

# PATIENT CARE THEORY 2

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## UNIT 2, PART 1: Integumentary System

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# Learning Objectives

- ❖ Identify the components of the integumentary system and their function
- ❖ Discuss the value of the integumentary system assessment and interpretation of findings
- ❖ Identify common diseases of the skin
- ❖ Identify life threatening skin conditions

# Components of the Integumentary System

- ❖ Skin
- ❖ Hair
- ❖ Nails

# Skin

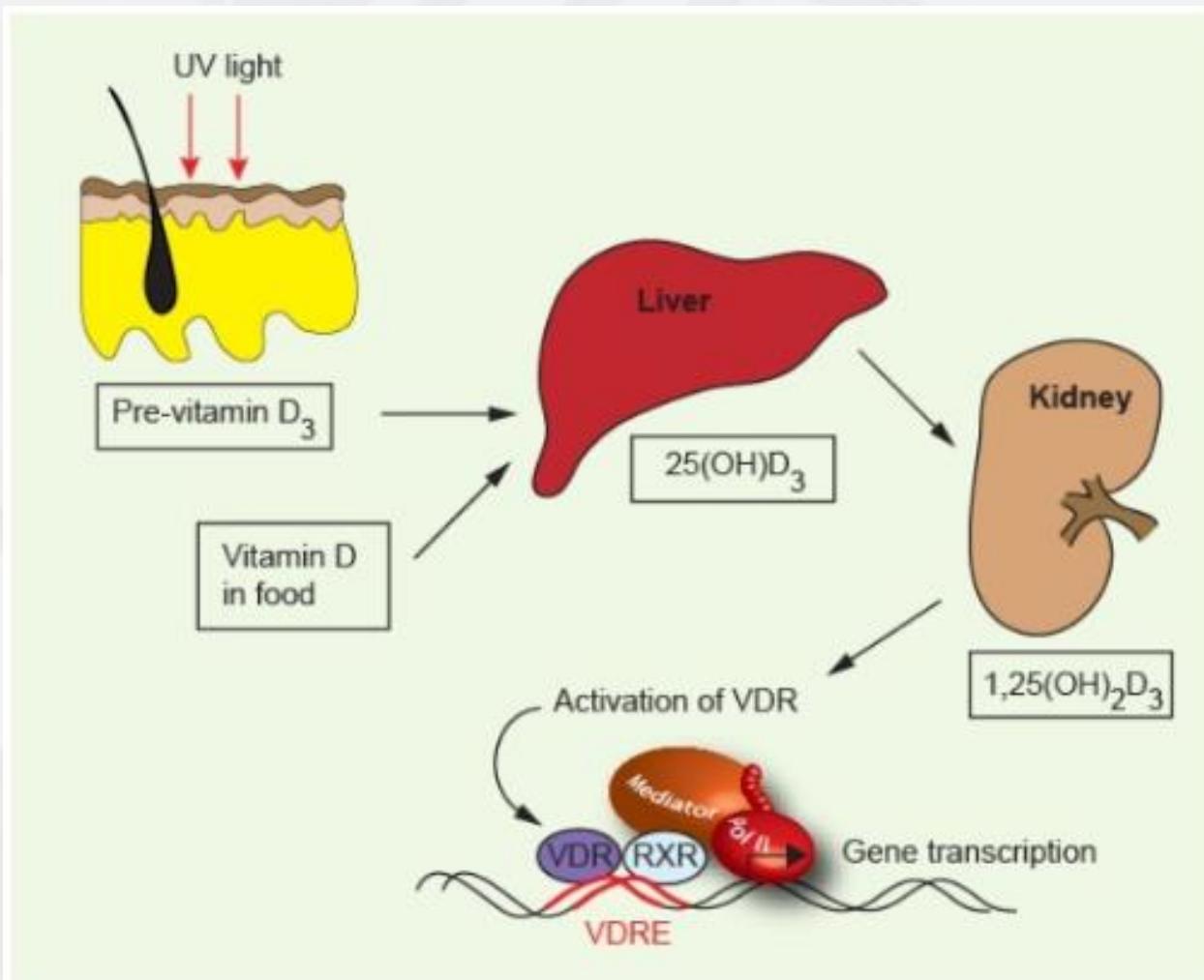
- ❖ Quickest, most reliable initial evaluation tool
- ❖ Serious changes in overall perfusion are usually manifested early on in the skin's appearance.
- ❖ Evaluate colour, relative moisture, and relative temperature.
- ❖ Pallor
- ❖ Cyanosis
- ❖ Ecchymosis

