% organic ingredients.
    3. **Made With Organic Ingredients**: Made with a minimum of 70% organic ingredients with strict restrictions on the remaining 30% including no GMOs (genetically modified organisms)
  - Products with less than 70% organic ingredients may list organically produced ingredients on the side panel of the package, but may not make any organic claims on the front of the package.

### Digesting Food:
- Digestion is the process that breaks down food we eat into forms that can be taken up by the body.
  - Digestion begins in the mouth. Saliva in the mouth contains enzymes, which help to break down the food, and chewing breaks food down into small pieces, exposing more food surface to digestive action.
  - The tongue helps to move the food from the mouth to the esophagus (the tube that connects the mouth to the stomach).
  - The food then enters the stomach, where it is broken down further by digestive acids and enzymes. A meal usually leaves the stomach within two to three hours after it has been eaten.
  - Once it leaves the stomach, the food moves into the small intestine, where muscular contractions mix the food further.
  - Food remains in the small intestine from three to ten hours. Most of the absorption of nutrients into the bloodstream occurs during this time.
  - The undigested material from the small intestines moves into the large intestine, where it waits to be eliminated some 24 to 72 hours later through the rectum.

### Dietary Recommendations, **Comparing Plates**:
- **MyPlate the USDA**:
  - Part of the 2010 Dietary Guidelines for Americans MyPlate was introduced in 2011, replacing the traditional Food Pyramid.
  - The USDA MyPlate illustrates the five recommended food groups, including Vegetables, Grains, Fruits, Protein, and Dairy (making half of your plate fruits and vegetables, and at least half of your grains whole grains).
- **Healthy Eating Plate**:
  - Presented by the the Harvard School of Public Health
  - The Healthy Eating Plate is based exclusively on the best available science and was not subjected to political and commercial pressures from food industry lobbyists.

### Processed Foods:
- According to industry estimates, nearly 90 percent of our household food budgets in America are spent on processed foods; the majority of which are filled with additives and stripped of their original nutrients.
The U.S. Food and Drug Administration (FDA) defines processed food as any raw agricultural commodity that has been subject to processing, such as canning, cooking, freezing, dehydration, or milling. And any time something is added to a food item, it’s considered a processed food.

Almost everything we buy in the grocery store falls into this category.

As students, time and money are scarce commodities. However, take time to read labels closely when you buy premade, prepackaged, or canned foods.

- Words to look for on the ingredients list are outlined below; this list includes several chemical or genetically modified additives that you should try to avoid!
- A simple rule to follow when reviewing product ingredients, “if you cannot pronounce it, don’t eat it!”
- It is worth your while, and your health, to opt for fresh whole foods that look like they did when they were harvested!

**Food Additives to Avoid:**

- **Trans Fats:**
  - Research now reveals trans fats are twice as dangerous for your heart as saturated fat, and cause an estimated 30,000 to 100,000 premature heart disease deaths each year.
  - Manufacturers are required to label trans fats amounts, but restaurant food, especially fast food chains, still serve foods laden with trans fats.
  - Experts recommend we consume no more than two grams of trans fat per day, an amount easily accounted for if you eat processed meats and dairy.

- **High Fructose Corn Syrup:**
  - HFCS and other manipulated fructose sugars can undermine your metabolism, leading to Weight Gain, High Triglyceride Levels (blood fats), Type 2 Diabetes, Hypertension and Obesity.
  - Research continues to show that overconsumption of these altered sugars is a growing health hazard; at the same time food manufacturers make it increasingly hard to avoid them!
  - Thus when you have the choice, go for whole, unsweetened beverages and foods and give your sweet tooth a break.

- **Aspartame:**
  - This sugar substitute is also known commercially as Equal and NutraSweet.
  - Many people have reported dizziness, headaches, epileptic-like seizures, and menstrual problems after ingesting aspartame.
  - One out of 20,000 babies is born without the ability to metabolize phenylalanine, one of the two amino acids in aspartame.

- **Acesulfame K:**
  - Known commercially as Sunette or Sweet One, Acesulfame is a sugar substitute sold in packet or tablet form, in chewing gum, dry mixes for beverages, instant coffee and tea, gelatin desserts, puddings, non-dairy creamers and diet beverages.
  - Tests show that the additive causes cancer in animals, which means it may increase cancer in humans.

