NUTRITION

What We Eat Does Influence Our Health

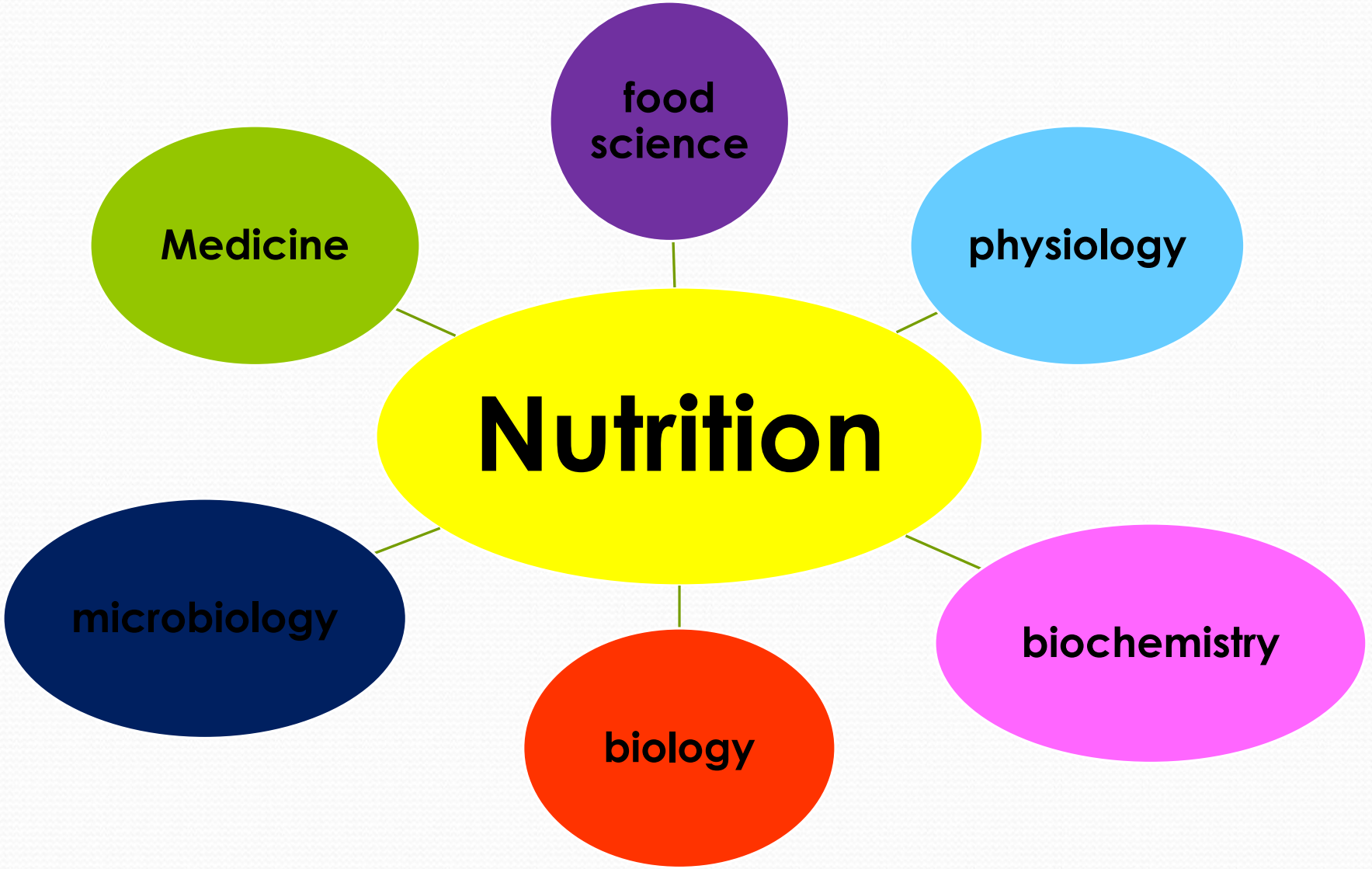
Prof Najlaa Fawzi
Family &Community Medicine Dept.
L-1

Nutrition has played a significant role in our life, even from before our birth.

