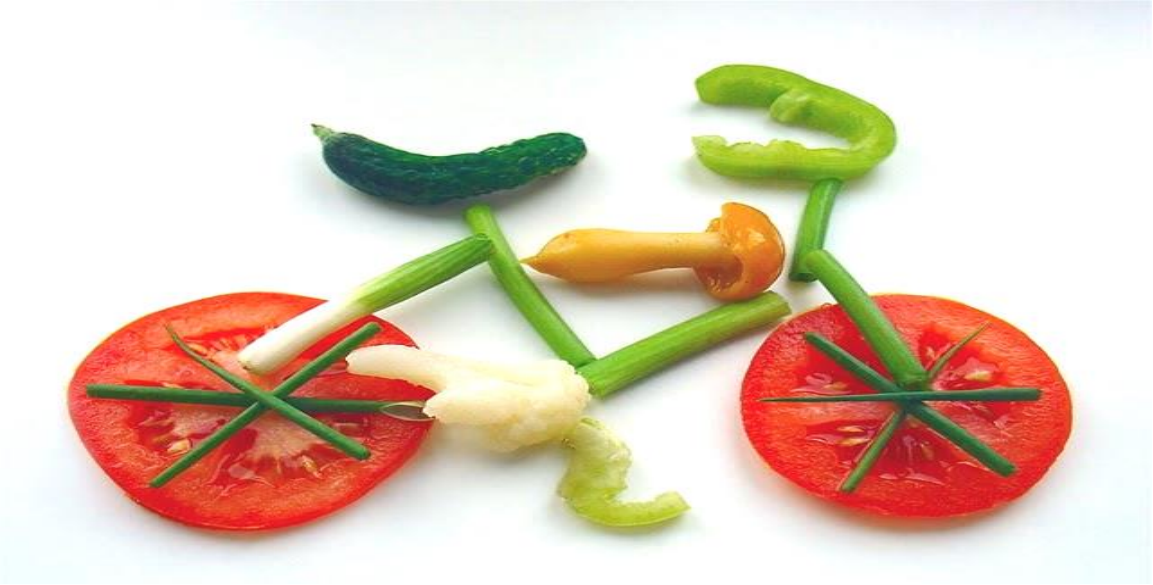
Chapter 1 : Nutrition in Nursing



Nutrition

- **The study or science of how food nourishes the body**

- nutrition is not simply a matter of food or no food!!!
- but rather a question of
  - what kind
  - how much
  - how often

