Nutritional Assessment

Edited By:
Hani abu-dieh

Supervised By:
Dr.ferdous al-omary

JARVIS , C. (2008)
Physical Examination & Health Assessment
Chapter 11

Outlines

Structure and Function.

Defining nutritional status, purposes and component of nutritional status

⬇

Subjective Data

⬇

Clinical signs.

Objective Data

Anthropometric measures. | **Laboratory studies.**

Serial Assessment.

Documentation.

⬇

Abnormal Findings

Learning Outcomes

At the end of this lecture the students should be able to:

- ✓ Discuss essential components and purposes of nutritional assessment and nutritional screening.

- ✓ Identify developmental nutritional considerations.

- ✓ Identify factors influencing nutrition.

- ✓ Identify anthropometric measures.

- ✓ Identify risk factors and clinical signs of malnutrition.

- ✓ Describe nursing interventions to promote optimal nutrition.

- ✓ Plan, implement, and evaluate nursing care associated with nursing diagnoses related to nutritional problems.

Defining nutritional status:

➢ Refers to the degree of **balance** between nutrient intake and nutrient requirement.

➢ **This balance is affected by many factors , including physiologic, psychical, developmental, cultural, and economic.**

➢ **<u>Optimal nutrition</u>** : <u>sufficient nutrients</u> are consumed to support day to day body needs and any increased metabolic demands . (growth , illness , pregnancy).

➢ **<u>Undernutrition</u>**: <u>Nutrient intake is inadequate</u> to meet

day to day need or add metabolic demand **.**

✓ Vulnerable groups: infants, pregnant women, low incomes, hospitalized people, aging adults.

✓ **This group are at risk for** impaired growth and development, lowered resistance to infection and disease, delay wound healing, longer hospital stays, and higher health care costs.

➢ **<u>Overnutrition</u>** : **consumption of nutrient in excess of body need** .

➢ A major nutritional problem today: can lead to obesity and it's risk for heart disease, type 2 DM, HTN, stroke, GB disease, sleep apnea, and osteoarthritis.

Developmental care

❑**Infants and children**:

➢(Birth-4month) most rapid period of growth in the life cycle.
➢The infant double birth weight by 4 month and triple by 1 year .

➢**Breastfeeding** is recommended for full-term infants for the 1st year of life because breast milk is ideally formulated to promote normal infant growth and development and natural immunity.

➢Infants increase their length by 50% during the first year of life and double it by 4 years of age.

❑ **Adolescence**:

➢ characterized by **rapid physical growth and endocrine and hormonal change.**

➢ Calorie and protein requirement increase to meet this demand , and because of **bone growth and increasing muscle mass and in the girls the onset of menarche calcium and iron requirement increased.**

➢ In general, boys grow taller and have less body fat than girls.

❑<u>**Adulthood**</u>:

➢ growth and nutrient **needs stabilize**, most adult are relatively good health.

➢ This time is **important for health education** because life style factor such as smoking ,alcohol ,stress, lack of exercise , diet high in fat ,sugar ,and low in fiber result this **factor the adult high risk for** HTN, DM, obesity, atherosclerosis, cancer, and osteoporosis .

❑ **The aging adult:**

- Older adults have **increased risk for undernutrition or overnutrition.**
- **Risk factor**: poor physical or mental health, social isolation, limited functional ability, poverty, and disease.

- **Normal physiologic changes** that directly affect nutritional status: Poor dentition, Decreased visual acuity, Decreased saliva production, Slowed gastrointestinal absorption, Diminished olfactory and taste sensitivity

Nutritional Assessment:-

a comprehensive analysis of a person's nutrition status that uses historical information , food intake data , anthropometric measurements , physical examination & biochemical data.

Purposes and components of nutritional assessment.

?

❖**Purposes**:

1.Identify individuals who are malnourished or are at risk for developing malnutrition.

2.Provide data for designing a nutrition plan of care to prevent or minimize development malnutrition.

3.Establish baseline data for evaluating the efficacy of nutritional care.

❑ <u>Nutrition screening :</u>

➢ The first step in assessing nutritional status , is required for all patients in all health care setting **<u>within 24 hours of admission</u>**.

➢ Parameters used for nutrition screening typically include <u>weight and height history, conditions associated with increased nutritional risk, diet information and routine laboratory data</u>.

➢ Varity of **valid tools** are available for screening different populations e.g.:

✓ <u>Malnutrition screening tool </u>(MST): adult acute care patient.

✓ <u>Mini nutritional assessment </u>(MNA): older adult long-term care.

MALNUTRITION SCREENING TOOL (MST)

Have you lost weight recently without trying?

No	0
Unsure	2

If yes, how much weight (kilograms) have you lost?

1–5	1
6–10	2
11–15	3
>15	4
Unsure	2

Have you been eating poorly because of a decreased appetite?

No	0
Yes	1
Total	

Score of 2 or more= patient at risk for malnutrition.

Individuals at nutritional risk during screening should undergo <u>Comprehensive nutritional assessment</u> which includes :

▶dietary history and clinical information.
▶physical examination for clinical sign .
▶anthropometric measures .
▶laboratory test .

