Harambee University Faculty of Health Department of Nursing

MODULE TITLE: HEALTH PROMOTION AND DISEASE PREVENTION

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Research in health education

- Definition – Research is any activity whose purpose is to find a valid answer to a question that has been raised. Research means to discover information.
- To design, collect, analyze data and interpret findings.
- Research is a scientific method of problem solving.
- Investigation undertaken in order to discover new facts, get additional information. Etc.

Research in health education Con---

1. **Types of research –**
   A. Basic research
   B. Applied research.

A. Basic research is that which is conducted to establish fundamental factors or to develop or test theory. It is aimed to at producing new knowledge.

B. Applied research – is that which is conducted to find solutions to practical problems. It focuses on procedures, techniques and methods of patient care.

Research in health education Con---

Purpose of research

- The over all purpose of research for any profession is aimed at discovering the truth of the discipline.

More specifically research can be conducted to:

- Describe phenomena.
- Discover relationship among phenomena.
- Explain phenomena.
- Predict phenomena
- Control phenomena.

Research in health education Con---

The goal of nursing research is to facilitate to the development of clinical nursing investigations that will improve health outcomes and contribute to the optimal delivery of the health care.

Research in health education Con---

Research can be sued to find the knowledge of the community about: Health, Health practices, Attitude of the people towards health and this is called KAP studies. (knowledge, Attitude and Practice study).

How to collect information

I. **Observation –** By watching & listening
II. **Interviewing** – Involves discussion and questioning.
III. **Records and documents –** Written observations and experience of other people.

Research in health education Con---

I. **Observation –** Know what and how to observe. E.g. Assume children in a certain village are suffering from diarrhea. Observe the water source, personal and environmental sanitations.

II. **Interviewing –** An interview is the way of gathering information through communication between the interviewer & the interviewees.

Research in health education Con---

- Interviewer > Some one who wants the information.
- Interviewees' > people who can supply the information. Do careful planning of the interview.

  Who talk?
- Who in groups/individuals

  Where?
- When what to obtain (get).

Research in health education Con---

III. Using records and documents: Written information.

Most organizations keep records and reports of their activities. Examples: Patient files/cards, clinic, health center/hospital. Annual reports, monthly reports. Polyclinic attendance.

(a hospital or school where diseases and injuries of all kinds are studied & treated.

Research in health education Con---

Special reports MCH, FP, EPI

Disease reports: Epidemic reports. Etc.

Research methods in health education:

Generally there are two major categories.

1. Quantitative techniques – to count & measure e.g. surveys.
2. Qualitative techniques – to probe opinions, practices and beliefs.

Research methods in health education con---

1. **Surveys –** surveys are quantitative methods used to collect information.

The quality of the survey is determined by several factors. Among these the followings are included.

- How valid the instrument is.
- How representative the sample is.
- How the survey is administered. Among the quantitative methods, cross-sectional

Research methods in health education con---

- ✓ KAP (knowledge, Attitude, Practice), surveys are common in behavior related studies. Data are collected using questionnaires.

- ✓ The questionnaire includes questions that address knowledge, attitudes and practice.

- ✓ Measuring these parts separately and adequately is usually a challenge to researchers.
- ✓ One of the most important things is to prepare questions that can measure what the researcher intended to measure and to have carefully designed and conduct studies.

The Role of Health Educator.

The health educator should be able to know the principles of health education.

1. The health educator should be aware of the customs, health problems, health need and attitudes of the local community.

The Role of Health Educator Con---

2. Respect must always be shown to the community leaders and non harmful community customs.

3. When there is need for direct instruction or correction of harmful attitudes and practices there should be no harsh (cruel, unkind) or scolding (abuse) or force.

The Role of Health Educator Con---

4. The educator should be acceptable to the local community.

5. The time, place, and people to be taught must be carefully considered. The topic and method of teaching chosen should meet the need of the audience.

6. The most essential and important topics should be given priority.

The Role of Health Educator Con---

7. The teacher should evaluate his/her own teaching to see if it is effective.

8. Involvement in planning programs and participation by the learners is necessary for good result.

Ethical Issues In Health Education

Objectives

At the end of this chapter, the trainees will be able to:

- Define ethics
- State basic principles of ethics
- Describe the responsibilities of health educator to community.

