

Lecture quiz review

Skin Color Pigments

- 1). Melanin**
- 2). Carotene**
- 3). Hemoglobin**

Where is thick skin found?

- a. Over the knee**
- b. Sole of the feet**
- c. Breast**
- d. Lips**
- e. All of the above**

Answer: b

Fibroblasts may be found in:

1. Areolar connective tissue
2. Loose connective tissue
3. Dense regular connective tissue
4. Dense irregular connective tissue
5. All of the above

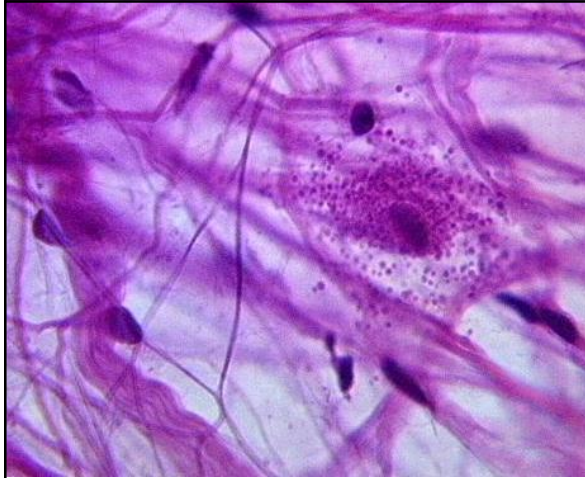
5.All of the above

Which of the following types of connective tissue exhibits these characteristics:

- Copious amount of blood vessels
- Dominated by large empty looking cells with thin margins and considerable amounts of stored lipids
 - Often pale
- Performs cushioning functions for the kidneys and the posterior portions of the eyes.

1. Areolar
2. Dense regular connective tissue
3. Dense irregular connective tissue
4. Adipose tissue
5. Reticular tissue

Adipose tissue



Identify this tissue:

**Identify the thin strands:
Identify the thick strands:
Identify the small dark purple
structures:
Identify the large granular-
looking cell:**

**Identify this tissue:
Areolar connective tissue**

**Identify the thin strands:
Elastic fibers**

**Identify the thick strands:
Collagen fibers**

**Identify the small dark purple structures:
Nuclei of fibroblasts**

**Identify the large granular-looking cell:
Mast cell**

Which cell is a macrophage found in the skin?

- a. Kupffer cells
- b. Histiocyte
- c. Dust cell
- d. Langerhans cell
- e. Microglia

Answer: d

- Macrophages are mononuclear phagocytes.
- Many tissues have resident (fixed) macrophages.
- Fixed macrophages are given a unique name, depending on the tissue that they are located in. Kupffer cells are the hepatic macrophages.
- Histiocytes are macrophages seen in connective tissue.
- Dust cells are alveolar macrophage found in the respiratory tract.
- Langerhans cells are macrophages seen in the skin.
- Microglia are the central nervous system macrophages.

A new miracle skin cream recently hit the beauty counters which is suppose to stimulate collagen production. Which cell is it supposedly stimulating?

- a. Langerhans cell**
- b. Keratinocyte**
- c. Melanocyte**
- d. Merkel cell**
- e. Fibroblast**

Answer: e

- Langerhans cells, keratinocytes, melanocytes, and Merkel cells are all found in the epidermis.
- The Langerhans cell is a phagocyte.
- The keratinocyte is the most abundant cell in the epidermis.
- The melanocyte produces melanin, which is responsible for skin pigmentation.
- The Merkel cell is a mechanoreceptor.
- Fibroblasts are found in the dermis.
- Fibroblasts produces collagen.

What type of glands are the ceruminous glands?

- a. Sebaceous glands
- b. Eccrine sweat gland
- c. Endocrine gland
- d. Apocrine sweat gland
- e. Oil gland

Answer: d

The ceruminous glands of the ear are apocrine sweat glands.

RNA ribonucleic acid

complementary pairing:

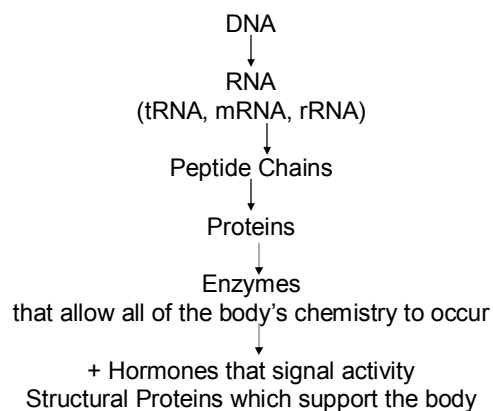
- **Thymine has been replaced with URACIL**
- **ADENINE : URACIL**
- **URACIL : ADENINE**
- **CYTOSINE : GUANINE**
- **GUANINE : CYTOSINE**

ALWAYS

DNA

- **CYTOSINE-GUANINE**
- **GUANINE-CYTOSINE**
- **ADENINE-THYMINE**
- **THYMINE-ADENINE**

ALWAYS



n and 2n

There are **23 chromatid pairs** in the **somatic cells**.

(one from the father & one from the mother)

23 pairs = 46 chromatids = 2n. This is called diploid

Paired chromatids.

23 individuals without partners = 1n (or n)

This is called **haploid**.

Only the gametes are haploid.

Mitosis results in **diploid daughter cells**.

Interphase

- i) **cell growth** (G1 phase),
- ii). **DNA replication** (S phase), and
- iii) **preparation for mitosis** (G2 phase) occurs.

1. To remove the pancreas, a surgeon would have to enter which cavity?

- a. pelvic
- b. thoracic
- c. abdominal
- d. vertebral

2. The space between the pleurae of the lungs that extends from the sternum to the vertebral column is the

- a. cranium
- b. mediastinum
- c. pericardial cavity
- d. thorax

3. To separate the anterior from the posterior portion of the brain, which plane would you use?

- a. transverse
- b. midsagittal
- c. sagittal
- d. coronal

4. Which term best describes the relationship of the elbow to the wrist? The elbow is:

- a. medial
- b. lateral
- c. proximal
- d. superior

5. A pulled muscle in the femoral region might affect your ability to:
- a. turn your head
 - b. bend your arm
 - c. walk
 - d. move your fingers

6. The female reproductive organs are located in which cavity?
- a. thoracic
 - b. pelvic
 - c. abdominal
 - d. mediastinum

7. Which statement best describes epithelium?
- a. It is always arranged in a single layer of cells.
 - b. It contains large amounts of matrix.
 - c. It has an abundant blood supply.
 - d. Its free surface is exposed to the exterior of the body or to the interior of a hollow structure.

