

Introduction to Public Health Nutrition



Nutrition: definition

“The science/study of nutrients that come from **food**, their action, interaction, and balance in relation to health and disease; and the process by which the organism (body) ingests, digests, absorbs, transports, utilizes and excretes food substances.”

Public Health

Public Health is defined as “the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society” (Acheson, 1988; WHO).

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The main mission of public health is "to assure conditions in which people can be healthy" (Institute of Medicine, The Future of Public Health).

Public Health and Nutrition

- Since nutrition is an essential aspect of the conditions in which people can be healthy, public health nutrition is part of the public health system.

Public Health Practice Compared to Clinical Nutrition Practice



	<u>Public Health Practice</u>	<u>Clinical Nutrition Practice</u>
Focus	Prevention	Disease treatment
Target	Populations	Individuals
Setting	Country, district & Communities	Clinics & Hospitals
Strategies	Multiple, Reinforcing	Counseling and education

Assessing Eating Behaviors

- **What drives people to eat?**
 - **Hunger**
 - **Appetite**
 - **Cultural and social meaning of food**
 - **Habit or custom**
 - **Emotional Comfort**
 - **Convenience and advertising**
 - **Nutritional value**
 - **Social interactions**

Background definitions

- **Nutrients**: “Chemical substances in food that nourish the body by providing energy, building materials, and factors to regulate needed chemical reactions.”
- **Essential nutrients**: Must be provided by food because the body does not produce them in sufficient quantities or can not make them at all.
- **Nonessential nutrients**: Healthy, well-nourished bodies can make them in sufficient quantities to satisfy their needs.

Essential Nutrients

Nutrients are essential to the human diet if they meet two characteristics.

- First, omitting the nutrient from the diet leads to a **nutritional deficiency** and a decline in some aspect of health.
- Second, if the omitted nutrient is put back into the diet, the symptoms of nutritional deficiency will decline and the individual will return to normal, barring any permanent damage caused by its absence.

Essential Nutrients cont'd:

The essential nutrients are:

- **Some forms of carbohydrate (glucose)**
- **Certain constituents of fat [the essential fatty acids: linoleic acid (omega-6) and linolenic acid (omega-3)]**
- **Certain constituents of protein (the essential amino acids such as lysine, histidine, etc)**
- **15 vitamins**
- **About 25 minerals**
- **Water**



Functions of nutrients in food:

- a. Provide energy sources**
- b. Build tissue**
- c. Regulate metabolic processes**

Nutrients are classified into :

- **A. Macronutrients (carbohydrates, fats, and proteins).**

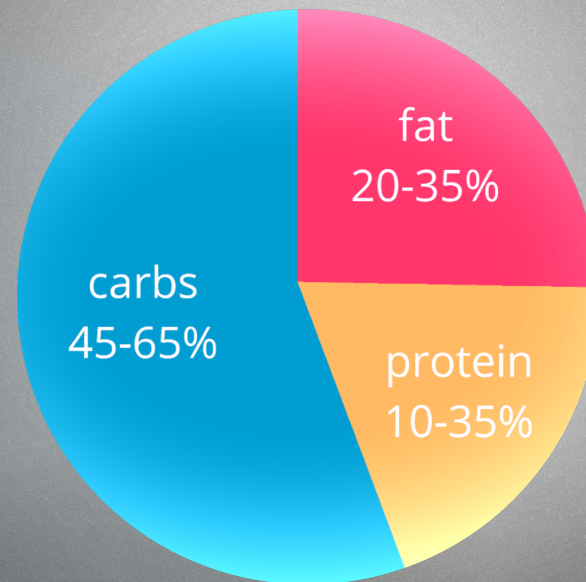
Provide calories for energy

Needed in large quantities

- **B. Micronutrients (vitamins, minerals, and water).**

Needed in smaller amounts

Macronutrients breakdown



GENERAL FACTORS AFFECTING NUTRITION

- Age and gender
- Lifestyle
- Food habits
- Ethnicity, Culture, and Religious Practices
- Social Interaction
- Availability of food
- Peer pressures
- Economy

Social Determinants (factors) of Nutrition

Social factors thought to influence diet include:

- Knowledge and attitudes
- Skills
- Social support
- Societal and cultural norms
- Food and agricultural policies
- Food assistance programs
- Economic price systems