SUBJECTIVE GLOBAL ASSESSMENT OF NUTRITIONAL STATUS
select appropriate category with a checkmark, or enter numerical value

A. HISTORY
1. Weight change: Normal weight = #_____ kg IBW = #_____ kg
Overall change in past 6 months = #_____ kg loss/gain Current weight =
#_____ kg
% change in past 6 months = _____ % loss/gain %IBW = _____ %
Change in past 2 weeks: no change ↑ ↓ Amt = #_____ kg
2. Dietary intake change (relative to normal)
_____ No change _____ ↑'d intake _____ ↓'d intake
Duration of change = # _____ weeks
If intake ↓'d: Type of change _____ Suboptimal solid diet _____ Full liquid
diet
_____ Hypocaloric liquids _____ Starvation
3. Gastrointestinal symptoms persisting for >2 weeks
_____ None _____ Nausea _____ Vomiting _____ Diarrhea _____ Anorexia
4. Functional Capacity
_____ No dysfunction (full capacity) _____ Dysfunction: duration = # _____ weeks
Dysfunction: _____ Working suboptimally _____ Ambulatory _____ Bedridden
        Specific handicap(s):
_____

5. Disease and its relation to nutritional requirements
Primary diagnosis:
_____
Metabolic demand (stress) _____ None _____ Low _____ Moderate _____ High

B. PHYSICAL FINDINGS: 0 = normal 1+ = mild 2+ = moderate 3+ = severe
_____ loss of subcutaneous fat (triceps, chest) _____ ankle edema _____ ascites
_____ muscle wasting (quadriceps, deltoids) _____ sacral edema

C. SUBJECTIVE GLOBAL ASSESSMENT RATING (select one)

A Nourished
B Moderately malnourished
C Severely malnourished

- Detsky, a.s. Mclaughlin, J.P.(1987)

Methods for collecting current dietary intake information:

➢ **24-hour recall**: Is a guided interview in which an individual recounts all of the food & beverages <u>consumed in the past 24 hours or during the previous day.</u>

➢**Food frequency questionnaire**: A survey of food routinely consumed

➢**Food diaries:** A detailed log (record of events) of food eaten during a specified time period , usually several days.

➢**Direct observation:** Just by observing food intake of the individual directly in a facility.

Process of Nutritional assessment

Assessment

❖ **Subjective data:**

☐ Examiner asks: **?**

1. **Eating patterns :** number of meal ,Kind, amount, preference, where is eaten, religious and cultural restriction, able to feed self.

2. **Usual weight**.

3. **Changes in appetite**, teste ,smell, chewing, swallowing.

4. **Recent surgery**, trauma, burns, infection.
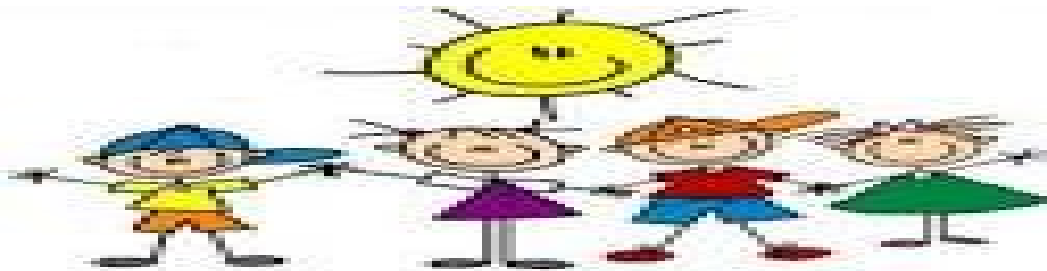   **5. Family history and chronic illnesses:** (e.g. obesity, GI disorder, DM, HTN,CANCER.)

6. nausea, vomiting, diarrhea, constipation.

7.Food allergies or intolerance.

8.Medication and/or supplements.

9.Self care behaviors :who meal preparation
Environment during meal time

10. Exercise and activity patterns.

Additional history

❑ **Infants and children**: (obtain from caregiver)

- ✓ **gestational nutrition** : infant birth weight, any delayed in physical or mental growth.
- ✓ **infant breast fed** or bottle fed .
- ✓ Child's willingness to eat what you prepare.
- ✓ Overweight and obesity **risk factor.**

Adolescent: **?**

- Your present weight

- (what would you like to Wt., feel about your Wt.)

- Use of anabolic steroid or other agent to increase muscle size .

- Overweight and obesity risk factor. (amount, time, where, type, skipped meals..)

- **Age first started menstruating** .

☐Pregnant women:

✓ **Number of pregnancies**.

(how many, problems, take vitamins or supplements)

✓ Food **preferences** when pregnant.

(preferred, avoid, crave any particular foods)

❑aging adult:

✓ Any **diet differences** from when you were in your 40s and 50s?

(**why, what factor affect**: note physiologic or psychological changes or socioeconomic changes)

✓ **Review the mini notional assessment tool.**

➢ Food changes past 3months

➢ Weight lose past 3months

➢ Mobility

➢ Psychological stress or acute disease past 3months

➢ Neuropsychological problems

➢ BMI

Objective data ?

➢ General appearance: provide clues to overall nutritional status.

(obese, cachectic (fat and muscle wasting), or edematous)

➢ Review **physical assessment** findings for signs of poor nutrition.

❖ **Equipment needed:**

✓ Pen or pencil.

✓ Nutritional assessment data form.
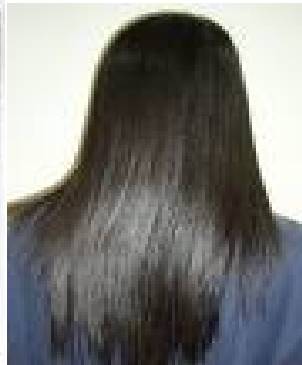
✓ Anthropometer.

