

Balanced Diet



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Balanced Diet???

A balanced diet comprises a specified amount of nutrients, including carbohydrates, protein, and fats, in the ratio of 50-60%, 12-20%, and 30%, respectively. In addition, such a diet should also include food items such as fruits, vegetables, grains, protein, and dairy products.





Difference between adequate diet and balanced diet

An **adequate diet** includes sufficient energy for the person's needs-though the energy in the diet may be in any form, e.g. as carbohydrate, protein, fat etc.

Whereas a **balanced diet** not only includes sufficient energy for the person's needs but all the person's dietary requirements in the correct proportions.

Which food groups
must be included in
a balanced diet?
Carbohydrates

Carbohydrates

Proteins

Fats (also called "Lipids"), see saturated
vs unsaturated fats

Dietary Fibre (also called "Roughage")

Water

Vitamins

Minerals

Carbohydrates



Carbohydrates are broken-down by the digestive system into energy in the form of glucose (which can be absorbed into the blood). Note that if the body is supplied with too much ingested energy in the form of food the excess may be laid down as fat around the body - as the body's "energy store" or "reserve" in case it is needed later.

The body needs and uses energy for the following:

- Active transport
- Synthesis of biochemical macromolecules
- Cell division
- Muscle contraction

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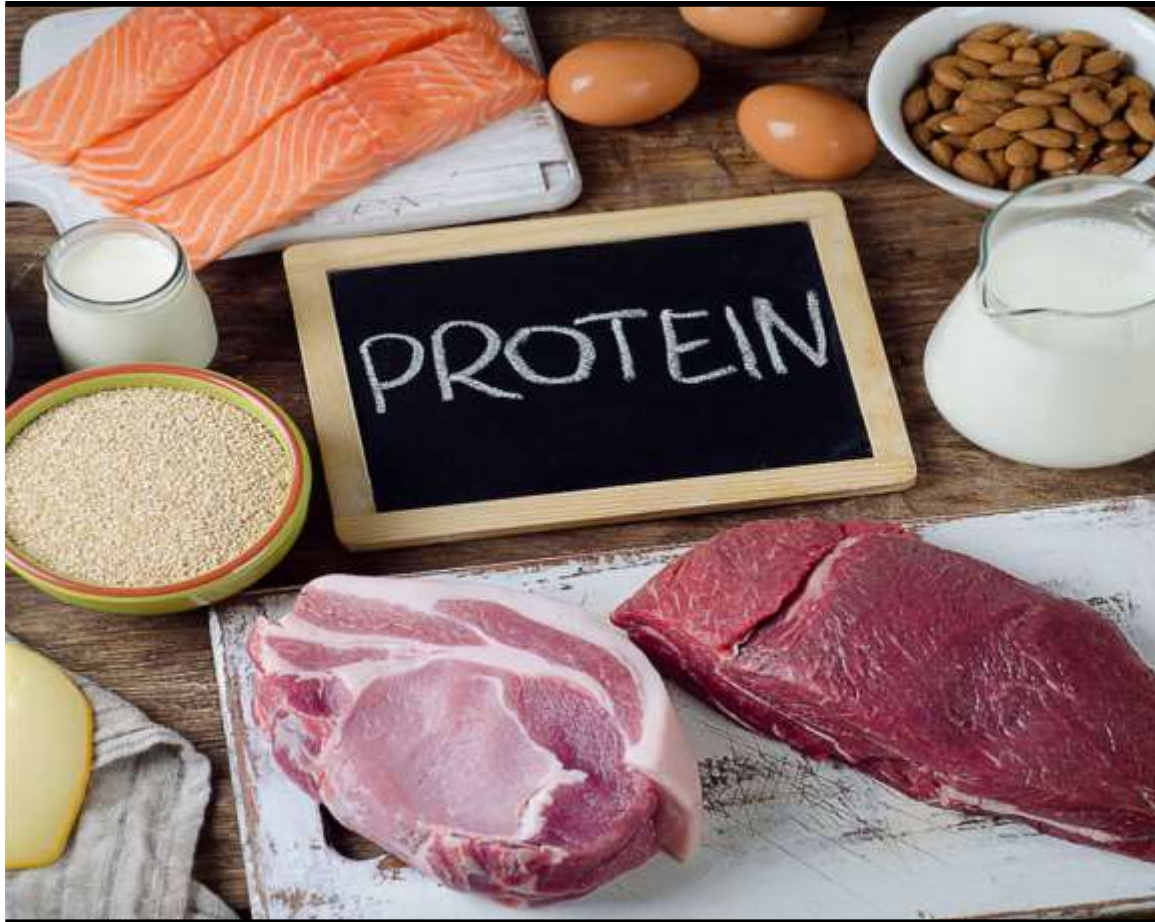