Many people are concerned only with food that relives their hunger or satisfies their appetite .

But in many times, these foods don't supply their bodies with all the component of good nutrition.

The relationship of nutrition with other sciences



NUTRITION

Defined as the science of food, the nutrients, and other substances, therein, their action, interaction and balance in relation to health & disease, and the process by which they are used by the body.

A broader definition includes the social, economic, cultural, and psychological implications of food and eating.

Food:

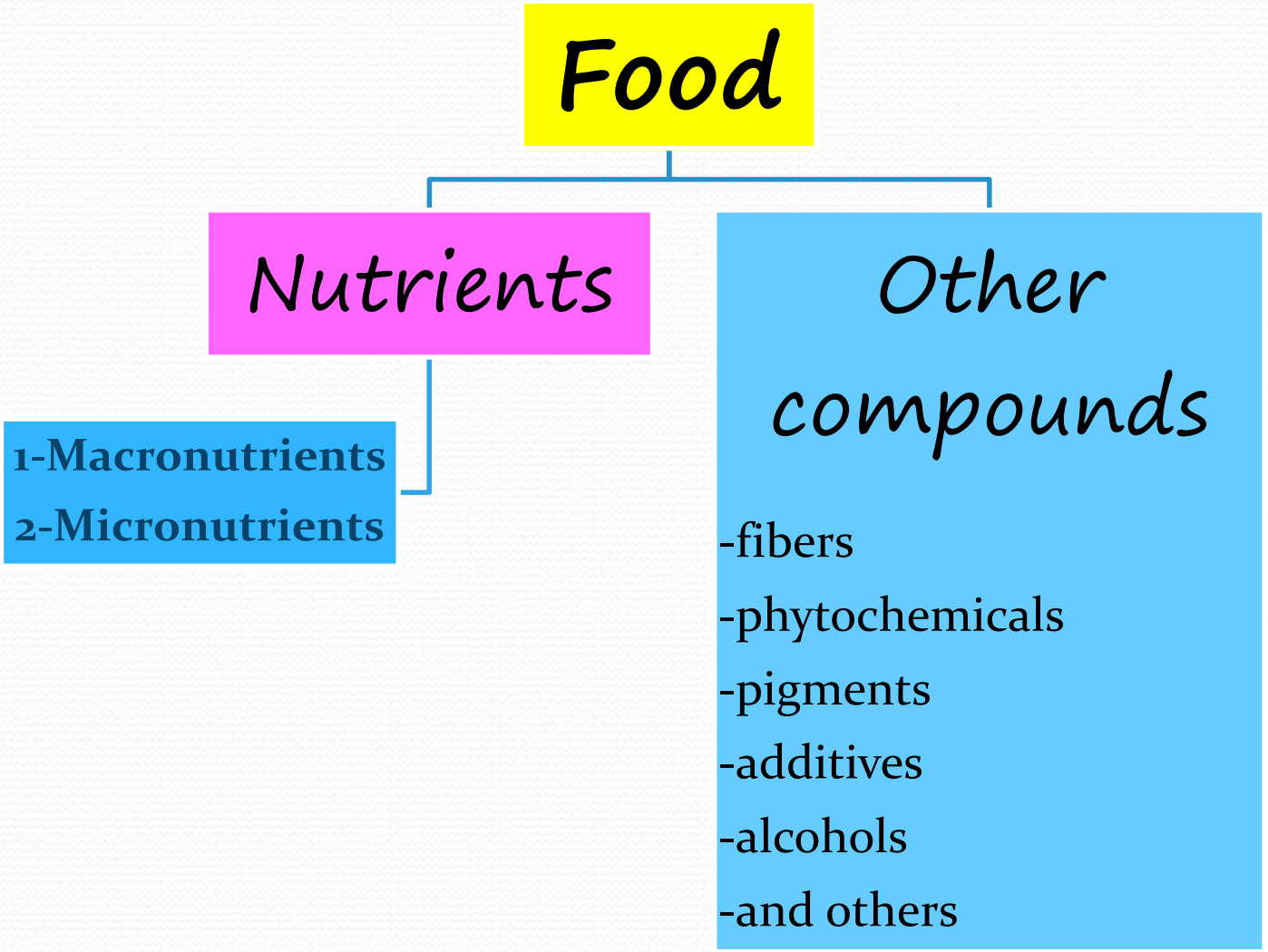
Foods are products derived from plants or animals ,that can be taken into the body to yield energy and nutrients for maintenance of life ,for growth and repair tissues.