Definitions

- Ethics is the philosophical study of the moral value of human conduct and the rules that govern it.
- It is the right thing to do for society and self.
- Moral refers to those beliefs about how people ought to behave. Basic ethical principles

Ethical Principles

- The major principles of nursing ethics are:

❖ **Autonomy (self-determination)**

❖ **Beneficence (doing good)**

❖ **Nonmaleficence (Avoiding harm)**

❖ **Veracity (telling truth)**

❖ **Confidentiality (respecting privileged information)**

❖ **Justice (treating people** fairly)

1. The principle of autonomy

- Respect for autonomy involves respecting another persons rights and dignity such that a person reaches a maximum level of fulfilment as a human being.

- Rights in relation to health care are usually taken to include:

  - The right to information
  - The right to privacy and confidentiality
  - The right to appropriate care and treatment

2. Beneficence (doing good)

- Beneficence means doing or promoting good as well as preventing, removing and avoiding evil or harm.

- E.g. provide information about emergency first aid to reduce the risks of HIV infection or accident.

3. Non-maleficence (doing no harm)

- Non-maleficence holds a central position in the tradition of medical ethics and guards against avoidable harm to subjects.

- In short, it refers to non-infliction of harm to others. E.g. use of sterile needles.

4. Justice (fairness)

- This principle states that human being should treat other human being fairly and justly in distributing goodness and badness among them.

- In other words justice should include:

    - Fair distribution of scarce resources
    - Respect for individual and group rights
    - Following morally acceptable laws

5. The principle of truth telling (honesty

- At the heart of any moral relationship, there is communication.

- A necessary component of any meaningful communication is telling the truth, being honest.

6. Confidentiality

- Confidentiality means ***trust***.

- Confidentiality in the health care context is the requirement of health professionals (HPs) to keep information obtained in the course of their work private.

- Confidentiality is non-disclosure of private or secret information with which one is entrusted.

Nutrition and Health





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Relation of nutrition to health

Learning objectives:

After the completion of this session, you will be able to:

- Define what nutrition is, and some terminologies.
- Explain the relation between nutrition and health
- Identify factors affect nutrition or food pattern
- Recognize why we invest on nutrition

- **Why human beings need food?**

Introduction

- **Nutrition:-** Is the science of food, the nutrients and other substances action, interaction and balance in relation to health and disease

- It studies the process by w/c the organisms ingest, digest, absorb, transport, utilizes and excretes food substances.

- Nutrition deals with the nutrients, their characteristics, function, body's quantitative need for them and their source, the effect of an inadequate intake and for some nutrients an excessive intake.

- Nutrition must be concerned with social, cultural and physiological implications of food and eating .
- Life cannot be sustained without adequate nourishment.
- Man needs adequate food for **growth**, **development** and to lead an active and healthy life.
- **Food:** is anything edible as defined based on specific culture, religion, etc.
- It includes all foods and drinks acceptable to be ingested by certain society.

Function of food:-

- Physiological :for growth and development
- Social or cultural: to express certain cultures
- psychological: sense of security, love and attention
  - » Sharing of food is taken as friendship

The food pattern of people is influenced by many factors including:

- Food availability
- Economic condition,
- Culture,
- Knowledge,
- Attitude towards food,
- social pressure,
- Physical ability,
- Geographical location,
- Religious, ethnic belief and loving habits etc.

- **Nutrients**:- are **active ingredients** in the food that play specific structural or functional roles in the body's lively activity.

  E.g. Carbohydrate, protein, lipid, minerals &vitamins
- Nutrients are classified according to body requirement as:
- **Macronutrients:-** are nutrients that are required by our body in **larger quantities** on a daily basis and need to be transformed in to smaller units by the body in order to give essential function in the body processes.

  Eg: - carbohydrate, lipid, proteins ,water

- **Micronutrients:-** are nutrients that are required in **smaller quantities** by the body and perform essential physiological and structural functions .eg:minirals ,vitamins
- Nutrients are also classified according to their function as:

- **Energy giving**: carbohydrate, lipid, protein

- **Promote growth and development:** lipids, proteins, vitamins, minerals, water

- **Regulatory function:** lipid, proteins, vitamins, minerals, water.

- **Malnutrition**:- is the condition caused by an **improper balance between** what an individual eats and what he required to maintain health.

- Malnutrition occur due to **excessive in take of nutrients or under nutrition**

- **Diet**: is the sequence of meal in a day.
- It is concerned about the eating patterns of individuals or group.
  - The kinds of food that a person,animal,or community habitually eats.
- E.g. some people may eat twice (breakfast and dinner). Others may eat four times (breakfast, lunch, snack and dinner) in a day, still others may remain munching all the day round, etc.

