6a A&P: Introduction to the Human Body - Tissues

6a A&P:

Introduction to the Human Body - Tissues Class Outline

Attendance, Breath of Arrival, and Reminders

10 minutes Lecture: AOIs of the gluteals

5 minutes Active study skills for AOIs of new muscles

25 minutes Lecture:

15 minutes Active study skills:

60 minutes

5 minutes

Total

6a A&P:

Introduction to the Human Body - Tissues Class Reminders

Assignments:

7a Review Questions (A: 119-130)

Quizzes and Exams:

- 8a Quiz (A-73, classes 1b, 2a, 2b, 3a, 3b, 4a, 5a, 6a, and 7a)
- 8b Kinesiology Quiz (A-73, gluteals, hamstrings gastrocnemius and soleus)
- 10a Exam (A-73, classes 1b, 2a, 2b, 3a, 3b, 4a, 5a, 6a, and 7a)

Preparation for upcoming classes:

- 7a A&P: Introduction to the Human Body Body Compass
 - Trail Guide: hamstrings
 - Salvo: Pages 398-406
 - Packet E: 11-14
 - RQ Packet A-130
- **7**b Swedish: Technique Demo and Practice Posterior Lower Body
 - Packet F: 31-34

Classroom Rules

Punctuality - everybody's time is precious

- Be ready to learn at the start of class; we'll have you out of here on time
- Tardiness: arriving late, returning late after breaks, leaving during class, leaving early

The following are not allowed:

- Bare feet
- Side talking
- Lying down
- Inappropriate clothing
- Food or drink except water
- Phones that are visible in the classroom, bathrooms, or internship

You will receive one verbal warning, then you'll have to leave the room.



Cell Phones – Turn it off!



And put it away!

Gluteals Trail Guide, Page 315



Posterior View

The three gluteal muscles are located in the buttock region, deep to surrounding adipose tissue.

Adipose = fat

The large, superficial **gluteus maximus** is the most posterior of the group.

Gluteus medius is located on the lateral side of the hip and is also superficial. It is often thought of as "the deltoid of the coxal joint".

Coxal joint = hip!

The **gluteus minimus** lies deep to the gluteus medius. Its dense fibers can be felt beneath gluteus medius.

When do you use your gluteals?

Actions of the gluteals



Extension of the coxal joint



Lateral rotation of the coxal joint



Abduction of the coxal joint



Flexion of the coxal joint



Medial rotation of the coxal joint



Adduction of the coxal joint



All fibers: Extend the hip (coxal joint)

Laterally rotate the hip (coxal joint)

Abduct the hip (coxal joint)

Lower fibers: Adduct the hip (coxal joint)



Coccyx

- Edge of sacrum Posterior iliac crest Sacrotuberous ligament Sacroiliac ligament
- Iliotibial tract (upper fibers) Gluteal tuberosity (lower fibers)





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Gluteal surface of ilium, between posterior and anterior gluteal lines, just below the iliac crest

Lateral aspect of greater trochanter





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Lateral aspect of greater trochanter





A A

Abduct the hip (coxal joint)

Medially rotate the hip (coxal joint)

Flex the hip (coxal joint)



Gluteal surface of the ilium between the anterior and inferior gluteal lines

Anterior aspect of greater trochanter





Abduct the hip (coxal joint)

Medially rotate the hip (coxal joint)

Flex the hip (coxal joint)



Gluteal surface of the ilium between the anterior and inferior gluteal lines

Anterior aspect of greater trochanter





Abduct the hip (coxal joint)

Medially rotate the hip (coxal joint)

Flex the hip (coxal joint)



Gluteal surface of the ilium between the anterior and inferior gluteal lines

Anterior aspect of greater trochanter





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Medially rotate the hip (coxal joint)

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Gluteal surface of the ilium between the anterior and inferior gluteal lines

Anterior aspect of greater trochanter





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Medially rotate the hip (coxal joint)

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Gluteal surface of the ilium between the anterior and inferior gluteal lines

Anterior aspect of greater trochanter





6a A&P: Introduction to the Human Body - Tissues E-7



Tissue Group of similar <u>cells</u> that act together to perform a specific function. Types: epithelial, connective, muscle, and nerve.



I. Epithelial tissue Tissue that <u>lines</u> or <u>covers</u> the body's external surface (skin), internal organs, blood vessels, body cavities, and the digestive, respiratory, urinary, and reproductive tracts.

Examples: skin, endothelium that lines blood vessels and the heart.

