Megan Andrews
ISHTA 200H TT Assignment
Mentor: Peter Farko
February 5, 2022

Topic 3
Anatomy I: Basics

3.1 Briefly describe each of these tissues and its function: Muscle, Ligament, Tendon, Cartilage.

Muscle

A muscle is tissue consisting of bundles of parallel fibers wrapped in fascia.

Properties:

- Excitable – Reacts to stimuli via innervation
- Contractible – May contract upon stimulation in 3 different ways
  - Concentrically - Muscle shortens
  - Eccentrically - Muscle lengthens
  - Isometrically - Muscle neither shortens or lengthens during contraction
- Extensible - May be stretched
- Elastic - Able to recoil

Roles:

- Agonist - Prime mover muscle
- Synergist - Supporting muscle to help the agonist in movement
- Antagonist - Opposes prime mover to slow and monitor movement
- Protects joint
- Stabilizer - A muscle that pairs with an opposing muscle to keep a bone in place

Ligament

A ligament is a dense piece of connective tissue that connects one bone to another bone.

- Protects joints
- Avascular - no blood supply
- Barely elastic → difficult to heal

Tendon

A tendon is a tough, fibrous continuation of muscle fascia that attaches muscle to bone.

- Stabilizes joint
- Transmits and supports muscle force
- Woven into the periosteum/outer shell of the bone

Cartilage

Cartilage is supplementary tissue to muscle providing strength, rigidity, and a little elasticity.

- Fibrocartilage
  - Cushioning, pillowy
  - Shock-absorbing
  - Avascular - no blood supply
- Hyaline Cartilage
  - Smooth, glassy
  - Reinforcing coat where bones rub against one another
  - Avascular - no blood supply

3.2 The elbow is a hinge joint and the hip is a ball-and-socket joint. What are the movements of a hinge joint? Name the plane.

The movements of a hinge joint are flexion and extension, and the plane is the Sagittal Plane.

3.3 What are the movements of a ball-and-socket joint? In how many planes does a ball-and-socket joint move and what are the actions in each of the planes?

The movements of a ball-and-socket joint and their corresponding planes are:

1. Rotation (internal and external) in the Transverse Plane
2. Flexion & Extension in the Sagittal Plane
3. Adduction & Abduction in Coronal Plane

* Circumduction involves all movements and planes in combination, except rotation in the Transverse plane

3.4 What is the job of an agonist? What is the job of a synergist?

An agonist is the prime mover muscle that does the bulk of the work in a movement. The synergist is a supporting muscle that assists the agonist in doing the movement or compensates if the agonist is injured/dysfunctional.