

Done By:

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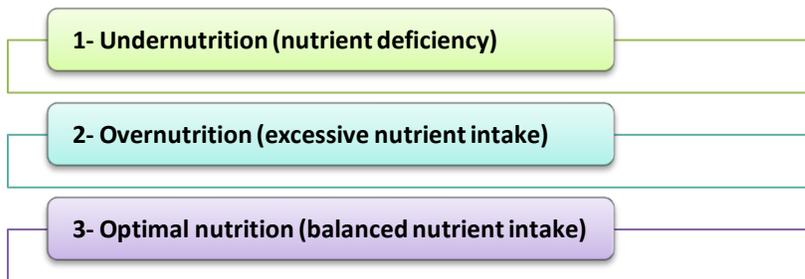
Sarah Bin-Hussain

Bedoor Al-Qadrah

Reham Al-Henaki

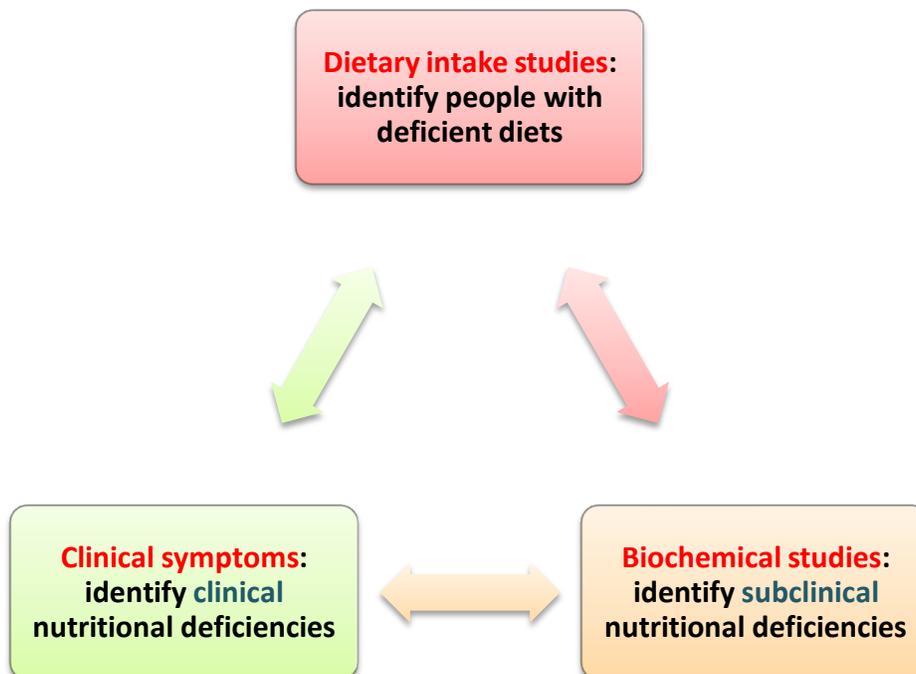
## What is nutrition?

- Composition and quantity of food intake by living organisms
- Biochemical utilization of food
- ✓ Human nutrition is divided into three areas :



## Assessment of malnutrition

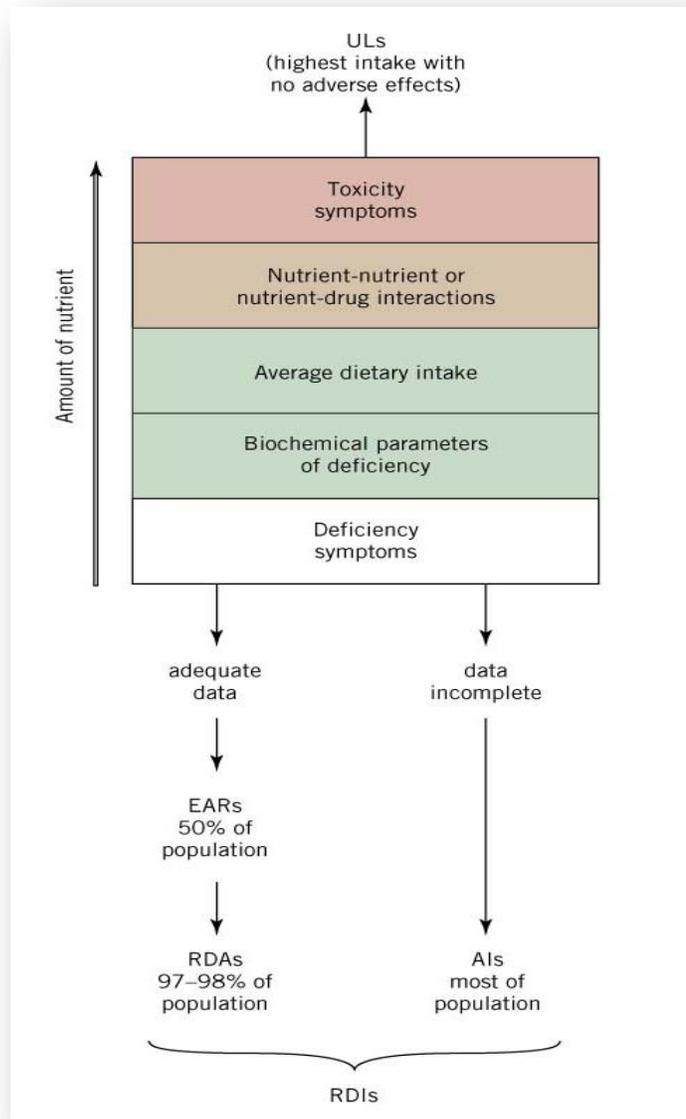
*Malnutrition in humans is measured by:*