✓ chair or bed scale, tape measure

Physical examination

Physical examination can help the assessor detect signs of nutrition deficiency and fluid imbalances.

Clinical signs of malnutrition: signs of malnutrition tends to **appear most often in parts of the body where cells replacement occurs at rapid rate** such as: **?**
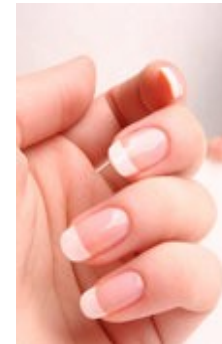
| eyes | hair | skin | lips | nails | tongue |

EVALUATING NUTRITIONAL DISORDERS

Body system or region	Sign or symptom	Implications
General	• Weakness and fatigue	• Anemia or electrolyte imbalance
	• Weight loss	• Decreased calorie intake, increased calorie use, or inadequate nutrient intake or absorption
Skin, hair, and nails	• Dry, flaky skin	• Vitamin A, vitamin B-complex, or linoleic acid deficiency
	• Dry skin with poor turgor	• Dehydration
	• Rough, scaly skin with bumps	• Vitamin A deficiency
	• Petechiae or ecchymoses	• Vitamin C or K deficiency
	• Sore that won't heal	• Protein, vitamin C, or zinc deficiency
	• Thinning, dry hair	• Protein deficiency
	• Spoon-shaped, brittle, or ridged nails	• Iron deficiency

Eyes	• Night blindness; corneal swelling, softening, or dryness; Bitot's spots (gray triangular patches on the conjunctiva)	• Vitamin A deficiency
	• Red conjunctiva	• Riboflavin deficiency
Throat and mouth	• Cracks at the corner of the mouth	• Riboflavin or niacin deficiency
	• Magenta tongue • Beefy red tongue	• Riboflavin deficiency • Vitamin B_{12} deficiency
	• Soft, spongy, bleeding gums	• Vitamin C deficiency
	• Poor dentition	• Overconsumption of refined sugars or acidic carbonated beverages; illicit drug use[15]
	• Swollen neck (goiter)	• Iodine deficiency
Cardiovascular	• Edema • Third and fourth heart sounds • Shortness of breath • Cough	• Protein deficiency, thiamine deficiency
	• Tachycardia, murmur, hypotension	• Fluid volume deficit; anemia

GI	• Ascites	• Protein deficiency
Musculoskeletal	• Bone pain and bow leg	• Vitamin D or calcium deficiency
	• Muscle wasting	• Protein, carbohydrate, and fat deficiency
Neurologic	• Altered mental status • Ataxia	• Dehydration and thiamine or vitamin B_{12} deficiency
	• Paresthesia, neuropathies	• Vitamin B_{12}, pyridoxine, thiamine, or niacin deficiency

Mueller, C., et al. (2011). A.S.P.E.N. clinical guidelines: Nutrition screening, assessment, and intervention in adults. *Journal of Parenteral and Enteral Nutrition, 35,* 16–24.

Anthropometric measures

Measures evaluate growth, development, and body composition.

❑ **most common anthropometric measures:**

➢Height or length.

➢Weight.

➢Arm and head circumference.

➢Waist circumference.

➢Body mass index.

➢Triceps skin-fold thickness.

➢Elbow breadth.

A. <u>**Derived weight measures:**</u>
(used to depict change in body weight)

➤ Body weight as a Percent ideal body weight: is the optimal weight recommended for optimal health

Percent ideal body weight =current wt./ideal wt.*100

(If the result 80% -90% mild malnutrition . 70%- 80% moderate malnutrition . Less than 70% sever malnutrition) .

➤ percent usual body weight :

Percent usual body weight = current wt. /usual wt. *100 .

(If the result 85% -95% mild malnutrition , 75%-84% moderate mal nutrition ,less than 75 % sever malnutrition)

➤ recent weight change is calculated by :

Usual wt. – current wt. /usual wt. *100 .

(An unintentional loss of >5% of body wt. over 1 month , or > 7.5 % over 3 month , or 10 % over 6 month is clinically significant)

metropolitan life insurance tables

Height		Men	Women
Feet and Inches	Centimeters	Kilos	Kilos
4' 7"	139.7	39 - 49	36 - 46
4' 8"	142.24	41 - 50	38 - 48
4' 9"	144.78	42 - 52	39 - 50
4' 10"	147.32	44 - 54	41 - 52
4' 11"	149.86	45 - 56	42 - 53
5'	152.4	47 - 58	43 - 55
5' 1"	154.94	48 - 60	45 - 57
5' 2"	157.48	50 - 62	46 - 59
5' 3"	160.02	51 - 64	48 - 61
5' 4"	162.56	53 - 66	49 - 63
5' 5"	165.1	55 - 68	51 - 65
5' 6"	167.64	56 - 70	53 - 67
5' 7"	170.18	58 - 72	54 - 69
5' 8"	172.72	60 - 74	56 - 71
5' 9"	175.26	62 - 76	57 - 73
5' 10"	177.8	64 - 79	59 - 75
5' 11"	180.34	65 - 81	61 - 77
6'	182.88	67 - 83	63 - 80
6' 1"	185.42	69 - 86	64 - 82
6' 2"	187.96	71 - 88	66 - 84
6' 3"	190.5	73 - 90	68 - 86
6' 4"	193.04	75 - 93	70 - 89

