INTRODUCTION TO NUTRITIONAL ASSESSMENT

Chapter 1

- Discuss how the focus of nutritional assessment has changed over time: reasons for the changes, tools

Overview

- Good nutrition essential for health
- Nutritional screening and assessment
- Opportunities in nutrition assessment

Good Nutrition Essential for Health

- Variety
- Quality
- Quantity
- Patterns of food consumption

Evolution of Nutrition–related Condition

Deficiency and Infectious Diseases Once Common

- Infectious Disease
- Scurvy
- Rickets
- Beriberi
- Pellagra
- Goiter

20-21th Century

Chronic Disease Now Epidemic

- Cardiovascular disease
- Diabetes Mellitus
- Stroke
- Cancer
- Atherosclerosis
- Obesity

Solutions
✓ Enrichment
✓Fortification

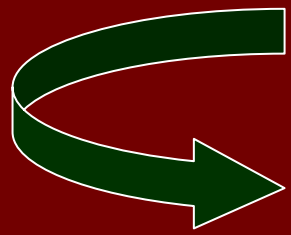
Bottom line!!!

- Should be able to determine the nutritional status of individuals
- 2 basic components of disease prevention:
  - Assessment
  - Counseling

Nutritional Assessment

- Evaluation of the nutritional status

Involve collection & interpretation of the data



State of health resulting from the consumption, digestion, absorption, transport and utilization of nutrients. May be influenced by body reserves of nutrients and pathological factors.

Nutritional assessment

- Evaluation of the nutritional status of individuals or populations through measurements of food and nutrient intake or evaluation of nutrition-related health indicators (anthropometric, biochemical or clinical)
- The goal is to identify the occurrence, nature and extent of impaired nutritional status, ranging from deficiency to toxicity and associated morbidity

Nutritional Assessment

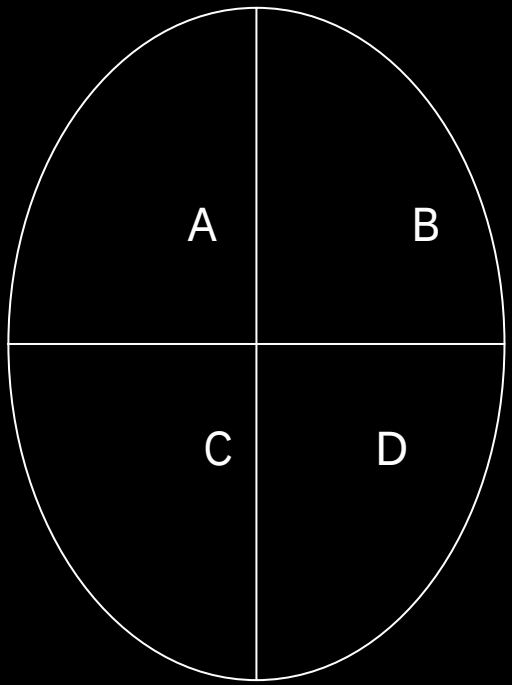
- Gathering of meaningful and accurate data to ....
  - Establish a comparison with a “norm”
  - Evaluate risk of nutritional inadequacies, deficits or excesses
  - Determine secondary factors contributing to nutritional problem

Nutritional Assessment

- Individuals

- Group

Components of Assessment



- Anthropometrics
- Biochemical
- Clinical/Physical
- Dietary

Anthropometric

- Is the measurement of the physical dimensions (growth) and gross composition of the body
  - ✓Ht
  - ✓Wt
  - ✓Head circumference
  - ✓Skin fold thickness
  - ✓Body density