Food is that nourishes the body.
Food is a prerequisite of nutrition.

Diet

Diet is the foods and beverages a person eats and drinks.

Food composition



NUTRIENTS

Are those chemical substances in food that are required by the body for energy, growth, maintenance & repair. There are some (45- 50) chemical entities are now known to be required by human.

Nutrients can be divided into the following categories:

Proteins

Essential to growth and repair of muscle and other body parts

Fats

One source of energy and important in relation to fat soluble vitamins

Carbohydrates

Our main source of energy

Minerals

Those inorganic elements occurring in the body and which are critical to its normal functions

Vitamins

Water and fat soluble vitamins play important roles in many chemical processes in the body

Water

Essential to normal body function - as a vehicle for carrying Other nutrients and because 60% of the human body is water

Fiber

The fibrous indigestible portion of our diet essential to health of the digestive system

The Six Criteria for Nutrient

- **Is essential for one or more of the (8) functions of life**
- **Is not synthesized or synthesized adequately in the body**
- **Has a function that is either biochemical or structural**
- **If deficient, a recognizable loss of function or structure results**
- **If deficient the loss of function or structure is proportional to degree and duration of depletion**
- **If deficient the loss of function is, in the short term, reversible by the specific nutrient**

DIETARY ESSENTIAL NUTRIENTS

Nutrients may be essential or non- essential, depending on whether the body can manufacture them.

When the body requires a nutrient for growth or maintenance but lacks the ability to manufacture a mounts sufficient to meet the body's needs, the nutrient is {essential} and must supplied by the foods in our diet.

Other nutrients that the body can make on its own are called {non- essential}.

FUNCTION S OF ESSENTIAL NUTRIENTS

1- Aiding growth & repair of body tissues {protein, *fat, minerals, and water*}.

2- Regulating body processes {protein, *fat, vitamins, minerals, water*}.

3- Providing energy {CHO, *protein, fat*}.

RECOMMENDED DIETARY ALLOWANCES [RDA]

Are define as the level of intake of essential nutrients considered based on available scientific knowledge to be adequate to meet the known nutritional needs of practically all healthy persons.

Nutrient allowances are categorized into (17) classifications based on age & sex. RDA does not provide the needs that have been altered as a result of disease states, chronic usage of certain drugs, or other factors that require specific individual attention.

The average daily intake level required to meet the needs of 97 – 98% of healthy people in a particular life stage and gender group.

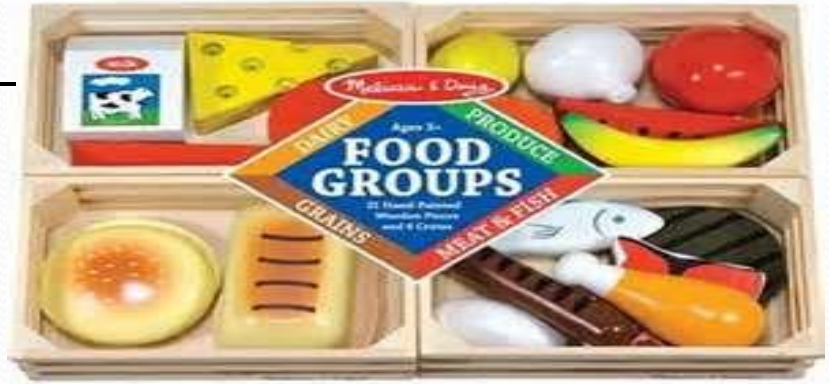
Nutrient intake below 70% of RDA are frequently considered to be the least RDA levels of nutrients below which put an individual at risk of clinical deficiency