8. In parts of the body such as the urinary bladder, where considerable distention occurs, one can also expect to find the following type of cells.
- a. cuboidal
 - b. pseudostratified
 - c. transitional
 - d. squamous

9. Stratified epithelium is usually found in areas of the body where the principal activity is
- a. filtration
 - b. protection
 - c. absorption
 - d. Diffusion

10. When a blood vessel is severed, the damaged epithelial tissue that lines the vessel would be
- a. mesothelium
 - b. simple columnar
 - c. endothelium
 - d. simple cuboidal

1-c, 2-b, 3-d, 4-c, 5-c, 6-b, 7-d, 8-c, 9-b, 10-c

11. Ciliated epithelium that is destroyed by disease would cause malfunction of which body system?

- a. digestive b. respiratory c. skeletal d. circulatory

12. The inability to absorb digested nutrients and secrete mucus might indicate a disorder in which tissue?

- a. simple squamous b. transitional c. simple columnar d. stratified squamous

13. Which tissue provides the skin with resistance to wear and tear and serves to waterproof it?

- a. stratified squamous keratinized b. simple columnar c. transitional d. pseudostratified

14. Glands, such as the thyroid, that secrete their products into the blood, are classified as

- a. exocrine b. endocrine c. sebaceous d. digestive

15. Which statement best describes connective tissue?

- a. It usually contains a large amount of matrix.
- b. It is always arranged in a single layer of cells.
- c. It is primarily concerned with secretion.
- d. It usually lines a body cavity

16. Which connective tissue cell would most likely increase its activity during an infection?

- a. osteoclast b. macrophage c. fibroblast d. fat cell

17. Torn ligaments and tendons would necessarily affect which tissue?

- a. elastic b. reticular c. collagenic d. transitional

18. Which of the following is not a serous membrane?

- a. visceral pleura b. pericardium c. parietal pleura d. lining of the heart

19. The shape of the external ear is maintained by
a. adipose tissue b. elastic cartilage c. hyaline cartilage d. reticular tissue

20. Perichondrium, chondrocytes, and lacunae are characteristic of
a. bone b. mesenchyme c. cartilage d. areolar tissue

Answers: 11-b, 12-c, 13-a, 14-b, 15-a, 16-b, 17-c, 18-d, 19-b, 20-c

21. Where would one not find simple squamous epithelium?

- a. mesothelium
- b. lymph vessels
- c. veins
- d. skin

22. Which of the following is not one of the 4 principal types of tissue?

- a. connective
- b. cartilaginous
- c. nervous
- d. muscle

Answers: 21-d, 22-b

23. The microscopic examination of tissues is referred to as
a. embryology b. physiology c. histology d. cytology

24. In the terms below, the highest level of organization is the
a. tissue b. system c. organ d. cell

25. If you wanted to separate the abdominal from the thoracic cavity, which plane would you use?
a. sagittal b. transverse c. frontal d. coronal

26. Pleurae are
a. mucous membranes
b. located in the abdominal cavity
c. involved in digestion
d. serous membranes

27. If you were to assume the anatomical position, you would
a. lie face down
b. lie flat on your back with palms of hands flat on floor
c. stand erect with palms facing anteriorly
d. stand erect with palms relaxed, facing posteriorly

Answers: 23-d, 24-c, 25-b,, 26-d,, 27-c

28. Which of the following is not classified as a tissue?
a. bone b. cartilage c. skin d. epithelium
29. Thoracic surgery involves opening the chest cavity. This surgery would not include any operations on the
a. esophagus b. pericardium c. spleen d. trachea
30. Where does the stomach lie with reference to the esophagus?
a. anterior b. inferior c. medial d. proximal
31. The relationship between the radius and the forearm is most comparable to that between the
a. tibia and leg b. metacarpals and the foot c. patella and the knee d. fibula and the leg
32. Another name for the chest cavity is the
a. ventral cavity b. thoracic cavity c. pleural cavity d. peritoneal cavity
33. Which term describes the location of the abdominal cavity with reference to the diaphragm?
a. anterior b. distal c. dorsal d. inferior

34. A section that separates the body into right and left portions would be
- a. frontal
 - b. transverse
 - c. coronal
 - d. sagittal

35. A section that divides the body into superior and inferior portions would be a
- a. transverse section
 - b. frontal section
 - c. sagittal section
 - d. coronal section

Answers: 28-c, 29-c, 30-b, 31-d, 32-b, 33-d, 34-d, 35-a,

36. A basement membrane occurs between
a. muscle and nerve tissue b. epithelial and connective tissue c. connective and muscle tissue d. brain and nerve tissue
37. The epithelial tissue through which gases are exchanged between blood and the air in the lungs is
a. stratified squamous b. simple squamous c. simple cuboidal d. simple columnar
38. The tissue that forms the inner lining of respiratory passages is
a. pseudostratified b. ciliated c. mucus-secreting d. all of the above
39. Loose connective tissue contains
a. white fibers b. yellow fibers c. jellylike intercellular material d. all of the above
40. Tendons and ligaments are composed primarily of
a. adipose tissue b. fibrous connective tissue c. muscle tissue d. loose connective tissue

41. Which of the following terms is used to describe a part that is close to the surface?
a. ventral b. superficial c. proximal d. distal
42. The membrane on the surface of a lung is called the
a. visceral pleura b. parietal pleura c. visceral pericardium d. parietal pericardium
43. Which of the following organs occupies the abdominopelvic cavity?
a. heart b. trachea c. larynx d. none of the above

Answers: 36 b, 37-b, 38-d, 39-d, 40-b, 41-b, 42-a, 43-d

Match terms on left with choices on right.

- | | |
|-----------------|--------------------------|
| 6. chondrocyte | a. mucous-secreting cell |
| 7. fibroblast | b. fiber-producing cell |
| 8. adipose cell | c. phagocytic cell |
| 9. osteocyte | d. fat storage cell |
| 10. macrophage | e. bone cell |
| | f. cartilage cell |

Answers: 6-f, 7-b, 8-d, 9-e, 10-c

Matching. Match terms on left with choices on right.

- | | |
|-----------------------------------|----------------------------------|
| 1. simple squamous epithelium | a. lining of stomach |
| 2. simple cuboidal epithelium | b. lining of a airway |
| 3. simple columnar epithelium | c. lining of lung alveolus |
| 4. pseudostratified epithelium | d. lining of salivary gland duct |
| 5. stratified squamous epithelium | e. lining of mouth |
| | f. lining of urinary bladder |

Answers: 1-c, 2-d, 3-a, 4-b, 5-e

Matching. Match terms on left with choices on right.

