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The Importance of Healthy Nutrition and Dietary Diversity

Dietary diversity and eating a variety of foods from each food group is crucial for supplying the individual with all the essential nutrients that the body needs, including carbohydrates, proteins, fats, vitamins, minerals and water, so that the body can function properly and generate energy, grow, repair damaged tissue, and regulate the body's biochemical reactions. It is generally recommended to avoid foods and beverages containing large amounts of calories and are high in fat, sugar, or salt to reduce the risk of developing chronic diseases such as obesity, type 2 diabetes, heart disease, osteoporosis, and some types of cancer. It is also important to maintain dietary diversity because relying on one type of food will not be enough to sustain the body's nutritional needs.

The role of proteins in nutrition:

- Building and repairing the vital components of the body, such as bones and muscles
- Maintaining proper pH levels in the blood
- Producing enzymes and hormones
- Protecting the body from diseases and infections
- Regulating body processes to maintain fluid balance (inside and outside the cells)
- Proteins are a secondary energy source that the body relies on in case the diet did not include carbohydrates and fats. However, it is important to note that relying on protein for energy exhausts the kidneys.
- Supplying the body with glucose when there is a deficiency in carbohydrates and blood glucose. The liver and kidneys convert some amino acids into glucose through a process called gluconeogenesis.

The role of carbohydrates in nutrition:

- A primary energy source, and the only source that provides brain cells and red blood cells with energy.
- Preventing constipation. Dietary fibers are carbohydrates that facilitate the movement of the body's digestive waste, and therefore prevent constipation.
- Ridding the body of toxins. Glucuronic acid combines with some drugs and toxins and releases them out of the body.

- Activating some beneficial bacteria. Lactose plays an important role in stimulating the growth of beneficial gut bacteria that is responsible for producing B group vitamins and improving the absorption of iron and calcium.
- Improving the flavor of the food.

The role of fats in nutrition:

- Regulating the movement of fat-soluble compounds through cell membranes in and out of the cell, especially hormones and fat-soluble vitamins (A, D, E and K.).
- Producing important compounds. Cholesterol is a key component in membranes of the body's cells. It can also transform into similar compounds such as vitamin D, bile salts and certain hormones (estrogen and testosterone)

The role of vitamins and minerals in nutrition:

- Regulating vital processes in the body
- Building the body's basic compounds
- Maintaining the health of the body's systems

The role of water in nutrition:

- Maintaining normal body temperature
- It lubricates the joints and acts as a pressure reliever.
- Protecting the spinal cord and other sensitive organs.
- Disposing of wastes by urination, sweat and bowel movement.

Tips for healthy nutrition:

- Chew your food slowly and steadily to enjoy its taste
- Eat breakfast every day to control your hunger and curb your appetite for the rest of the day
- Enjoy eating a meal and avoid getting too full
- Eat small portions of food
- Make your daily food intake as colorful as possible
- Make sure that half the dish consists of vegetables and fruits
- Eat more fruits and vegetables and drink plenty of juice.

- Eat at least five servings of fruits and vegetables daily. Distributed as follows: 2 servings of fruits and 3 servings of vegetables.
- Make sure to choose lean meats cooked with very little amounts of salt and fat
- Eat at least two servings of fish each week especially salmon, sardines, trout and mackerel
- Eat foods containing heme iron (from meat) alternately with foods containing other types of iron (from meat substitutes, such as beans, lentils, tofu, etc.) along with foods rich in vitamin (C), to improve the absorption of non-heme iron (from meat substitutes).
- Drink skimmed or low-fat milk containing 1% or 2% fat, and avoid eating high-fat products because they contain a large amount of fat, particularly saturated fats.
- Drink 500 ml (2 cups) of milk or calcium-fortified soy beverages
- Consuming milk and dairy products is important for maintaining bone health and stimulating their growth during childhood, adolescence, pregnancy and breastfeeding.
- Dairy products are an important source of calcium, proteins, vitamins and minerals
- Make sure to breastfeed your baby.
- It is recommended to read any labels printed on the product including the nutrition facts label before purchasing the product, to determine the portion size, fat (including total fat, saturated fat, trans fat), cholesterol, sodium, as well as total carbs , proteins , calcium , vitamins , iron.
- Drink water regularly, especially in hot weather or during physical activity.
- Avoid sugary drinks and replace them with water whenever possible
- Exercise daily to maintain a healthy weight and improve your health
- Adults should exercise at least half an hour a day at least five times a week, which is equal to around two and a half hours per week (150 minutes). Children and youth should engage in daily physical activities for one hour and avoid sitting in front of TV screens and electronic devices for more than two hours a day.
- Try doing a variety of different physical activities and distribute them throughout the week starting slowly and then increasing the intensity of the physical activity.