Nutrition

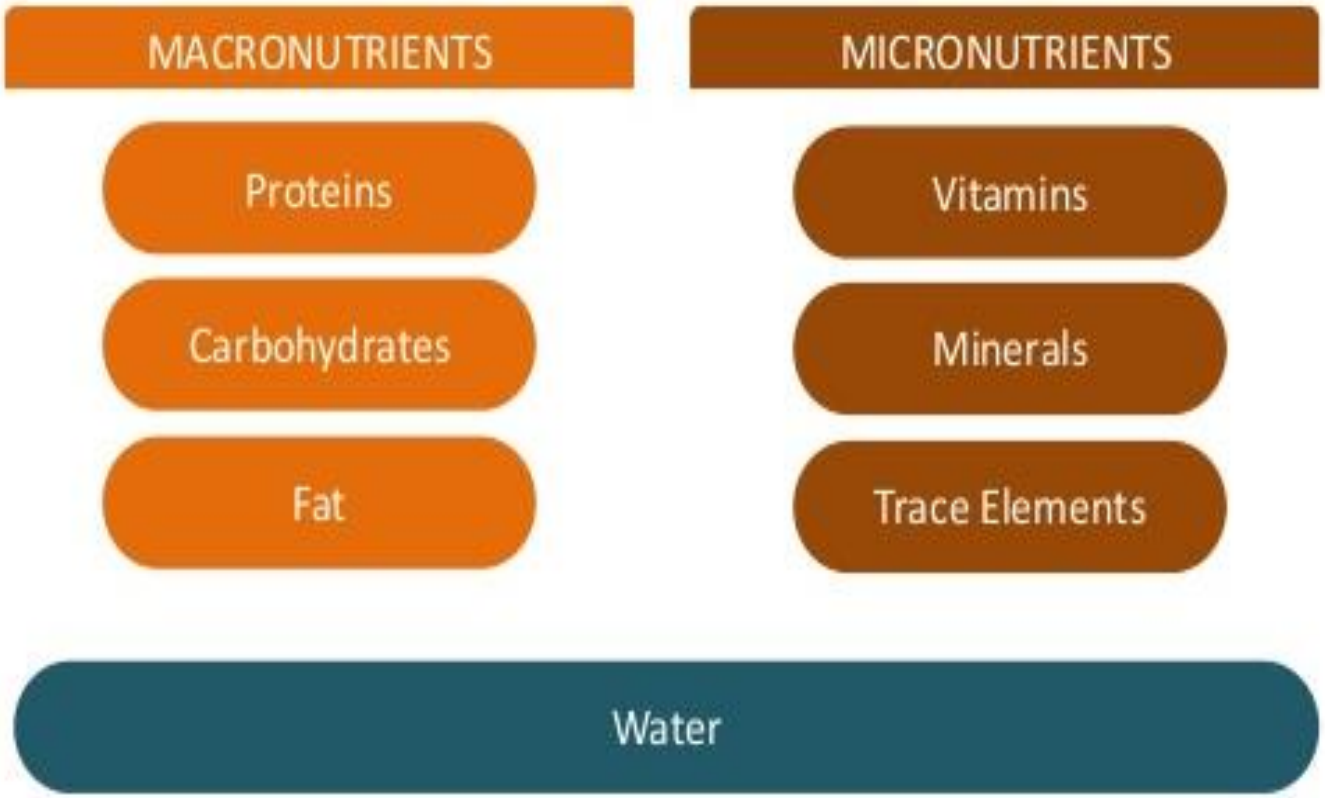
- Merging want with need and pleasure with health is key to **feeding the body, mind, and soul.**

Nutrients

- Chemical substances that the body uses from the foods that are consumed

- Some are :
  - Essential : must come from the foods
  - Nonessential : the body needs them but able to manufacture them

Nutrients


MACRONUTRIENTS
MICRONUTRIENTS
Proteins
Carbohydrates
Fat
Vitamins
Minerals
Trace Elements
Water