- | | |
|------------------|------------|
| 11. costal | a. rump |
| 12. buccal | b. groin |
| 13. inguinal | c. chest |
| 14. pectoral | d. armpit |
| 15. plantar | e. neck |
| 16. antebrachium | f. mouth |
| 17. brachial | g. rib |
| 18. axillary | h. sole |
| 19. cervical | i. forearm |
| 20. gluteal | j. arm |

Answers: 11-g, 12-f, 13-b, 14-c, 15-h, 16-i, 17-j, 18-d, 19-e, 20-a

One correct answer per question. Choices may be used more than once.

- | | |
|------------------------------------------------|----------------------------|
| 21. parallel bundles of dense collagen fibers | a. reticular |
| 22. dermis of skin | b. elastic conn. tissue |
| 23. embryonic appendicular skeleton | c. areolar |
| 24. fat storage | d. hyaline cartilage |
| 25. yellow marrow | e. dense fibrous irregular |
| 26. ground substance hard due to calcium salts | f. dense fibrous regular |
| 27. packing around blood vessels | g. bone |
| | h. elastic cartilage |
| | i. adipose |

Answers: 21-f, 22-e, 23-d, 24-i, 25-i, 26-g, 27-c

One correct answer per question. Choices may be used more than once.

- | | |
|--------------------------------------------------------------------|------------------------|
| 28. simple, but looks like two layers | a. stratified squamous |
| 29. forms epidermis | b. pseudostratified |
| 30. lines urinary bladder | c. transitional |
| 31. peculiar surface cells change shape,
slide over one another | d. simple cuboidal |
| 32. forms thin serous membranes | e. simple columnar |
| 33. single layer of flattened cells | f. simple squamous |

Answers: 28-b, 29-a, 30-c, 31-c, 32-f, 33-f

Mitochondria

- a) are involved in cellular respiration
- b) break down ATP to release energy for cells
- c) contain grana and cristae
- d) are present in animal but not in plant cells
- e) All of these are correct

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What are the Protein producing organelles?

Protein producing organelles

- The endoplasmic reticulum
- Ribosomes
- The golgi apparatus
- Lysosomes

Cell membrane function?

- Regulation of transport
 - Carrier Proteins
 - Channel Proteins
 - Proteins using ATP
- Maker Proteins
- Receptor Proteins
- Endocytosis
- Exocytosis

Epithelia can be classified by :

- Number of layers of cells
- the shape of the cells
- Function

	Single-Chromatid Chromosomes	Homologous Chromosome Pairs
Interphase Before Mitosis		xWith the exception of gametes, all cells of animals are diploid and have pairs of homologous chromosomes for all chromosome types.
Late Mitosis Telophase		xMitosis conserves the ploid number of the cell. We start with a diploid cell and we end with a diploid cell. Pairs of homologous chromosomes are present for all of the chromosome types.
Interphase Before Meiosis		xAll cells about to divide meiotically must be diploid. Synapsis of homologous chromosomes during prophase I is essential to the successful completion of meiosis.
Late Telophase II of Meiosis	xDuring the second meiotic division (as in mitosis) centromeres of double chromatid chromosomes divide and groups of single chromatid chromosomes are distributed to the new cells	

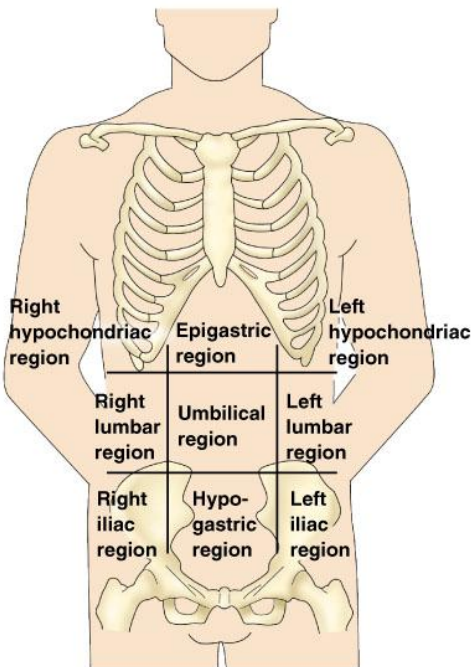
Mitosis describes the process-----

Mitosis describes the process by which the nucleus of a cell divides to create two new nuclei, each containing an identical copy of DNA. (Cytokinesis describes the division of the rest of the cell.)

Gross Anatomy component of study?

- Regional – all structures in one part of the body
(such as the abdomen or leg)
- Systemic – gross anatomy of the body studied by system
- Surface – study of internal structures as they relate to the overlying skin

Abdominopelvic Regions



(b)

Integumentary function?

- Forms the external body covering
- Protects deeper tissue from injury
- Synthesizes vitamin D
- Location of cutaneous nerve receptors

What are the four modes of secretion?

- Endocrine
- Exocrine : holocrine, merocrine, apocrine

Your client has the flu and reports 5-6 loose stools a day. He has experienced an isotonic fluid volume loss. Explain what an isotonic fluid loss means.

?

- Answer:
- An isotonic fluid volume loss occurs when water and electrolytes are lost in equal proportion.
-

Your patient has a respiratory disease that has literally paralyzed the cilia. Explain why this patient would be at an increased risk for a respiratory infection.

- Answer:
- Ciliated cells that live in the respiratory tract propel mucus, laden with dust particles and bacteria, upward and away from the lungs. If the cilia are paralyzed, bacteria remain in the lungs and may cause infection.
-

Describe the difference of cell division between normal cells and cancer cells.

- Normal cells divide in two distinct events mitosis and cytokinesis.
- Cancer cells divide wildly, which makes them dangerous to their host.

Research shows that neurofibrillary tangles are the primary cause of Alzheimer's disease. Neurofibrillary tangles are associated with microtubules. Based on your knowledge of microtubules, explain what may happen to microtubules to cause Alzheimer's disease.

- Microtubules determine the overall shape of the cell, among other things. They are dynamic organelles constantly growing from the centrosome, disassembling and then reassembling. In Alzheimer's disease the structure of the microtubule collapses.

Which of the following is NOT a membranous organelle?