Food Pyramid

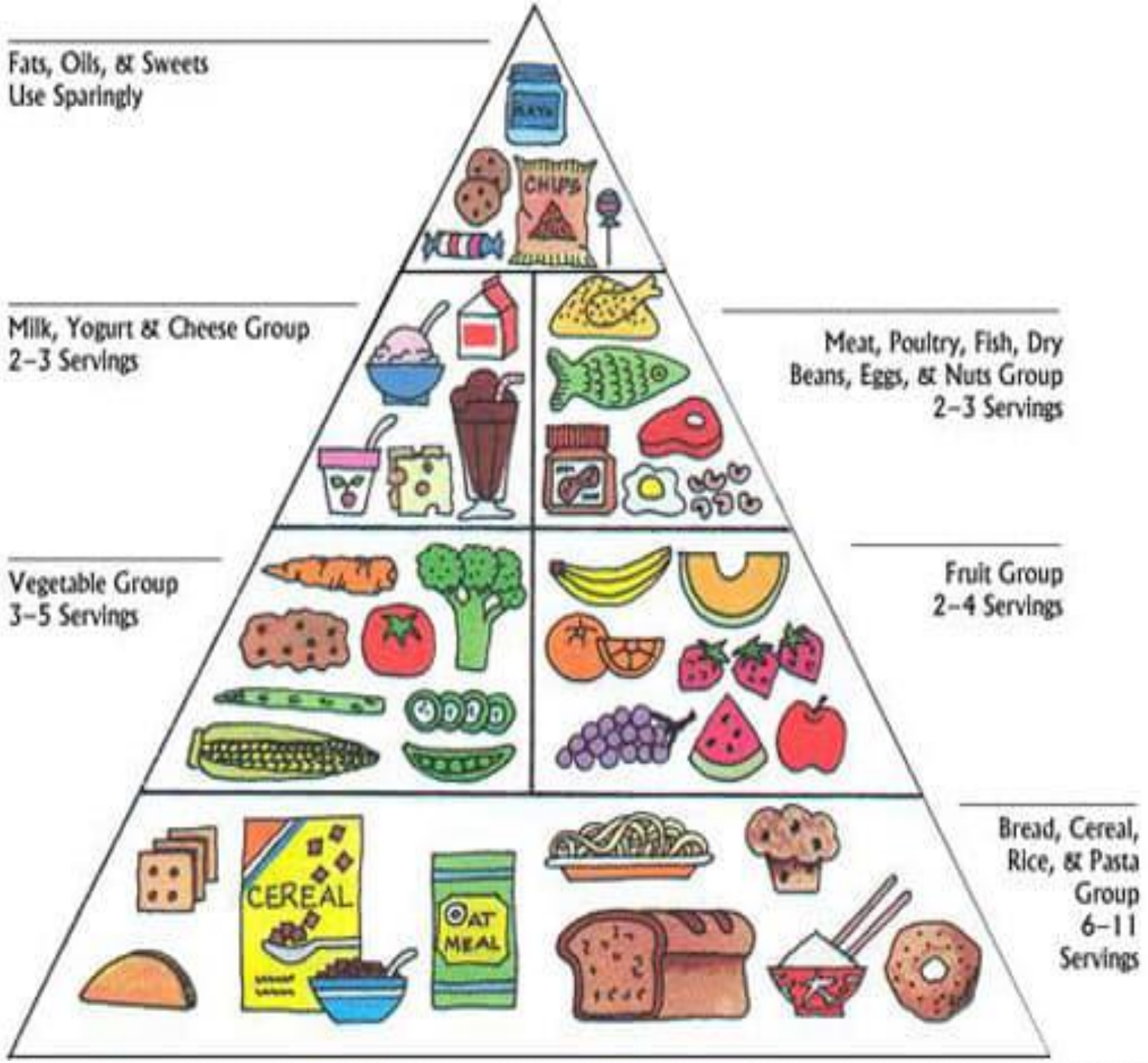
- **This organizes foods into groups based on the dietary guidelines.**

