

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

NUTRIENTS & THEIR ROLES IN DIETS

(Concept of Healthy Diet)

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DIETS NUTRIENTS HEALTHY DIET

➤ Diets

- the kinds of food that a person, animal, or community habitually eats.

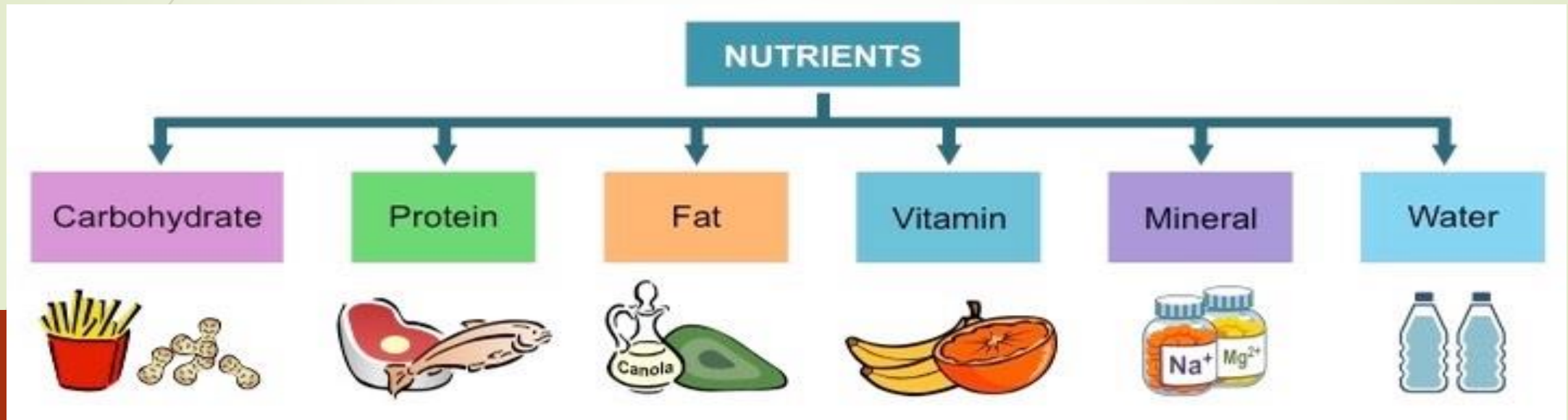
➤ Nutrients

- a substance that provides nourishment essential for the maintenance of life and for growth.

➤ Healthy Diet

- A healthy diet is a diet that helps to maintain or improve overall health. A healthy diet provides the body with essential nutrition: fluid, macronutrients, micronutrients, and adequate calories

NUTRIENTS....





CARBOHYDRATES

- ▶ Also known as saccharides or carbs , sugars and starches.
- ▶ Consist of Carbon, Hydrogen and Oxygen
- ▶ They are a major food source and a key form of energy for most organisms..

carbohydrates



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- **Carbohydrates** as fuel, so one of the main functions of **carbohydrates** is supplying energy to the body. Your brain is particularly in need of the simple **carbohydrate** glucose as an energy source. So supplying energy to the brain is another **important** function. ...
 - **Carbohydrates** also help with fat metabolism.
 - The two main forms of **carbohydrates** are sugars (such as fructose, glucose, and lactose) and starches, which are found in foods such as starchy vegetables, grains, rice, breads, and cereals.
 - The dietary guidelines recommend that carbs provide 45 to 65 percent of your daily calorie intake. So if you eat a 2000-calorie diet, you should aim for about 225 to 325 grams of carbs per day. But if you need to lose weight, you will get much faster results eating around 50 to **150** grams of carbs.