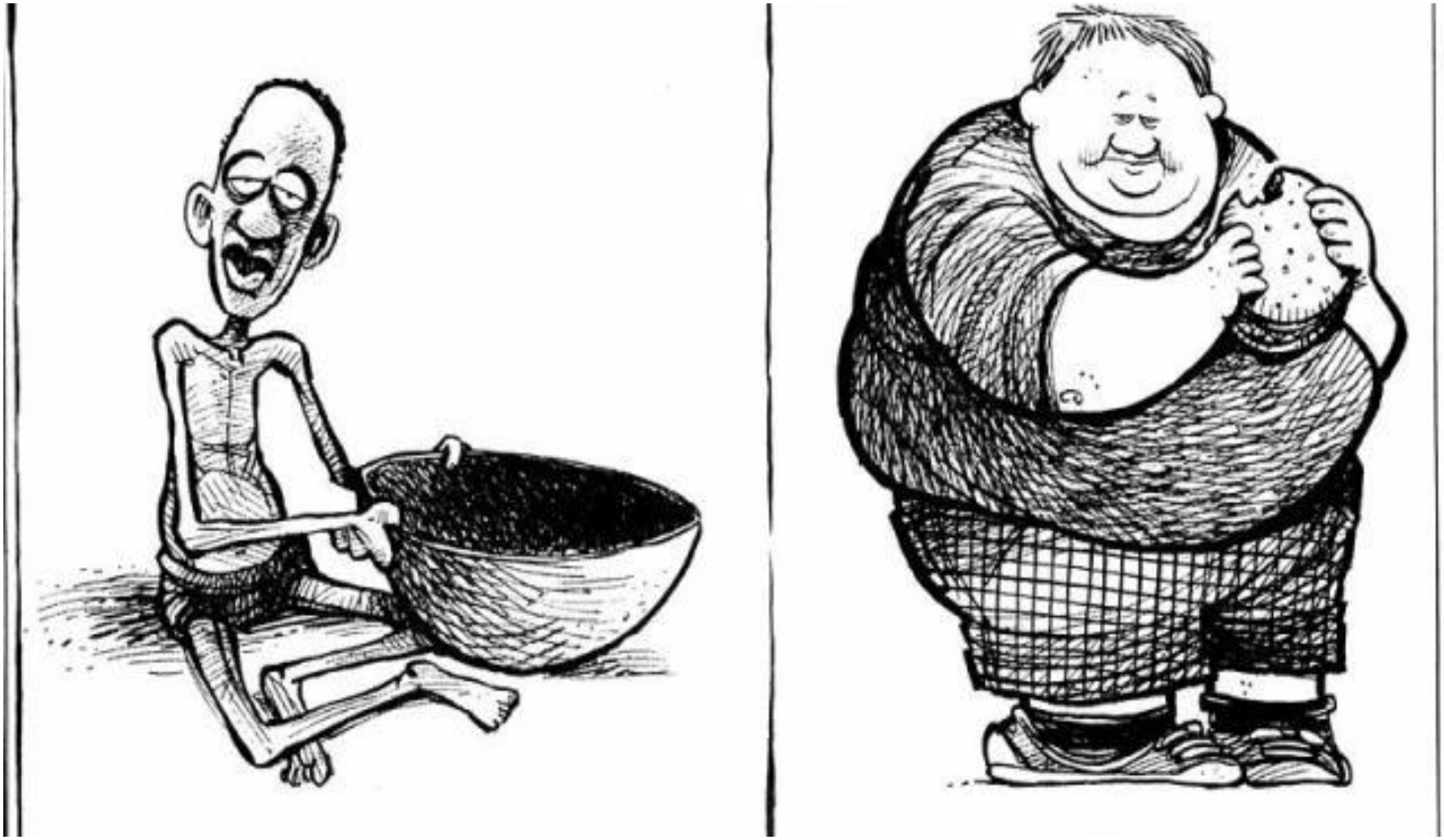
Good Nutrition

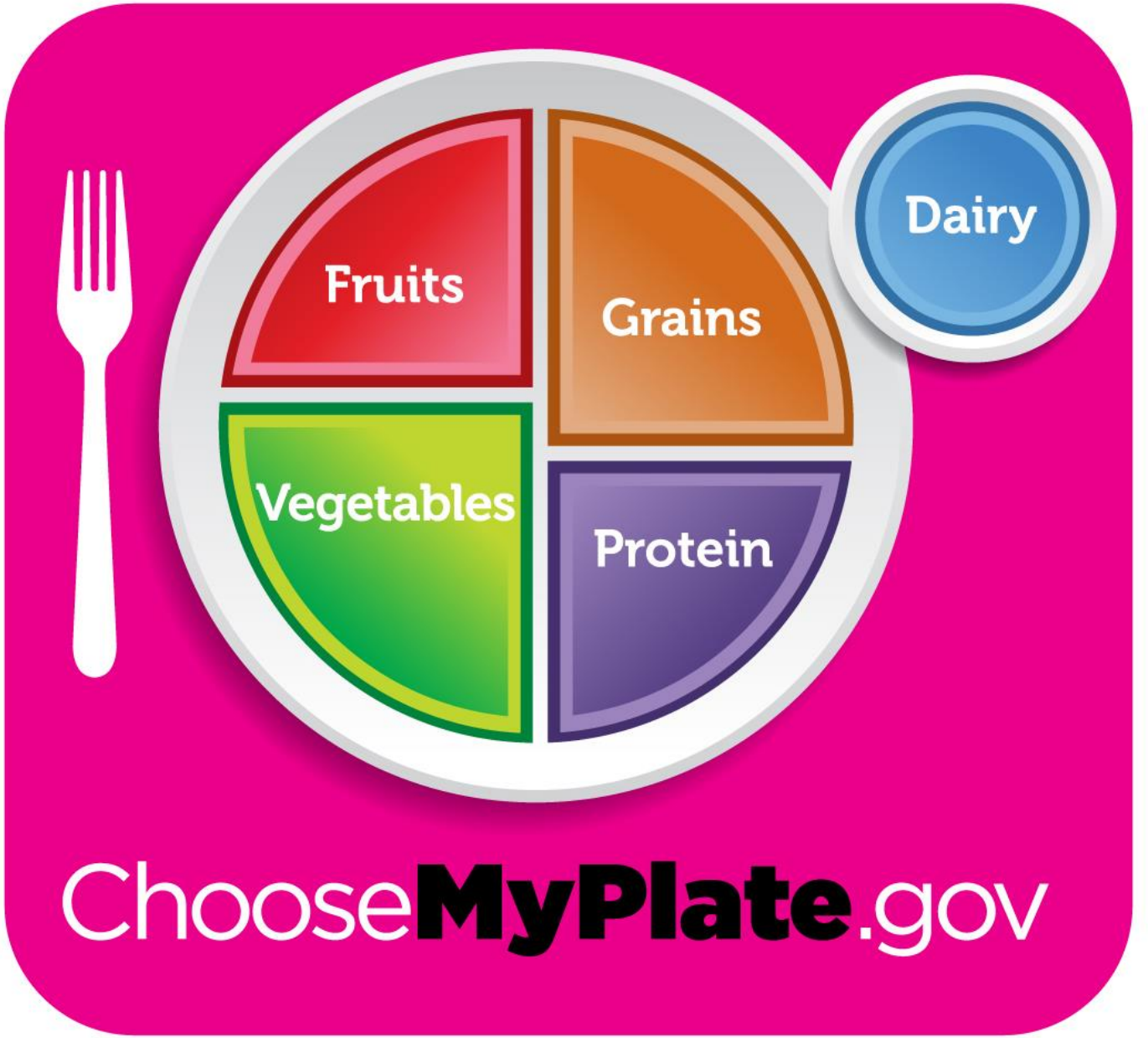
- Promotes health and wellbeing
- Prevent diseases (diabetes, cancer, CVDs,…)
- Meets the energy needs to allow for basic physiological functions like ??
- Prevent **malnutrition**

Malnutrition

- Excess, deficient, or an imbalance of nutrients that leads to disease states

Malnutrition




Fruits
Grains
Dairy
Vegetables
Protein
ChooseMyPlate.gov

GRAINS
Make half your grains whole

Eat at least 3 oz. of whole-grain cereals, breads, crackers, rice, or pasta every day

1 oz. is about 1 slice of bread, about 1 cup of breakfast cereal, or 1/2 cup of cooked rice, cereal, or pasta

Eat 6 oz. every day

VEGETABLES
Vary your veggies

Eat more dark-green veggies like broccoli, spinach, and other dark leafy greens

Eat more orange vegetables like carrots and sweetpotatoes

Eat more dry beans and peas like pinto beans, kidney beans, and lentils

Eat 2 1/2 cups every day

FRUITS
Focus on fruits

Eat a variety of fruit

Choose fresh, frozen, canned, or dried fruit

Go easy on fruit juices

Eat 2 cups every day

MILK
Get your calcium-rich foods

Go low-fat or fat-free when you choose milk, yogurt, and other milk products

If you don't or can't consume milk, choose lactose-free products or other calcium sources such as fortified foods and beverages

Get 3 cups every day;
for kids aged 2 to 8, it's 2

MEAT & BEANS
Go lean with protein

Choose low-fat or lean meats and poultry

Bake it, broil it, or grill it

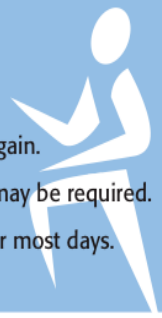
Vary your protein routine — choose more fish, beans, peas, nuts, and seeds

Eat 5 1/2 oz. every day

For a 2,000-calorie diet, you need the amounts below from each food group. To find the amounts that are right for you, go to MyPyramid.gov.