B. **Body mass index:**

practical marker of optimal weight for height and indicator of obesity or under nutrition.

$$BMI = \frac{weight\ (lb) * 703}{height^2\ (in^2)}$$

OR

$$BMI = \frac{weight\ (kg)}{height^2\ (m^2)}$$ (metric)

BMI	Weight Status
Below 18.5	Underweight
18.5 - 24.9	Normal
25 - 29.9	Overweight
30 & Above	Obese

C. **waist-hip ratio:**
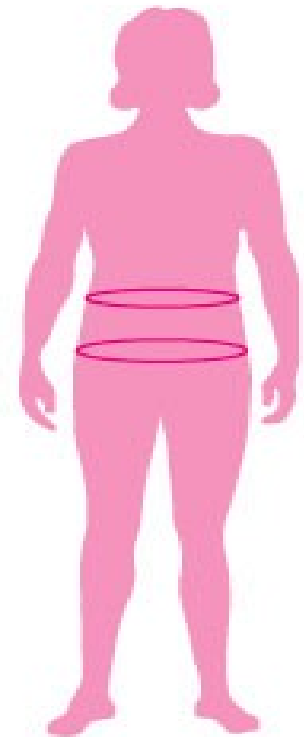
To assess body fat distribution .

- ✓ 1.0 or more in men the person is obese .
- ✓ If the women .8 or more the women is obese

WHR = Waist circumference
─────────────────────
Hip circumference

a

b
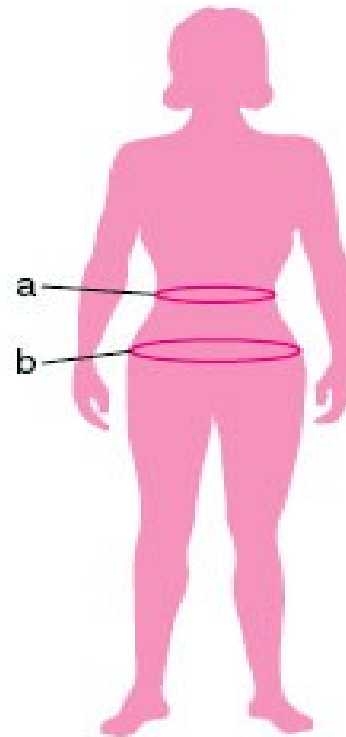
WHR 0.7   WHR 0.9

D. Skin fold thickness:

measurements provide an estimate of body fat stores or the extent of obesity or under nutrition.(biceps, subcapsular, suprailiac skinfolds).
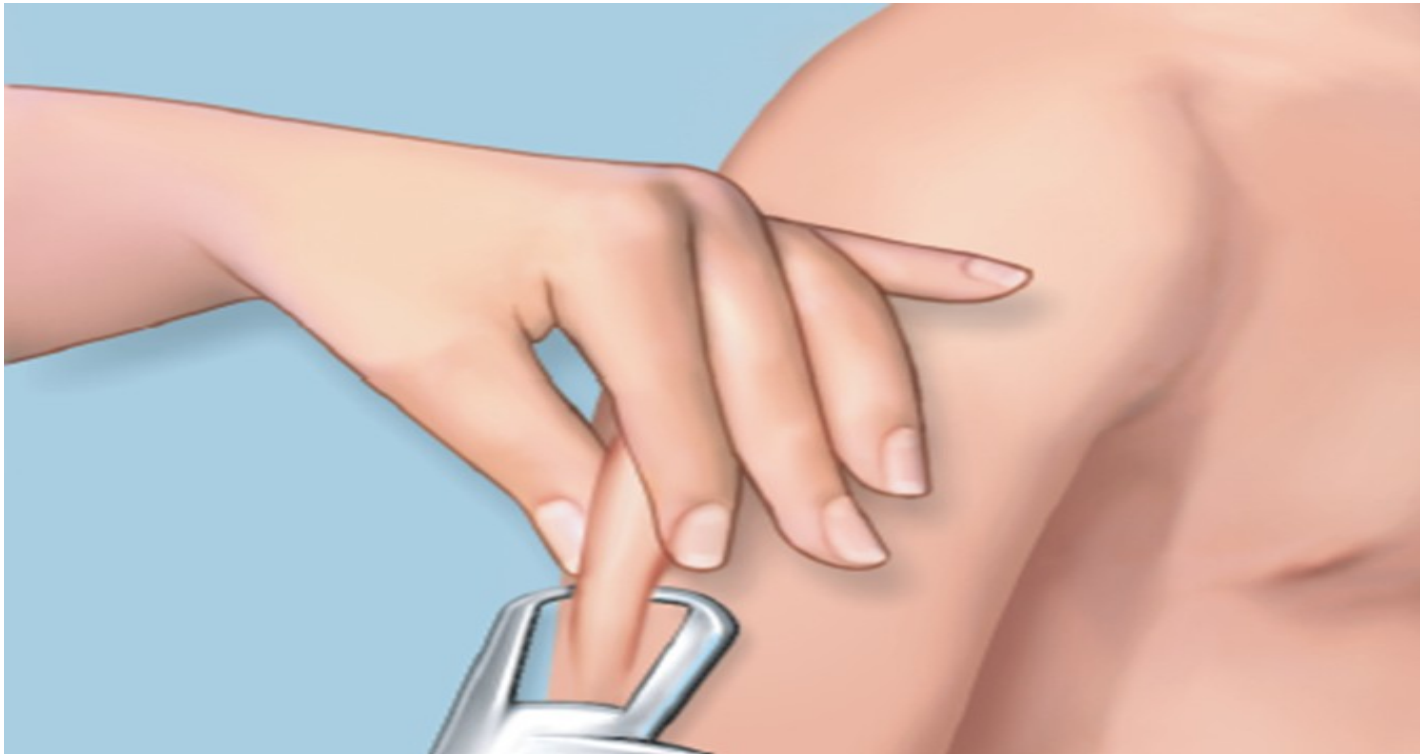
Table 3 – Descriptive and comparative analysis of the anthropometric variables of school-age children of both genders, classified as overweight according to the assessment period (initial, 10 and 20 years)

