



Done By :

Arwa Al-Madani

Sarah Bin-Hussain

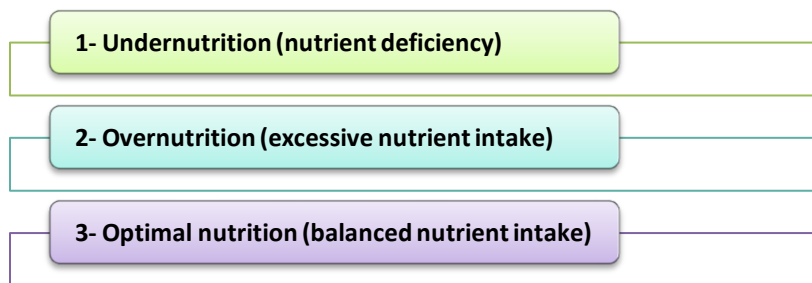
Bedoor Al-Qadrah

Reham Al-Henaki

What is nutrition?

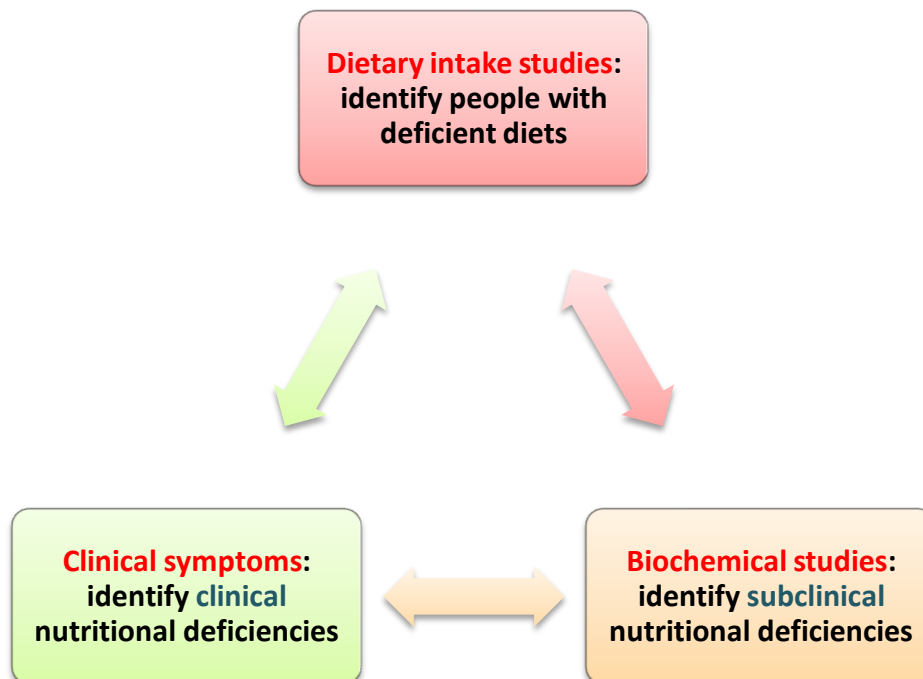
- Composition and quantity of food intake by living organisms
- Biochemical utilization of food

✓ Human nutrition is divided into three areas :