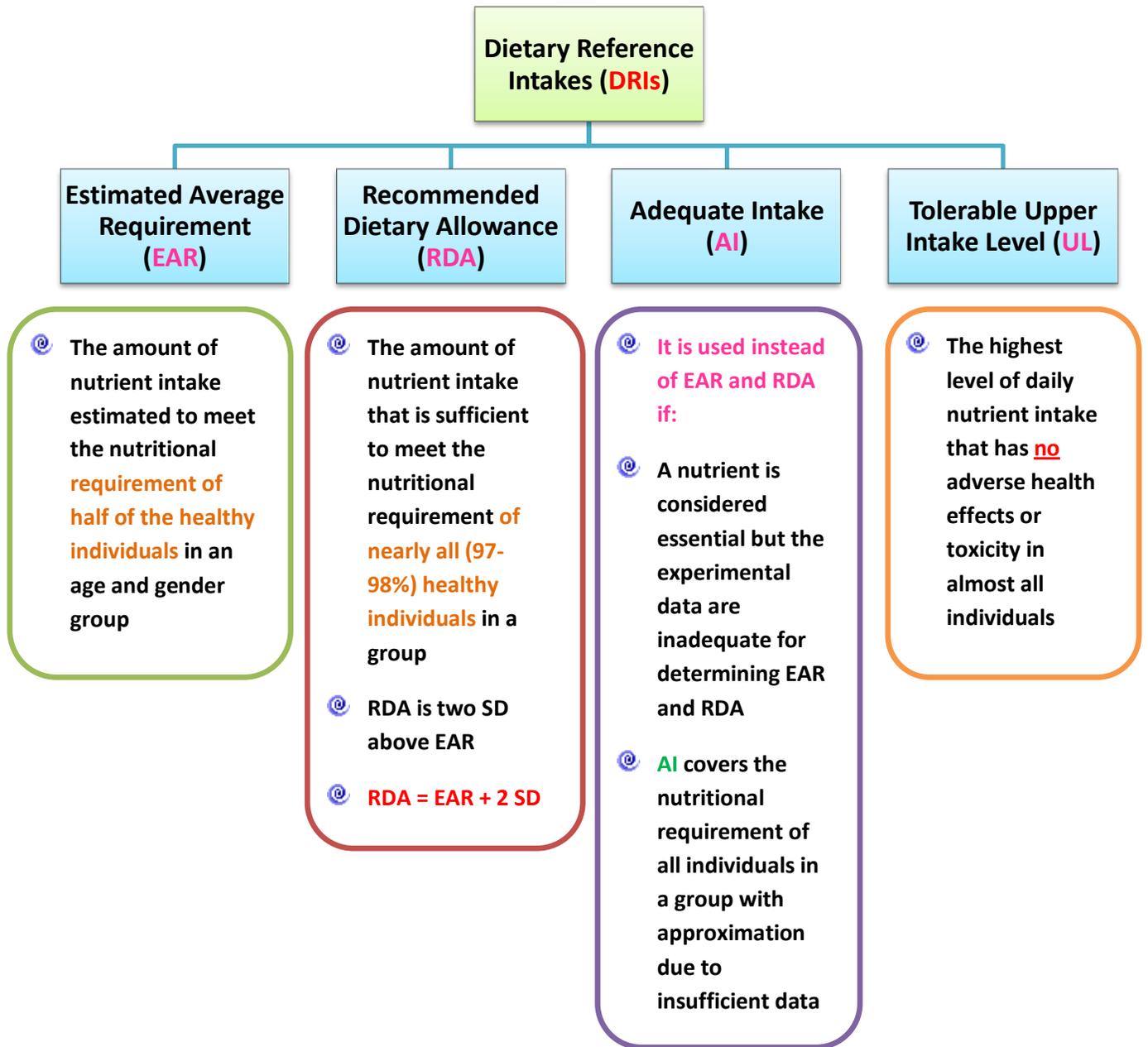


## Dietary Reference Intakes (DRIs)

- 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

Dietary Reference Intakes (DRIs)