	Initial	10 years	20 years	Δ%
Male				
Body mass (kg)	32.02±5.62	33.48±7.34	37.14±6.43[†]	15.99
Height (cm)	130.70±9.35	133.52±10.67	138.45±9.78[†]	5.92
Biceps (mm)	6.06±1.55	8.54±9.37	9.37±3.04[†]	54.62
Triceps (mm)	11.94±2.46	13.24±3.75	14.54±5.45	21.77
Subscapular (mm)	6.22±1.10	7.62±2.17	9.90±4.47[†]	59.16
Suprailiac (mm)	6.30±2.27	9.56±5.75	11.53±5.62[†]	83.01
Mid-axillary (mm)	5.08±1.52	6.88±3.54	10.00±4.50[†]	96.85
Abdomen (mm)	8.81±4.16	14.38±8.12	18.10±7.39[†]	105.44
Calf (mm)	11.92±2.89	14.58±4.84	16.51±6.51[†]	38.50
$\overline{X}$7SF (mm)	8.05±2.03	10.68±4.56	12.83±4.25[†]	59.37
Female				
Body mass (kg)	35.07±5.73	35.19±5.90	37.48±7.70	6.87
Height (cm)	133.89±8.35	135.07±9.13	137.79±10.97	2.91
Biceps (mm)	9.24±2.79	11.12±2.81	9.93±2.99	7.46
Triceps (mm)	15.98±3.97	17.13±3.21	16.48±3.02	3.12
Subscapular (mm)	10.74±3.87	12.76±3.44	12.75±4.61	18.71
Suprailiac (mm)	11.81±4.72	16.53±4.40[*]	15.73±5.81[†]	33.19
Mid-axillary (mm)	9.06±4.47	11.81±3.14	12.42±5.08[†]	37.08
Abdomen (mm)	15.00±6.24	21.34±4.98[*]	22.30±5.81[†]	48.66
Calf (mm)	17.24±3.83	17.43±3.96	17.01±5.42	-1.33
$\overline{X}$7DC (mm)	12.72±3.66	15.44±2.87	15.23±3.63[†]	19.73

Δ% = delta percentage.
$\overline{X}$7SF = mean adiposity of the seven SFs (biceps, triceps, subscapular, suprailiac, mid-axillary, abdomen and calf).
$p < 0.01$.
[*] Initial different from 10 years.
[†] Initial different from 20 years.
[‡] 10 years different from 20 years.

TSF values 10 % below or above standard suggest undernutrition or overnutrition .

E. **Mid-upper arm circumference** (MAC):

estimates skeletal muscle mass and fat stores.

Example: the normal MAC for 20years old female range from 23-34.5 cm, and male range from 27.2-37.2 cm.

❖ difficult to obtain and interpret in older adult because of sagging skin ,changes in fat distribution ,and declining muscle mass.

F. Mid-upper arm muscle circumference(MAMC): estimate skeletal muscle reserves or the amount of lean body mass .

MAMC=MAC-(π*TSF)

MAC: Mid-upper arm circumference

TSF: Triceps skinfold

π : 3.14

(If MAMC is 90% mild malnutrition , 60% -90%moderate malnutrition , less than 60% sever)

❖**Newer techniques to measure body composition are:**
- ✓ Bioelectrical impedance analysis (BIA).
- ✓ Dual-energy X-RAY absorptiometry (DEXA).

Arm span or total arm length :
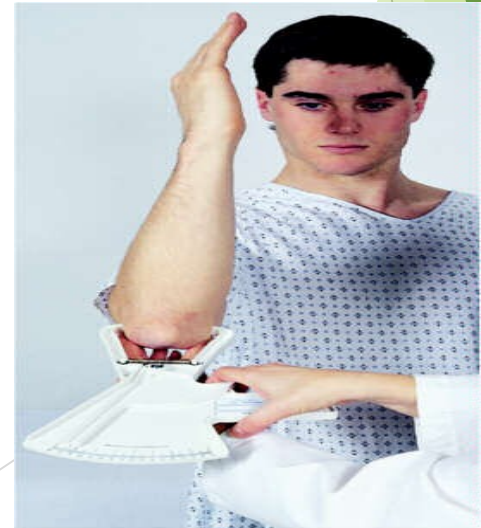
measurement arm span is useful those situation in which height is difficult to measure.(children with cerebral palsy, scoliosis or in aging person)

:Frame size

is calculated to determine appropriate range of
.**ideal body weight**
Elbow breadth measure of skeletal breadth is the most accurate method to determine frame ,size

Developmental care:

❖**infants, children, and adolescent:**
Weight: during infancy, childhood, and adolescent, height and weight <u>should be measured at regular intervals ,because</u> **longitudinal growth is one of the best indices of nutritional status over time .**

❖**The pregnant women:**
Weight: measure weight **monthly up 30weeks gestation** ,then **every 2weeks** until the last month of pregnancy ,when weight should be measured **weekly** .