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References:

- National dietary guidelines for healthy nutrition in accordance with the national strategy for healthy diets and physical activity
- *Takhtit Al Wajabat Al Ghidhayiya* (Planning meals) Dr. Essam bin Hassan Aweida

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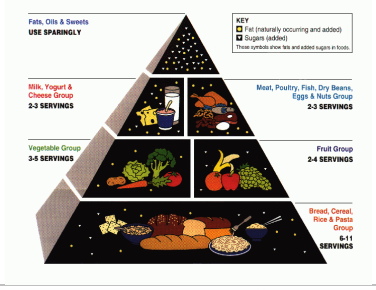
MyPlate: An Alternative to the Food Pyramid

For over 100 years, the U.S. Department of Agriculture (USDA) has provided Americans with different types of food guides and pyramids to encourage healthy food choices. Since 1992, the "Food Pyramid" has been the dominant model. However, there was no clear guidance about serving size, and no guidance on the total number of calories recommended per day. Because of these problems a new pyramid – MyPyramid — was introduced in 2005. However, many consumers criticized it for being too confusing. For this reason, the latest guide named "**MyPlate**" was introduced in 2011, with the aim of providing a simple visual aid that can be easily understood by consumers to promote healthy eating.

The evolution of educational nutrition models

	1992
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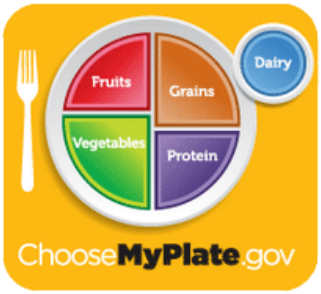	2011

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What is MyPlate?

A plate is divided into four unequal sections to represent different food groups. In addition to a small blue circle on the side of the plate representing the dairy food group.

Fruits and vegetables fill half the plate while proteins and grains fill the other half. One of the most noticeable things about MyPlate is that it replaced the meat section with "proteins" which include; fish, shellfish, eggs, beans, peas, nuts, and seeds in addition to meat. This change makes the guide clearer for individuals who follow a vegetarian die. Another big change is the elimination of the "oils" or "fats" section included in the food pyramid.

This simple model is designed to make it easy for consumers to see what an ideal meal should look like, without too many restrictive details.

MyPlate Food Groups:

1. Grains and Carbohydrates
2. Proteins and their alternatives
3. Fruits
4. Vegetables
5. Dairy Products

Whole grains:

Eat whole grains (brown rice, brown bread) and limit your intake of refined flour (white bread, white rice)

Healthy protein:

Choose fish, beans, nuts, and poultry. Limit your consumption of red meat and avoid processed meat (canned, smoked, etc.).

Vegetables:

Make your daily dish rich in a variety of colorful veggies and dark leafy greens.
Potatoes, corn or pumpkins are not considered part of this group.

Fruits:

Make your daily dish rich in a variety of colorful fruits. Remember that eating fruits is better than drinking their juice. Fruits contain fibers and antioxidants that facilitate the movement of food through the digestive tract. They also reduce cholesterol levels, thus reducing the risk of blood clots and heart attacks, especially red fruits such as red berries,

cherries and strawberries because they contain multiple phenols that help with reducing oxidative stress which therefore reduces the risk of developing oxidative stress related diseases such as cancer.

Dairy:

The body needs the equivalent of two cups of milk or other dairy products on a daily basis (children need about 4 cups) for maintaining healthy bones and skeleton.

