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
- 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
- Emotional comfort

Factors: Genetics, 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, Emotional comfort.
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 kcals 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.