Types of Carbs

* Simple

Simple carbohydrates

Simple carbohydrates are found in foods such as fruits, milk, and vegetables

Cake, candy, and other refined sugar products are simple sugars which also provide energy but lack vitamins, minerals, and fiber



* Complex

Complex carbohydrates

Complex carbohydrates provide vitamins, minerals, and fiber

Foods such as breads, legumes, rice, pasta, and starchy vegetables contain complex carbohydrates





FORMS OF CARBOHYDRATES

- **Simple**

- Monosaccharides (glucose, fructose, galactose) and

- Disaccharides (sucrose, maltose, lactose)

- **Complex**

- Polysaccharides (starch, glycogen) storage of glucose




SIMPLE CARBOHYDRATES

- ▶ (e.g. sugar, honey, fruit, fruit juice)
- ▶ Simple carbohydrates have a ‘simple’ molecular structure and are made up of 1-2 sugar molecules. The simplest form of carbohydrate is glucose. Simple sugars that are found in foods include sucrose (table sugar), fructose (found in fruit), and lactose (found in milk). Not all simple carbs are bad. Natural simple carbs in fruit and milk are perfectly healthy. Low-fat or non-fat dairy such as yoghurt, milk and cottage cheese are healthy food choices and rich sources of calcium.



COMPLEX CARBOHYDRATES

- ▶ (e.g. rice, wholemeal, pasta)
 - ▶ Complex carbohydrates are also made up of sugars, but the sugar molecules are strung together to form longer, more complex chains. Complex starchy carbohydrates include whole grains, peas and beans, which are rich in vitamins, minerals and fiber. The problem with complex starch carbs is that often they are refined.
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- Refined carbohydrates are foods where machinery has been used to remove the high fibre parts (the bran and the germ) from the grain. When a complex carb is refined it loses its complex structure and thus all the properties that made it a healthy choice. Instead it takes on the properties of a simple carbohydrate and is processed by the body in the same way. White rice, white flour, white bread, sugary cereals, and pasta, noodles and You should stay away from refined carbs, as much as you should stay away from sugar.





HEALTHY FOODS FROM CARBOHYDRATES

- Oats , Barley or bran for breakfast, the less refined , the better
- Wholegrain bread
- Brown rice
- Plenty of fresh fruit and vegetables
- Fresh, whole fruit instead of juice
- Whole grain pasta
- Salad and raw vegetables



PROTEINS

- Proteins is the basic component of living cells and is made of carbon, hydrogen, oxygen, nitrogen and one or more chains of amino acids.
- Building block of body
- Repairing tissues
- Maintaining tissues
- The three types of proteins are fibrous, globular and membrane.
- Examples

All foods made from

- Meat
- Poultry
- Seafood
- beans and peas
- Eggs
- processed soy products
- nuts and seeds

Veg



Spinach



Cauliflower



Peas



Bananas

Non-Veg



Fish



Eggs



Meat



Dairy Foods



➤ **Recommended Dietary Allowance (RDA) for Protein**

➤ Grams of protein needed each day


➤ Women ages 19 to 70 + 46 g

➤ Men ages 19 to 70 + 56g



Fats

- Fats are also called 'fatty acids' or 'lipids.' Fats in our body are made up of three molecules joined together. This three-molecule structure is called a "triglyceride"
- it helps absorb vitamins, like vitamins A, D, E, and K
- fat keeps our skin healthy
- essential fats like Omega-3 are important for heart health
- healthy fats, like unsaturated fats from plant oils, can help lower levels of LDL (lousy) cholesterol
- fat adds flavour to food
- fat keeps you feeling satisfied longer after a meal

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- Most of the fat we need is made by our bodies, but there are some fats our bodies cannot make. We can only get these fats by eating them. These fats are called “essential” fats because it is essential that we get them from food. Essential fats include Omega-3 fats (found in foods such as fish and flax seed) and Omega-6 fats (found in foods such as nuts, seeds, and corn oil).
 - The dietary guidelines recommend that fats provide 25 to 30 percent of your daily calorie intake. So if you eat a 2000-calorie diet, you should aim for about 55 to 65 grams of fats per day

Sources of Fats

- Eggs
- Dairy products
- Meats
- Fish
- Nuts
- Vegetable oils
- Olives
- Avocados