Compared to standard values –from large number of subjects

Biochemical

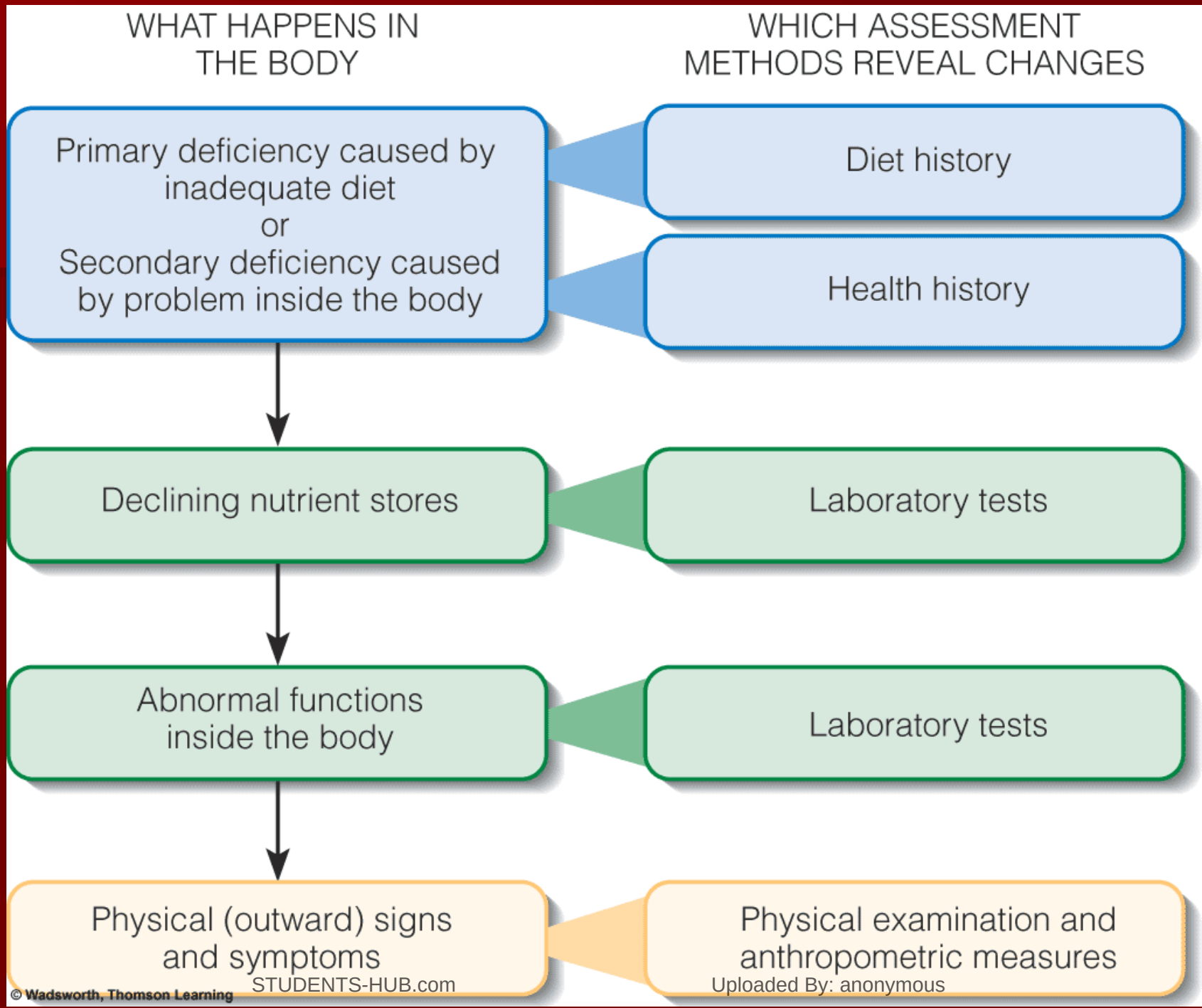
- Measuring a nutrient or its metabolite in blood, feces, or urine or other component in the blood that have a relationship to nutritional status
- ✓ Quantity of albumin and serum proteins– body protein status
- ✓ Hemoglobin levels– iron status
- ✓ Cholesterol level– CHD risk