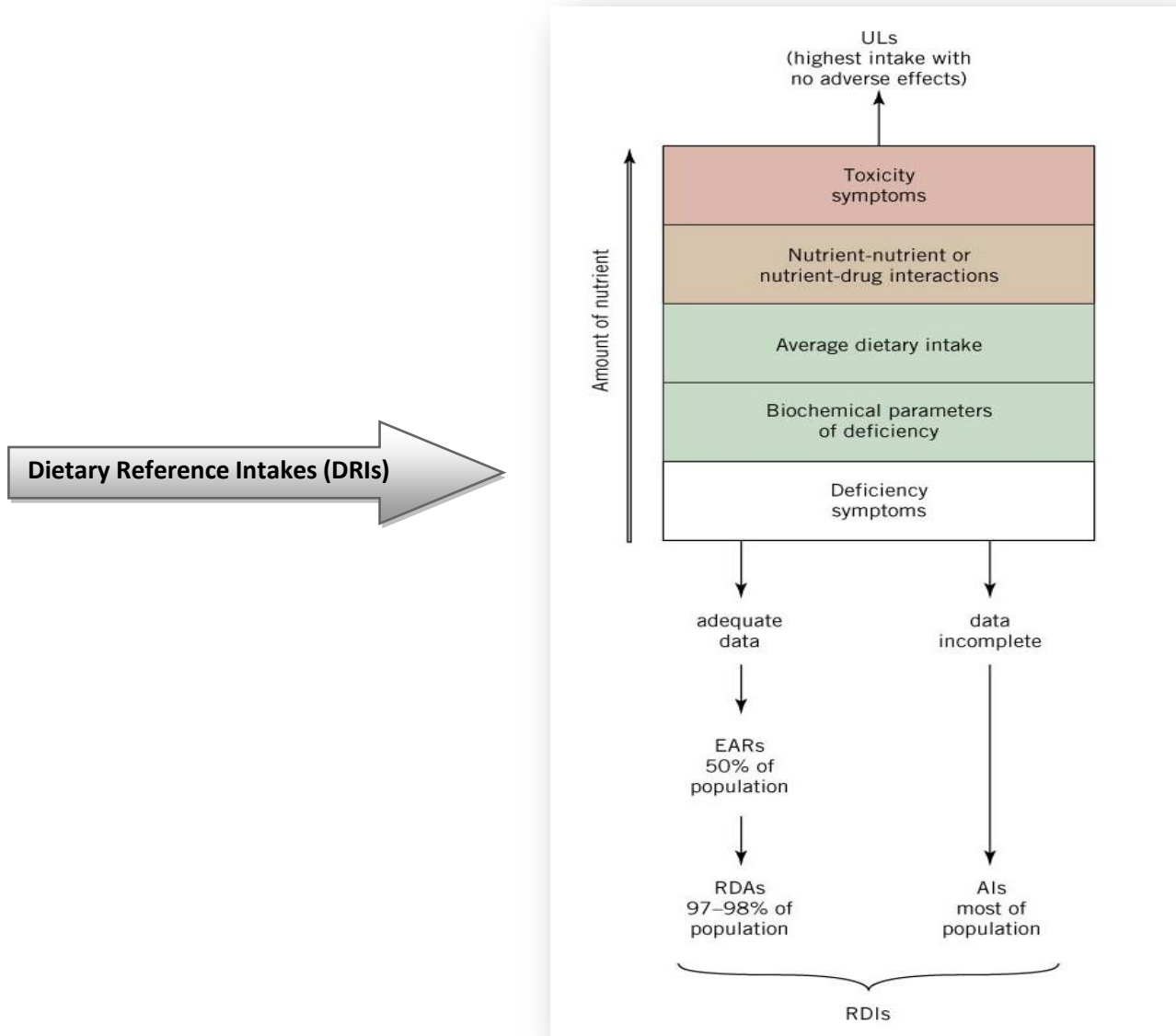
Assessment of malnutrition

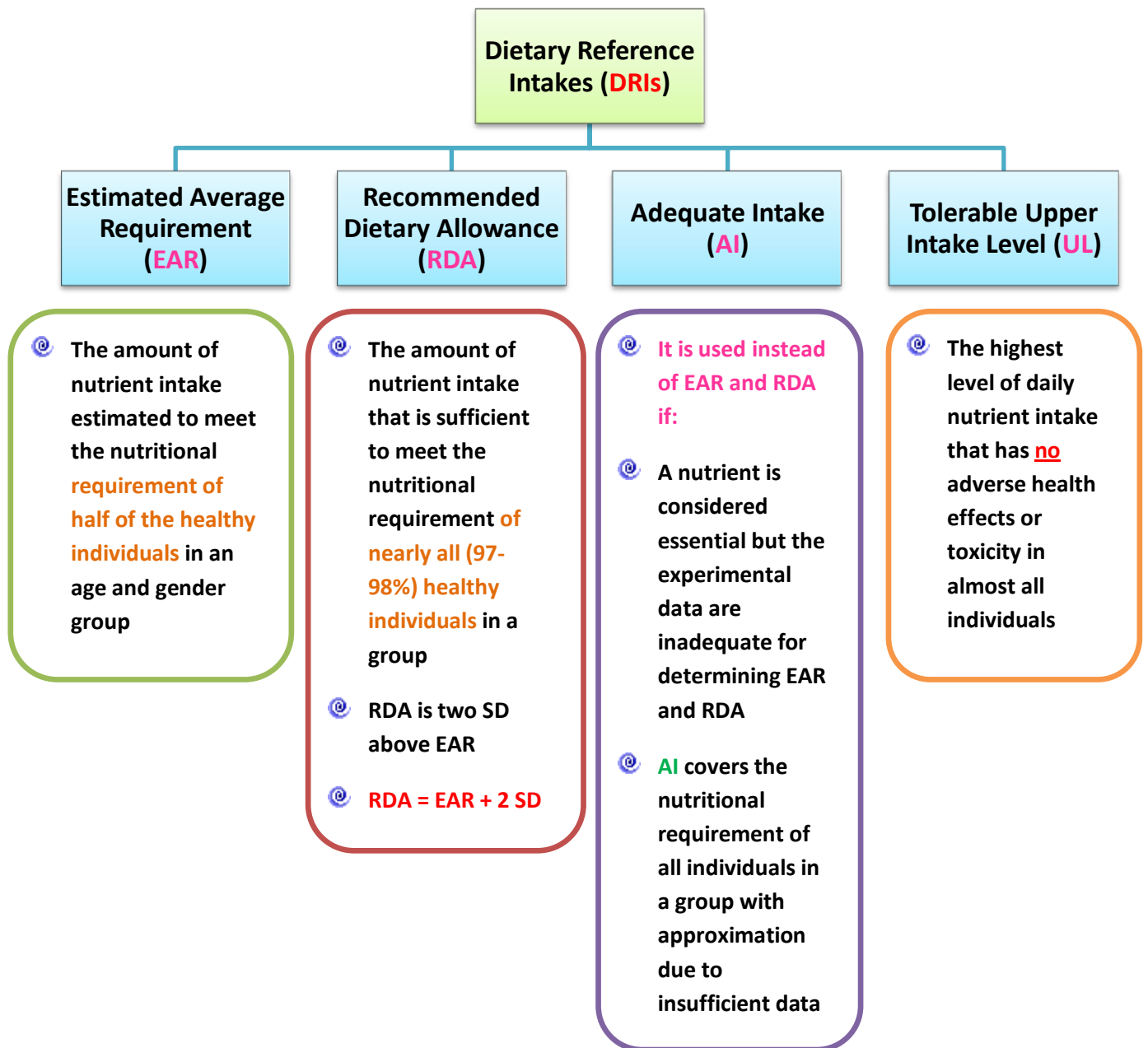
Malnutrition in humans is measured by:



Dietary Reference Intakes (DRIs)

- Quantitative estimates of nutrient intakes required to **prevent deficiencies** and maintain optimal health
- Recommended by: Food and Nutrition Board of the National Research Council, USA





Acceptable Macronutrient Distribution Ranges (ADMR)

- Range of adequate intake of a macronutrient associated with **reduced risk** of chronic disease

- ✓ **ADMR for adults** (% of total calories)