❖**The aging adult:**

Height: with age declines in both men and women very slowly from the early 30s. leading to an average2.9cm loss in men and 4.9cm loss in women.

Laboratory studies

Important because it can detect **preclinical** nutritional deficiencies and can be used to **confirm subjective finding** .

➢**Glucose:** plasma glucose level.

N(60-**110** mg/dl), **HBA1C**

➢**Hemoglobin.** To detect iron deficiency anemia .(M:14-18) (F:12-16)
•Increase Dehydration.
•Decrease anemia.

➢**Hematocrit** : measure cell volume also an indicator of iron status (M: 37% -49%) (F :36%to46%)
-low value indicate insufficient hemoglobin formation .

➢**Cholesterol** : To evaluate fat metabolism and to assess risk for CVD.
 N(120-200) .200 -239 moderate risk , 240 or more high risk .

➤ **Triglycerides:** used to screen for hyperlipidemia and to determine the risk of CAD. N(< 150mg /dl).

➤ **Serum proteins, Serum albumin** : to measure of visceral protein status, Albumin is a better indicator of long-term protein status. N(3.5-5.5 g/dl)
- **low** serum albumin level occur with protein calorie malnutrition, altered hydration status, decrease liver function .

➤ **Serum transferrin** : Iron transport protein ,more sensitive indicator of visceral <u>protein status </u>than albumen .
-Serum transferrin = (.8* total iron binding capacity) -43
 Normal result (170-250 mg/dl)

➤ **Prealbumin:** serve as a transport protein for thyroxine (T4) and retinol-binding

protein. N(15-25 mg/dl)

-**elevated** in renal dis., and `reduce` by surgery, trauma, burn, infection.

➢ C –Reactive protein :

a plasma protein **marker of inflammatory status** produced by the liver is used to monitor metabolic stress .(trauma , surgery , burns) and to determine when to begin nutritional support in critically ill patients.

CRP is generally not detectable in the blood , when the CRP detectable are associated with increased risk of atherosclerosis and may be seen in other inflammatory condition .

NORMAL <0.1 mg/dl

Nursing Diagnoses ❓

- Related to nutritional problems:

  – *Imbalanced Nutrition: More Than Body Requirements RT high fat and calorie intake , lack of exercise, knowledge deficit.*

  – *Imbalanced Nutrition: Less Than Body Requirements*

  – *Readiness for Enhanced Nutrition*

  – *Risk for Imbalanced Nutrition: More Than Body Requirements*

  – *Activity Intolerance*

  – *Constipation RT inactivity and diet high in refined carbohydrates.*

  – *Low Self-Esteem*

  – *Risk for Infection*

Desired Outcomes ?

- Maintain or restore optimal nutritional status

- Promote healthy nutritional practices

- Prevent complications associated with malnutrition

- Enhance activity tolerance.

- Decrease weight

- Regain specified weight

- Prevent infection.

Intervention and Evaluation **?**

- Intervention selected to meet goals??

- Evaluation based upon criteria set in outcomes??

Documentation ?

✓ Subjective:

no history of disease or surgery that would alter intake/ requirement, no recent weight changes, no appetite change, socioeconomic history is noncontributory, does not smoke or drink alcohol, not use illegal or prescription drugs, no food allergies, sedentary life style, play football twice per week.

✓ objective:

• Inspection: no signs of nutrient deficiencies.

• Anthropometric: Ht. 165cm, current Wt. 60kg, usual Wt. 59.5, ideal Wt. 59.2.

• Laboratory: HB, HCT, and albumin values.

✓ DX: Imbalanced Nutrition: More Than Body Requirements RT high fat and calorie intake , lack of exercise, knowledge deficit.

ABNORMAL FINDINGS

❖**malnutrition:**

➢ Obesity.

➢ Marasmus (protein-calorie malnutrition).
➢ Kwashiorkor (protein malnutrition).

❖**nutritional deficiencies:**

➢ pellagra.

➢ Rickets.
➢ Follicular hyperkeratosis.
➢ Scorbutic gums.

❖**Eating disorder**
➢Anorexia nervosa.
➢bulimia nervosa.

❖<u>**Obesity**</u>:

Du to caloric excess, refers to weight more than 20% Ideal body weight or BMI (30.0-30.9)**.**

➢ **The causes are complex and multifaceted:**
- Genetic.
- Social.
- Cultural.
- Pathologic.
- Psychological.
- Physiologic.

➢ Is usually an imbalance of caloric intake and Caloric expenditure.

- **Clinical features: obese appearance**.

- **Anthropometric measures:**
  - Wt. > 120% standard for height.
  - BMI > 30
  - TRICEPS SKINFOLD > 10%
  - Waist-to-hip ratio > 1.0 men , > 0.8 women

- **Laboratory finding:**
  - Serum cholesterol 200mg/dl
  - Serum triglycerides > 250mg/dl

❖ <u>**Marasmus**</u> **(protein-calorie malnutrition).**
Is due to inadequate intake of protein and calories or Prolonged
   starvation .

➢ **condition Leading to Marasmus:** Anorexia, bowel obstruction
   ,cancer cachexia ,and Choric illness .

➢ Marasmus is characterized by decreased anthropometric
   measurers weight and subcutaneous fat and muscle wasting,
   visceral protein level remain within normal range.