Find your balance between food and physical activity

- Be sure to stay within your daily calorie needs.
- Be physically active for at least 30 minutes most days of the week.
- About 60 minutes a day of physical activity may be needed to prevent weight gain.
- For sustaining weight loss, at least 60 to 90 minutes a day of physical activity may be required.
- Children and teenagers should be physically active for 60 minutes every day, or most days.



Know the limits on fats, sugars, and salt (sodium)

- Make most of your fat sources from fish, nuts, and vegetable oils.
- Limit solid fats like butter, stick margarine, shortening, and lard, as well as foods that contain these.
- Check the Nutrition Facts label to keep saturated fats, *trans* fats, and sodium low.
- Choose food and beverages low in added sugars. Added sugars contribute calories with few, if any, nutrients.

Nurses and Nutrition

Provide quality nursing care that includes **BASIC NUTRITION**, not to help nurses become dietitians.

Role of Nurses in Nutrition Care

1. Screening hospitalized patients to determine the existing level of risk.

2. Contact between the dietitian and physician, and other members of the health-care team.

3. More contact with the patient and family and more available as a nutrition resource when dietitians are not.

NUTRITION SCREENING

Quick look at a few variables to judge a client's relative risk for nutritional problems.

NUTRITION SCREENING

- Should be conducted within 24 hours after admission to a hospital or other health-care facility.

- The facilities is free to determine what factors are used on the screen and what defines risk.

NUTRITION SCREENING

- Efficient and quick
- Custom designed for a particular population.
- Conducted by anyone of the health care members.

Criteria frequently used in screening hospitalized patients

- Height
- Weight
- Weight change
- Diet
- Albumin , hematocrit
- Change in appetite
- Nausea , vomiting
- Bowel habits
- Chewing /swallowing
- Diagnosis

NUTRITIONAL SCREENING ☐ No Problem Assessed

Oral diet prescribed: _____

☐ Enteral feeding: _____

☐ Oral supplements: _____

ONE (1) POINT

- ☐ Diabetes
- ☐ GI Mobility or Absorption Disorder
- ☐ Renal Failure – Abnormal lab K>5.5 BUN>100
- ☐ Severe Anemia – Abnormal labs HGB<9.0, Depressed HCT, MCV, MCHC
- ☐ Shortness of Breath, decreased ability to eat or drink
- ☐ Dry mouth, mouth soreness, alteration in smell or taste
- ☐ Special Diet (specify): _____
- ☐ Diarrhea lasting more than 5 days
- ☐ Nausea or vomiting more than 3 days per week
- ☐ Oral Intake less than 50% of usual for 10 consecutive days
- ☐ Involuntary weight loss in past 6 months
- ☐ Pressure Ulcers/Wounds (Stage I & II)
- ☐ Chewing Difficulties
- ☐ Impaired Swallowing

TOTAL POINTS: ☐

TWO (2) POINTS

- ☐ Active AIDs
- ☐ Pressure Ulcer/Wounds (Stage III & IV)
- ☐ Cancer or oral pharynx and/or GI tract
- ☐ Major Burns
- ☐ Lab: Albumin 3.0 or less
- ☐ COPD dependant on 0_2
- ☐ Pitting Edema (3+ - 4+)

THREE (3) POINTS

- ☐ Lab: Albumin <2.6
- ☐ Enteral Nutrition

Other (specify): _____

_____

_____

_____

- **Less than 5 points - No dietician referral at this time**
- **5-6 points - Nurse/Dietician Telephone Consult. Dietician will make recommendations**
- **7 points - Request Dietician consult (phone contact or visit with patient)**

NUTRITION SCREENING

Clients who **PASS** the initial screen are rescreened after a specified amount of time to determine if their status has changed.