- a. Lysosomes**
- b. Peroxisomes**
- c. Mitochondria**
- d. Ribosomes**
- e. Endoplasmic reticulum**

Answer: d

Lysosomes, peroxisomes,
mitochondria, and
endoplasmic reticulum are all
membranous organelles.

Which of the following is NOT considered an inclusion?

- a. Pigment
- b. Glycogen
- c. Lipid
- d. Secretory granules
- e. Mitochondria

Answer: e

Mitochondria is an organelle. Pigment, glycogen, lipid, and secretory granules are all considered inclusions.

Organelles perform an activity; they have a job; they require energy.

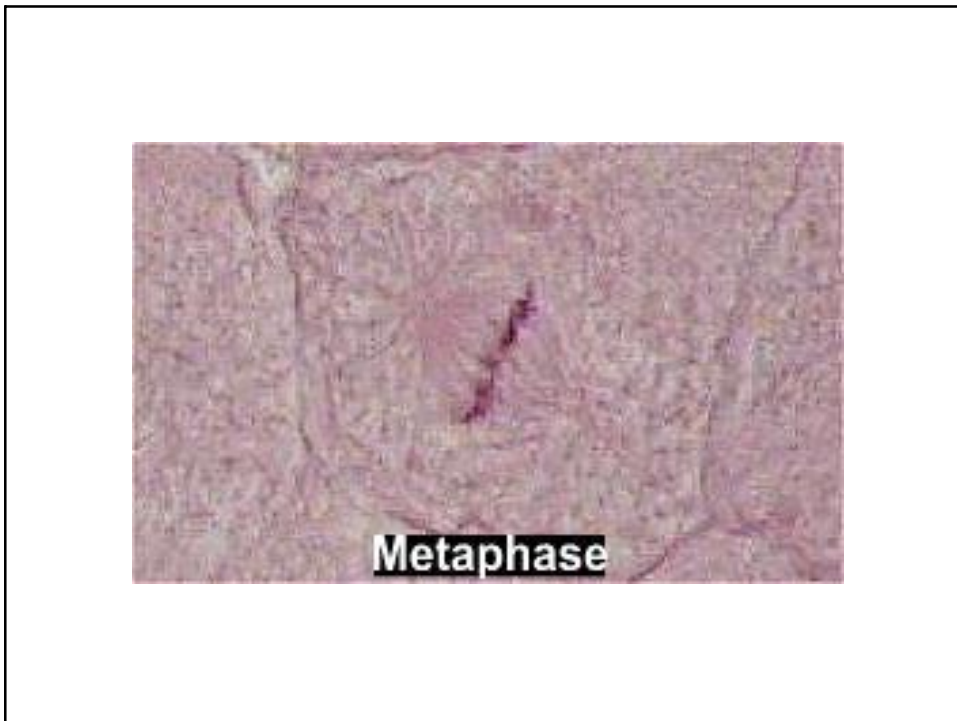
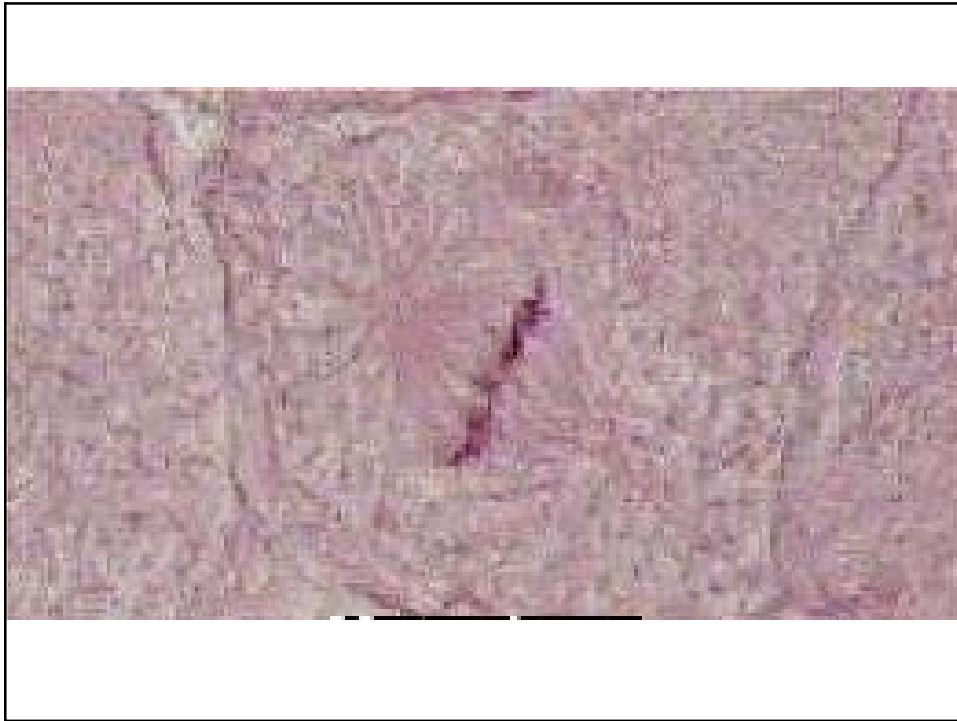
Inclusions are for storage. Inclusions do not perform an energy requiring job.

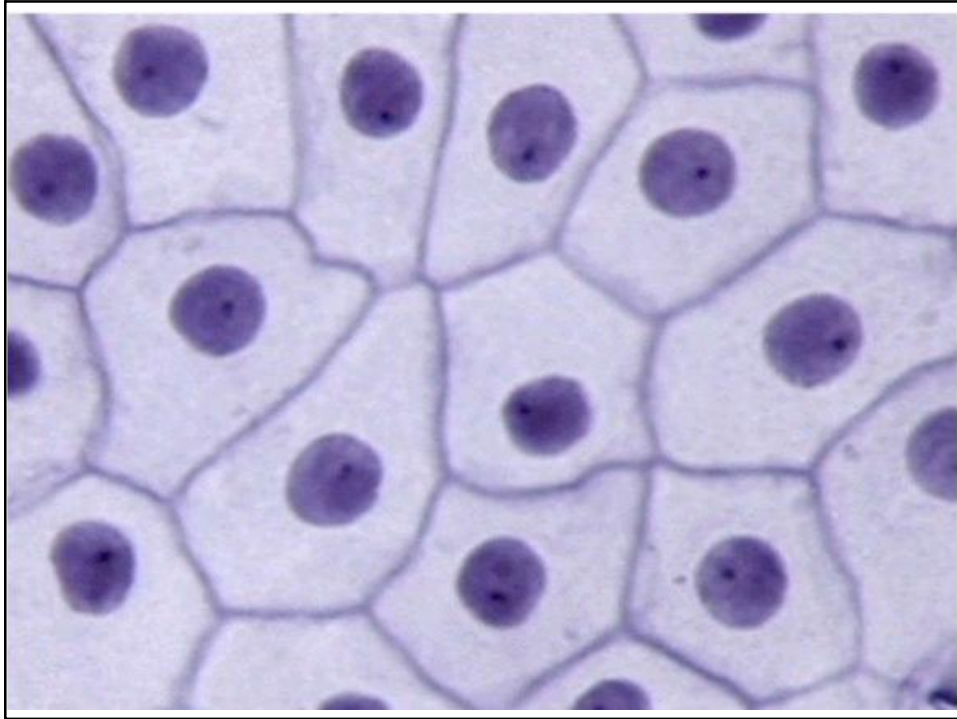
What is the term for the general process that cells use to expunge material from the cell?