⚡ Carbohydrates **45-65**

⚡ Fats **20-35**

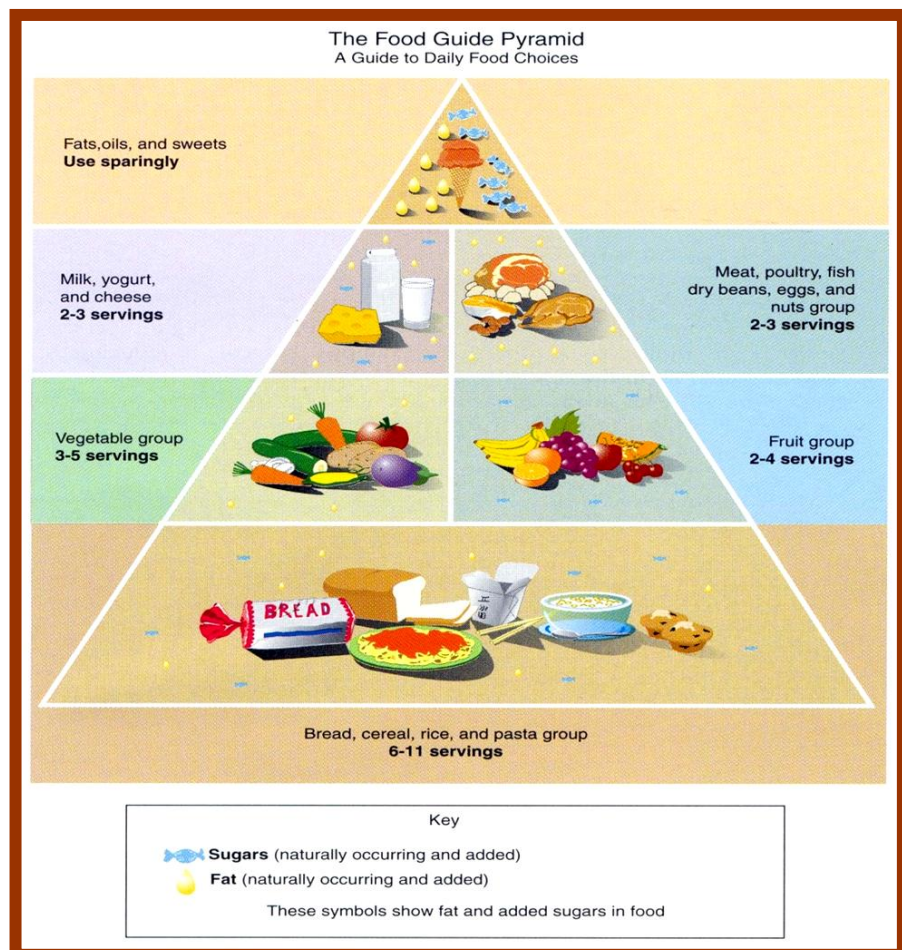
⚡ Proteins **10-35**

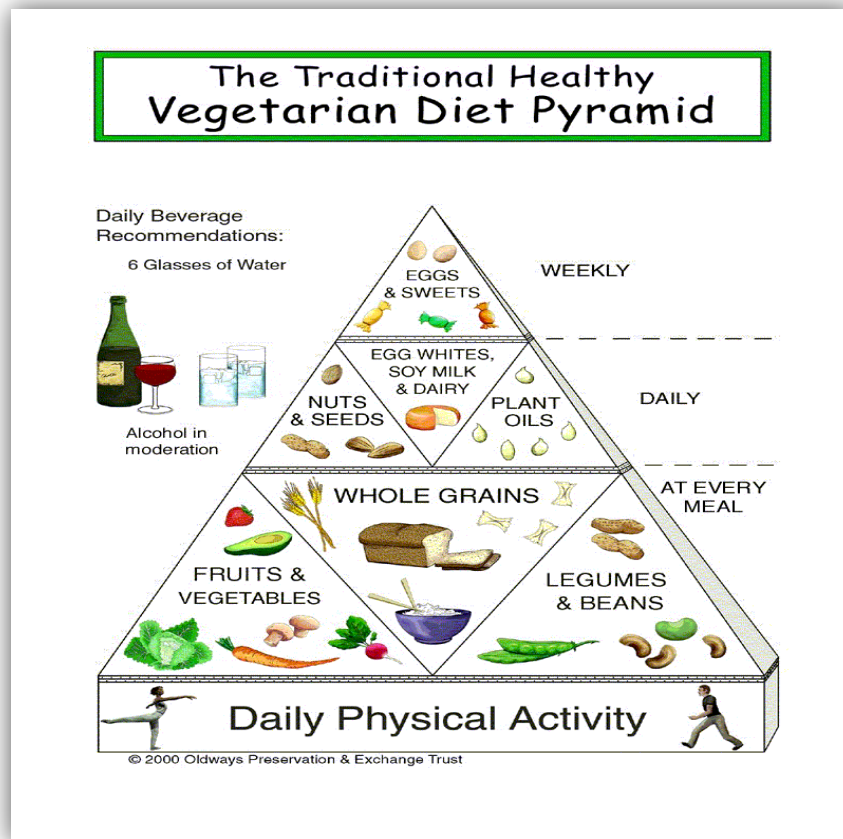
⚡ Fiber **>25 g**

Food Pyramid

(United States Department of Agriculture Center for Nutrition Policy and Promotion)