NUTRITION SCREENING

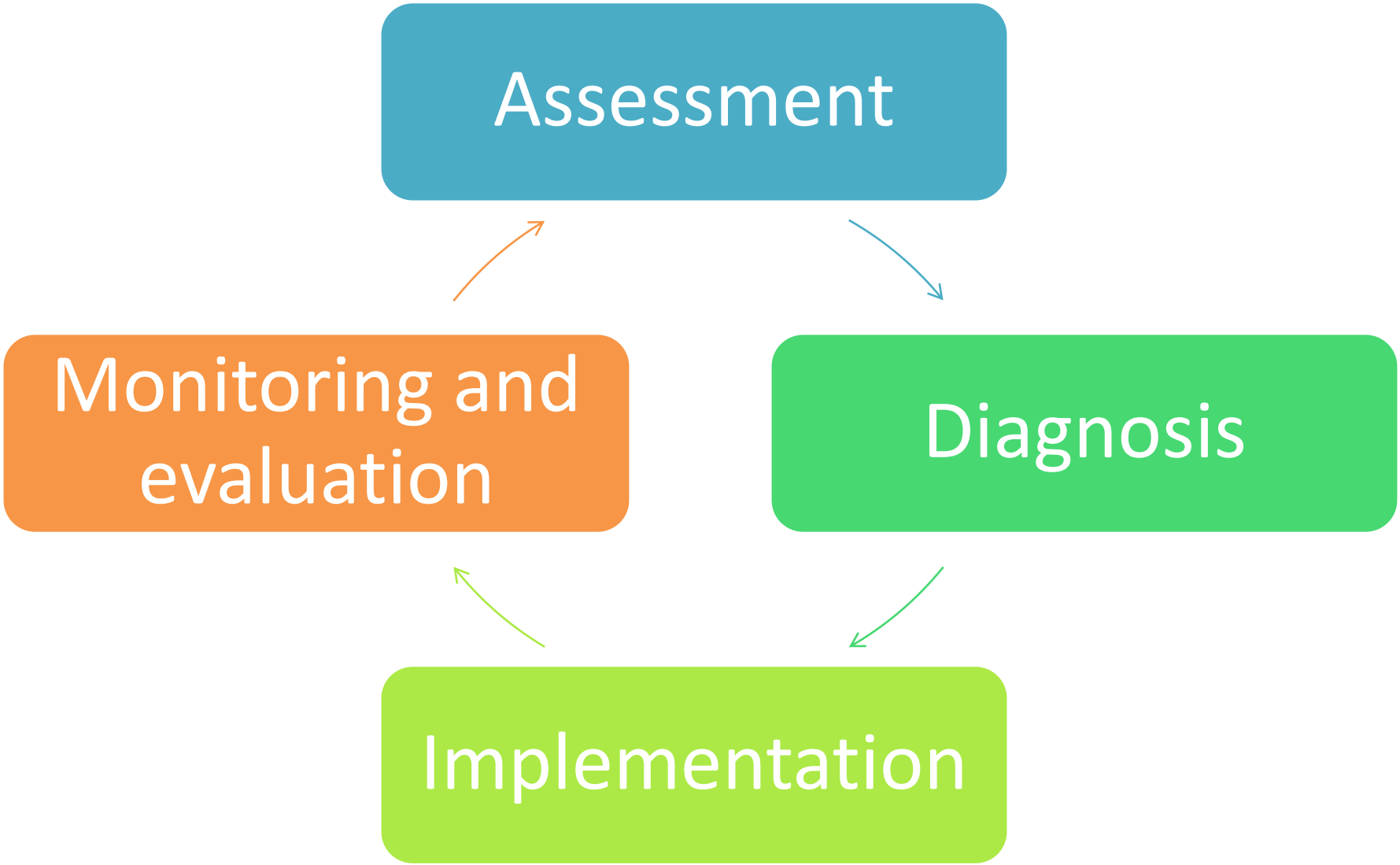
If nutritional screening identifies a person **at nutritional risk** (mod. To high) ???