TYPES OF FATS

- Four types of fats
 - Saturated fats
 - Monounsaturated fats
 - Trans fats
 - Polyunsaturated fats



More Harmful Fats

Saturated Fats

- mainly come from animal sources
- raise cholesterol & LDL levels

Sources: Cheese, fatty meats, lard, butter, palm and tropical oils

Trans Fats

- mostly a byproduct of processing foods and hydrogenating fats
- raises LDL while lowering HDL

Sources: margarine and processed snack foods

(often solid at room temperature)

Healthier Fats

Monounsaturated Fats

- found in various foods & oils
- improves cholesterol and helps balance insulin levels

Sources: olive oil, peanut oil, avocado, poultry, nuts, and seeds

Polyunsaturated Fats

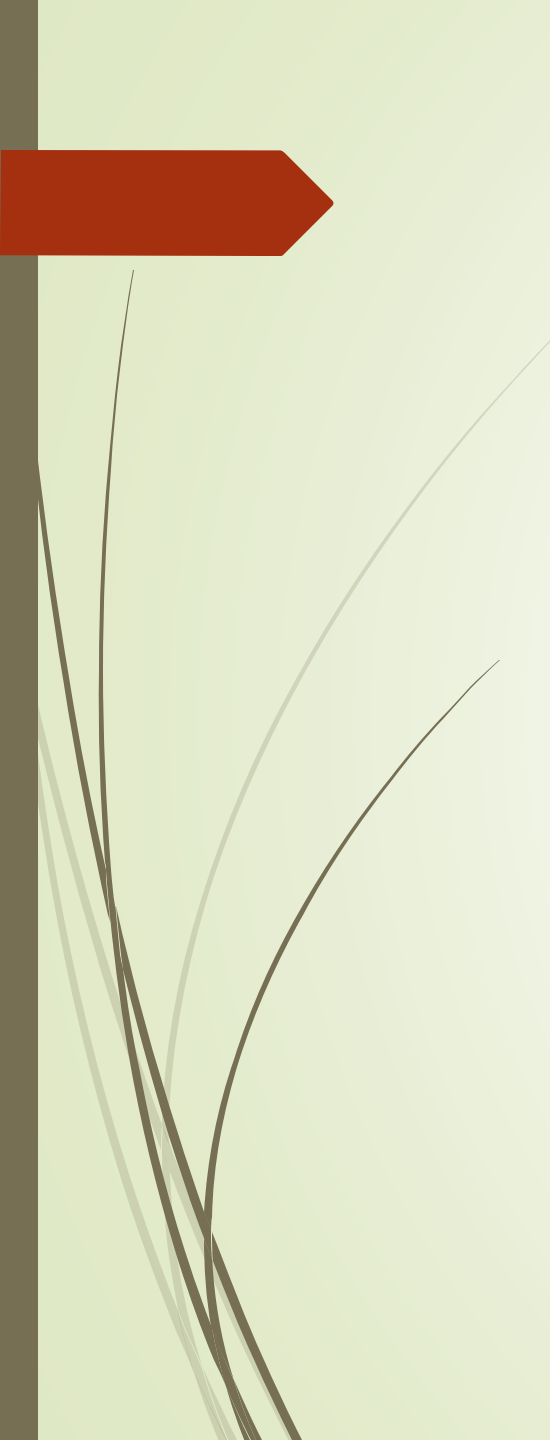
- mostly found in plant based foods and oils
- helps improve cholesterol
- includes omega-3's

Sources: veggie oils, nuts and seeds
(for omega-3's specifically: fatty, cold-water fish, flax seed and walnuts)

(often liquid at room temperature)

