

# 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**

**Chronic Disease Now  
Epidemic**

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

20-21th Century

**Solutions**  
✓ Enrichment  
✓ Fortification

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

# Bottom line!!!

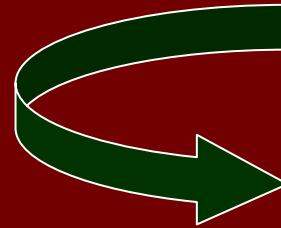
- Should be able to determine the nutritional status of individuals
- 2 basic components of disease prevention:
  - Assessment
  - Counseling

# 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

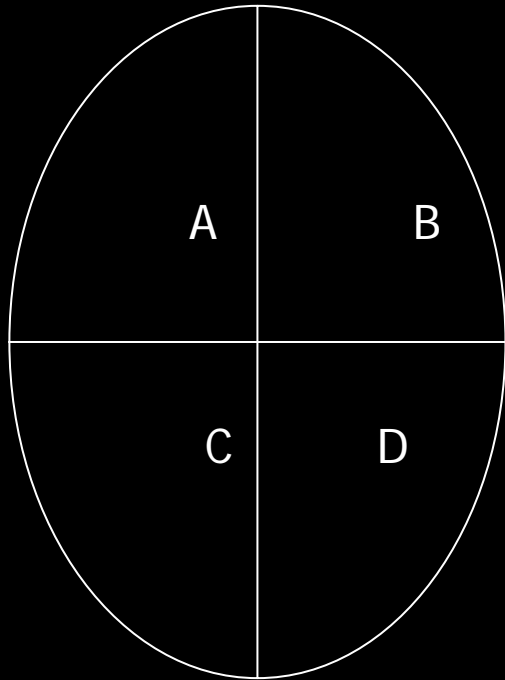
- Individuals



- 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

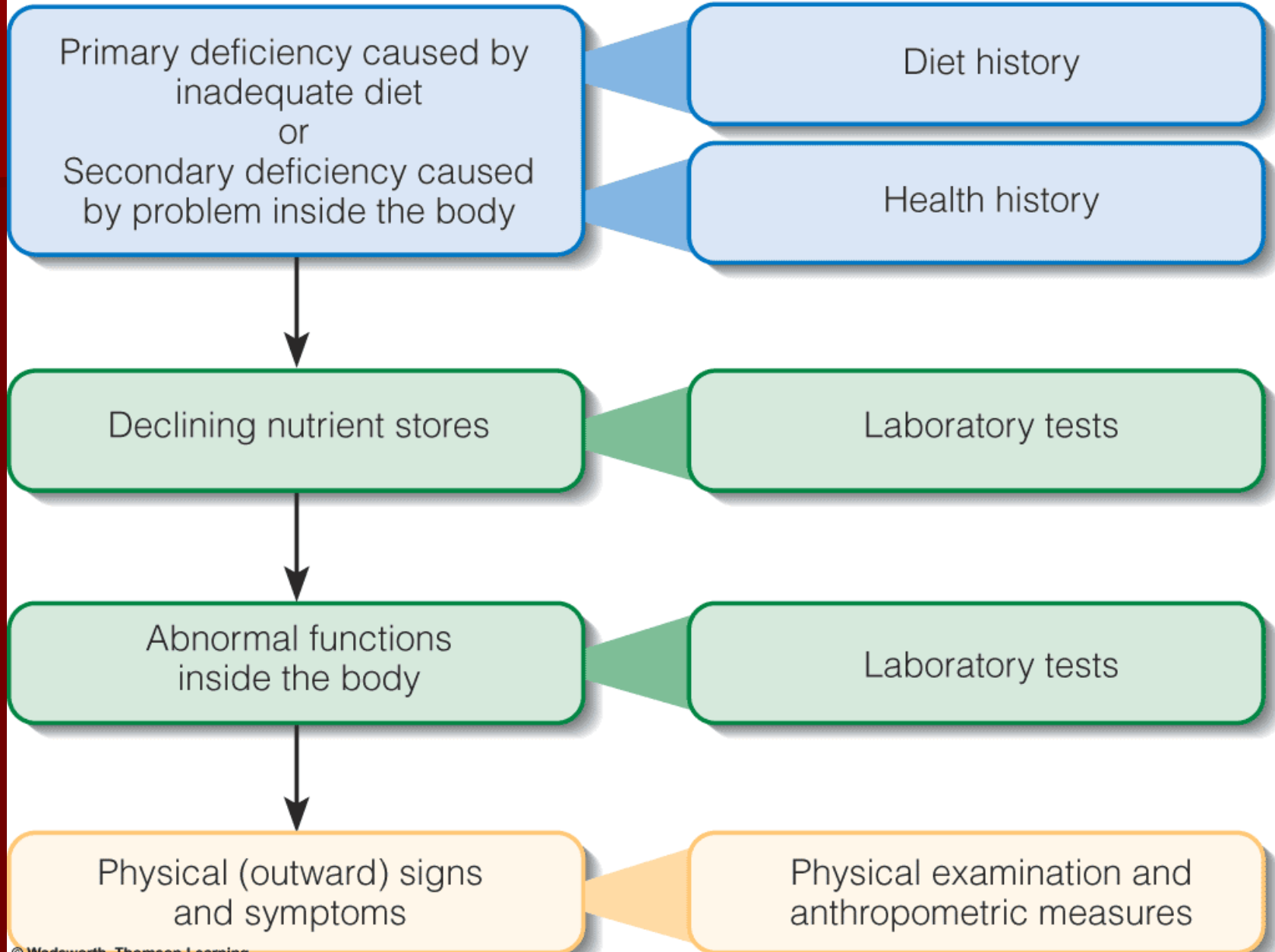
- The medical history and physical examination to detect signs and symptoms of malnutrition made by a qualified examiner
  - ✓ painful cracks in the angle of the mouth → riboflavin or niacin deficiency
  - ✓ Thyroid gland enlargement → Iodine Def.