References:

- http://www.center4research.org/myplate-new-alternative-food-pyramid/
- https://www.choosemyplate.gov/brief-history-usda-food-guides

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“MyPlate” diagram as found in “Calories guide to weight loss”

The link to the “Calories guide to weight loss”:
https://www.moh.gov.sa/HealthAwareness/MedicalTools/Downloads/SugarGuideMain.pdf

Dietary fats

What are fats?

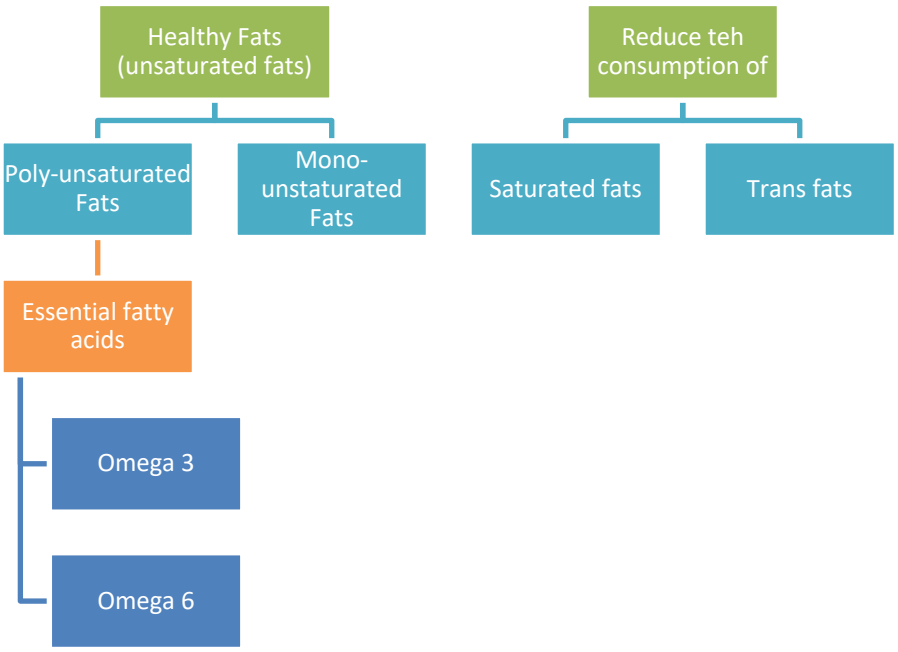
- Nutrients.
- An Energy sources.
- Fats add flavor and texture to the food.
- Fats give the feeling of fullness for a longer period of time.
- Fats help with the absorption of fat-soluble vitamins.

An overview on dietary fats and their types:

- **Trans fats (hydrogenated fats):**

  Trans fats produced by the process of hydrogenation. This process hardens the oils and converts them into solid form to prevent rancidity and increase shelf life. These fats can be found in margarine and butter made with vegetable sources.

  It is one of the worst type of dietary fats and they have no known nutritional benefits and does not have any health benefits. This is why there is no safe level of consumption. Therefore, they have been officially banned in the United States. Eating foods rich in trans fats increases the amount of harmful (LDL) cholesterol in the bloodstream and reduces the amount of beneficial (HDL) cholesterol, which is linked to heart disease, stroke, diabetes, and other chronic diseases. Even small amounts of trans fats can harm health: for every 2% of calories from trans-fat consumed daily, the risk of heart disease rises by 23%.

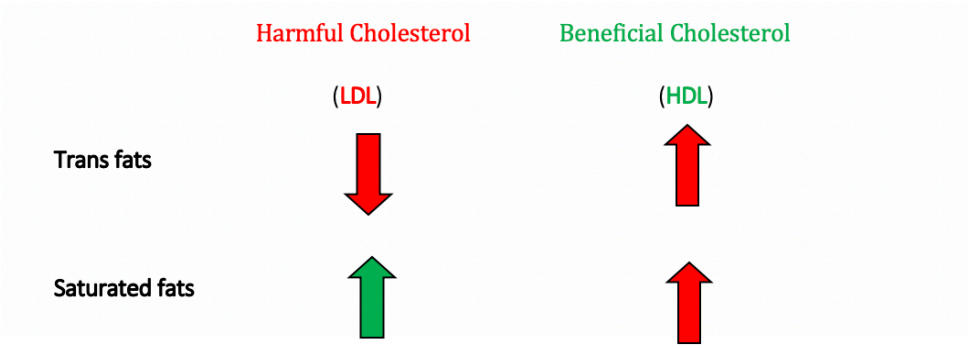


Saturated fats:

Saturated fats are solid at room temperature, and they are commonly found in sources such as red meat, whole milk and other whole-milk dairy products, cheese, and coconut oil. A diet rich in saturated fats can drive up total cholesterol and tip the balance toward more harmful (LDL) cholesterol, which prompts blockages to form in arteries in the heart and elsewhere in the body.

For that reason, most nutrition experts recommend limiting saturated fat to under ١٠% of your daily calorie intake.

The health risks of consuming trans fats are much more dangerous that the risks of consuming saturated fats.



Unsaturated fats:

Unsaturated fats are liquid at room temperature. They are classified into two broad categories: Monounsaturated fats and polyunsaturated fats. They were classified this way based on their chemical composition.

- **Monounsaturated fats:**

  Sources: olive oil, peanut oil, canola oil, and sunflower oils.

- Polyunsaturated fats:

  Polyunsaturated fats are essential fats that are required for normal body functions, but your body can't make them. So, you must get them from food. Polyunsaturated fats are used to build cell membranes and the covering of nerves. They are also needed for blood clotting, and muscle movement. Eating polyunsaturated fats instead of saturated fats reduces harmful (LDL) cholesterol and improves cholesterol levels. It also lowers triglycerides.

They are divided into two types: Omega-3 fatty acids, and Omega-6 fatty acids

Omega-3 fatty acids:

Omega-3 fatty acids may help prevent heart disease and strokes. In addition to reducing blood pressure, raising beneficial (HDL) cholesterol, and lowering triglycerides. Sources: Good sources of omega-3 fatty acids include salmon, mackerel, sardines, flaxseeds, walnuts, canola oil, and unhydrogenated soybean oil.

Omega-6 fatty acids:

Omega-6 fatty acids are liquid at room temperature and are mostly used for cooking and frying. Sources: Foods rich in omega-6 fatty acids include vegetable oils such as safflower, soybean, sunflower, walnut, and corn oils.

Healthy Oils:

Use healthy oils such as olive oil for salads, corn oil or sunflower for cooking and avoid butter and trans fats.

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References:

https://www.goredforwomen.org/live-healthy/good-fat-versus-bad-fat/

https://www.webmd.com/diet/obesity/features/skinny-fat-good-fats-bad-fats#1

https://www.health.harvard.edu/staying-healthy/the-truth-about-fats-bad-and-good

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Nutrition facts label

What is the nutrition facts label?

he Nutrition facts label provides detailed information about a food's nutritional content. These labels must be placed on most packaged foods and beverages, and printed in a clear font on the outside of the product.

Why should you read the nutrition facts label?

The nutrition facts label is aimed at helping consumers make more informed choices, so that they can pick healthy foods and reduce the risk factors that cause some diseases

Product Name:

The first indicator that introduces you to the final product

Nutrition facts list:

The list includes detailed information about a food's nutritional content, such as the amount of fat (including saturated fats, trans fats), cholesterol, carbohydrates (including the total amount of sugar), sodium (salt), as well as proteins, and fibers.

Food additives:

Food additives are substances added to a product to maintain or improve its safety, freshness, taste, texture, or appearance. Food additives improve the product's properties or raise its nutritional value, which may be by adding vitamins and minerals or by enhancing its color and flavor, or by adding preservatives to protect the product while it is being transported or stored.

Preparation and storage instructions:

These are the manufacturer's instructions for preparing the product, such as adding an amount of water to dry ingredients. An example on this are the instructions listed for preparing infant milk formula, as well as the instructions for storing some food products at certain temperatures to prevent it from being damages or spoilt.