Minerals

Nutrient	Function
Carbon	It is the basic molecular component of carbohydrates, proteins, lipids and nucleic acids.
Oxygen	It occurs in all the organic compounds of living organisms.
Hydrogen	This element plays a central role in plant metabolism. It is very important in ionic balance, as the main reducing agent, and plays a key role in energy relations of cells.
Nitrogen	It plays a significant role in the synthesis of important organic compounds, amino acids, proteins, nucleic acids (RNA, DNA), enzymes etc.
Phosphorus	It is an important component of proteins and enzymes, nucleic acids (DNA and RNA) and phytin. Phosphorus is also involved in various energy transfer reactions of adenosine triphosphate and diphosphate (ATP and ADP).
Potassium	It helps in osmotic and ionic regulation. Potassium is a cofactor or activator for many enzymes of carbohydrate and protein metabolism.
Calcium	It is involved in cell division and plays a major role in the maintenance of membrane integrity.
Magnesium	It is a component of chlorophyll and a cofactor for many enzymatic reactions.
Sulfur	Somewhat like phosphorus, it is involved in plant cell energetics. It plays an important role in plant lipid synthesis.



Iron	It is an essential component of many heme nonheme iron enzymes and carriers, including the cytochromes (respiratory electron carriers) and the ferredoxins. The latter are involved in key metabolic functions such as nitrogen fixation, photosynthesis and electron transfer.
Zinc	It is an essential component of several enzyme systems (dehydrogenases, proteinases and peptidases including carbonic anhydrase, alcohol dehydrogenase and others).
Manganese	It is involved in the O ₂ -evolving system of photosynthesis and is a component of the enzymes arginase and phosphotransferase.
Copper	It is a constituent of a number of important enzymes, including cytochrome oxidase, ascorbic acid oxidase and lactase.
Boron	The specific biochemical function of boron is unknown, but it may be involved in carbohydrate metabolism and the synthesis of cell wall components.
Molybdenum	It is required for the normal assimilation of nitrogen in plants. It is an essential component of nitrate reductase as well as nitrogen (N ₂ fixation enzyme).
Vanadium	It stimulates biological nitrogen fixation of bacteria (Azotobacter, Rhizobium sp.) similarly to Molybdenum. Vanadium has an important role in the food chain (essential for animals and humans)
Chlorine	It is essential for photosynthesis and as an activator of enzymes involved in splitting water. It also functions in osmoregulation of plants growing on saline soils.

VITAMINS

Vitamin	RDA Men	RDA Women	Best Sources	Functions
A (carotene)	900ug	700ug	Yellow or orange fruits and vegetables, green leafy vegetables, liver, dairy products	Formation and maintenance of skin, hair and mucous membranes, helps you see in dim light, bone and tooth growth
B1 (thiamine)	1.2 mg	1.1 mg	Fortified cereals and oatmeal, meats, rice and pasta, whole grains, liver	Helps body release energy from carbohydrates during metabolism, growth and muscle tone
B2 (riboflavin)	1.3 mg	1.1 mg	Whole grains, green leafy vegetables, organ meats, milk, eggs	Helps body release energy from protein, fat and carbohydrates, during metabolism
B6 (pyridoxine)	1.3 mg	1.3 mg	Fish, poultry, lean meats, bananas, prunes, dried beans, whole grains, avocados	Helps build tissues and aids in metabolism of protein
B12 (cobalamin)	2.4ug	2.4ug	Meats, milk products, seafood	Aids cell development, functioning of nervous system and metabolism of fat and protein
Biotin	30ug	30ug	Cereal/grain products, yeast, legumes, liver	Involved in metabolism of protein, fats, carbohydrates
Choline	550 mg	425 mg	Milk, liver, eggs, peanuts	A precursor acetylcholine, essential for liver function