- **Balanced diet**: is a diet that contains **all the essential nutrients** in the proportion that is optimal for long- term health and survival.

Why invest on nutrition?

- Improving nutrition contributes to productivity, economic dev't, and poverty reduction by improving physical work capacity, cognitive dev't, school performance & health by reducing disease & mortality.

- Poor nutrition perpetuates the cycle of poverty and malnutrition through several ways like:-
- Rates of stunting in children <5 yrs have increased or remained high
  - The number of stunted children is rising dramatically in African

- In Ethiopia; stunted(low height for age), Underweight (low wt for age) and Wasted (low wt for height) were 47%, 38% and 11% respectively [EDHS 2005].

- In Ethiopia; stunted, Underweight and Wasted were 44%, 29% and 10% respectively [EDHS 2011].
- Functional Consequences
  - Mortality and Illness
  - Intelligence loss
  - Reduced productivity

- **Economic Consequences of Malnutrition is due to:**
  - Mental Impairment
  - Physical Stunting

- Consequence of Stunting:- reduce productivity *as 1.4% decrease in productivity for every 1% decrease in height*

- Inadequate nutrition in early childhood *1st 24 months leads to reduction of 11 cm in height*

- Anemia (Iron deficiency) leads to productivity loss:
- Decreased physical growth in children and results in short stature
- Impaired learning (Decreased attention span) in children
- Poor metabolic efficiency and physical productivity