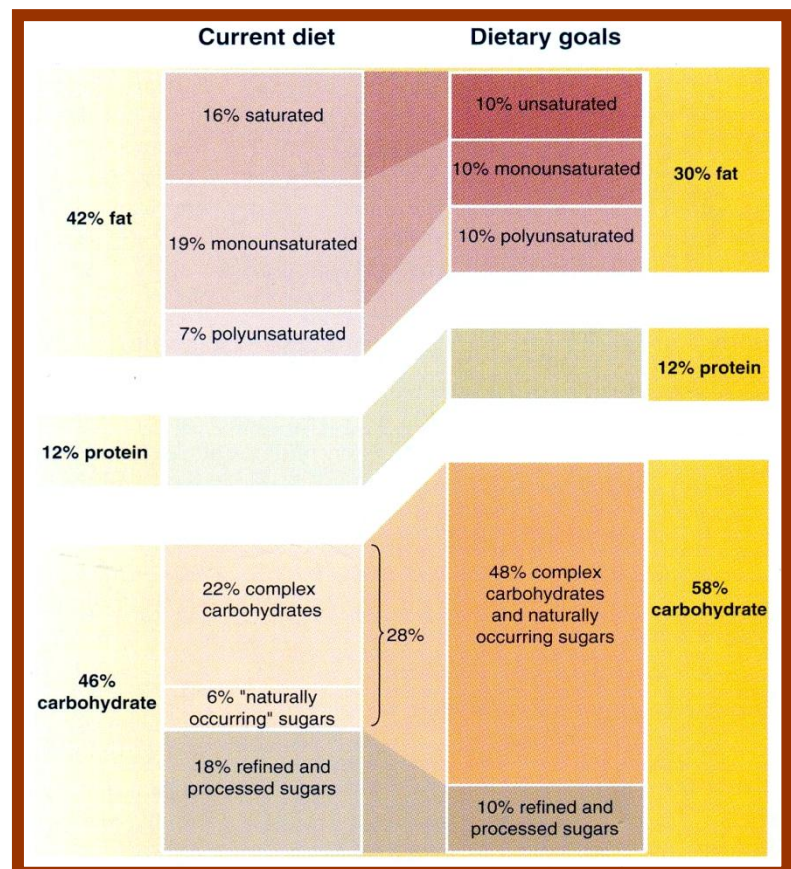
- Ⓢ Public educational tool established in 1992
- Ⓢ Recommends size of daily servings
- Ⓢ Pyramid shape
- Ⓢ Fats, oils and sweets have small serving size





Dietary guidelines and goals

- ☉ Consume a variety of foods from the basic food groups
- ☉ Control calorie intake to manage body weight
- ☉ Be physically active everyday
- ☉ Choose fats and CHOs wisely for good health
- ☉ Increase daily intake of fruits, vegetables, whole grains, and non-fat or low-fat milk and milk products
- ☉ Choose and prepare foods with little salt



Energy requirement in humans

- The dietary energy intake required to **maintain energy** balance in a healthy individual
- Energy balance is maintained by **calorie intake and energy expenditure**
- Energy content of food is measured in **calories or kilocalories** (heat energy)

Sex	Age	Weight (Kg)	Avg. Energy Needs (kcal)
Men	23–50	70	upto 2900
Women	23–50	55	upto 2200
Pregnant	-	-	+300
Lactating	-	-	+500

Vegetarians and nutrient intake

Advantage

- ❖ Lower Body Mass Index (**BMI**)
- ❖ Lower death rate from ischemic heart disease
- ❖ Lower blood pressure
- ❖ Lower cancer rates as compared to non-vegetarians

Disadvantage

- ❖ Lower intake of **iron, calcium and vitamin D**
- ❖ Long-term vegans may develop megaloblastic anemia due to vitamin **B₁₂ deficiency**
- ❖ Most consume enough **protein**
- ❖ Lower in total dietary **fat**

Basic energy expenditure depends on:

1- Resting metabolic rate (RMR)

- ◆ Energy expense at rest
- ◆ Required for normal body function
- ◆ Depends on age, sex, growth, body surface area, fever, fasting, stress
- ◆ Men: 1800 kcal
- ◆ Women: 1300 kcal

2- Physical activity

- ◆ Sedentary person: **30-50%** > RMR
- ◆ Active person: **100%+** > RMR

3- Thermic effect of food

- ◆ Heat produced by the body due to food digestion and absorption
- ◆ 5-10% of total energy expenditure