- a. Endocytosis
- b. Exocytosis
- c. Pinocytosis
- d. Phagocytosis
- e. Active transport

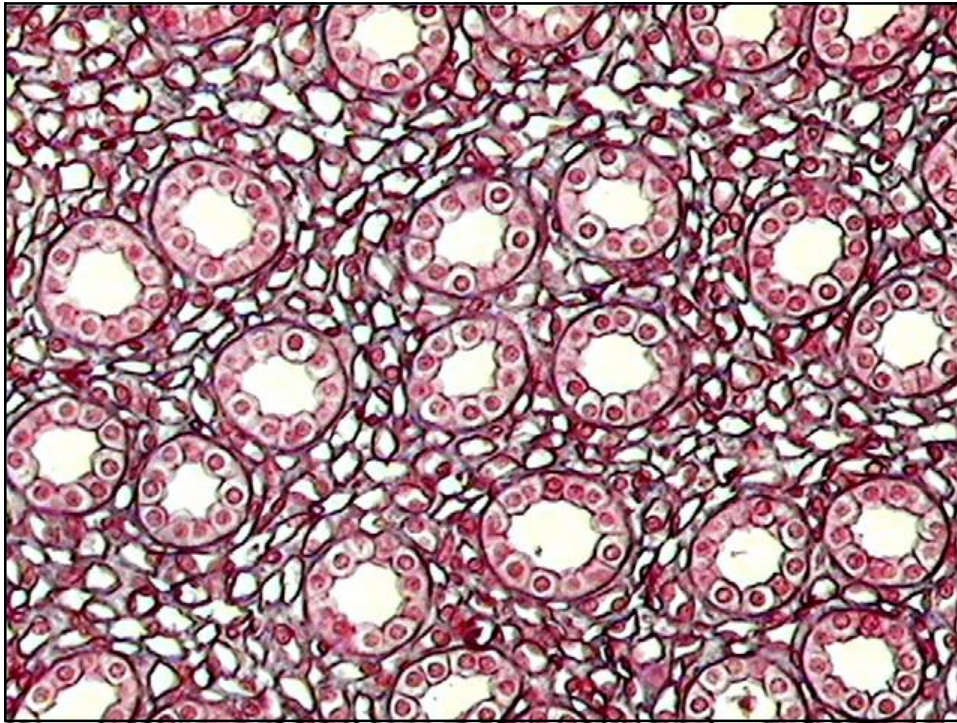
Answer: b

Endocytosis is the term for the process cells use to have substances enter them. Exocytosis is the term for the process cells use to remove substances. Phagocytosis is "cell eating" and is used for the transport of particulate matter. Pinocytosis is "cell drinking". Active transport is a method which requires energy.