## 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**

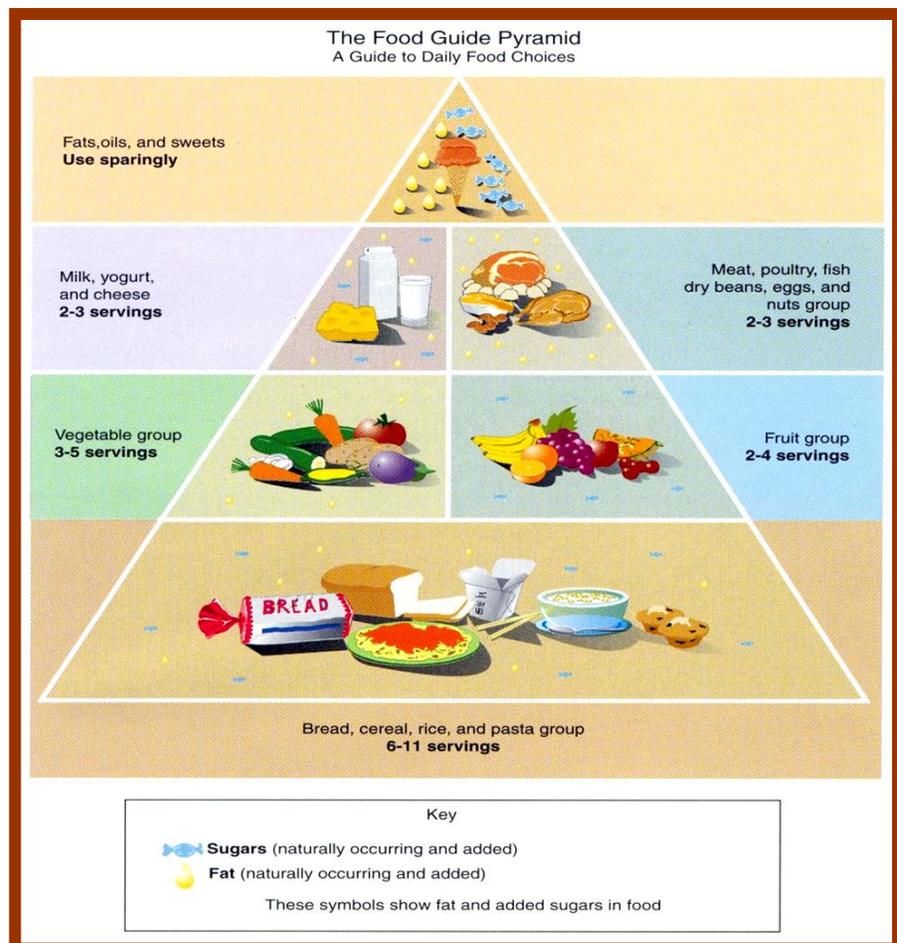
↗ Proteins **10-35**

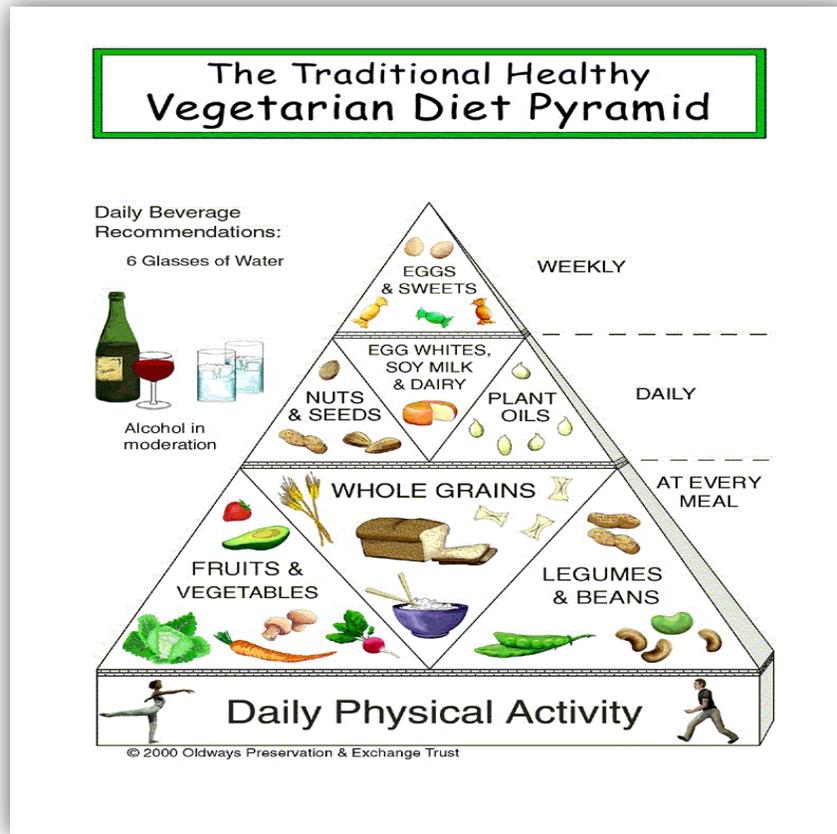
↗ Fiber **>25 g**

## Food Pyramid

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

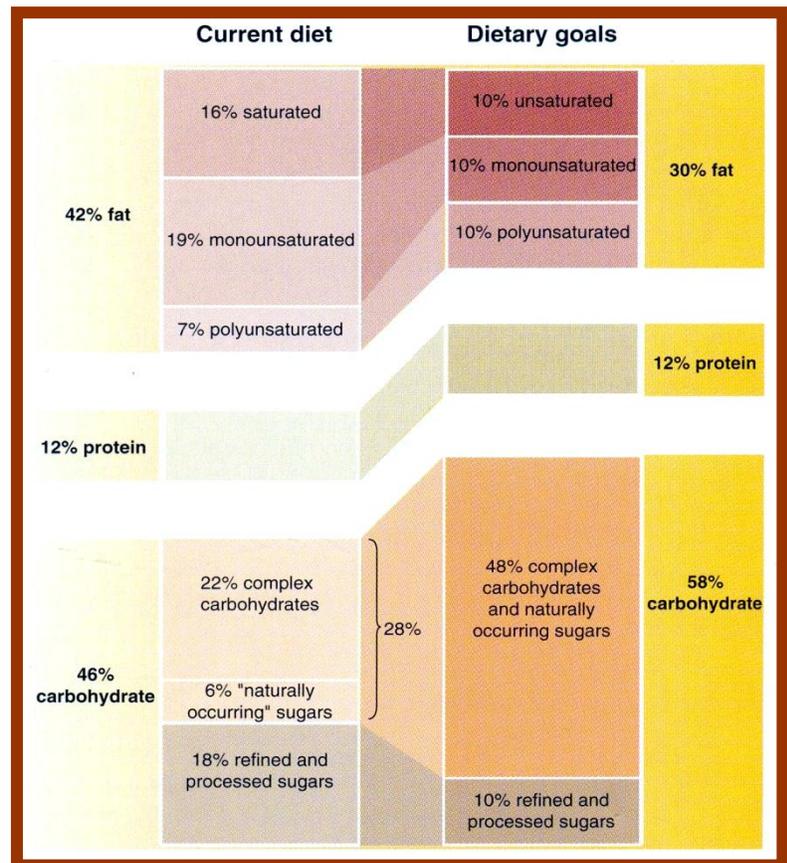
- Ⓢ **Public educational tool established in 1992**
- Ⓢ **Recommends size of daily servings**
- Ⓢ **Pyramid shape**
- Ⓢ **Fats, oils and sweets have small serving size**





## Dietary guidelines and goals

- ④ Consume a variety of foods from the basic food groups
- ④ Control calorie intake to manage body weight
- ④ Be physically active everyday
- ④ Choose fats and CHOs wisely for good health
- ④ Increase daily intake of fruits, vegetables, whole grains, and non-fat or low-fat milk and milk products
- ④ 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 **B<sub>12</sub> 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