- **Sodium Nitrite:**
  - Used to preserve, color, and flavor meat products.
  - Sodium nitrite is commonly added to bacon, ham, hot dogs, luncheon meats, smoked fish, and corned beef to stabilize the red color and add flavor.
  - The preservative prevents growth of bacteria, but studies have linked eating it to various types of cancer.
  - Under certain high-temperature cooking conditions such as grilling or frying, it transforms into a reactive compound that has been shown to promote cancer.

- **BHA AND BHT:**
- Butylated Hydroxyanisole (BHA) and Butylated Hydroxytoluene (BHT) are additional additives to red flag.
- Both keep fats and oils from going rancid and are found in cereals, chewing gum, potato chips, processed meats, and vegetable oils.
- The International Agency for Research on Cancer says BHA and BHT are possibly carcinogenic to humans.
- BHA also interacts with nitrates to form chemicals known to cause changes in the DNA of cells.

- **Monosodium Glutamate (MSG):**
  - MSG is an amino acid used as a flavor enhancer in soups, salad dressings, chips, frozen entrees, and restaurant food.
  - Too much MSG can lead to headaches, tightness in the chest, and a burning sensation in the forearms or neck.
  - Also, avoid hydrolyzed vegetable protein, or HVP, which may contain MSG.

- **Artificial-Chemical Food Coloring:**
  - Blue 1 and 2: Used in beverages, candy, baked goods and some pet food, it has been linked to cancer in mice.
  - Red 3: Used to dye cherries, fruit cocktail, candy and baked goods, causes thyroid tumors in rats.
  - Green 3: Used in candy and beverages, has been linked to bladder cancer.
  - Yellow 6: Used in beverages, sausage, gelatin, baked goods, and candy, causes tumors of the adrenal gland and kidneys.

- **Propyl Gallate:**
  - Propyl Gallate is a chemical preservative found in some vegetable oils, meat products, potato sticks, chicken soup base, and chewing gum. It is used to retard the spoilage of fats and oils and is often used with BHA and BHT, because of the synergistic effects these preservatives have.
  - The best studies on rats and mice suggested that this preservative might cause cancer.

- **Olestra:**
  - A synthetic fat marketed under the name "Olean", Olestra prevents fat from being absorbed by your digestive system.
  - It also prevents valuable Fat-Soluble Vitamins (A,D,E & K) and Carotenoids from being absorbed by the body as well.
  - In addition, it often leads to severe diarrhea, abdominal cramps, and gas.

- **Potassium Bromate:**
  - Potassium Bromate is used as both a bleaching agent and as an additive to increase the volume in white flour; it is found in breads, rolls, and pizza dough.
  - Most bromate rapidly breaks down to an innocuous form, but it is known to cause cancer in animals, and even small amounts in bread can create a risk for humans.
  - California requires a cancer warning on the product label if potassium bromate is an ingredient.

- **Sodium Chloride:**
  - Sodium Chloride, more commonly known as table salt is another hidden food additive found in many processed foods that can lead to significant health issues.
  - Refined, table salt is 99.9% sodium chloride.
  - During the refining process, naturally occurring minerals and trace elements are stripped away, then it's blasted with high heat, bleached and chemicals like aluminum and anti-caking agents are added to it.
  - Too much processed table salt intake burdens the kidneys and adrenal glands, depletes calcium and interferes with the absorption of essential nutrients.
  - It also has been linked with high blood pressure, heart attack, stroke.
Low-sodium salt is even more toxic than table salt. More chemicals are added to the mix, in order to remove the sodium and stimulate the synthetic taste of salt.

7. Food Portions:
- Food portions in America have significantly increased in size over the past several decades. In addition, new research shows that our perception of "normal portion size" has also changed over the past 20 years; meaning as consumers we perceive larger portion sizes as appropriate amounts to eat for each meal. Consider the following examples:
  - The average dinner plate is 7 inches larger than it was forty years ago.
  - The average calorie level for a burger, fries, and soda was 590 calories in 1957, compared to 1550 calories today.
  - The average cookie twenty years ago was 1.5 inches in diameter containing 55 calories; today it is 3.5 inches containing 375 calories.
  - A turkey sandwich of twenty years ago had 320 calories, compared to the 820 calories of today.
  - A Caesar salad twenty years ago was 390 calories, compared to 790 calories for today's salad.