The foods be selected from the:

FOUR BASIC FOOD GROUPS



The food from MILK GROUP, are a major source of calcium, Protein & riboflavin.
[2-3 servings/ day] .


Fats, Oils, & Sweets
Use Sparingly
CHIPS
Milk, Yogurt & Cheese Group
2–3 Servings
Meat, Poultry, Fish, Dry
Beans, Eggs, & Nuts Group
2–3 Servings
Vegetable Group
3–5 Servings
Fruit Group
2–4 Servings
CEREAL
OAT MEAL
Bread, Cereal,
Rice, & Pasta
Group
6–11
Servings

Items in the MEAT GROUP supply protein, fat, iron and other minerals as well as several vitamins, (dry beans, eggs& nuts group).
[2-3 servings/ day]

fruit and vegetables group

Are rich in vitamin C & precursors of vitamin A.
Vegetables group[3-5 servings/ day]; fruit group [2-4 servings/ day].

At least one dark green and one orange vegetable each day. Rich in beta-carotene and folate

Have vegetables and fruit more often than juice
Increased fibre in the whole food
Increases satiety

BREAD & CEREAL GROUP

Provide carbohydrate, several B vitamins & iron. {6-11 servings/ day}.

A portion is the amount of food that you plan to eat at one time.

Serving Size

A serving size is the suggested amount of food or beverage to consume at a meal or in a snack.

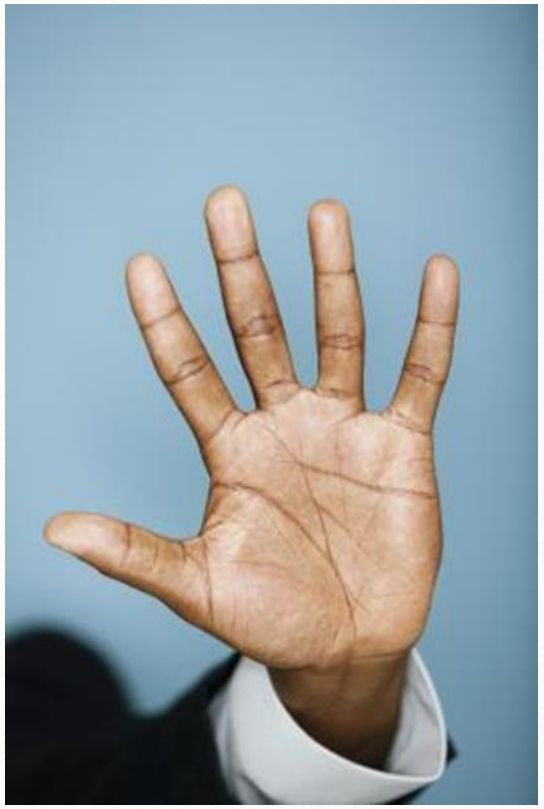
Serving sizes help to regulate the amount of calories consumed each day; they also encourage wide eating a variety of foods to completely meet nutritional needs.

Use Your Hand

Give a hand to determine reasonable servings.

Hand can accurately measure portion sizes.

Fist is about a cup -- the amount should eat of cereal, fruit, soup, salad .



Cup hand and have a half-cup -- the recommended amount of pasta and other starches, ice cream or desserts.