# Skin

- ❖ Largest organ system in the body
- ❖ Regulates temperature of the body
- ❖ Transmits information from the environment to the brain
  - Nerves in skin help body respond to pain, pressure, temperature and touch sensations
- ❖ Protects the body in the environment
  - Is a barrier to sun's UV rays and invasion of pathogens
  - Holds moisture in

# Skin

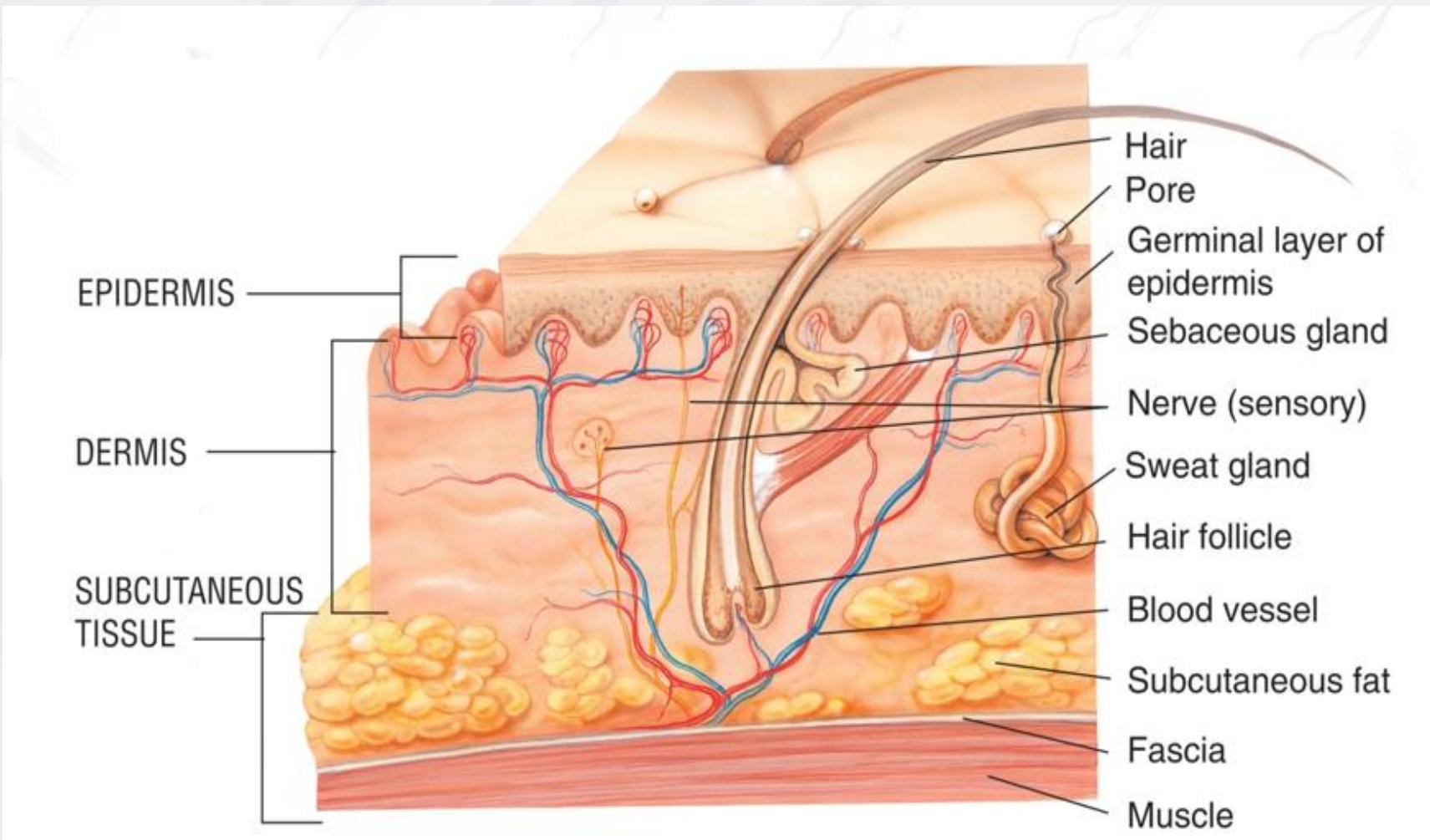
## ❖ Vitamin D production



# Skin

- ❖ Composed of two layers
  - Epidermis
  - Dermis
- ❖ Dermis is subdivided
  - Papillary dermis
  - Reticular layer

# Skin

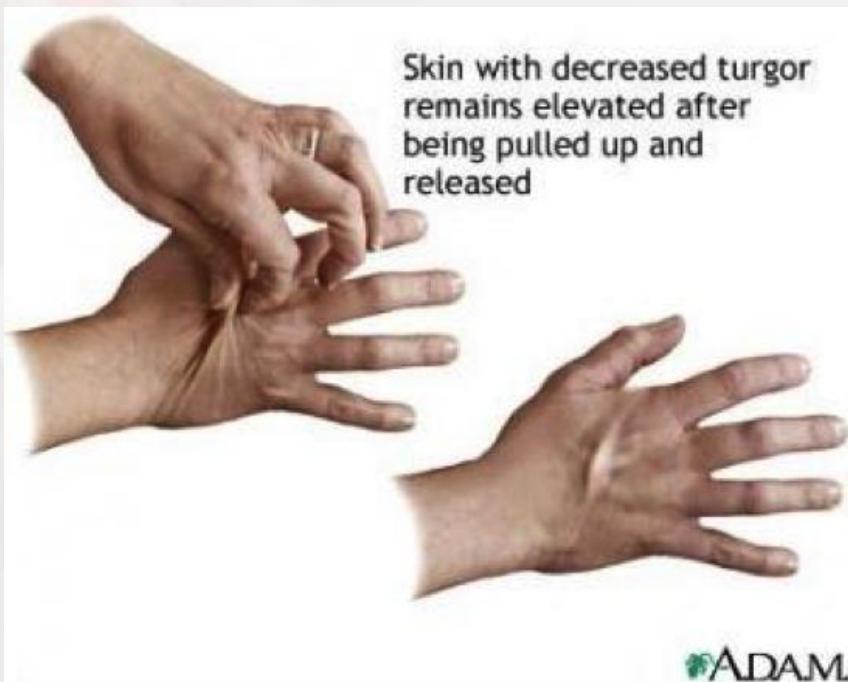


# Skin

- ❖ Examination involves both inspection and palpation.
- ❖ Pay attention to colour, moisture, temperature, texture, turgor, and any significant lesions.
- ❖ Vasodilation
  
- ❖ Findings:
  - Pallor/ colour
  - Mottling
  - Turgor
  - Lesions/Scars
  - Lumps, Bumps, bruises, crepitus

# Skin

## Turgor



## Mottling



# Skin -Colour

❖ Jaundice



❖ Erythema



❖ Cyanosis



# Hair

- ❖ Inspection and palpation
- ❖ Note the quantity, distribution, and texture of the hair.
- ❖ Recent changes in growth or loss of hair
- ❖ Thinning and loss of hair can also be a normal finding.