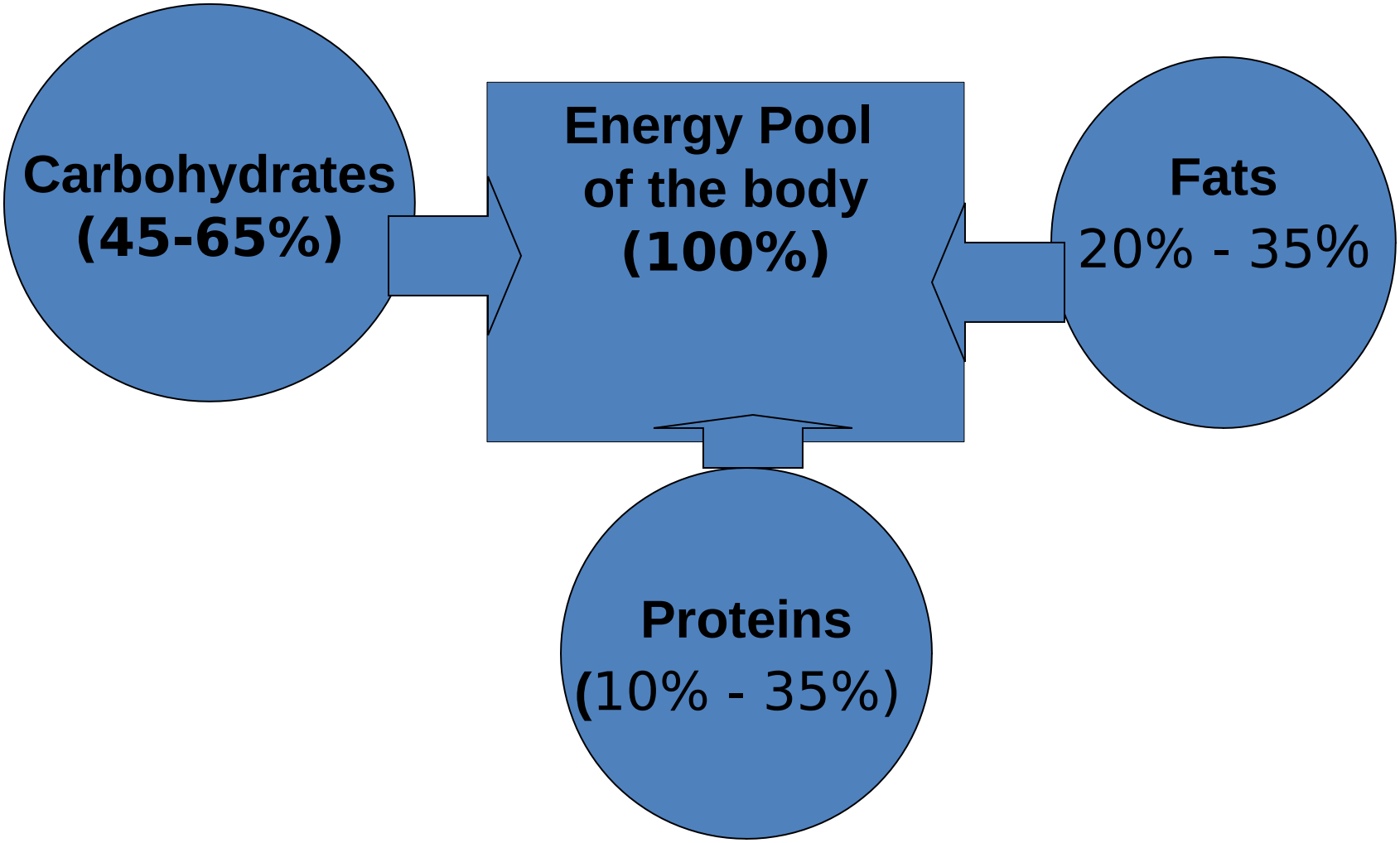
NUTRIENTS

Constituents of Food and their function

MACRONUTRIENTS

WHAT ARE MACRONUTRIENTS?

Macronutrients contribute to the energy pool of the body



Macronutrients

- Macronutrients are nutrients that provide calories/energy. Since “macro” means large, they are nutrients needed in large amounts. There are three macronutrients:
  - **Carbohydrate**
  - **Protein**
  - **Fat**
- While each of these macronutrients provides calories, the amount of calories that each one provides varies.
  - Carbohydrate provides 4 cal/gm.
  - Protein provides 4cal/gm
  - Fat provides 9 cal/gm.

Starchy foods



A.D.A.M.

Carbohydrates:

- Are organic molecules that are usually made up of elements **carbon, oxygen and hydrogen.**

- There needs to be at least three carbons for molecule to be carbohydrate.

- Mostly the hexoes (six carbon sugars) and pentoses (five carbon sugars) their polymers play an important role in nutrition.

- In their simplest form (starch and glucose), the general formula is $C_nH_{2n}O_n$.
- The ratio of hydrogen to oxygen is 2:1.

Carbohydrate….

- Green plants produce the carbohydrates by the process of **photosynthesis.**

- **CO_2 + H_2O + solar energy** $\xrightarrow{\text{chlorophyll}}$ **glucose + chemical energy**

- **Starch** is the main end product of the process of photosynthesis, which is the most abundant and stored in plants.

- Plants are the only producers of carbohydrate for animal kingdom.

Classification of carbohydrate:

- Simple classification of carbohydrates (CHO) that are important in nutrition is *based on the number of single CHO molecules* found in each chemical structure.

Classifications:

A. Monosaccharides $C_6H_{12}O_6$

B. Disaccharides $C_{12}H_{22}O_{11}$

C. Oligosacharides $(C_6H_{10}O_5)n, n=3-9$

D.Polysaccharides $(C_6H_{10}O_5)n, n>10$

Body distribution

- The amount of carbohydrate in the adult body is about 300 to 350gram.
  - 100gm is stored as glycogen in the liver,
  - 200-250gm is present as glycogen in cardiac, smooth and skeletal muscles
  - about 15gm make up the glucose in the blood and extra cellular fluids.

Functions of carbohydrate:

- **Energy**: carbohydrates are the least expensive source of energy to the body. 1gm = 4cal energy.
  - Glucose is the primary sources of energy for the nervous system and the lungs.
- Carbohydrate provide the carbon skeleton for the synthesis of the non essential amino acid by the body.

Functions of carbohydrate…

- Carbohydrates constitutes of number of essential body compounds. Such as:-
  - **Glucoronic acid**: detoxifying agent in liver
  - **Hyaluronic acid**:- a viscous substance that forms matrix of connective tissue
  - **Heparin**:- prevent clotting of blood

Functions of carbohydrate…

- **Immunopolysaccharides**:- as part of body mechanism to resist infection

- **Deoxyribonucleic acid(DNA)** and ribonucleic acid **(RNA)-** genetics characterise of cells

- **Galactolipins**:- as constitute of steroids and adrenal hormones

Digestion of carbohydrate

- The purpose of carbohydrate digestion is to hydrolyze the disaccharides and polysaccharides of the diet to their constitute simple sugar.

- Digestion of carbohydrate (starch) digestion begins as these mixes with saliva during the chewing of foods.