➢ **Clinical feature** : starved appearance .

➢ **Anthropometric measures:**

○ Wt. ≤ 180% standard for height.

○ TSF < 90% standard.

○ Mid-upper arm muscle circumference ≤ 90% standard.

❖ <u>Kwashiorkor</u> (protein malnutrition)

Is due to diets **high in calories** but that contain **Little or no protein,** e.g.: low protein liquid diets ,fad diets ,and long term use of dextrose-containing intravenous fluids.

➢ Individuals with kwashiorkor in contrast to those with marasmus, have **decreased visceral protein** levels but generally they have adequate anthropometric measures.

➢ These individuals may therefore
appear well nourished or even obese.

- **Clinical features**: well-nourished appearance edematous.

- **Anthropometric measures** : wt. >100%, TSF>100% standard.

- **Lab test** : albumen <3.5 g/dl , transferrin <150.

Abnormalities due to nutritional deficiencies:

☐ Pellagra

Pigmented keratotic scaling lesion resulting from a **deficiency of niacin**. These lesion are especially prominent in areas exposed to the sun ,such as hands ,forearms ,neck, and legs .

Follicular hyperkeratosis :

Dry, bumpy skin associated with **vitamin A and or linoleic acid deficiency** (essential fatty acid).

K6a N171K

Scorbutic gums:

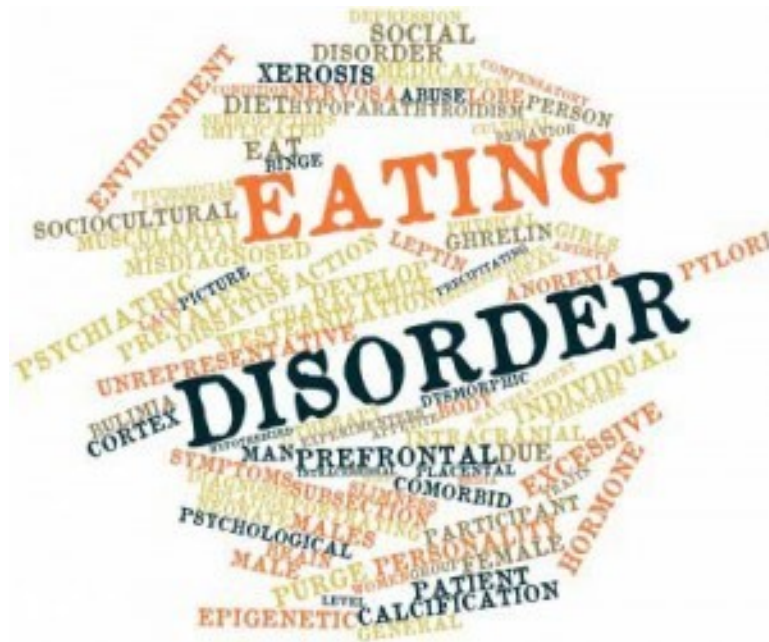**vitamin c deficiency.** gums are swollen , ulcerated , and bleeding.

□Rickets:

sign of **vitamin d and calcium deficiencies** in children and adult
 (osteomalacia)

Eating disorder

Is a compulsion to eat, or avoid eating, that negatively affects both one's physical and mental health.

Anorexia nervosa and bulimia nervosa are the most *common*.

Anorexia

People with anorexia have a **real fear of weight gain and a distorted view of their body size and shape**. As a result, they can't maintain a normal body weight. Many teens with anorexia **restrict their food intake** by dieting, fasting, or excessive exercise. They hardly eat at all — and the small amount of food they do eat becomes an obsession.

Others with anorexia may start **binge eating** and **purging** — eating a lot of food and then trying to get rid of the calories by forcing themselves to vomit, using laxatives, or exercising excessively, or some combination of these.