# Nails

- ❖ Assess the colour, shape, texture, and presence or absence of lesions.
- ❖ Normal nail should be firm and smooth on palpation.
- ❖ Normal changes with aging

# Common Skin diseases

# Eczema (Atopic Dermatitis)

- ❖ Common in children (can affect any age)
- ❖ Red, patchy, itchy skin
- ❖ Tends to have flare ups (dry skin-seasonal, irritants, fragrances, ointments, laundry detergents etc.)
- ❖ Infections due to scratching and open sores



# Psoriasis

- ❖ Skin lesions with raised, red, thick areas covered with white/silver scales
- ❖ Chronic auto immune (genetic?)
- ❖ No cure



# Contact Dermatitis

- ❖ Redness, itching, bumps, blisters, edema
- ❖ Form of eczema
- ❖ Very common
- ❖ Rash forms in response to direct contact with an allergen
- ❖ Soaps, detergents, cosmetics, fragrances, jewelry, plants etc.



# Scabies

- ❖ Caused by mites under the skin (*Sarcoptes scabei*)
- ❖ Very common
- ❖ Intensely itchy, pimple like skin rash
- ❖ Very contagious – spreads quickly through close contact
- ❖ Treated with topical ointment and/or oral medication



# Heat Rash

- ❖ Caused by blocked sweat ducts
  - Common in hot humid weather
- ❖ Small red pimple like rash



# Skin Signs of Systemic Disease

# Skin Signs of Systemic Disease

- ❖ Skin disease and internal cancer
  - Cutaneous metastases (<5% of metastases)



# Necrobiosis Lipoidica



- ❖ Patches slowly enlarge over months (or yrs)
- ❖ Commonly found in the pretibial area (can be elsewhere)
- ❖ Diabetes Mellitus
- ❖ Sarcoidosis
- ❖ Rheumatoid arthritis
- ❖ other

# Liver Disease

- ❖ Jaundice
- ❖ Erythema of the palms
- ❖ Purpura -



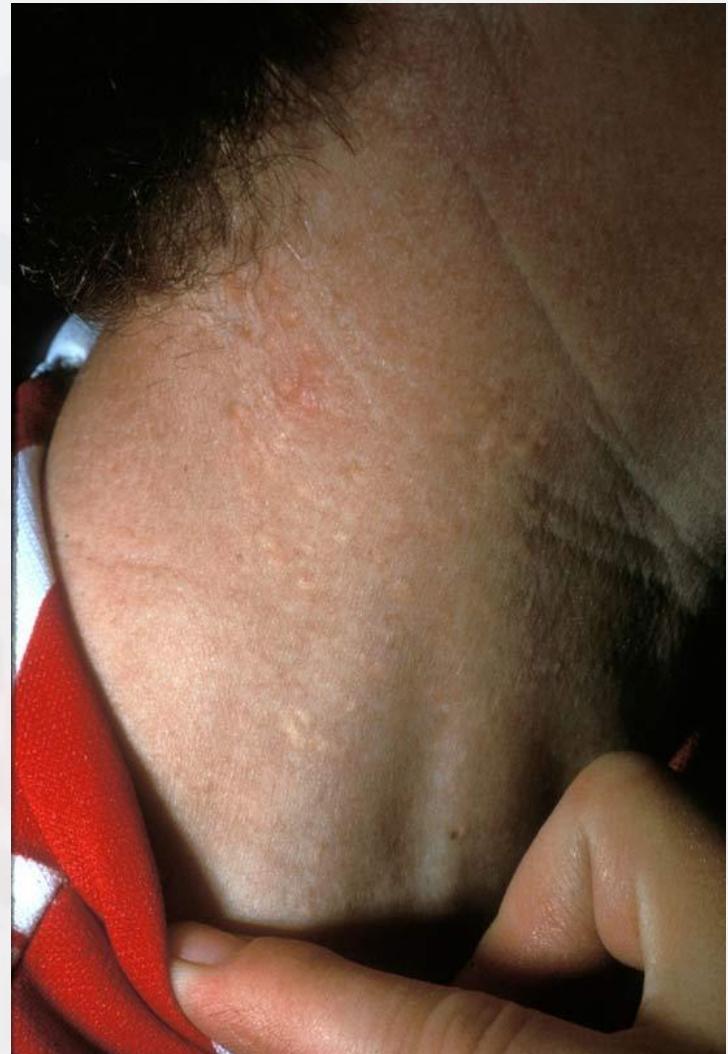
# Skin Signs of CVS disease

- ❖ Multiple lentigines (Leopards Syndrome)
  - obstructive cardiomyopathy, cardiac dysrhythmias