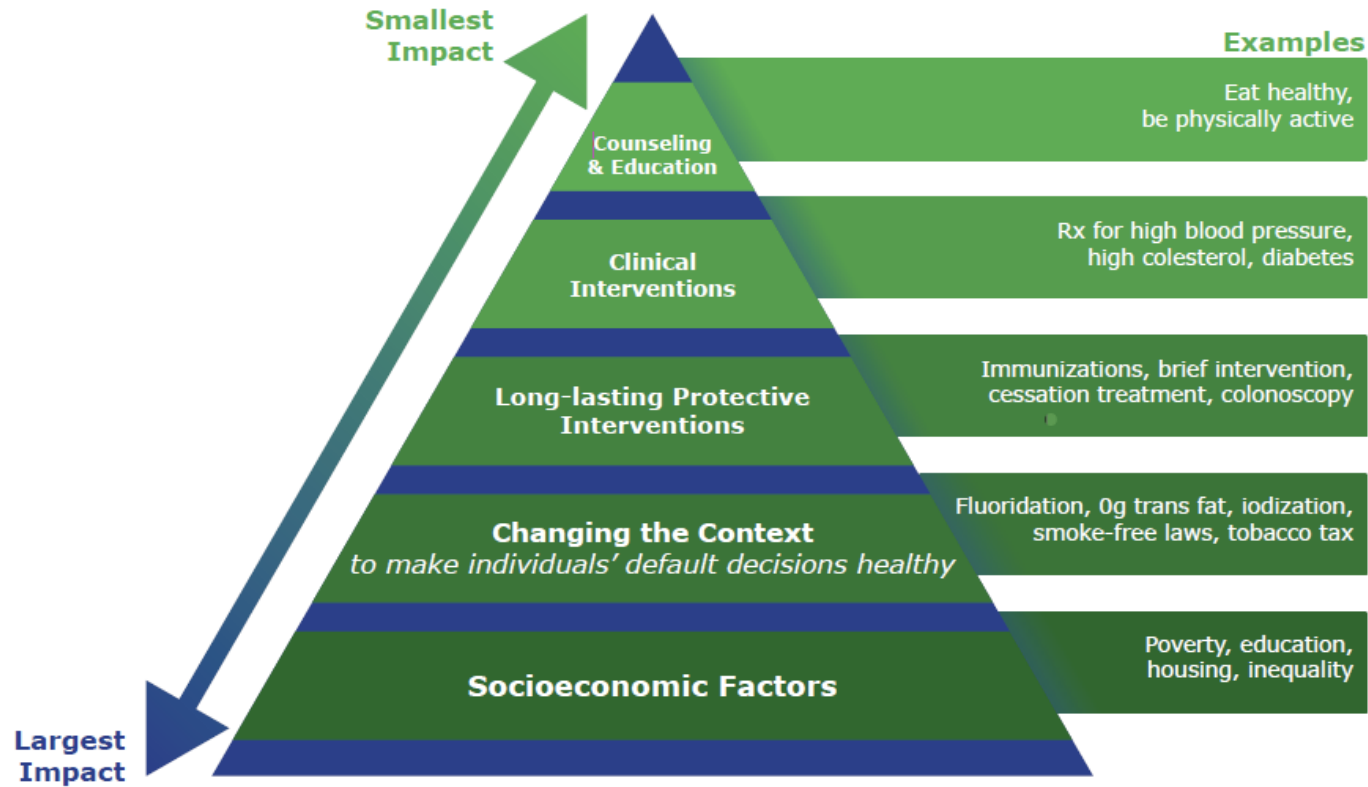
Public health nutrition

- Public Health Nutrition strives to improve or maintain optimum nutritional health of the whole population and high risk or vulnerable subgroups within the population.
- Public Health uses multiple, coordinated strategies to reach and influence the community, and organizations and individuals that make up the community.... with leadership provided by the government.