Bulimia

Bulimia is similar to anorexia. With bulimia, someone might binge eat **(eat to excess) and then try to compensate in extreme ways**, such as forced vomiting or excessive exercise, to prevent weight gain. Over time, these steps can be dangerous — both physically and emotionally. They can also lead to **compulsive behaviors**.
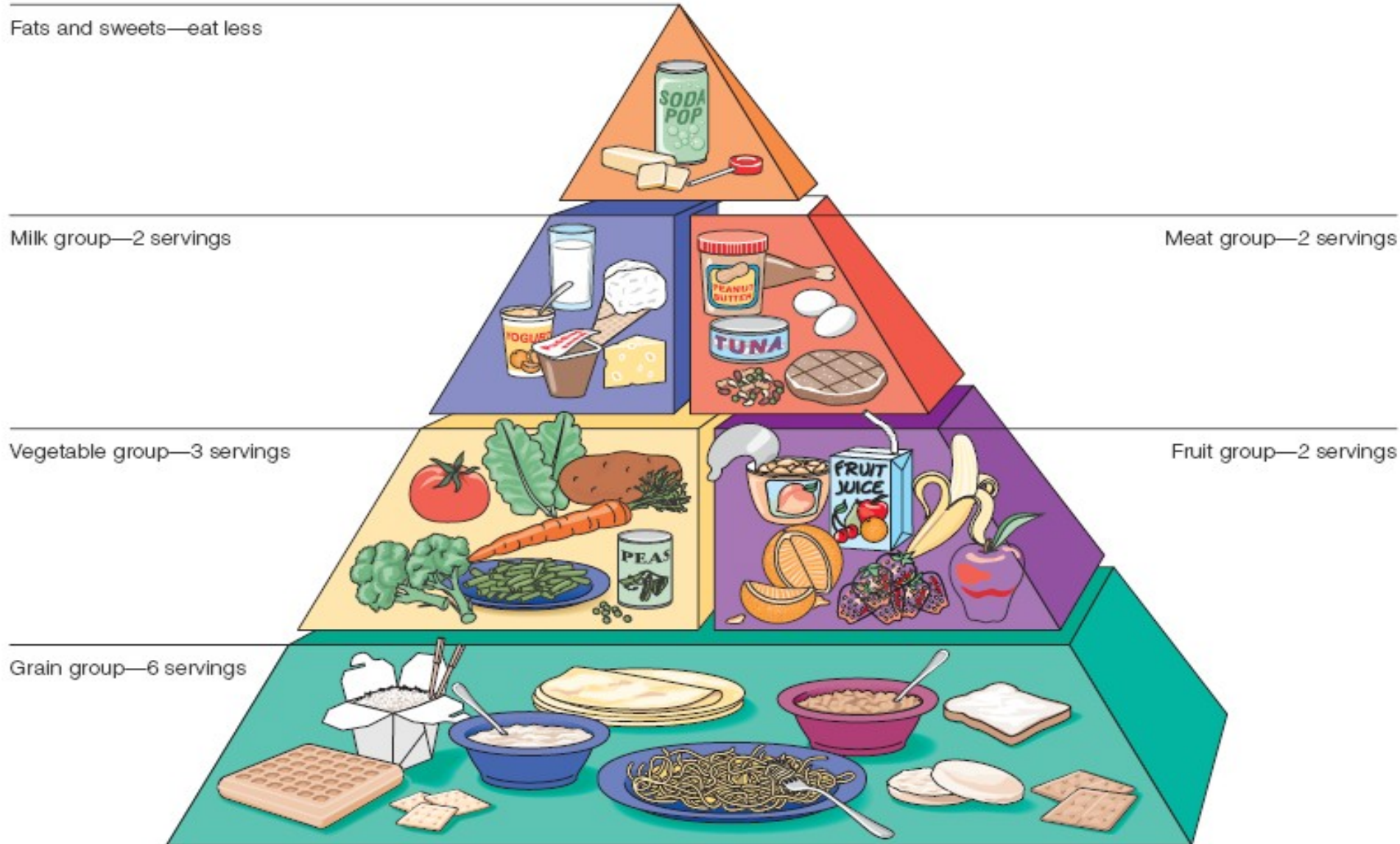
__Health promotion__ ❓

✓ Eat variety of food from all the basic food to ensure nutrient adequacy .

✓ Consume the recommended amounts of fruits /vegetables ,whole grains, and fat-free or low-fat milk products or equivalent.

✓ Limit intake of food high in saturated or trans fats, added sugar, starch, cholesterol, salt, and alcohol.

✓ Match calorie intake with calories expended.

✓ Be physically active for at least 30minutes most every day of the week or 45minutes every other day.

✓ Follow food safety guidelines for handling , preparing and storing foods.

Food Pyramids diagram representing the optimal number of servings to be eaten each day from each of the basic food groups

Fats and sweets—eat less

Milk group—2 servings

Meat group—2 servings

Vegetable group—3 servings

Fruit group—2 servings

Grain group—6 servings

References

- JARVIS , C. (2008) Physical Examination & Health Assessment, chapter11.

- FDA food safety: www.foodsaftey.com

- USDA food and nutrition information center: ww.nal.usda.gov

- American cancer society : www.cancer.org

- Center for disease control and prevention: www.cdc.gov/nccdphp/dna/nutrition/index/htm

- http://www.primehealthchannel.com

Thank you for your patient listening and active participation

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Purpose/Objectives: To determine the prevalence of malnutrition and chemotherapy-induced nausea and vomiting (CINV) limiting patients' dietary intake in a chemotherapy unit.

Design: Cross-sectional descriptive audit.
Setting: Chemotherapy ambulatory care unit in a teaching hospital in Australia.
Sample: 121 patients receiving chemotherapy for malignancies, aged 18 years and older, and able to provide verbal consent.

Methods: An accredited practicing dietitian collected all data. Chi-square tests were used to determine the relationship of malnutrition with variables and demographic data, patient-subjective and clinical-objective assessment. (use subjective global assessment).

Findings:

Thirty-one participants (26%) were malnourished, 12 (10%) had intake-limiting CINV, 22 (20%) reported significant weight loss, and 20 (18%) required improved nutrition symptom management.

High nutrition risk diagnoses, CINV, body mass index, and weight loss were significantly associated with malnutrition.

Thirteen participants (35%) with malnutrition, significant weight loss, intake-limiting CINV, and/or who critically required improved symptom management reported no prior dietetic contact; the majority of those participants were overweight or obese.

Conclusions: Of patients receiving chemotherapy in this ambulatory setting, 26% were malnourished, as were the majority of patients reporting intake-limiting CINV

Implications for Nursing:

Patients with malnutrition and/or intake-limiting CINV and in need of improved nutrition symptom management may be overlooked, particularly patients who are overweight or obese

Evidence-based practice guidelines <u>recommend implementing validated nutrition screening tools, such as the Malnutrition Screening Tool</u>, in patients undergoing chemotherapy to identify those at risk of malnutrition who require dietitian referral.