- Saliva contains an enzyme **salivary amylase** that break down starch in to smaller units or **dextrin**.

Absorption of carbohydrates

- Most absorption occurs from the jejunum by active or passive transport like diffusion depending upon the concentration in the circulation.

- Fructose absorbed only by passive diffusion.

Metabolism of carbohydrates:

- Carbohydrate and fats are main source of energy (ATP) for animal cells.
- It is usually obtain from: Digestion of food, dietary fructose and galactose, liver glycogen.

- Once the absorbed carbohydrate have the three fates depending up on the bodies energy balance:

  - Utilize either aerobically (glycolysis) or anaerobically (creb cycle) to reduce energy in the form of ATP.
  - Stored in the form of glycogen in the liver
  - Stored in adipose tissue in the form of fat if body is plethoric of energy.

- Following absorption from the small intestine, the monosaccharide are carried by the portal vein to the liver.

- The liver exercise the principle controls of the pathways that glucose (& other nutrients) shall take.

- In liver the following process are occurred:
  - Glycogenesis: Formation of glycogen from sugar
  - Glycogenolysis; Breakdown of glycogen
  - Gluconeogenesis: Generation of glucose from non-carbohydrate sources
  - Lipogenesis:Synthesis of fatty acids from non-lipid sources

- The metabolisms of carbohydrates controled by ***Insulin and Glucagons***

- **Insulin** is secreted by the beta cells of the islets of Langerhans and the secretion is stimulated by Hyperglycemias and Parasympathetic nervous activity.

Function of insulin

- To facilitate glucose transport to the liver and muscle cells
- To facilitate formation of glycogen in the liver and muscle cells

❖**Glucagons** is secreted by the alpha cells of the islet of Langerhans and the secretion is stimulated by Hypoglycaemia and Sympathetic nervous activity.

Function of glucagons:

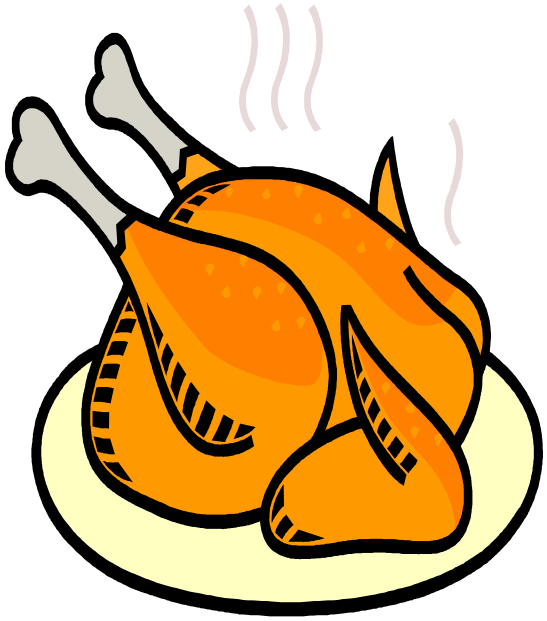
- To facilitate the breakdown of glycogen in the liver and muscle cells into glucose.

Food sources of Carbohydrates :

- **Free sugars from**: fruits, juices, Soft drinks, , milk, sugar, sugar cane, honey and,

- Cereal grains, Legumes & dried fruits, vegetables, processed foods (pasta), pastries, breads, candies fruits like banana, and sweet potato

Proteins







Protein…

- Proteins are extremely complex nitrogenous organic compouds that contain carbon, hydrogen, oxygen, nitrogen and with few exception of sulfur.

- The basis of protein structure is the ***amino acid***, of which 20 have been recognized as constituents of most proteins.

WHY DO WE NEED PROTEIN TO SURVIVE ?

We need protein for:

- Growth (especially important for children, teens, and pregnant women)
- 10% - 35% of calories should come from protein incase of Energy when carbohydrate is not available
- Tissue repair and maintenance(Blood clotting—production of fibrin)

Proteins…

- Immune function
- Making essential hormones and enzymes, antibodies
- Preserving lean muscle mass
- Control Fluid movement in the body (balance --- albumin & glublins)
- Buffer(PH control):- acid-base balance