Clinical

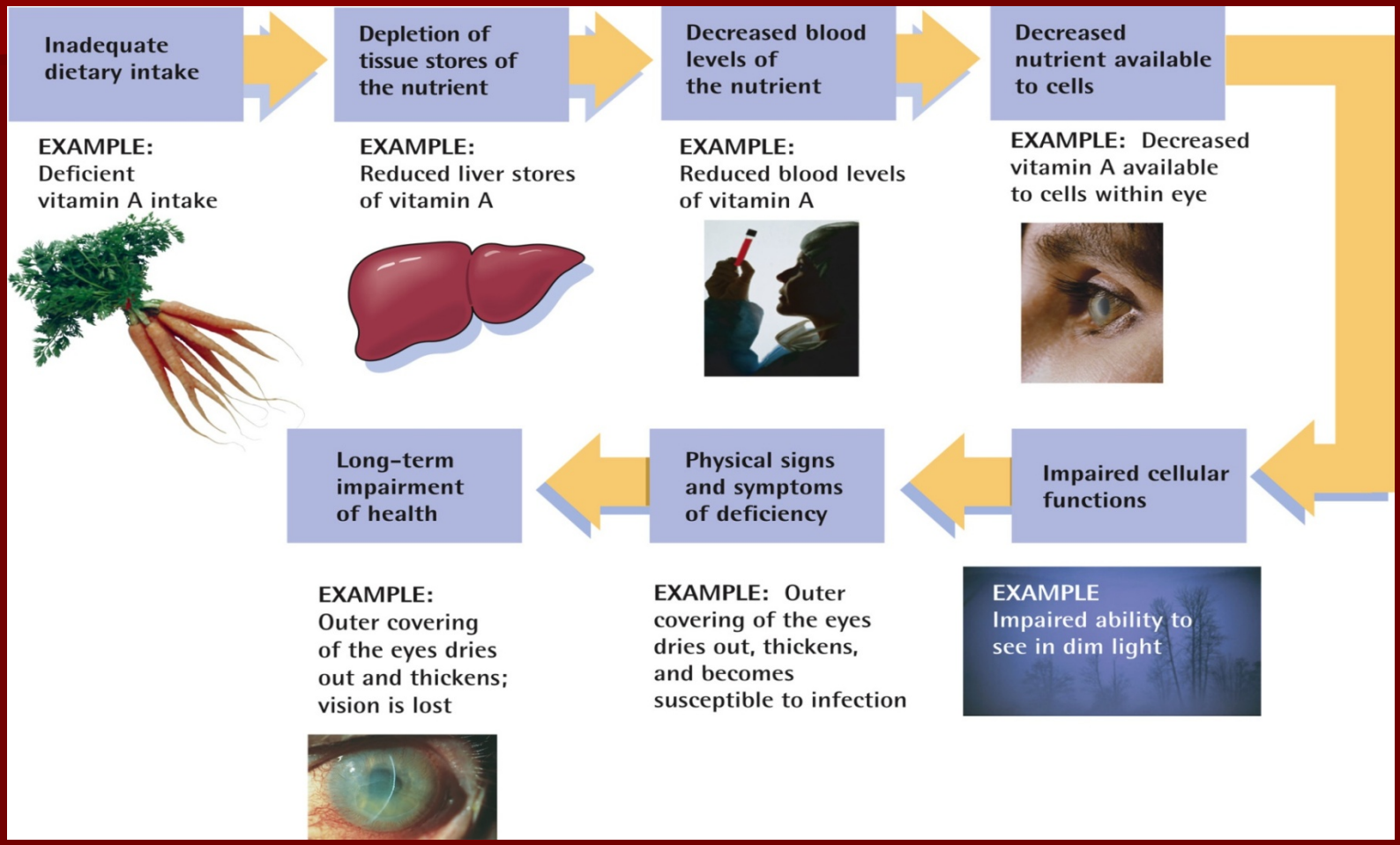
- The medical history and physical examination to detect signs and symptoms of malnutrition made by a qualified examiner
  - painful cracks in the angle of the mouth→riboflavin or niacin deficiency
  - Thyroid gland enlargement→ Iodine Def.

Dietary

- Measurements of food consumption (observed or reported), nutrient intake and diet adequacy



Vitamin A Deficiency



Nutritional screening

- The process of identifying characteristics known to be associated with nutrition problems to identify which individuals are malnourished or at nutritional risk
- Usually quite simple approaches are used to reduce costs
- Thus those who are identified often need additional nutritional assessment that is more specific or accurate

Importance of Nutritional Assessment

- Get greater knowledge of relationship between nutrition and health→ increase our ability to alter the nutritional state
- Nutrition during pregnancy→infant mortality and morbidity, affect infant growth and development→ take better action
- So: identify individual at risk , determine type of intervention (cost effective treatment), and monitor the effect of intervention

Consideration in Selecting the Appropriate Assessment

- What kind of clients do I see?
- What do I want to gain from the assessment?
- How do I plan to use the information?
- How do I plan to evaluate the information?
- What are the limitation of the tools ?
- What are the costs and resources?

Planning Nutritional Assessment

- Purpose:
  - Detect deficit or risk
  - Assess needs…..determine type of intervention and success of these intervention
- Target
  - Individuals or groups (population)
- Setting
  - Hospital, community, research
- Tools to be used
  - Interpretation and limitations
- Resources available

Opportunities in Nutritional Assessment

- In hospitals→ protein energy malnutrition
  - ✓Ht
  - ✓Wt
  - ✓mid arm muscle area
  - ✓Triceps skin fold thickness
  - ✓Urinary protein
  - ✓Serum protein

Opportunities in Nutritional Assessment

- DM→ diet history, nutrient intake and clinical data
- Wt management→ (1)body mass index,
  - (2) dietary methods to assess the Qn and Ql of the caloric intake during the monitoring, and
  - (3)Anthropometry to see changes in fat: lean body mass (lose of lean body mass should be minimized)

Nutritional monitoring and surveillance

- Providing ongoing and timely information about the contributions of food and nutrient consumption and/or nutritional status to the health of a nation.
- In low income countries it usually focuses more on nutritional status, often on the proportion of preschool children who are undernourished
- Some countries conduct routine data gathering for such purposes
- Many have failed to coordinate and make adequate use of all relevant data

Nutritional epidemiology

- This involves observational rather than experimental research
- Most research in this field involves nutritional assessment, for example relating diet to the incidence of some disease
- Indeed, this type of research, especially linked to cancer, has led to a great expansion in the types and quality of dietary assessment methods and tools available