8. Vegetarianism:
- A vegetarian diet is a meal plan that contains mostly plants, such as vegetables, fruits, whole grains, legumes, seeds, and nuts, with little or no animal products.
- Types of vegetarian diets include:
  - Vegan: Diet consists of only plant-based foods, avoiding all animal foods or products.
  - Lacto-Vegetarian: Diet consists of plant foods plus some or all dairy products, but no flesh foods such as meat or eggs.
  - Lacto-Ovo-Vegetarian: Diet consists of plant foods, dairy products, and eggs.
  - Semi or Partial Vegetarian: Diet consists of plant foods and may include chicken or fish, dairy products, and eggs. It does not include red meat.

Talk’n Stats:
- The USDA says the average person in the U.S. eats 4.7 pounds of food per day.
- Fast Food Numbers from the Palo Alto Medical Foundation:
  - According to this Google map, there are close to 50,000 fast food chains across the United States, with McDonalds being the largest restaurant chain.
  - In the world, there are more than 500,000 fast food restaurants.
  - Kids between the ages of 6 and 14 eat fast food 157,000,000 times every month.
  - Ninety-six percent of children in school could recognize an image of Ronald McDonald, the face of McDonalds.
    - The only recognizable figure that ranked higher was Santa Claus.
  - Americans spend nearly $100 billion on fast food every year
- CARDIA (research from the Coronary Artery Risk Development in Young Adults) revealed that people who eat fast food two or more times a week experienced an average weight gain of 10 pounds more than study participants who ate fast food less than once a week.
- Preliminary results of the Tufts Longitudinal Health Study of 1,800 college students show:
  - Most students don't gain the much publicized "freshman 15," but
    - College men gained an average of 5.5 pounds their freshman year.
    - College women gained an average 4.5 pounds.
  - 66% of freshmen don't consume the recommended five servings of fruits and vegetables a day.
  - 50% of all students don't get enough fiber (25 grams a day).
  - 60% eat too much artery-clogging saturated fat.
  - 30% of women don't get enough calcium.
  - 59% say they know their diet has gone downhill since they went to college.
- In a recent study carried out by the Swedish Institute for Food and Biotechnology concerning food waste:
  - Consumers in North America and Europe waste about 209 to 253 pounds of food per person every year.
The amount of food each person wastes in the U.S. per year would feed the average person for 44 to 54 days.

In industrialized countries, most waste is at the retail and consumer level; in developing countries most waste is at the postharvest and processing level.

- Food security refers to a household's physical and economic access to sufficient, safe, and nutritious food:
  - In 2010, 48.8 million Americans lived in food insecure households, 32.6 million adults and 16.2 million children.
  - In 2010, 14.5 percent of households (17.2 million households) were food insecure.
  - In 2010, 5.4 percent of households (6.4 million households) experienced very low food security.
  - In 2010, households with children reported food insecurity at a significantly higher rate than those without children, 20.2 percent compared to 11.7 percent.
  - In 2010, households that had higher rates of food insecurity than the national average included households with children (20.2 percent), especially households with children headed by single women (35.1 percent) or single men (25.4 percent), Black non-Hispanic households (25.1 percent) and Hispanic households (26.2 percent).
  - In 2009, 8.0 percent of seniors living alone (925,000 households) were food insecure.

- According to the National Center for Education Statistics:
  - Only half of all elementary school teachers who teach lessons in Nutrition have had formal training to teach about nutrition.
  - Eighty-eight percent of elementary school teachers reported that they taught lessons about nutrition to their students in the 1996-97 school year.

Know Your Numbers:

1. Know Your Food - Ingredients List:
   - The ingredient list must be placed on the same label panel as the name and address of the manufacturer, packer or distributor.
   - The ingredient list on a food label is the listing of each ingredient in descending order of predominance
     - Listing ingredients in descending order of predominance by weight means that the ingredient that weighs the most is listed first, and the ingredient that weighs the least is listed last
     - Example: Tomatoes, Water, High Fructose Corn Syrup
   - The common or usual name for ingredients must be listed.
     - Example: Use the term "sugar" instead of the scientific name "sucrose."
   - When an FDA approved chemical preservative is added to a food, the ingredient list must include both
     - The common or usual name of the preservative.
     - The function of the preservative by including terms, such as "preservative," "to retard spoilage," "a mold inhibitor," "to help protect flavor," or "to promote color retention." Example: Dried Bananas, Sugar, Salt, and Ascorbic Acid to Promote Color Retention
   - Spices and Flavoring may be declared in ingredient lists by using either specific common or usual names or by using the declarations "spices," "flavor" or "natural flavor," or "artificial flavor."
     - Example: Apple Slices, Water, Cane Syrup, Corn Syrup, Modified Corn Starch, Spices, Salt, Natural Flavor and Artificial Flavor.
   - Nutrient Content Claims are claims on food products that directly (or by implication) characterizes the level of a nutrient in the food
     - Example: low fat or high in oat bran.
     - Only foods that have been specially processed, altered, formulated or reformulated to lower the amount of nutrient in the food, remove the nutrient from the food, or not to include the nutrient in the food may bear "Low" or "Free" claim (for example: "low sodium potato chips") – "Fat-free broccoli" is not permitted.
   - The Food Allergen Labeling and Consumer Protection Act of 2004 (FALCPA) requires manufacturers to identify in plain English the presence of any ingredients that contain protein derived
from the 8 major food allergens including egg, fish, peanuts, shellfish, wheat, dairy, soy and tree
nuts.

2. **Know Your Food - Reading a Product Label:**
   - The Nutrition Facts label (below) are divided into Two Main Areas:
     - **Sections 1-5 provide product-specific information:**
       - Serving size, calories, and nutrient information. These vary with each food product.
     - **Section 6 is a Footnote with Daily Values (DVs).**
       - The footnote provides information about the DVs for important nutrients, including fats, sodium and fiber.
       - The DVs are listed for people who eat 2,000 or 2,500 calories each day.
         - The amounts for total fat, saturated fat, cholesterol, and sodium are maximum amounts.
         - That means you should try to stay below the amounts listed.
         - The DVs for total carbohydrate and dietary fiber daily represent the minimum amounts recommended for a 2,000-calorie diet.
         - This means you should consume at least this amount per day for each of these nutrients.
       - The footnote is only found on larger labels, and does not change from product to product.

![Nutrition Facts](image)

- **1 Serving Size**
  - This section is the basis for determining number of calories, amount of each nutrient, and %DV's of a food. Use it to compare a serving size to how much you actually eat. Serving sizes are given in familiar units, such as cups or pieces, followed by the metric amount, e.g., number of grams.

- **2 Amount of Calories**
  - If you want to manage your weight (lose, gain, or maintain), this section is especially helpful. The amount of calories is listed on the left side. The right side shows how many calories in one serving come from fat. In this example, there are 250 calories, 110 of which come from fat. The key is to balance how many calories you eat with how many calories your body uses. Tip: Remember that a product that's fat-free isn't necessarily calorie-free.

- **3 Limit these Nutrients**
  - Eating too much total fat (including saturated fat and trans fat), cholesterol, or sodium may increase your risk of certain chronic diseases, such as heart disease, some cancers, or high blood pressure. The goal is to stay below 100%DV for each of these nutrients per day.

- **4 Get Enough of these Nutrients**
  - Americans often don't get enough dietary fiber, vitamin A, vitamin C, calcium, and iron in their diets. Eating enough of these nutrients may improve your health and help reduce the risk of some diseases and conditions.

- **5 Percent (%) Daily Value**
  - This section tells you whether the nutrients (total fat, sodium, dietary fiber, etc.) in one serving of food contribute a little or a lot to your total daily diet.
  - The %DV's are based on a 2,000-calorie diet. Each listed nutrient is based on 100% of the recommended amounts for that nutrient. For example, 18% for total fat means that one serving furnishes 18% of the total amount of fat that you could eat in a day and stay within public health recommendations. Use the Quick Guide to Percent DV (%DV): %DV or less is low and 20%DV or more is high.

- **6 Footnote with Daily Values (DVs)**
  - The footnote provides information about the DVs for important nutrients, including fats, sodium and fiber. The DVs are listed for people who eat 2,000 or 2,500 calories each day.
  - The amounts for total fat, saturated fat, cholesterol, and sodium are maximum amounts. That means you should try to stay below the amounts listed.
Thoughts for Living:

Your path toward healthy eating and nutrition is a journey. Use the steps below as a road map or plan of attack from the "You Doctors", Dr. Michael Roizen and Dr. Mehmet Oz.