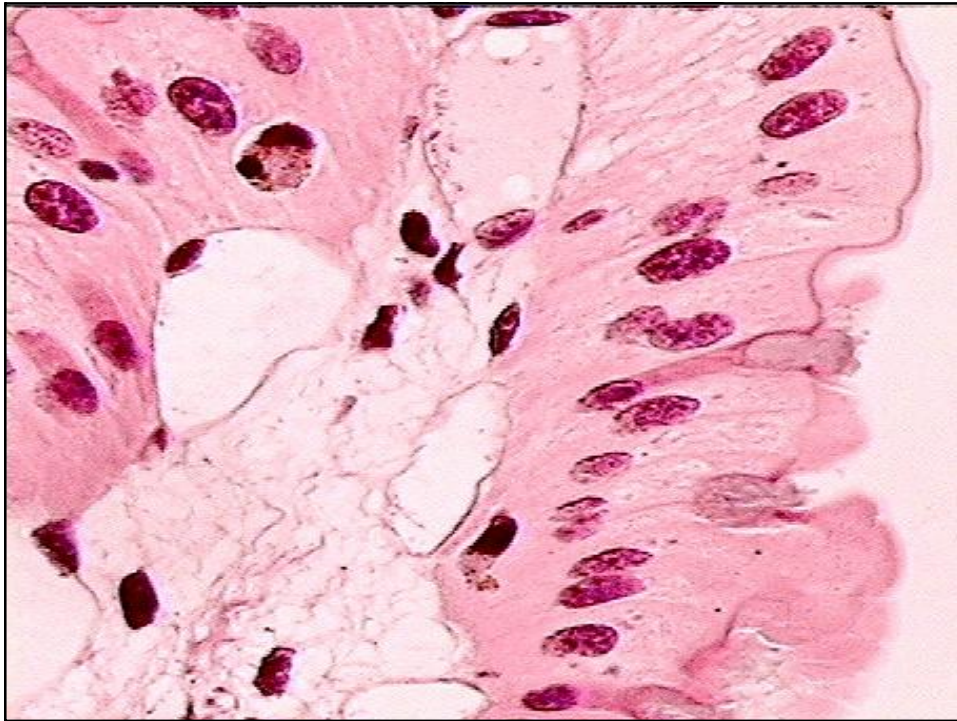




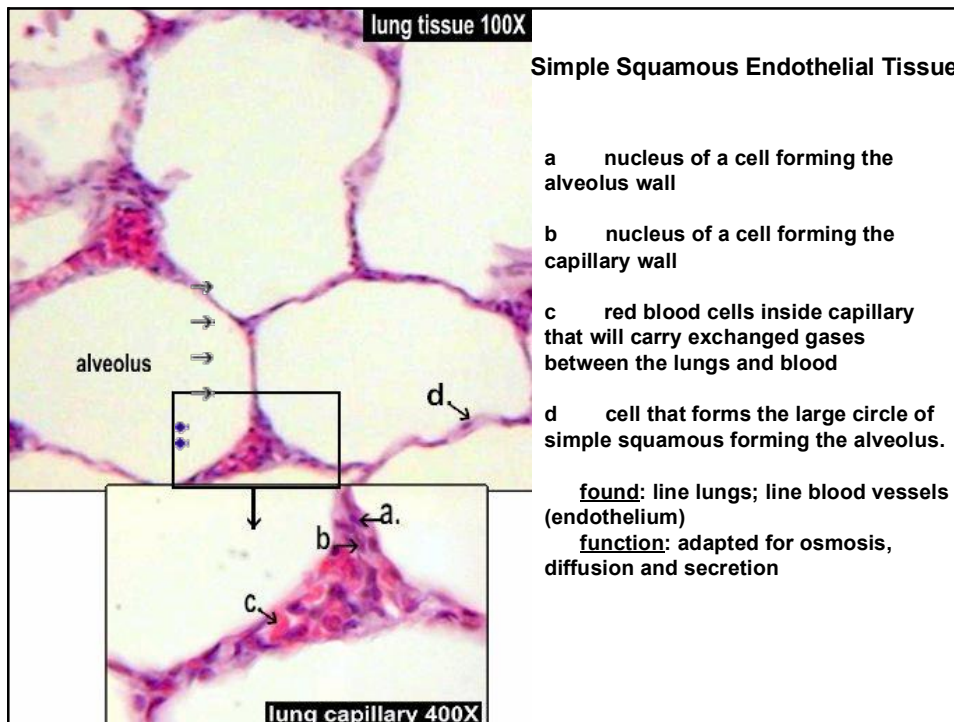
Simple squamous epithelium, high power



Simple cuboidal epithelium, low power



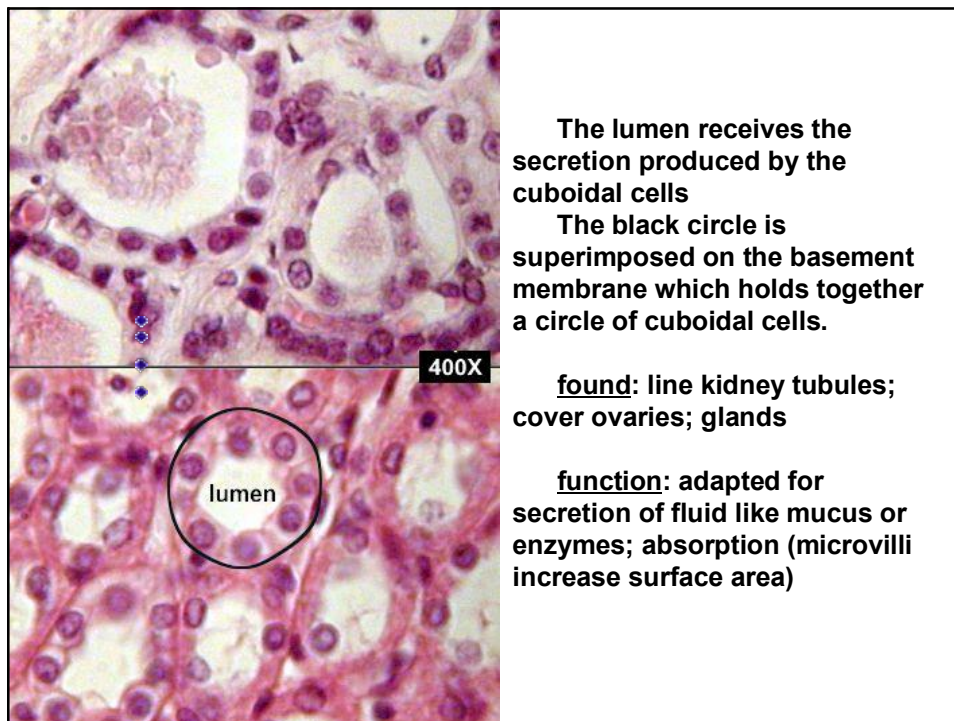
Simple columnar epithelium



Simple Squamous Endothelial Tissue

- a nucleus of a cell forming the alveolus wall
- b nucleus of a cell forming the capillary wall
- c red blood cells inside capillary that will carry exchanged gases between the lungs and blood
- d cell that forms the large circle of simple squamous forming the alveolus.

found: line lungs; line blood vessels (endothelium)
function: adapted for osmosis, diffusion and secretion



The lumen receives the secretion produced by the cuboidal cells
 The black circle is superimposed on the basement membrane which holds together a circle of cuboidal cells.

found: line kidney tubules; cover ovaries; glands

function: adapted for secretion of fluid like mucus or enzymes; absorption (microvilli increase surface area)



The fuzzyness on top of the simple columnar cells is caused by tiny microvilli.

found: in GI tract and uterus;

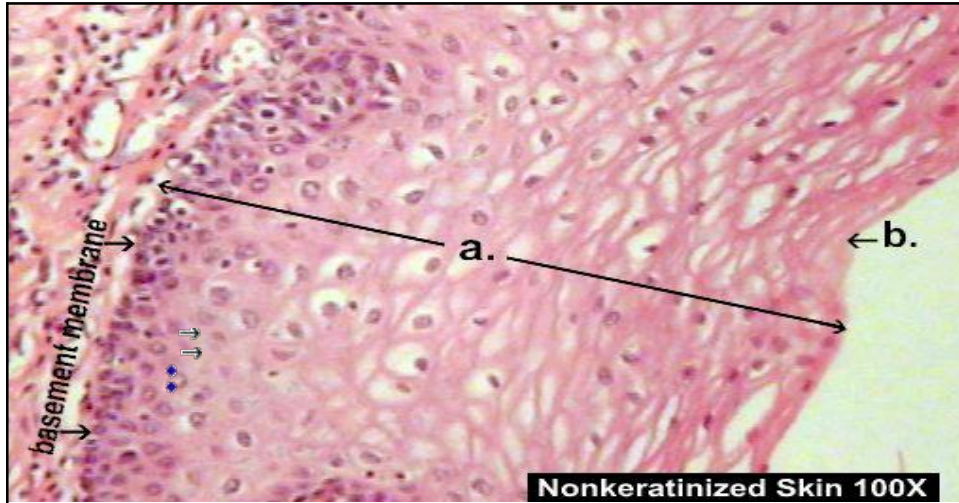
function: absorption of foods (microvilli); move sperm (cilia); secretion of mucus (goblet cells).



a nuclei of pseudostratified columnar cells

found: respiratory tract; paranasal sinuses

function: protection, produce mucus, trap and move dust and other toxins out of the lungs.