# Skin Signs of CVS disease

- ❖ Pseudoxanthoma elesticum
- ❖ yellow papules over skin folds on the neck, abdomen, and groin
  - hypertension, peripheral vascular and coronary artery disease



# Skin Signs of CVS disease



Normal ear lobe



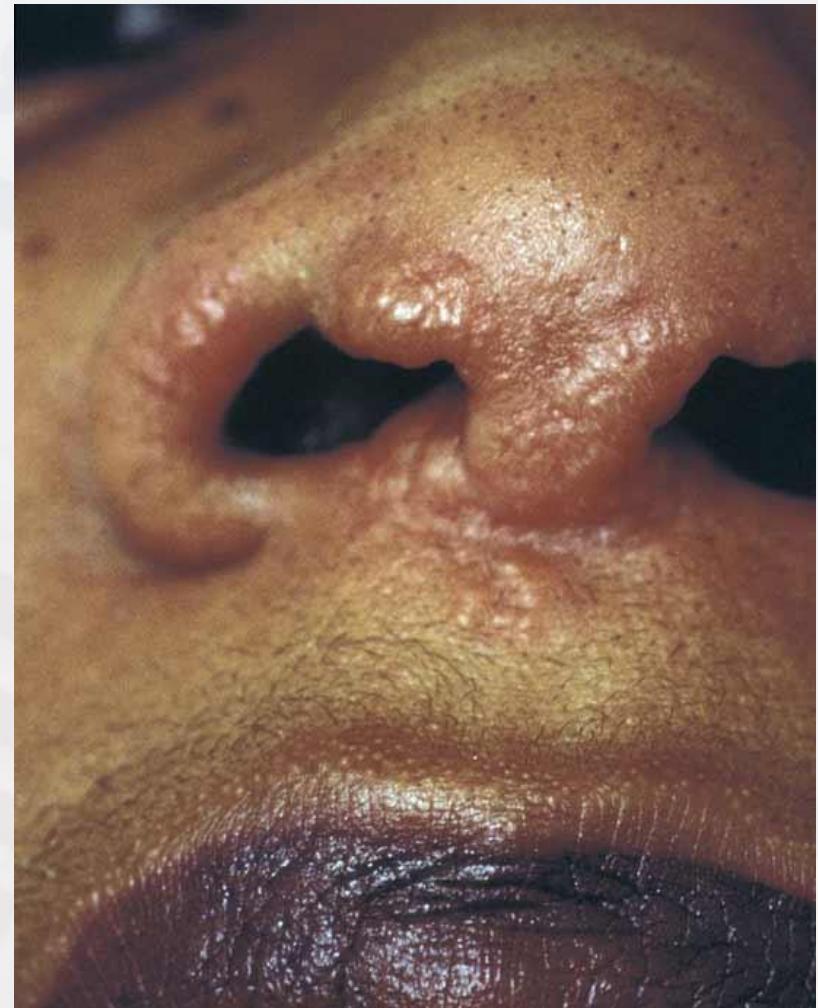
Ear lobe crease

- Ear lobe crease
  - Associated with atherosclerosis
  - increased incidence of coronary heart disease

ADAM.