Warning statements:

These statements help with preventing the wrongful use of some food products

- Some products may contain certain ingredients that may not be suitable for people with allergies (like gluten), heart disease patients, children, pregnant women, breastfeeding women or athletes while exercising.

  Example: Consuming more than 40 g per day of food products containing sorbitol or xylitol may cause diarrhea.

Food allergens information:

The product will have a "may contain" allergen label if the food product contains some ingredients that may cause allergies such as nuts (like peanuts), eggs, dates, milk, sesame, soybeans or gluten

- As well as all products made from wheat, rye, oats or barley containing gluten.
- Sometimes "vegetable protein" would be mentioned among the ingredients of the food product without mentioning the name of the protein. This protein may be a wheat protein (gluten).

Expiration date:

A previously determined date after which a product should not be used because it no longer maintains all its properties

Daily Value:

The daily values of nutrients needed by the average person who requires 2000 calories per day, but it can be used by everyone. The daily value mentioned in the food label shows how much of a nutrient is in one serving of the food.

Example: If the label lists that the total amount of fat is 12 g (18%), it means that one serving provides 18% of the fat you need each day.

For clarification:

The daily value is considered low if it is 5% or less and is considered high if it is 20% or more

Added Sugars:

Sugars added to food products have several names, such as: Glucose, sucrose, dextrose, maltose, lactose and fructose. Sugar can also be listed the nutrition facts label by using other terms such as: Brown sugar - barley sugar - corn syrup - rice syrup - sugarcane juice - caramel - grape sugar - concentrated fruit juice.

References:

- National dietary guidelines for healthy nutrition in accordance with the national strategy for healthy diets and physical activity
- Calories guide to weight loss, Diet and Physical Activity Strategy
- Nutrition facts label, Saudi Food and Drug Authority https://www.sfda.gov.sa/ar/awareness/Campaigns/pages/Food_leabeling.aspx
- *Takhtit Al Wajabat Al Ghidhayiya* (Planning meals) Dr. Essam bin Hassan Aweida

Calories

Calories:

A calorie is unit of energy, often used as a measurement of the amount of energy that food provides, and it is usually indicated in one of the following terms:

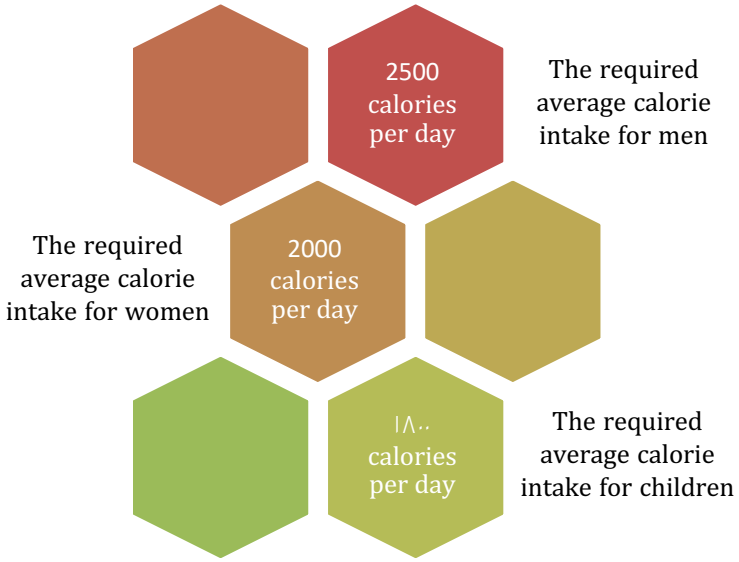
- Calories
- Kilo-calorie (kcal)

It is the energy that can be obtained from consuming a serving of the food in your hands and this helps you control your weight.

(Gain, loss, stabilization)

The total number of calories a person needs are determined by factors such as:

- Weight
- Height
- Age
- Gender
- Physical activity level



You can also calculate your own calorie requirements with the help of the Ministry of Health website

https://www.moh.gov.sa/HealthAwareness/MedicalTools/Pages/CalorieCalculate.aspx

References:

- Saudi Food and Drug Authority https://www.sfda.gov.sa

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