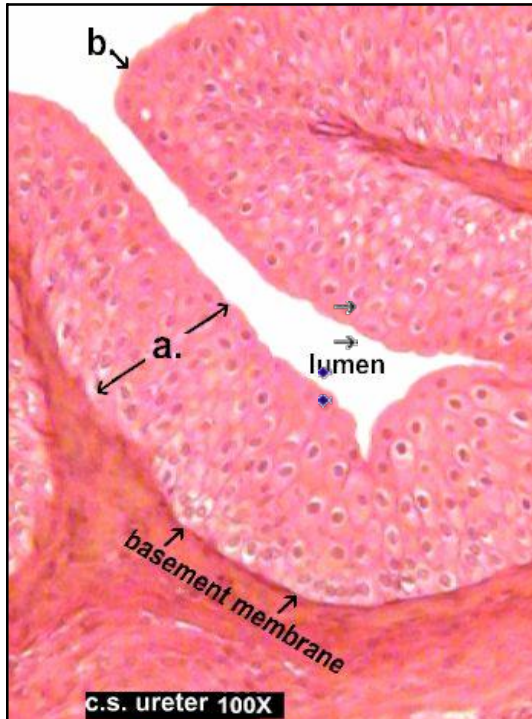


Nonkeratinized Skin 100X

a bracket is around the many rows of cells that belong to the stratified squamous epithelial tissue

b dead surface layers

found: epidermal layer of skin; lines mouth, esophagus, vagina and anal canal
function: wall of protection against waterloss, abrasion infection, etc.



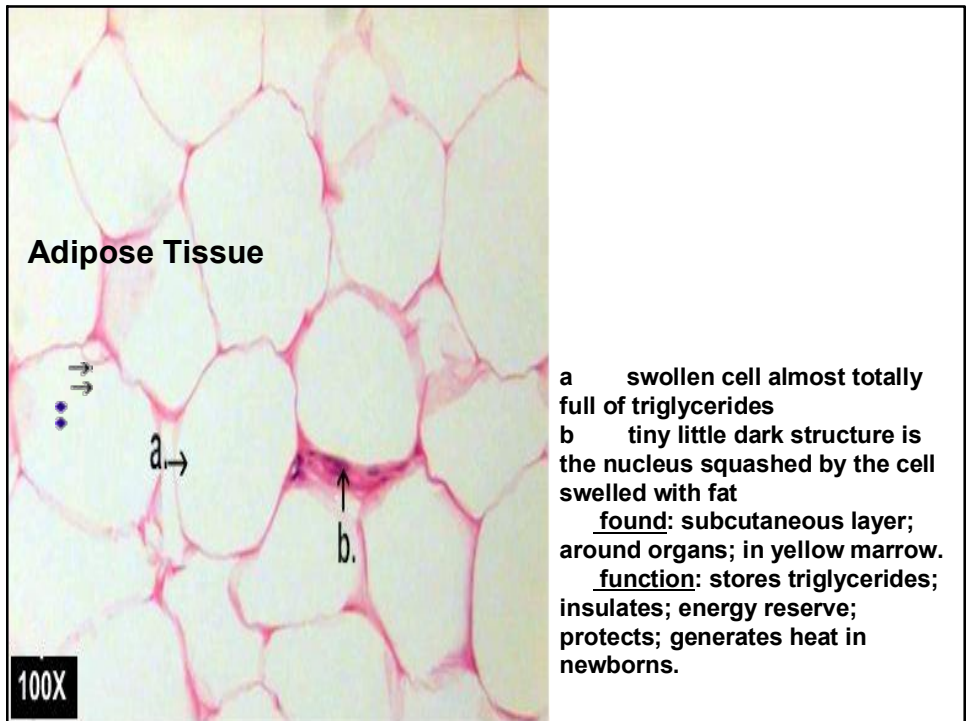
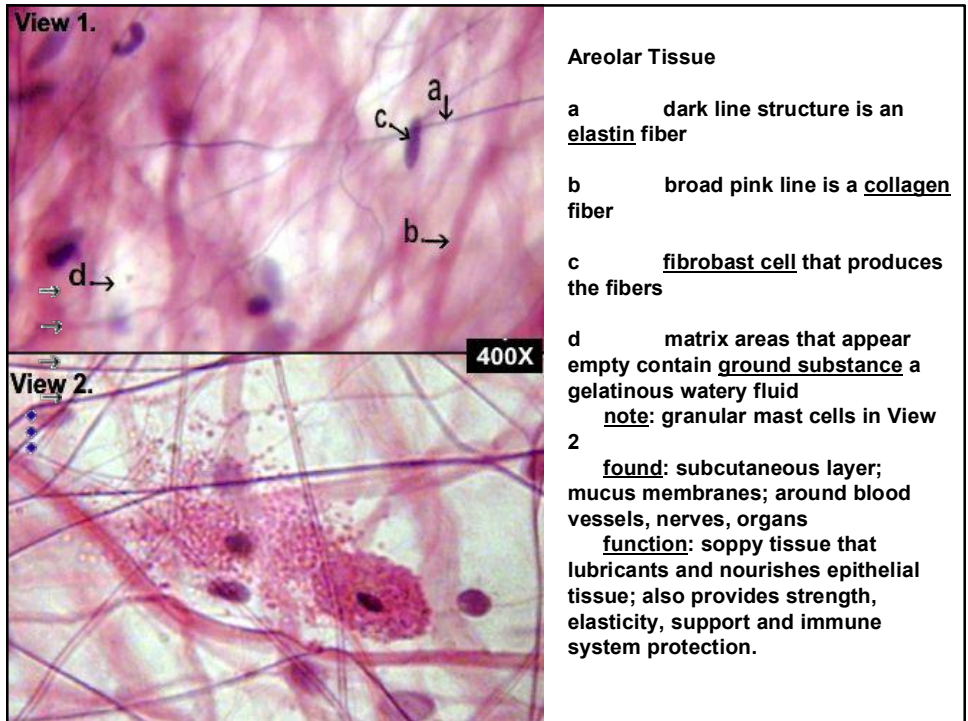
c.s. ureter 100X