Food sources of proteins

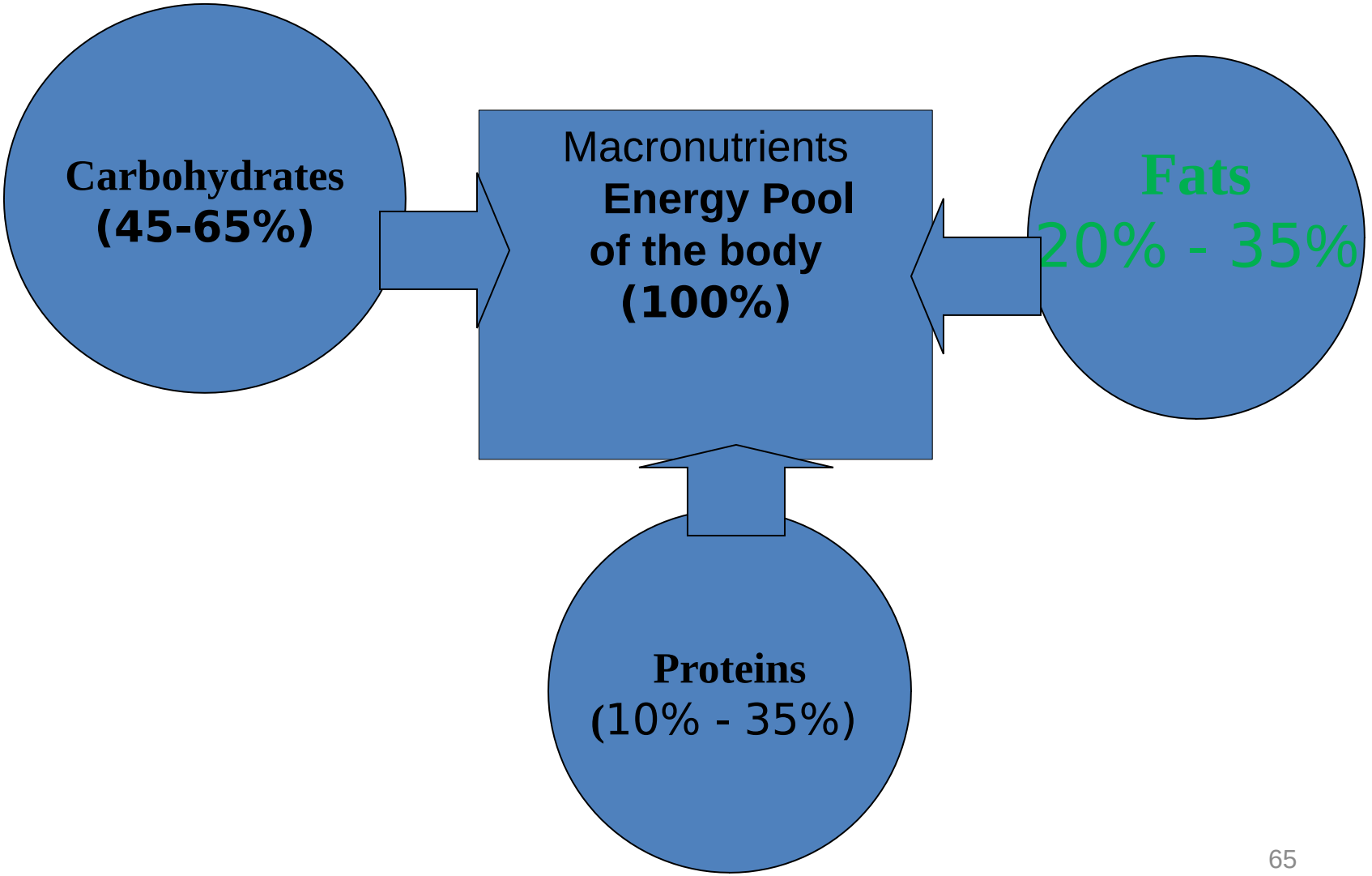
Animal source foods

- Beef, Lamb, pork (*Brown meat*)
- Fish, chicken (*White meat*)
- poultry, meat substitutes, cheese, milk,

Plant source foods

- nuts, legumes, Soya bean cereals and legumes.

3. Lipids


Carbohydrates
(45-65%)
Macronutrients
Energy Pool
of the body
(100%)
Fats
20% - 35%
Proteins
(10% - 35%)

Lipids

- Lipids are fats, oils and fat like substance that have greasy feel and that are insoluble in water but soluble in certain organic solvents like ether, alcohol and benzene.

- Lipids are organic compounds of carbon, hydrogen and oxygen but have more carbon and hydrogen proportion in to their oxygen so can supply more energy per gram.