Folate (folic acid, folacin)	400ug	400ug	Green leafy vegetables, organ meats, dried peas, beans, lentils	Aids in genetic material development, red cell production
Niacin	16 mg	14 mg	Meat, poultry, fish, enriched cereals, peanuts, potatoes, dairy products, eggs	Involved in carbohydrate, protein and fat metabolism
Pantothenic Acid	5 mg	5 mg	Lean meats, whole grains, legumes, vegetables, fruits	Helps release energy from fats and carbohydrates
C (ascorbic acid)	90 mg	75 mg	Citrus fruits, berries, vegetables-especially peppers	Essential for structure of bones and cartilage, muscle and blood vessels, helps maintain capillaries and gums and aids in absorption of iron.
D	5ug	5ug	Fortified milk, sunlight, fish, eggs, butter	Aids in bone and tooth formation; helps maintain heart action and nervous system
E	15 mg	15 mg	Fortified and multigrain cereals, nuts, wheat germ, vegetable oils, green leafy vegetables	Protects blood cells, body tissue, and essential fatty acids from harmful destruction
K	120ug	90ug	Green leafy vegetables, fruit, dairy products and grains	Essential for blood clotting functions



WATER

- ▶ Water is body's most indispensable nutrient.
 - ▶ Transparent
 - ▶ Tasteless
 - ▶ odorless and nearly colorless chemical substance.
- ▶ **Water** is defined as an essential **nutrient** because it is required in amounts that exceed the body's ability to produce it. All biochemical reactions occur in **water**. It fills the spaces in and between cells and helps form structures of large molecules such as protein and glycogen.
- ▶ **Water** is your body's most **important nutrient**, is involved in every bodily function, and makes up 70- 75% of your total body weight. **Water** helps you to maintain body temperature, metabolize body fat, aids in digestion, lubricates and cushions organs, transports **nutrients**, and flushes toxins from your body.

CONCEPT OF HEALTHY DIET

HEALTHY BALANCED DIET

Fruit & Vegetables

They contain vitamins and minerals, and plant chemicals called phytochemicals.

Breads, Rice & Potatoes

They are rich in vitamins and minerals, and the wholegrain varieties contain plenty of fibre.

Meat, Fish, Eggs & Beans

They provide nutrients that are vital for health and maintenance of your body.

Foods & Drinks

Such as herbs, vitamins, minerals.

Milk & Dairy Foods

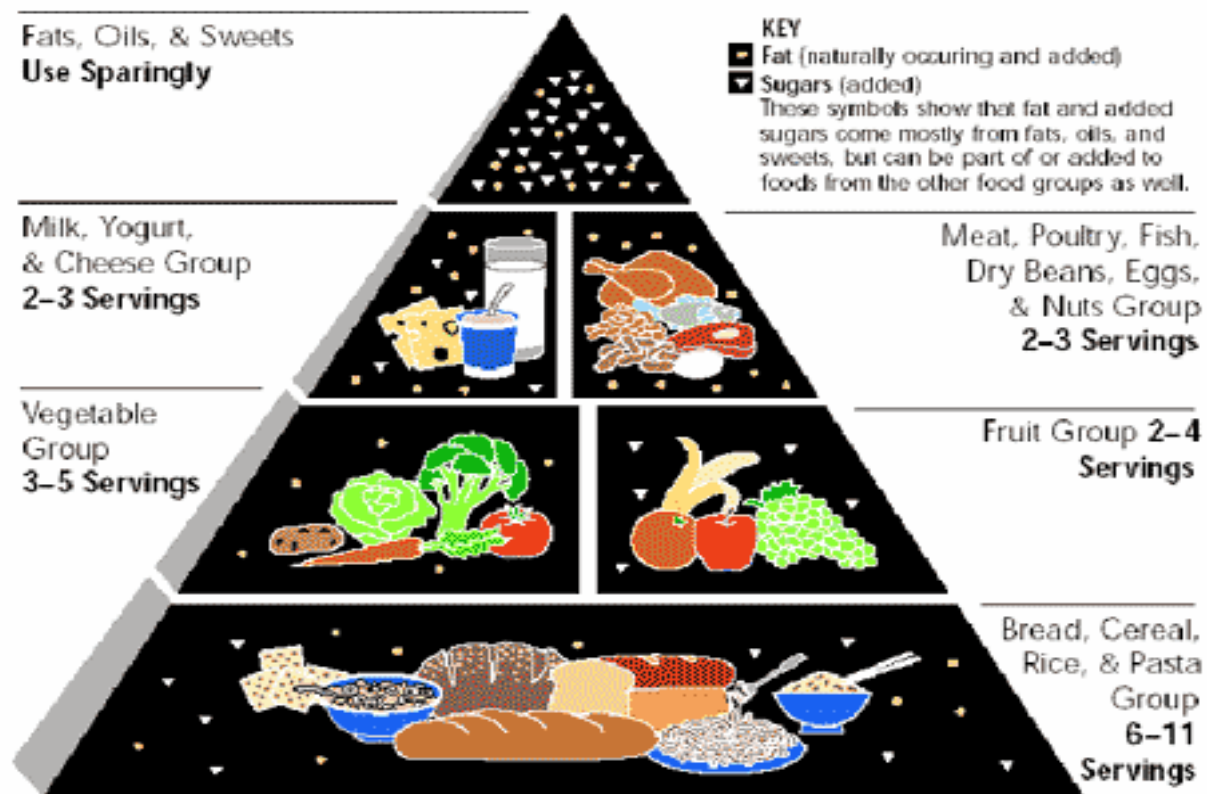
They can keep bones strong and prevent high blood pressure.