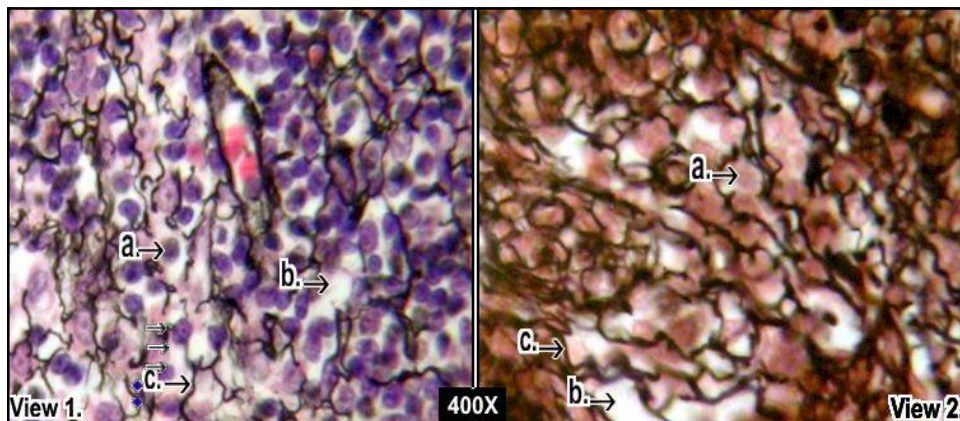
a collapsed layers of the transitional cells

b surface of the collapsed ureter

found: walls that line the urinary tract and bladder

function: able to stretch when an organ expands



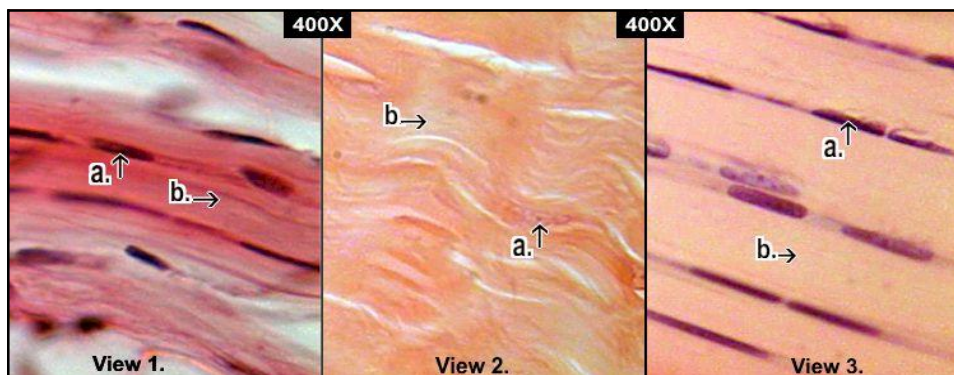


Reticular Tissue

- a → nucleus of one of the many cells found in this tissue
- b → ground substance in the matrix
- c → black reticular fibers which act as structural support

found: liver, spleen, lymph nodes.

function: structural maze support and slows down blood fluids so cells can perform their metabolic functions.

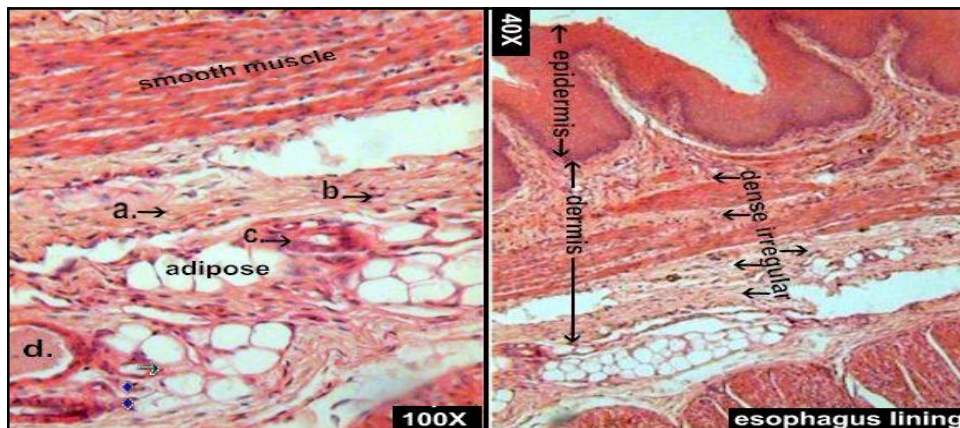


Dense Regular Connective

- a → long narrow nucleus of a fibroblast (the cell that make the fibers)
- b → many collagen fibers packed together going in the same direction

found: tendons and ligaments

function: provides strength to withstand the pulling of muscles in one direction



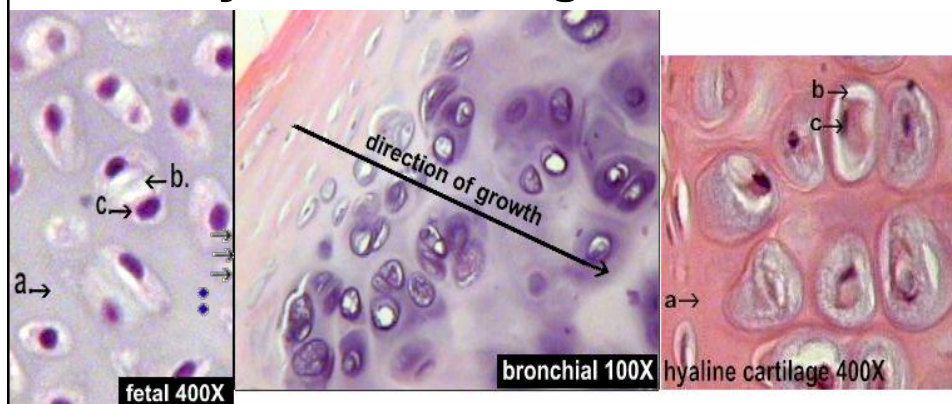
Dense Irregular Connective

- a → collagen fibers are light pink
- b → tiny little dark structures are the nuclei of fibroblasts.
- c → capillary
- d → arteriole

found: dense irregular fibers surround the structures found in the dermis thus diverting them from one direction.

function: allows the skin to be resilient and flexible

Hyaline Cartilage Tissue



a matrix of cartilage is a solid flexible gel the fibers are invisible at normal magnification

b lacunae is a shell like space containing the chondrocyte

c cartilage cell called a chondrocyte

found: epiphyseal plate; ends of long bones and ribs; rings of trachea; fetal skeleton

function: structural and flexible support