NUTRITIONAL ASSESSMENT

In-depth analysis of a person's nutritional status.

- Conducted by registered dietitian.

Nutrition care process (Nutrition Assessment)



Assessment Data

A
- Anthropometric

B
- Biochemical

C
- Clinical

D
- Dietary data

Anthropometric Data

Are **physical measurements** of the body.

Most commonly height and weight.

Evaluating Weight for Height

Standard	Calculate	Interpretation
Body mass index (BMI)	$\frac{\text{Weight (kg)}}{\text{Height (m}^2\text{)}}$	<18.5 may ↑ health risk 18.5–24.9 healthy weight 25–29.9 overweight 30–34.9 obesity class 1 35–39.9 obesity class 2 ≥40 obesity class 3

- **Problem with BMI ???!!**

Evaluating Weight for Height

Percentage of "ideal" body weight (% IBW)	First calculate IBW using the Hamwi method: For women: Allow 100 pounds for the first 5 ft of height, and add 5 pounds for each additional in. For men: Allow 106 pounds for the first 5 ft of height, and add 6 pounds for each additional in. IBW may be adjusted up or down by 10% based on body frame size. Then calculate % IBW. $\% \text{ IBW} = \frac{\text{current weight}}{\text{IBW}} \times 100$	<69% severe malnutrition 70–79% moderate malnutrition 80–89% mild malnutrition 90–110% within normal range 110–119% overweight >120% obese >200% morbidly obese

Problem with IBW ???!!

Hamwi Equation

- **For Males**

  = 48 kg for the first 152.4 cm + 1.1 kg for each additional cm ± 10% (the effect of frame size)

- **For Females**

  = 45 kg for the first 152.4 cm + 0.9 kg for each additional cm ± 10% (the effect of frame size)

Evaluating Weight for Height

Calculating percent weight change

$$\% \text{ weight change} = \frac{(\text{usual body weight} - \text{current body weight})}{\text{usual body weight}} \times 100$$

Evaluating Weight Change

Time Period	Significant Weight Loss (%)	Severe Weight Loss (%)
1 week	1–2	>2
1 month	5	>5
3 months	7.5	>7.5
6 months	10	>10
Unlimited	10–20	>20

Source: Charney, P. & Malone, A. (Ed.). (2004) *ADA Pocket Guide to Nutrition Assessment*. Chicago: American Dietetic Association.

“Rule-of-Thumb” for calculating Kcal req.

Multiply weight in Kg by :

30 cal/kg for most healthy adults

25 cal/kg for elderly adults

20–25 cal/kg for obese adults

Estimating protein requirements

Healthy adult needs 0.8 g protein/kg

Biochemical Data

- May help support the diagnosis of a nutritional problem.
- **Combined with** other assessment information.
- Lab values my be altered due to :
  - Disease
  - Treatments
  - Hydration
  - Pregnancy
  - Exercise

Albumin

- Used to assess protein status
  - it reflects severity of illness
- Patients with Hypoalbuminemia may need nutrition assessment and intervention
- Values can be altered during critical illness from factors other than protein malnutrition.
- Albumin is degraded slowly, so serum levels may be maintained until malnutrition is in a chronic stage.

Prealbumin

- More sensitive indicator of protein status than albumin.

- It is affected by metabolic stress and other medical conditions
- more expensive

Clinical Data

- Physical signs and symptoms of malnutrition.
- Cannot be considered diagnostic !! Rather "suggestive" of malnutrition .
- Used with "overt" malnutrition not "subclinical" .

Box 1.4 page 8.

PHYSICAL SIGNS AND SYMPTOMS SUGGESTIVE OF MALNUTRITION

- Hair that is dull, brittle, dry, or falls out easily
- Swollen glands of the neck and cheeks
- Dry, rough, or spotty skin that may have a sandpaper feel
- Poor or delayed wound healing or sores
- Thin appearance with lack of subcutaneous fat
- Muscle wasting (decreased size and strength)
- Edema of the lower extremities
- Weakened hand grasp
- Depressed mood
- Abnormal heart rate, heart rhythm, or blood pressure
- Enlarged liver or spleen
- Loss of balance and coordination

Dietary Data

"Are you on a diet?"!!!