Mouth and skin: Stratified squamous





II. Connective tissue Tissue that is the most <u>abundant</u> and diverse. Connects, supports, transports, and defends. Types:

A. Fibrous

B. Bone

C. Cartilage

D. Liquid





A. Fibrous connective tissue The <u>packing</u> material of the body. It attaches the skin to underlying structures in a basement membrane, serves to wrap and support the body cells, fills the gaps between structures such as organs and muscles, and helps keep them in their proper places. Types:

1. Loose

2. Adipose

3. Reticular

4. Dense



1. Loose fibrous connective tissue One of the most widely distributed connective tissues and has little <u>tensile</u> strength.





2. Adipose fibrous connective tissue Tissue that specializes in storage of <u>fat</u> that insulates the body against heat loss, provides fuel reserves for energy, and provides a cushion around certain structures such as the heart, kidney, and some joints.

Example: yellow bone marrow.





3. Reticular fibrous connective tissue The supportive <u>framework</u> of bones and of certain organs such as the liver and spleen.





4. Dense fibrous connective tissue Compact, strong, <u>inelastic</u> bundles of parallel collagenous fibers that have a glistening white color.
Types: irregular and regular.





Dense irregular fibrous tissue Resists pulling forces in <u>several</u> directions. Examples: deep fascia, dermis of the skin, periosteum, and capsules of organs.





Dense regular fibrous tissue Resists pulling forces in <u>two</u> directions. Examples: ligaments, tendons, retinacula, and aponeuroses.





B. Bone connective tissue The hardest and most <u>dense</u> connective tissue type. Types: compact and spongy.

Bone





C. Cartilage connective tissue Avascular, tough, protective tissue capable of withstanding repeated <u>stress</u> and is found chiefly in the thorax, joints, and certain rigid structures of the body such as the trachea, larynx, nose, and ears. Types:

- 1. Hyaline cartilage
- 2. Fibrocartilage
- 3. Elastic cartilage



1. Hyaline cartilage (AKA: gristle) Elastic, rubbery, and <u>smooth</u> cartilage that covers articulating ends of bones. Connects ribs to the sternum. Supports the nose, *trachea*, and part of the larynx.





2. Fibrocartilage Cartilage with a dense matrix of <u>white</u> collagenous fibers. Has the greatest tensile strength of all cartilage types.

Examples: *intervertebral disks*, knee joint, and between the pubic bones.





3. Elastic cartilage (AKA: yellow) The <u>softest</u> and most pliable cartilage type. Consists of elastic fibers in a flexible fibrous matrix. Examples: external nose and ears, *epiglottis*, part of the larynx, and auditory tubes.





D. Liquid connective tissue Contains a distinct collection of cells floating in a <u>liquid</u> matrix. Types: *blood* and lymph.





III. Muscle tissue Tissue that produces <u>movement</u> of the body. Has the ability to contract, elongate, respond to stimulus, and return to its original shape after movement. Types:

a. Smooth muscle b. Skeletal muscle c. Cardiac muscle





A. Smooth muscle tissue Involuntary, non-striated muscle tissue that forms the walls of hollow organs and tubes. Controls the transport of materials, moving them along or restricting their flow.

Examples: stomach, bladder, and blood vessels.







B. Skeletal muscle tissue Voluntary, striated muscle tissue that is attached to bone or related structures and is stimulated by a nerve impulse to contract.





C. Cardiac muscle tissue Involuntary, striated muscle tissue located in the heart wall. Intercalated disks between each muscle cell synchronize the contraction to pump blood from the heart.





IV. Nervous tissue Tissue that has the ability to detect and transmit <u>electrical</u>, signals by converting stimuli into nerve impulses.

Examples: brain and spinal cord.





Tissue types

1. 2. 3.

4.



Tissue types

- 1. Epithelial
- 2. Connective
- 3. Muscular
- 4. Nervous



Connective tissue types

1.
 2.
 3.
 4.



Connective tissue types

1. Fibrous

2. Bone

3. Cartilage

4. Liquid



Fibrous connective tissue





Fibrous connective tissue

1. Loose

2. Adipose

3. Reticular

4. Dense



Cartilage connective tissue

1. 2. 3.



Cartilage connective tissue

1. Hyaline cartilage

2. Fibrocartilage

3. Elastic cartilage

Response Moment

I. Epithelial – covers and lines

Lots of types to be discussed in integumentary system class

II. Connective – abundant and diverse Fibrous: loose, adipose, reticular, dense (regular and irregular) Bone: compact, spongy Cartilage: hyaline, fibrocartilage, elastic Liquid: blood, lymph

III. Muscular – movement - smooth, cardiac, skeletal.

IV. Nervous – transmit electrical impulses

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