



Water

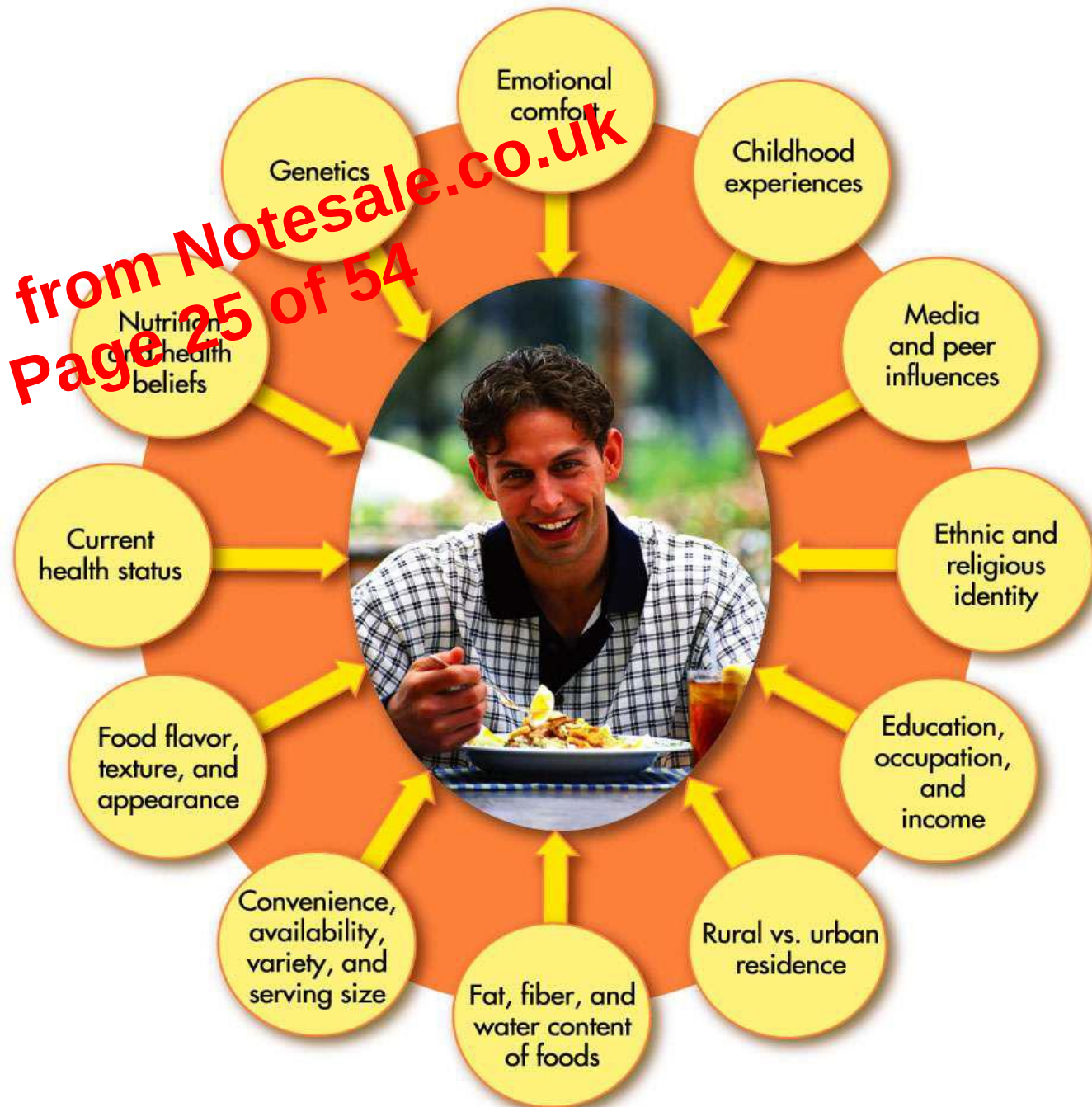
- Plays a vital role in all bodily processes and makes up just over half of the body's weight.



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



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**= 1.0kcal x per kg body weight x per hour per day (24hrs)
- ☐ **BMR for women/day**= 0.9kcal x per kg body weight x per hour per day (24hrs)

TABLE 9.3 FACTORS THAT AFFECT THE BMR

Factor	Effect on BMR
Age	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.
Height	Tall people have a larger surface area, so their BMRs are higher.
Growth	Children and pregnant women have higher BMRs.
Body composition	The more lean tissue, the higher the BMR. A typical man has greater lean body mass than a typical woman, making his BMR higher.
Fever	Fever raises the BMR.
Stress	Stress hormones raise the BMR.
Environmental temperature	Adjusting to either heat or cold raises the BMR.
Fasting/starvation	Fasting/starvation hormones lower the BMR.
Malnutrition	Malnutrition lowers the BMR.

- **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.