There are several types of carbohydrates including monosaccharides and disaccharides (types of sugar), oligosaccharides, and some polysaccharides (specifically starches - as opposed to non-starch polysaccharides which are forms of dietary fibre).



Carbohydrates collectively are found in a wide range of foods including wheat and grains, pasta, potatoes, rice, fruits and all sources of sugars - including refined sugars in processed foods

Proteins



Proteins are often described as "building blocks" essential for growth (especially in the case of infants, children and body-builders) and for maintenance and repair of body tissues. After processing via the digestive system, the components of proteins are used in body tissues.

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Proteins are broken-down by the digestive system into amino acids (which can be absorbed into the blood).



This is sometimes stated in the opposite way, i.e., in terms of proteins "containing" amino acids.



There are different types of proteins found in a wide range of animal and non-animal food sources e.g. meat, fish, eggs, pulses and beans.



A balanced diet includes all the essential amino acids, which are so-called because they are needed but cannot be synthesized by the human body.

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The quality of proteins (foods containing one or more forms of protein) are expressed in various ways:

Biological Value
(BV)

Net Protein Utilization
(NPU)

Digestibility of
Protein

Fats (= Lipids)

Some fats (also known as "lipids") are essential for a healthy balanced diet. They are broken-down by the digestive system into fatty acids and glycerol. These compounds are then used in cell membranes and as parts to form steroid hormones.



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There are many different fat molecules present in different food sources but in general fats can be divided into two main groups:

- Saturated fats and cholesterol - typically derived from animal products such as meats
- Unsaturated fats - typically from plant sources such as soya

Water



Water is an essential part of the human diet.



It is necessary for the body in which it is used as a solvent, a transport medium, a substrate in hydrolytic reactions and for lubrication.



Although humans need water every day it is not necessary consumed in the form of drinking water itself but as the major part of many drinks and some liquid or partially foods such as soups, sauces, dressings and ice- desserts.



Vitamins

- ❑ There are many different vitamins. Although all vitamins are organic compounds, they have no common chemical structure or functions.
- ❑ Vitamins are specific chemicals needed by the body in relatively small amounts. Collectively they fulfil a wide range of functions including enabling the body to make efficient use of other parts of a balanced diet, e.g., vitamin D facilitates absorption of calcium and phosphorous.

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There are two important groups, or types, of vitamins:

- Water-soluble Vitamins e.g. C and the B vitamins - in many fruits and vegetables
 - Fat-soluble Vitamins e.g. A, D and E - in fatty foods e.g., many dairy products
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Minerals



Unlike vitamins (which are organic compounds), minerals are chemical elements.

- There are two important groups, or types, of minerals:

Macro Minerals - found in typical adult human bodies in quantities $> 5g$; $> 100mg$ needed daily

Micro Minerals - found in typical adult human bodies in quantities $< 5g$; 1-100mg needed daily

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Calcium

Milk, cheese, green leafy vegetables abundant in calcium fortify bone health

Chloride

Table salt, celery, tomatoes packed with chloride support fluid balance and digestion



Magnesium

Whole grain cereals, legumes, nuts, loaded with magnesium control muscle and nerve functions

Roles of specific minerals:
Individual minerals have specific purposes.

Examples include calcium in bones and teeth, and sodium in glucose uptake



Thank You