Palm -- not counting the fingers -- represents a roughly 3- to 4-oz. serving of meat, poultry or fish.

HAND:

Breads

PALM:

Meats

FIST:

Veggies, Rice, Pasta, Fruits

FINGERTIP:

Fats (butter)

SIZE IT RIGHT

A guide (based on standards that most nutritionists follow) to what one serving should look like.


steak

=


iPod Classic


cheese

=


matchbox


pancake

=


DVD


pasta

=


ice cream scoop


potato

=


mouse


fish

=


checkbook


butter

=


postage stamp


salad dressing

=


1-oz shot glass


brown rice

=


baseball


peanut butter

=


golf ball


beans

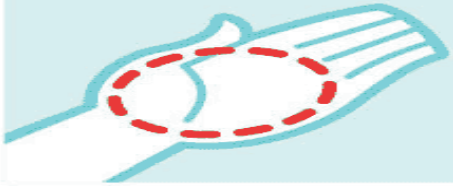
=


lightbulb


dark chocolate

=


dental floss

Hand Symbol	Equivalent	Foods	Calories
	**Fist** 1 cup	Rice, pasta Fruit Veggies	200 75 40
	**Palm** 3 ounces	Meat Fish Poultry	160 160 160
	**Handful** 1 ounce	Nuts Raisins	170 85
	**2 Handfuls** 1 ounce	Chips Popcorn Pretzels	150 120 100
	**Thumb** 1 ounce	Peanut butter Hard cheese	170 100
	**Thumb tip** 1 teaspoon	Cooking oil Mayonnaise, butter Sugar	40 35 15

Nutrition in Every Handful

What is an ounce of tree nuts?
The answer varies depending on the type and size of each nut.

Here are examples of one-ounce portions of each tree nut, along with the average number of nuts per serving.

Almonds
20-24

Cashews
16-18

Macadamias
10-12

Brazil Nuts
6-8

Hazelnuts
18-20

Pecans
18-20
HALVES

Pine Nuts
150-157

Pistachios
47-49

Walnuts
8-14
HALVES

Source: INC and USDA National Nutrient Data Base for Standard Reference, Release 19, 2006. 8/07

CALORIE

Is the energy value of food, expressed in terms of a unit Of heat, this represents the amount of heat required to raise the temperature of 1- Kg (1000 g) water by 1C; the calorie used in the study of metabolism is the large calorie or kilocalorie (Cal or Kcal) (1000 calorie).

Nutrients that PROVIDE Calories:

- ✓ Proteins
- ✓ Carbohydrates
- ✓ Fats

FUEL FACTOR

Or the kilocalorie value [energy potential] of food nutrients; that is the number of Kcal (Cal) that [1 gram] of nutrient yields when Oxidized.

The Cal fuel factor for CHO is 4; for protein 4; for fat is 9 Cal. The basic figures are used to computing diets & energy values of foods. (10 grams Of fat yields 90 Cal).

Empty- calories foods

a popular term used to denote foods contribute energy (from sugars, fat or both)
but lack in protein, vitamins and minerals
Example:(potato chips and candies).

Factors Determining Nutrients Need

1. Age

2. Gender

3. Activity Level

4. Climate

5. Health

6. State of nutrition

Factors Determining Food Choices

PHYSICAL FACTORS

Food supply available, food technology & geography, agriculture distribution, personal economic & income, sanitation, housing, season, climate, storage & cooking facilities.