# Skin disease and pulmonary disease

- ❖ **Sarcoidosis** is a inflammation of tissues of the body (e.g. nose).
- ❖ It can appear in almost any body organ, but most often starts in the lungs or lymph nodes, eyes and skin
- ❖ Often found when a chest x-ray is taken flowing complaint of SOB, coughing, wheezing



# Life-threatening Skin Conditions

- ❖ Pemphigus Vulgaris (PV)
- ❖ Toxic Epidermal Necrolysis (TEN), AKA Stevens-Johnson Syndrome
- ❖ DRESS – drug rash with eosinophilia and systemic symptoms syndrome
- ❖ TSS – Toxic Shock Syndrome
- ❖ Meningococcemia
- ❖ Rocky Mountain Spotted Fever
- ❖ Necrotizing Fasciitis

# PV

- ❖ Common in adults (can happen as young as 3)
- ❖ Autoimmune disorder – body mistakenly identifies proteins in the skin as foreign and attacks
- ❖ Causes painful blisters - usually start in the mouth, lips, tongue, inside cheeks ->spread to the rest of the body
- ❖ Blisters, when pressed will extend or form new blister
- ❖ Very painful – when open very susceptible to infection which can lead to death



# Meningococcemia

- ❖ *Neisseria meningitidis* bacteria
- ❖ Vaccine preventable
- ❖ Bacteria is present in the blood - meningococcemia
- ❖ Common cause of meningitis as well
- ❖ Can cause bleeding disorders (DIC)
- ❖ Presents with flu like symptoms (fever, headache, nausea and non-blanching purple rash)



# Rocky Mountain Spotted Fever

- ❖ Bacterial Infection transmitted through tick bites
- ❖ Early signs and symptoms: flu like (N/V, fever, h/a) not specific
- ❖ Rash develops 2-4 days after fever
- ❖ Rash similar to meningococcemia – damaged blood vessels
- ❖ Very Rare



# Necrotizing Fasciitis

- ❖ Rare bacterial infection
- ❖ Spreads very quickly and can be fatal (1 in 3)
- ❖ Common thought to be caused by Group A Strep
- ❖ Bacteria enters the body via break in the skin –bites, cuts, scrapes, punctures (including needles and IV)
  - Creates deep infection
  - Symptoms present within a few hours and can progress rapidly
- ❖ Symptoms: Fever, hypotension, redness, swelling and severe pain
  - POOP, POEM

# Necrotizing Fasciitis



# Synopsis

- ❖ You'll encounter all kinds of skin lesions or dermatologic changes which you may or may not recognize
- ❖ When you see something, it's important to ask:
  - Can you tell what this is?
  - Is it infectious?
  - Have you seen your physician about this?
  - Are you treating it with medication?
  - What are you using to treat it?
  - etc

# Management of skin lesions

- ❖ Wear gloves and other PPE as indicated
- ❖ Dress with sterile gauze as needed
  - Avoid causing trauma to the area (especially when transferring patients; i.e. fore and aft or lifting through doorways)
- ❖ Identify and associated signs and symptoms: Fever, N/V, headache -> may indicate systemic and more severe infection

# Ostomies

PARAMEDIC  
SCHOOL OF WILLAMETTE

# Ostomies

- ❖ surgical procedure that creates an opening on the abdominal wall for waste products to move out of the body
- ❖ artificial opening on the abdominal wall from the bowel or urinary tract
- ❖ Reasons: cancer of the colon and rectum, trauma, malformations present from birth, obstruction of the bowel, complications of diverticulosis, and Crohn's disease