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- ▶ **Healthy eating means eating** a variety of **foods** that give you the nutrients you need to maintain your **health**, feel good, and have energy
 - ▶ A **healthy lifestyle** is one which helps to keep and improve people's **health** and well-being. ... **Healthy living** is a lifelong effect. The ways to being **healthy** include **healthy** eating, physical activities, weight management, and stress management.

Food Guide Pyramid

A Guide to Daily Food Choices



SOURCE: U.S. Department of Agriculture/U.S. Department of Health and Human Services

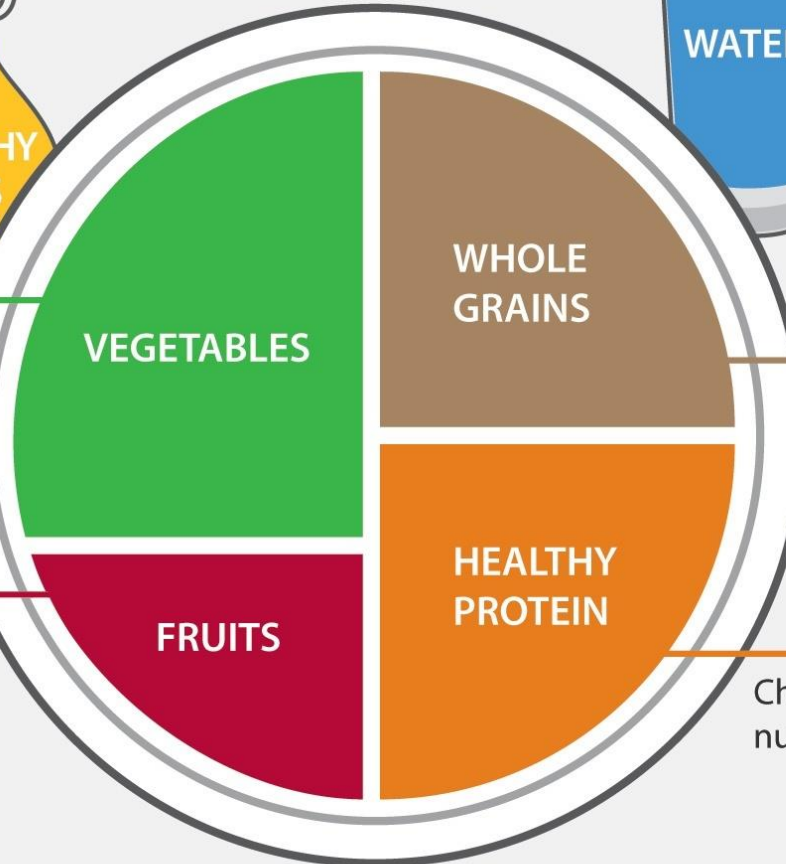
HEALTHY EATING PLATE

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



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

The more veggies – and the greater the variety – the better. Potatoes and French fries don't count.