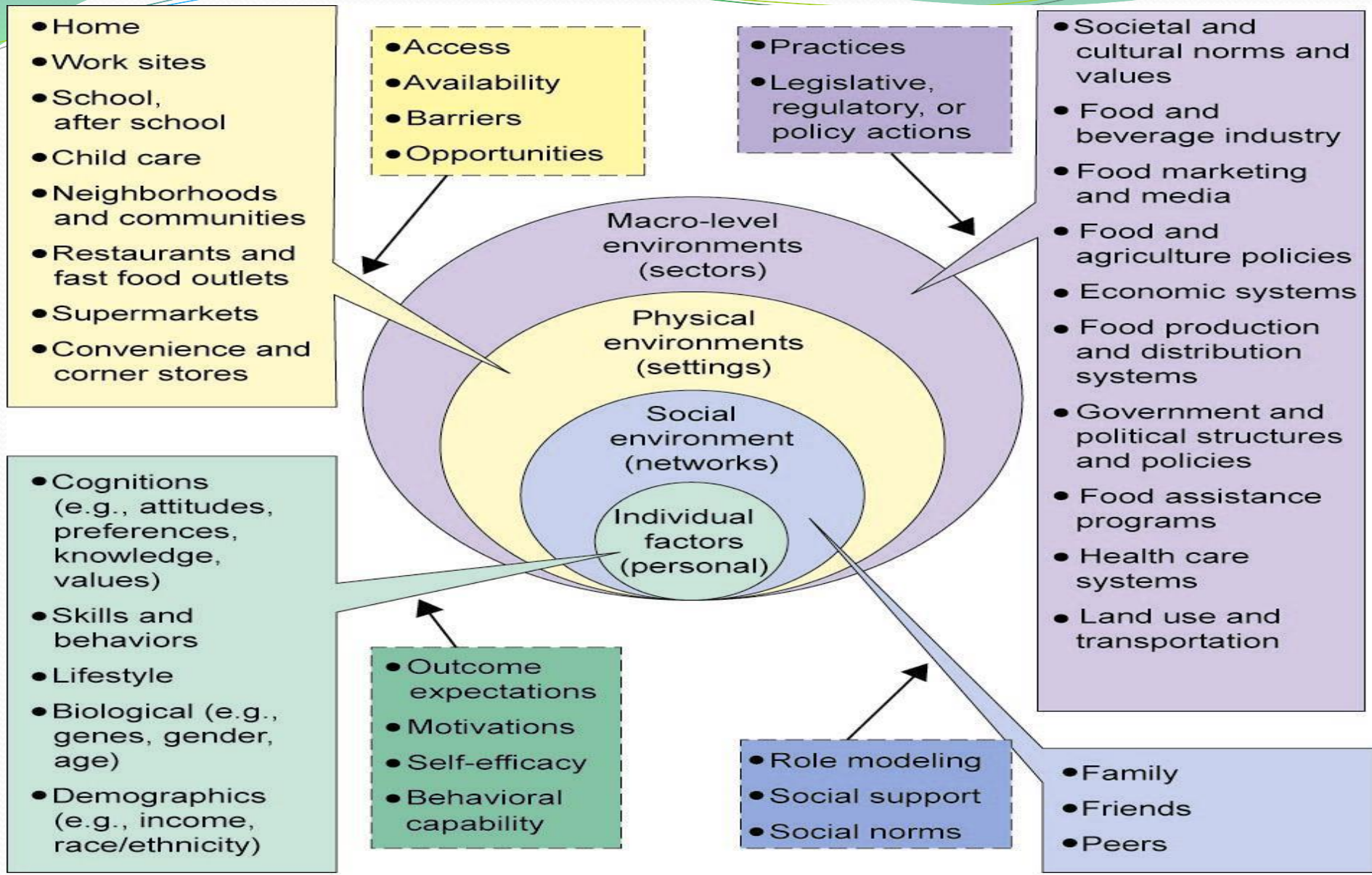
SOCIAL FACTORS

Advertising, culture, education (general & nutrition), political & economic policies, religion & social custom, social class, role of social problems (poverty & alcoholism).

PHYSIOLOGICAL FACTORS

Allergy, disability, health & disease status, personal food acceptance, needs during childhood & pregnancy, energy or nutrient therapeutic diet.