- **Fat** provides **9 calories per gram.**

Lipids…

- The main constitutes of all lipids are **fatty acids**.

➢ **Why do we need fat to survive?** Although fats have received a bad reputation for causing weight gain, some fat is essential for survival.

We need the following this amount of fat for:

- **Body composition**: all body cells contain some fat (normally, female=18-25% fat, male=15-20% fat) in their adipose tissue, subcutaneous tissue and in abdominal cavity.

Why do we need Cont…

- **Energy**: 20% - 35% of calories should come from fat (fat is the most concentrated source of energy) 1grm=9kcal

- **Safety function**: fat foods help to give us full and contend feeling after meal.
- Fat reduce gastric motility and remain in the stomach longer (delay sensation of hunger).

Why do we need Cont…

- **Normal growth and development**: Cell differentiation and growth.

- **Carrier** of fat soluble vitamins: Serve as a vehicle for the absorption of lipid soluble vitamins (like vitamins A, D, E, K, and carotenoids).

- **Palatability**: Providing taste, consistency, and stability to foods

Why do we need Cont…

- Energy storage, mobilization, and utilization
- Prostaglandin, cytokine synthesis
- Hormone synthesis
- Bile acid synthesis
- Nerve impulse transmission

Cont…

FOOD SOURCES

- Red meat and products made from whole milk and butter, white meat (*Fish and chicken…)*



2. Micronutrients

Introduction

- Very minute quantities of vitamins and minerals are needed for health and these are measured in micrograms or milligrams, thus supporting their description as micronutrients.

- These elements are essential; they cannot be manufactured by the human body and must be obtained through dietary means.

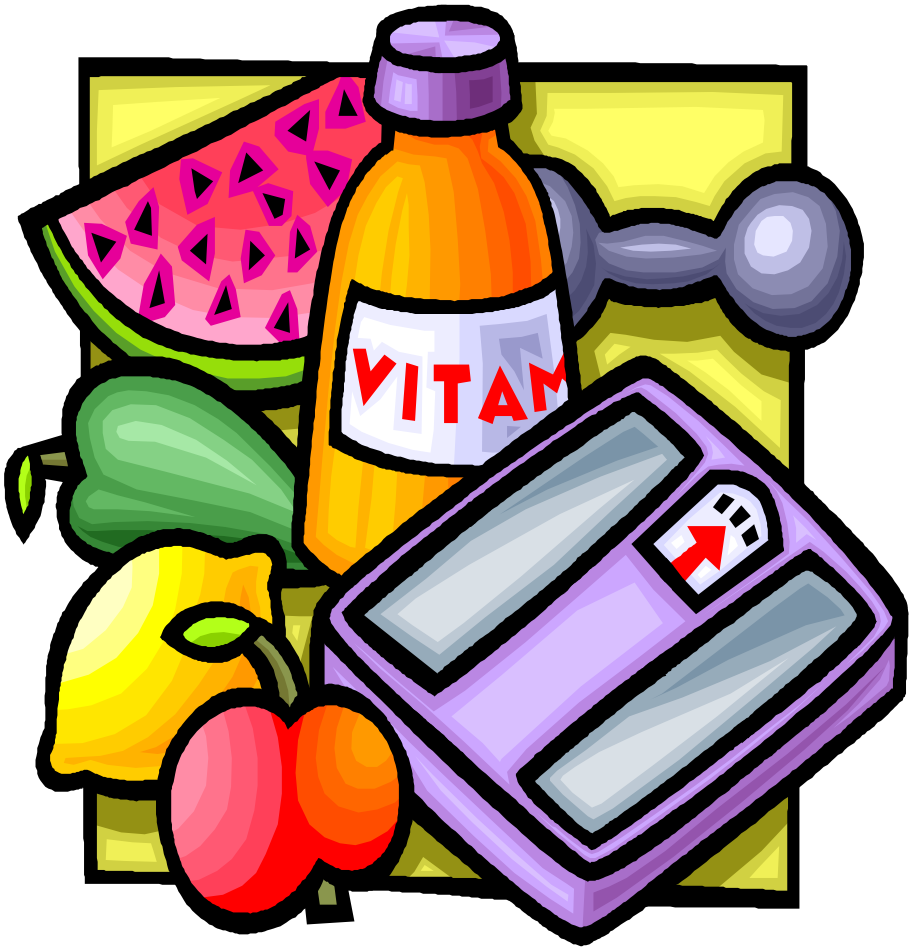
- Deficiencies of most micronutrients are known to have devastating health consequences.