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

Eat plenty of fruits of all colors.

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



STAY ACTIVE!

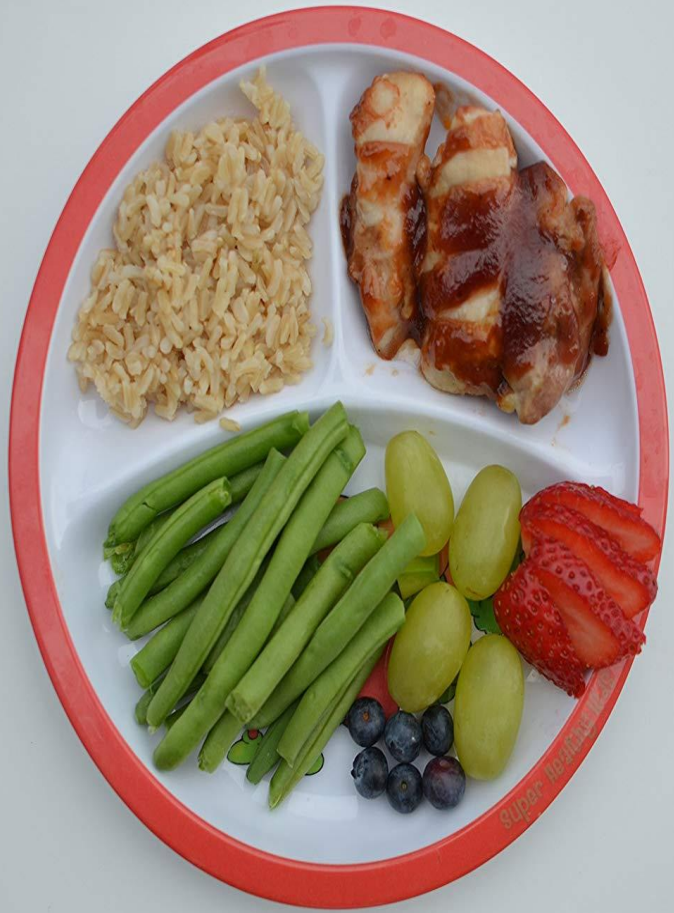
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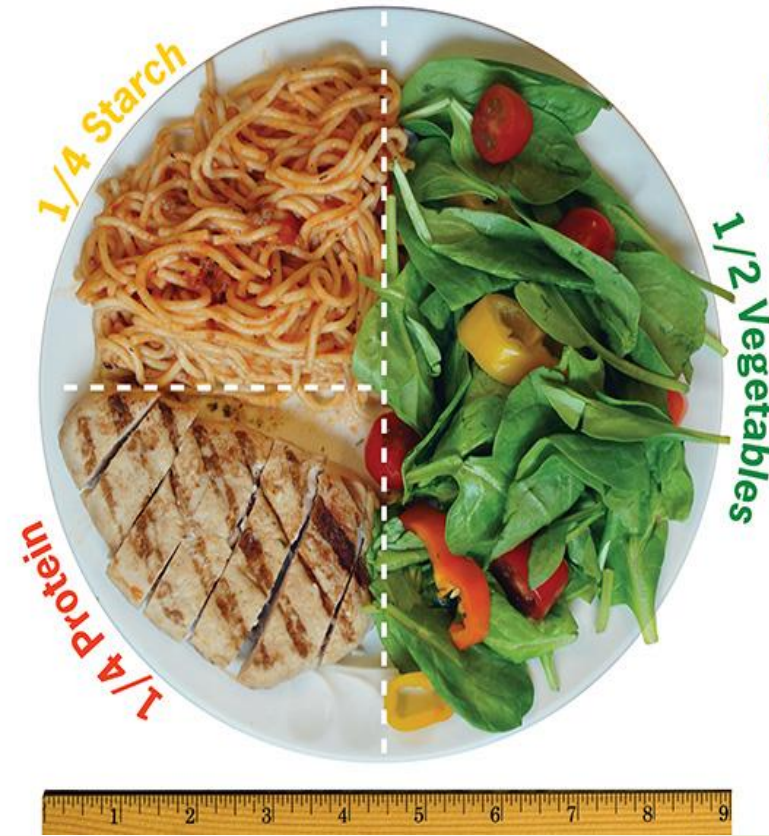




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My Healthy Plate



Plan the portions on your plate.