Ecological Framework for Influences on What People Eat



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

Dietary Guidelines

1- Eat a variety of foods

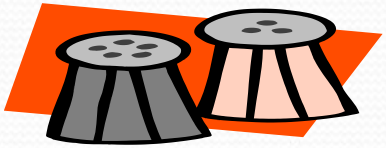
2- Maintain healthy weight

3- Choose a diet low in fat, saturated fat, and cholesterol

4- Choose a diet with plenty of vegetables, fruits, and grain products

5- Use sugars only in moderation

6- Use salt and sodium only in moderation



A nutritious diet has 5 characteristics

- **Adequacy**: foods provide enough of each nutrient, fiber, & energy
- **Balance**: not choosing one food/nutrient over another
- **Calorie control**: eating enough to maintain a healthy weight
- **Moderation:** Foods high in fat, salt, or sugar can be eaten as part of a healthy diet if not eaten to excess.
- **Variety**: necessary in order to get all the nutrients one requires.

NUTRIENT DENSITY

Is defined as the concentration of a nutrient per unit of energy.

It is express the quality of any food in relation to its content of specific nutrient.

For any nutrient, the higher the nutrient density, the better the food source; one whole green pepper contains [20mg] of vitamin C, & provides [4Cal]; while one medium size potato also contains [20 mg] vit C, but provides [100 Cal], therefore, green pepper is much better source of vit C.

EXAMPLE OF NUTRIENT DENSITY




	HIGH CALORIE / LOW NUTRIENT DENSITY	LOW CALORIE / HIGH NUTRIENT DENSITY
Calories:	450	193
Protein:	12 g	20 g
Carbohydrates:	54 g	14 g
Fat:	21 g	5 g
# of Vitamins & Minerals:	13	20
Antioxidants:	No	Yes, Omega- 3 (eggs), Anthocanines, Flavonoids, Phenolics (raspberries)
Enzymes:	No	Yes, in raspberries

shakeology

TEAM BEACHBODY

Calorie Density

The calorie density (or energy density) of a food is a measurement of the average calories per weight (gram or ounce) of that food.

Foods that are low in calorie density tend to be high in water and low in fat.
Examples include fruit, vegetables, low-fat dairy, clear soups and lean meat.
So for 50 calories could eat a cup of strawberries (low calorie density) or one donut hole (high calorie density).

Calories in 1 lb.: 136

Low
Caloric Density

Calories in 1 lb.: 2,600

High
Caloric Density

One giant
cinnamon bun
480 calories

Multiple servings
of fruit and vegetables
480 calories

NUTRITION EDUCATION

Is any combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoption of food choices and other food- and nutrition-related behaviors conducive to health and well-being. Nutrition education is delivered through multiple settings and involves activities at the individual, community, and policy levels.

Nutrition education is part of Applied Nutrition that focuses its resources toward learning, adaptation and acceptance of healthy eating habits, according to one's own food culture and scientific knowledge in nutrition, all with the ultimate aim of promoting health of the individual or community.

It is very useful in health promotion and primary prevention to further the gaining of healthy eating habits in different environments.

It is also a useful strategy in the implementation of therapeutic dietary prescriptions and secondary prevention.

The nutrition education of the public occurs in three different forms:

FORMAL EDUCATION: purposefully planned for implementation in school setting.

NON – FORMAL EDUCATION: takes place through organized teaching and learning events in such places as hospitals, health centers & clinics.

INFORMAL EDUCATION: includes a variety of educational experiences that occur through daily activities.

These experiences include watching television, reading newspapers & magazines, and conversing with other people.

Nutritional counseling

is a two-way interaction through which a client and a trained counselor interpret the results of nutrition assessment, identify individual nutrition needs and goals, discuss ways to meet those goals, and agree on next steps.

Nutrition counseling aims to help clients understand important information about their health and focuses on practical actions to address nutrition needs, as well as the benefits of behavior change.

The goal of nutritional counseling is to help a person to make and maintain the dietary changes.