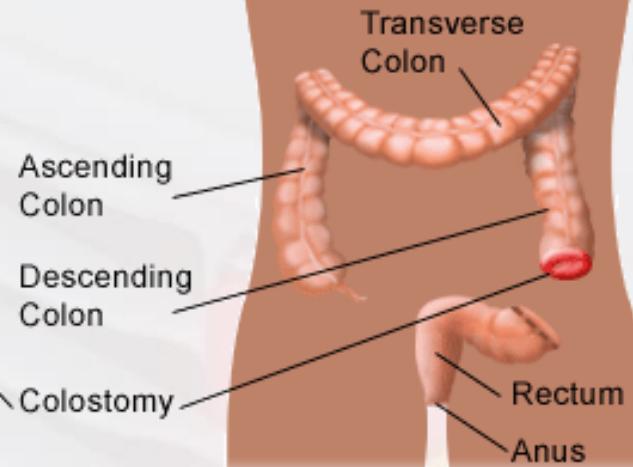
# Ostomy

## Bowel Resection and Colostomy

External View

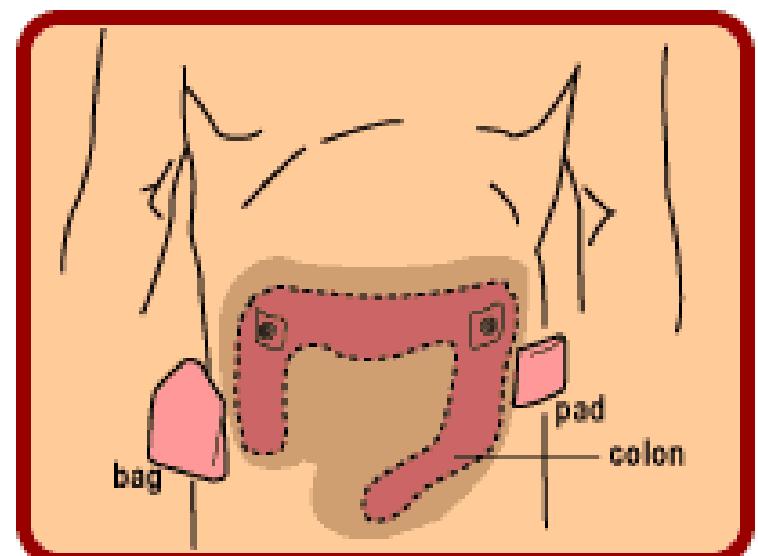


Internal View



# Colostomy

- ❖ Surgical opening in the colon
- ❖ colostomy is in the left colon - only a pad may be needed to cover the opening
- ❖ Colostomy in the right side of the colon - some type of appliance or bag is required



# Colostomy



# Prolapsed

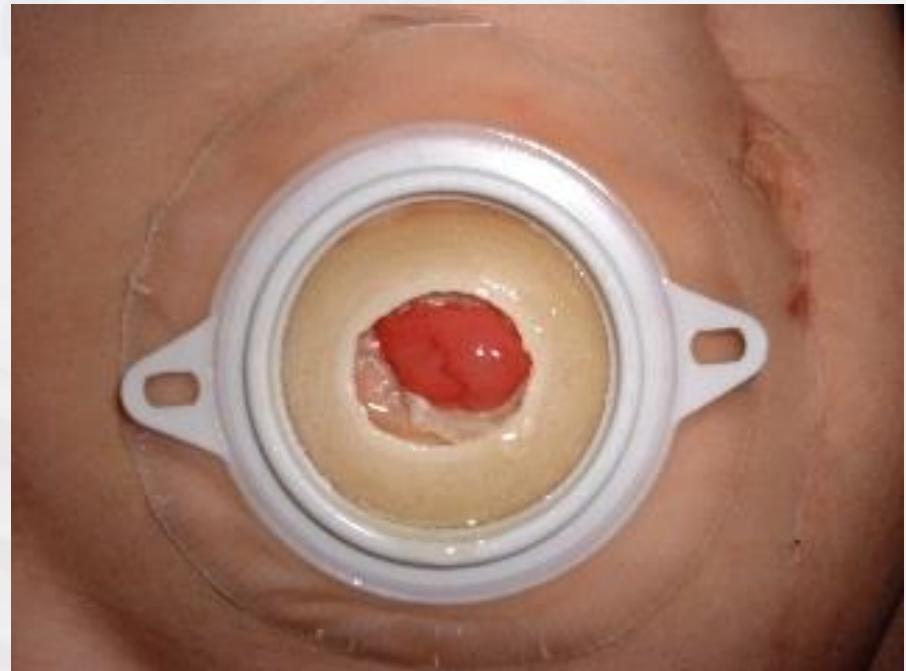


# Ileostomy

- ❖ involves bringing the ileum (the last portion of the small intestine) to the abdominal surface
- ❖ when waste matter reaches the ileum it is liquid
- ❖ device needed to collect it



# Ostomy bag



# Ostomy



# **QUESTIONS**