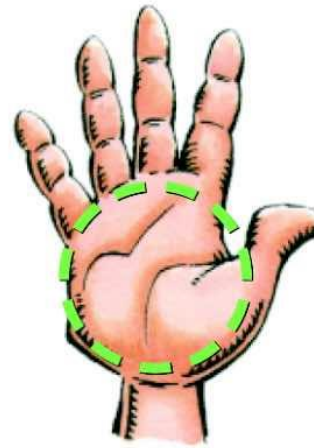
Optional Fruit or Dairy

The secret to serving size is in your hand.



A fist or cupped hand = 1 cup

1 cup = 1½-2 servings of fruit juice
1 oz. of cold cereal
2 oz. of cooked cereal, rice or pasta
8 oz. of milk or yogurt



Palm = 3 oz. of meat

Choose lean poultry, fish, shellfish and beef. One palm size portion equals 3 oz. for an adult and 1½-2 oz. for a child under 5.

A thumb = 1 oz. of cheese

Consuming low-fat cheese helps you meet the required servings from the milk, yogurt and cheese group. 1½ oz. of low-fat cheese counts as 8 oz. of milk or yogurt.



Thumb tip = 1 teaspoon

Keep high-fat foods, such as peanut butter and mayonnaise, at a minimum. One teaspoon is equal to the end of your thumb, from the knuckle up. Three teaspoons equals 1 tablespoon.



Handful = 1-2 oz. of snack food

Snacking can add up. Remember, 1 handful equals 1 oz. of nuts and small candies. For chips and pretzels, 2 handfuls equal 1 oz.



1 tennis ball = ½ cup of fruit and vegetables

Healthy diets include a variety of colorful fruits and vegetables every day.



Healthy diet/eating tips

- Eat the right amount of calories for how active you are, so that you balance the energy you consume with the energy you use.
- Eat a wide range of foods to ensure that you're getting a balanced diet and that your body is receiving all the nutrients it needs.
- Choose wholegrain varieties (or eat potatoes with their skins on) when you can: they contain more fibre, and can help you feel full for longer.
- Eat lots of fruit and veg.
- Cut down on saturated fat and sugar
- Eat less salt – no more than 6g a day for adults
- Stay active and hydrated
- Don't skip breakfast

Healthy Eating Tips

DO'S

1. Drink 2-6 glasses of water on an empty stomach immediately upon waking up in the morning. Consume 2-3 litres of water daily.
2. Fruits are best eaten 1 hour before a meal on an empty stomach or 2 hours after a meal.
3. Never skip breakfast. Eat breakfast every day within an hour of rising.
4. Eat healthy snacks which includes Fruits, nuts, dairy, lean meat, vegetables e.t.c.
5. Depend on fresh fruits and vegetables for vitamins, fiber, nutrients & enzymes.
6. Carry a meal box packed with clean food everyday.
7. Adhere to proper portion sizes.

DON'TS

1. Avoid taking excessive amount of Alcohol
2. Cut down on calorie dense foods containing little or no nutritional value (Anti foods).
3. Avoid supersizing your meals
4. Limit your intake of junk food
5. Avoid anything fried. Instead look for meals that are Baked, Steamed, Grilled or Raw
6. Avoid sugar loaded beverages including soft drinks & juices.
7. Avoid foods containing artificial sugars or anything that ends with "ose": Fructose, Lactose, Sucrose = Sugar.
8. Avoid foods containing preservatives.



Thank
you!