# Dietary

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

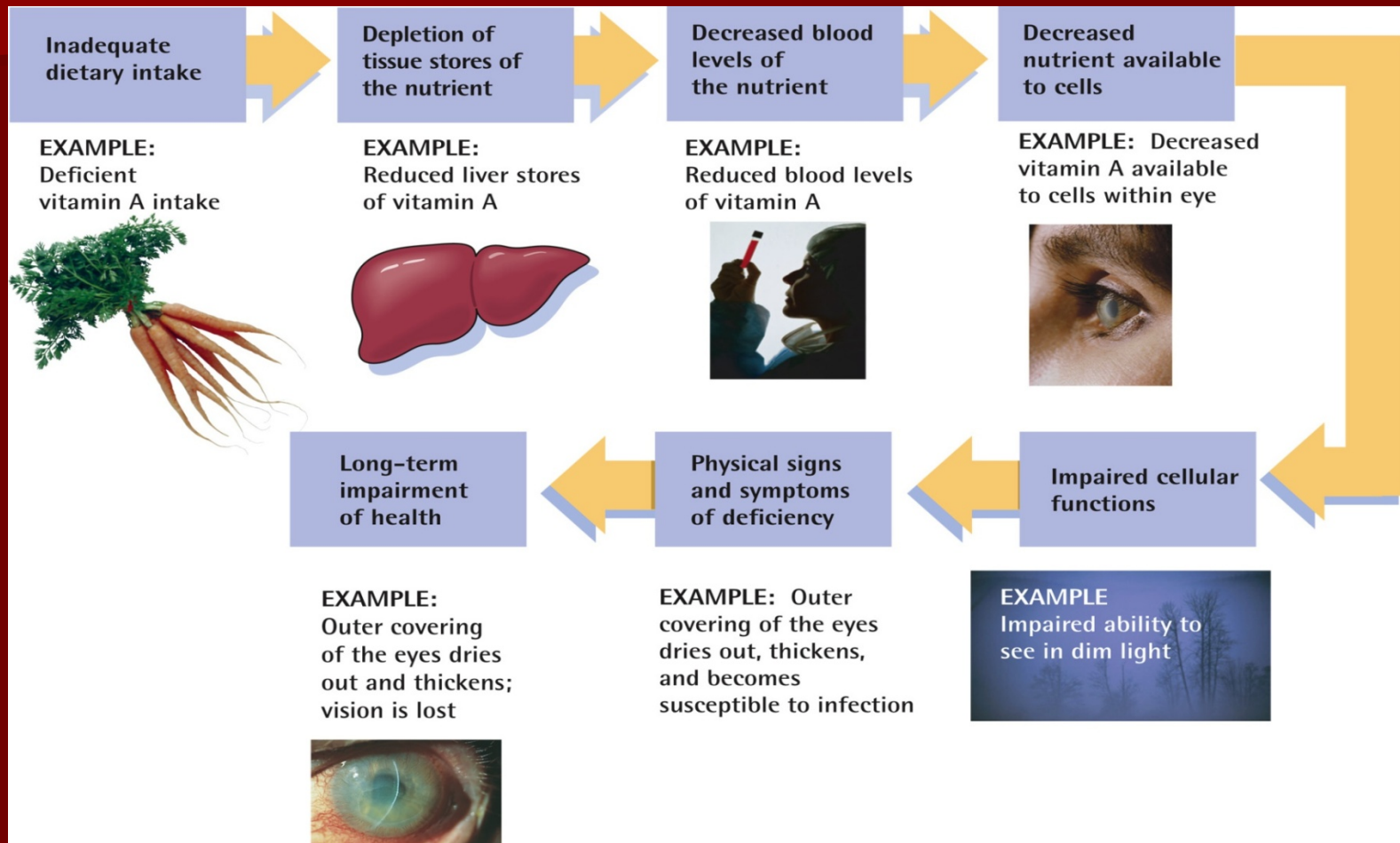
## WHAT HAPPENS IN THE BODY

## WHICH ASSESSMENT METHODS REVEAL CHANGES





# 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 QI 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