- They increase the overall risk of mortality and are associated with a variety of adverse health effects, including;
  - poor intellectual development and cognition
  - decreased immunity, and
  - impaired work capacity.
- The adverse effects of micronutrient deficiencies are most severe for children, pregnant women, and the fetus.

- Approximately 30% of the world's population is unable to use their full mental and physical potential as a result of micronutrient malnutrition.

- generally Micronutrients are:
  - Required by the body in small amount
  - Do not need to be converted in any way to function in biological processes
  - Include both vitamins and minerals

Vitamins



1.Vitamins

- Vitamins are organic substances present in minute amounts in foodstuffs.

- Necessary for metabolism as co-factors.

Sources of Vitamins

- Whole grains, enriched or fortified cereals, liver, poultry, fish, eggs, dark green vegetables, pork
- Fruits, chilly, lemon

Minerals

- Are essential substances required in small amounts for the body
- Minerals are inorganic elements that can be ionized when in solution.Once they enter to the body, they remain until excretion without change.
- They participate in many biochemical and physiological processes necessary for
  - optimum growth
  - development and
  - health

Characteristics

- Naturally occurring
- Neither can minerals be destroyed by heat, acid or mixing
- Constitute about 5-6% of the total body weight.

Classifications

Major minerals

- Estimated daily dietary need is 100mg or more and represent more than 0.01% of total body weight (>5gm)

e.g. Calcium, phosphorus, sodium, potassium, chloride and magnesium

Minor minirals

- Required in less than 100mg amount per day and present in the human body in less than 0.01% of total body weight (<5gm)
- Minor minerals may act as co-factors in the human tissue and or are part of various compounds

e.g. Zinc, iron, iodine, cobalt, selenium, copper, fluoride etc.

Dietary source

- cereals and grain products; animal products (egg yolk, red meat, chicken, fish)

- Milk and milk products(cheese, yogurt)
- Green leafy vegetable and cereals

- Banana and pineapple and others like cereals, pulse, roots and tubers, fruits and vegetables

Health Belief Model

Introduction

- The Health Belief Model states that **people's beliefs influence their health-related actions or behaviours.**
- **Components of the health belief model.**

1. Perceived Susceptibility
2. Perceived severity
3. Perceived benefits
4. Perceived barriers
5. Cues to action
6. Self-efficacy

1. Perceived Susceptibility

- It refers to a person's belief about the **seriousness or severity of a disease.**
- It is a **person's belief about their chances of getting a certain condition.**
- For a person to take action, they must believe they are at risk for disease, illness or negative health outcomes.

2. Perceived Severity

- Perceived severity refers to a person's belief about the **seriousness or severity of a disease.**

- Severity can be based on medical consequences, like death or disability, or personal beliefs about how the condition or disease would affect their life.

3. Perceived Benefits

- It refer to a person's **opinion of the value or usefulness of a new behaviour** in lowering the risk of disease.
- To make a change, people must believe that the change will have a positive result.
- For example, people with diabetes take medication believing it will work to control blood sugar.

4. Perceived Barriers

- Perceived barriers are the **most significant factor** in determining behaviour change.
- These are a person's view of the obstacles that stand in the way of behaviour change.
- It can be a lack of financial resources, lack of transportation, childcare needs, etc. Intangible barriers may be psychological, like fear of pain, embarrassment or inconvenience.

5. Cues to action

- Cues to action are **events, people, or things that trigger people to change behaviour.**
- E.g. Advice from others, the illness of a family member or social media can provide cues.
- Cues can also be internal, such as chest pain, discomfort or fatigue.

6. Self-efficacy

- Self-efficacy is **a person's confidence and belief in ability to take action or perform a given behaviour.**

- People generally do not try to adopt new behaviours unless they believe they can do them.

- Self-efficacy can be increased with encouragement, training and other support.

Summary

Health Belief Model Concepts	
Perceived Susceptibility	An individual's assessment of their chances of getting a disease or condition
Perceived Severity	An individual's judgment of the severity of the disease
Perceived Benefits	An individual's conclusion as to whether the new behavior is better than what they are already doing
Perceived Barriers	An individual's opinion as to what will stop them from adopting the new behavior
Cues to Action	Factors that trigger behavior change
Self-efficacy	Personal belief in the ability to do something


Thanks