1. **Start by focusing on foods that don’t need a label**, like fresh fruits and vegetables.
   - The concept of whole foods refers to "nothing mechanically removed or altered" from its original form. If they look the same prior to eating them as they did when they come out of the ground, they’re generally good for you.” says Dr. Roizen.

2. **Make Your Eating Plan Automatic**:
   - Over a 14-day period, train yourself to make good food choices (Step 3 makes this easy). You'll reprogram your appetite, so you will be in charge of what you're eating.
     - Eat three main meals, plus snacks, so you're never hungry.
     - Eat the same things for breakfast and lunch almost every day. Yes, every day. People who minimize food choices lose more weight.

3. **Don't Skimp on Taste, Eat Deliciously**:
   - Fill up on whole-grain carbohydrates (that includes vegetables); fiber; nuts; and lean, healthy protein such as fish, poultry, quinoa, and lean meats (sparingly).
   - In a hunger emergency, chew on your favorites from this list: apples, almonds, walnuts, edamame (soybeans), sugar-free gum, chopped veggies, nonfat yogurt or cottage cheese...and water, of course.

4. **Remember That Waist Is More Important Than Weight**:
   - Because of its proximity to vital organs, belly fat is the most dangerous fat you can carry. It is one of the strongest predictors of health risks (heart disease, diabetes, and more bad stuff) associated with obesity.
   - Ditch the scale in favor of the tape measure. Measure your waist and aim small:
     - Ideal is 32 1/2 inches or less for women and 35 inches or less for men.

5. **Stay Satisfied**:
   - To lose weight, you need to eat.
   - Eat often -- five or six times throughout the day -- so you're always satisfied. Slipping into starvation mode makes your body want to store fat and lowers metabolism.
   - Eat plenty of fiber and some protein in the morning: Fiber in the morning helps control afternoon cravings; protein decreases appetite.

6. **Add Support**:
   - Enlist a friend, family member, or new online buddy as your partner. Everyone needs encouragement and an occasional prod.
   - After finishing your 30-minute walk every day, call a buddy for a pat on the back.
   - When you start the 20-minute workout, do the same thing.

7. **Shop for Health**:
   - Make sure the following items are in your grocery cart and kitchen cabinets:
     - **Antioxidants**:
       - Items such as tomatoes, broccoli, kidney beans, blueberries, pomegranates, artichokes, and prunes are packed with antioxidants.
       - Whatever has that deep color like a blueberry, you know it's rich in antioxidants.
       - Try to eat five to seven servings of these foods every day.
     - **Omega-3 Fats**:
       - Increase your intake of omega-3 fats to 3 grams a day. "Remember, 80 percent of our brain is fat," Dr. Oz says. "We need to have the right kinds of fats in our body to make sure our brain is the most resilient to stress and can learn the fastest."
       - Some good sources include ground flaxseeds, walnuts (raw, unroasted), salmon, scallops, soybeans and squash.
     - **Fiber**:
       - Dr. Oz says the average American gets about 12 grams of fiber a day, but he recommends double that amount.
       - Oatmeal (steel-cut oats), 100 percent whole grain bread, lentils, pine nuts, peas and raspberries are all great sources of this nutrient.
• Olive Oil:
  • The last item to add to your shopping list is virgin or extra-virgin olive oil.
  • Ideally, Dr. Oz says you should consume about a tablespoon every day.
  • One nutritious and delicious way to eat olive oil is with tomatoes, made into a pasta sauce. "If you get that into your diet a couple times a week, you’re getting these nutrients naturally."

8. It's Okay to Make Mistakes:
   o As long as you quickly get back on the right road, you won't travel too far down the wrong one.

9. A Few Final Tips:
   o Check food labels.
     • Don't buy anything with more than 4 grams of saturated fat or 4 grams of any sugar (especially high-fructose corn syrup) per serving. Saturated fat cause premature aging and is bad for your whole body, and simple sugars make you crave high-calorie foods.
     • Also Remember...If you can't pronounce it, don't eat it!
     • Get 7 to 8 hours of sleep each night. Fatigue also makes you crave sugary foods. Why? They release the brain chemicals that a lack of sleep leaves you short on.
     • Eat a little healthy fat -- like a handful of walnuts -- about 20 minutes before a meal. It will take the edge off, so you won't be tempted to overeat.
     • Choose elegance over force. Weight-loss battles are won when you eat smart, not power diet!