Water

- Plays a vital role in all bodily processes and makes up just over half of the body's weight.
Effects of Malnutrition

II. OVER-NUTRITION:

A. Direct Effects: Over-nutrition invariably leads to OBESITY. More incidences among the affluent.

B. Indirect Effects: Health hazards of obesity and over-nutrition include higher incidences of diseases such as Hypertension, Renal disorders, Heart diseases, Liver disorders and also Diabetes.
Factors Affecting food habits/food selection

- Genetics
- Emotional comfort
- Childhood experiences
- Media and peer influences
- Ethnic and religious identity
- Education, occupation, and income
- Rural vs. urban residence
- Fat, fiber, and water content of foods
- Convenience, availability, variety, and serving size
- Food flavor, texture, and appearance
- Current health status
- Nutrition and health beliefs
Nutrient Density

All foods were not created equal in terms of the kilocalories and nutrients they provide.

Nutrient density: It is defined as “a measure of the nutrients provided in a food per kilocalorie of the food”.

To determine the nutrient density of a food, simply compare its vitamin and mineral content with the amount of energy it provides.

A food is said to be nutrient dense, if it provides a large amount of micronutrients, for a relatively small amount of energy, as compared to other foods.

When a food's contribution to nutrient needs exceeds its contribution to energy needs, it is said to be a nutrient dense food, with low energy density.
Classification of Foods

• 1. BY ORIGIN:
  ■ Foods of Vegetable origin
  ■ Foods of Animal origin

• 2. CHEMICAL COMPOSITION:
  ■ Proteins
  ■ Fats
  ■ Carbohydrates
  ■ Vitamins
  ■ Minerals
  ■ Water
Chemical Composition of the Human Body

- **MALES**
  - Water: 60-62%
  - Proteins: 17-20%
  - Fats: 14%
  - Minerals: 6%
  - Carbohydrates: 1%
  - Vitamins: negligible

- **FEMALES**
  - Water: 54-55%
  - Proteins: 15%
  - Fats: 25%
  - Minerals: 5%
  - Carbohydrates: 1%
  - Vitamins: negligible
ENERGY REQUIREMENTS ARE BASED ON THREE FACTORS / COMPONENTS

1. Energy for Basal Metabolism or Basal Metabolic Rate (50-65%):

- “Basal Metabolism” refers to the minimum energy required by the body for vital functions when it is at rest and/or awake.
- In other words, it is the sum total of energy expended on all of the involuntary activities needed to sustain life.
- Example: Energy for Breathing / Respiration, Heartbeat, Regulation of Body Temperature, Circulation of Blood, etc.

BMR for men/day = 1.0 kcal x per kg body weight x per hour per day (24hrs)

BMR for women/day = 0.9 kcal x per kg body weight x per hour per day (24hrs)
<table>
<thead>
<tr>
<th>Factor</th>
<th>Effect on BMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>The BMR is higher in youth; as lean body mass declines with age, the BMR slows. Continued physical activity may prevent some of this decline.</td>
</tr>
<tr>
<td>Height</td>
<td>Tall people have a larger surface area, so their BMRs are higher.</td>
</tr>
<tr>
<td>Growth</td>
<td>Children and pregnant women have higher BMRs.</td>
</tr>
<tr>
<td>Body composition</td>
<td>The more lean tissue, the higher the BMR. A typical man has greater lean body mass than a typical woman, making his BMR higher.</td>
</tr>
<tr>
<td>Fever</td>
<td>Fever raises the BMR.</td>
</tr>
<tr>
<td>Stress</td>
<td>Stress hormones raise the BMR.</td>
</tr>
<tr>
<td>Environmental temperature</td>
<td>Adjusting to either heat or cold raises the BMR.</td>
</tr>
<tr>
<td>Fasting/starvation</td>
<td>Fasting/starvation hormones lower the BMR.</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>Malnutrition lowers the BMR.</td>
</tr>
</tbody>
</table>
Physical Activity Consumption Units based on Levels of Physical Activity:
- Very Light Activity (men and women) - 1.3
- Light Activity (Men) - 1.6
- Light Activity (Women) - 1.5
- Moderate Activity (Men) - 1.7
- Moderate Activity (Women) - 1.6
- Heavy Activity (Men) - 2.1
- Heavy Activity (Women) - 1.9

OR
- For very light activity - 20 - 40% of BMR
- For light activity - 55 – 65% of BMR
- For moderate activity - 70 - 75% of BMR
- For heavy activity - 80 – 100% of BMR

3. Energy for Thermic Effect of Food (5-10%):
- Refers to the energy needed to digest and absorb food and also to process the absorbed nutrients.