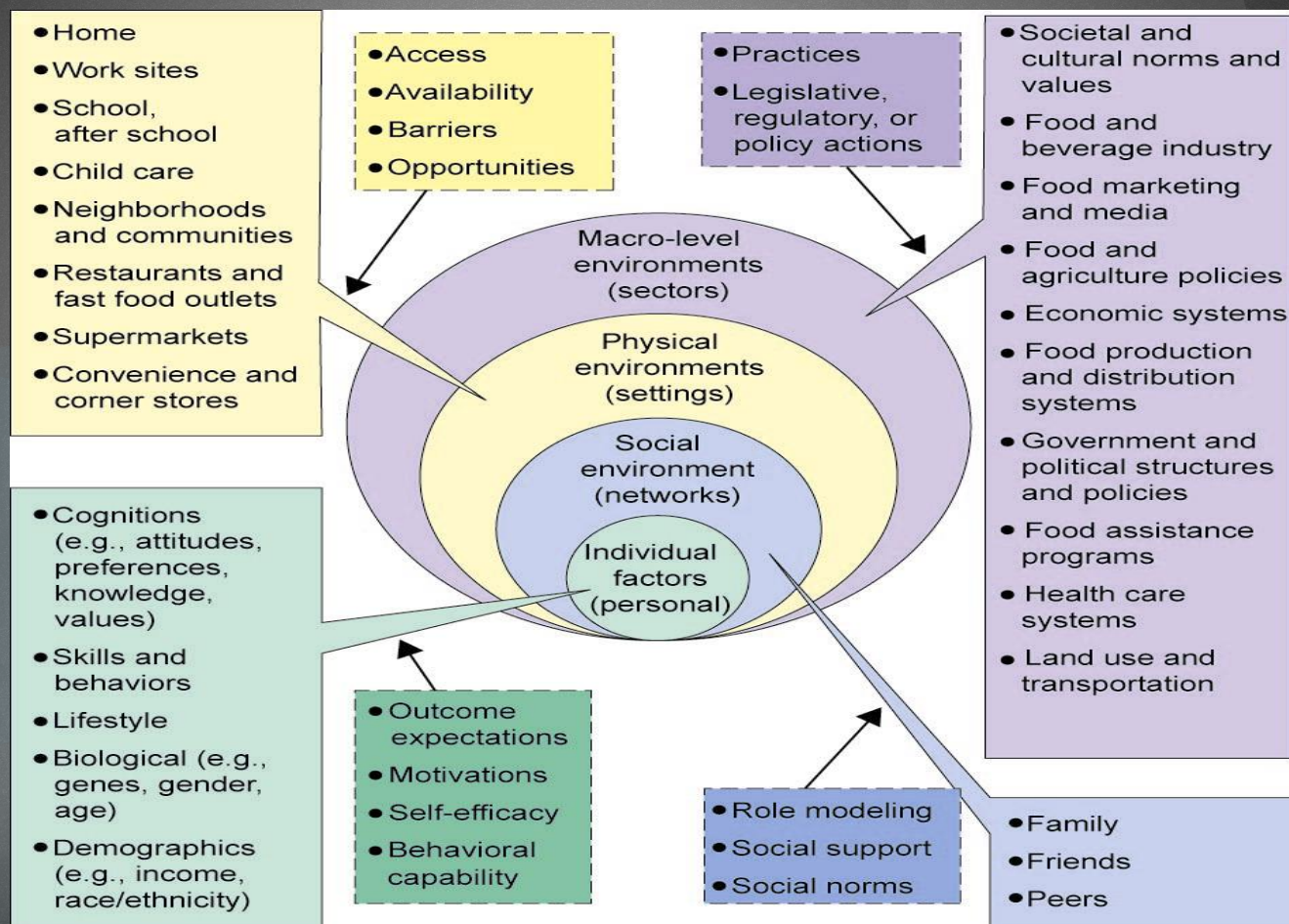
Public health nutrition

- Community nutrition efforts involve a wide range of programs that provide:
- increased access to food resources
- nutrition information and education
- health-related care
- efforts to change behavior and environments
- initiate policy

Health Impact Triangle



Ecological Framework for Influences on What People Eat



Story M, et al. 2008.
Annu. Rev. Public Health. 29:253–72

Basic issues related to health and nutrition

These issues include:

- Iodine and vitamin A deficiencies.
- Starvation and widespread chronic hunger.
- Under-nutrition, especially among children, women and the elderly.
- Other important micronutrient deficiencies including iron.
- Diet-related communicable and non-communicable diseases.
- Impediments to optimal breastfeeding.
- Inadequate sanitation and poor hygiene, including unsafe drinking water.

Food and Nutrition Policy

- A food and nutrition policy is a policy with a preventative and clinical health perspective based on human rights.
- **The basic idea is that all members of the society should be granted enough food to grow and develop without disorders due to malnutrition (under-/overnutrition).**
- The food and nutrition policy should adopt an integrated approach with collaboration among all relevant government ministries, non-governmental organizations (NGOs), and UN agencies.

Reference: Nutrition in Jordan – Updates and Action Plan. Health Promotion Program, WHO

Improving nutritional status is a global health challenge

- It is a challenge that requires effective action across a number of areas (food, health, social welfare, education, water, sanitation, and gender equity)
- and across a number of actors (government, civil society, private sector, research, and international development partners).

Improving nutritional status is a global health challenge

- Poor nutrition is a challenge that casts a long-term shadow: its consequences flow throughout the life cycle and cascade down the generations, affecting everyone— especially children, adolescent girls, and women—and include mortality, infection, cognitive impairment, lower work productivity, early onset, and higher risk of non-communicable diseases (NCDs), stigma, and depression.

Dietary factors are associated with five of the ten leading causes of death

- **Coronary heart disease, some types of cancer, stroke, non-insulin dependent diabetes (type 2 diabetes), and atherosclerosis are associated with dietary factors.** Dietary excesses and imbalances contribute to the development of these diseases.
- Overweight and obesity which are estimated to affect nearly one third of the world population and it is an important contributing factor for disease and disability.

Nutritional assessment

It defines nutritional problems that need attention, it is the first step in the nutrition program planning and management cycle. It provides baseline data for planning and evaluation of programs. It helps in identifying priorities in of the public health system.

Methods of nutritional assessment:

- Historical data: Medical history and diet history (24 hour recall, Food Frequency Questionnaire).
- Anthropometric measurements [height, weight, body mass index (BMI), waist circumference, hip circumference, etc..].
- Clinical assessment (physical examinations).

Nutritional Surveillance

- Continuous monitoring of the nutritional status of selected population groups.
- Data is collected, analyzed, and utilized in an extended period of time.
- Useful in identifying causes of malnutrition, hence can be used in formulating and initiating intervention measures.



Thank you