"Do you avoid any particular foods?"

"Do you watch what you eat in any way?"

- Questions to consider about intake Box 1.5

• Questions to consider about intake Box 1.5

- How many meals and snacks do you eat in a 24-hour period?
- Do you have any food allergies or intolerances, and, if so, what are they?
- What types of vitamin, mineral, herbal, or other supplements do you use and why?
- What concerns do you have about what or how you eat?
- For clients who are acutely ill, how has illness affected your choice or tolerance of food?
- Who prepares the meals?
- Do you have enough food to eat?
- How much alcohol do you consume daily?

Psychosocial History

Influence intake, nutritional requirements, or nutrition counseling

BOX 1.6 MEDICAL–PSYCHOSOCIAL FACTORS THAT MAY INFLUENCE INTAKE, NUTRITIONAL REQUIREMENTS, OR NUTRITION COUNSELING

Medical factors

- Acute status: current illness, hydration status, open wounds, dysphagia
- Chronic disease: cancer, cardiac disease, lung disease, diabetes, liver disease, GI disorders, renal disease, posttransplant

Psychological factors

- Depression
- Eating disorders
- Psychosis

Social factors

- Illiteracy
- Language barriers
- Limited knowledge of nutrition and food safety
- Altered or impaired intake related to culture
- Altered or impaired intake related to religion
- Lack of caregiver or social support system
- Social isolation
- Lack of or inadequate cooking arrangements
- Limited or low income
- Limited access to transportation to obtain food
- Advanced age (older than 80 years)
- Lack of or extreme physical activity
- Use of tobacco or recreational drugs
- Limited use or knowledge of community resources

Medication

1. Drug–nutrient interactions

2. Side effects of drugs :

   Alterations in nutrient intake, metabolism, or excretion

High risk patients to develop drug-induced nutrient deficiencies

1. Consuming calories and nutrients less than needed
2. Have increasing nutritional requirements
3. Elderly
4. Chronic illness
5. Take large numbers of drug (>5) of any type
6. Receiving long-term drug therapy
7. Self-medicate
8. Substance abusers

Nursing Diagnosis

Diagnosis made after interpreting data from assessment

- Relate **directly** to nutrition when altered nutrition is the problem
- **Indirectly** when a change in intake will help to manage a non-nutritional problem

Planning: Client Outcomes

- Client-centered outcomes
- Give the client the opportunity to actively participate in goal setting

Commitment to achieving the goal is greatly increased when the client “owns” the goal

Goals of nutrition therapy to **all clients**

1. To consume adequate calories and protein using foods they like and tolerate

2. Additional short-term goals to alleviate symptoms or side effects of disease and to prevent complications

   →After short-term goals are met ←

3. Promoting healthy eating to reduce the risk of chronic diet-related diseases

Nursing Interventions: Nutrition Therapy

Diet

Vs.

eating pattern

food intake

eating style

food you eat

Client Teaching

- Reinforce the importance of obtaining adequate nutrition.
- Help the client to select appropriate foods.
- Counsel the client about drug–nutrient interactions.
- Avoid using the term “diet.”

Monitoring and Evaluation

BOX 1.10 MONITORING SUGGESTIONS

- Observe intake whenever possible to judge the adequacy.
- Document appetite and take action when the client does not eat.
- Order supplements if intake is low or needs are high.
- Request a nutritional consult.
- Assess tolerance (i.e., absence of side effects).
- Monitor weight.
- Monitor progression of restrictive diets. Clients who are receiving nothing by mouth (NPO), who are restricted to a clear liquid diet, or who are receiving enteral or parenteral nutrition are at risk for nutritional problems.
- Monitor the client's grasp of the information and motivation to change.