

**Exam One: Question 109**

A physical therapist instructs a patient to make a fist. The patient can make a fist, but is unable to flex the distal phalanx of the ring finger. This clinical finding can BEST be explained by:

1. a ruptured flexor carpi radialis tendon
2. a ruptured flexor digitorum superficialis tendon
3. **a ruptured flexor digitorum profundus tendon**
4. a ruptured extensor digitorum communis tendon

**Correct Answer: 3** (Hoppenfeld p. 101)

The flexor digitorum profundus muscle originates on the anterior and medial surfaces of the proximal portion of the ulna, interosseous membrane, and deep antebrachial fascia. The muscle inserts via four tendons into the anterior surface of the bases of the distal phalanges.

1. The flexor carpi radialis muscle acts to flex and abduct the wrist and may assist in pronation of the forearm and in flexion of the elbow.
2. The flexor digitorum superficialis muscle acts to flex the proximal interphalangeal joints of the second through fifth digits, and assists in flexion of the metacarpophalangeal joints and flexion of the wrist.
3. **The flexor digitorum profundus muscle acts to flex the distal interphalangeal joints of the index, middle, ring, and little finger, and assists in flexion of the proximal interphalangeal and metacarpophalangeal joints. A ruptured flexor digitorum profundus tendon would therefore make it impossible to flex the distal phalanx.**
4. The extensor digitorum communis muscle acts to extend the metacarpophalangeal joints and in conjunction with the lumbricales and interossei, extends the interphalangeal joints of the second through fifth digits. The muscle assists in abduction of the index, ring, and little finger and in extension and abduction of the wrist.

System Specific: Musculoskeletal System

Content Outline: Foundations for Evaluation, Differential Diagnosis, & Prognosis

**Test Taking Tip:** Candidates will often benefit from attempting to narrow down the possible options to a given examination question by eliminating options that they know are incorrect. In this particular question, a candidate should recognize that the answer cannot be option 4 since a rupture to an extensor tendon would result in an inability to extend and not to flex. Candidates who can use this type of pragmatic approach often achieve higher scores on the examination.

**Exam One: Question 110**

A physical therapist implements an aquatic program for a patient rehabilitating from a lower extremity injury. The program requires the patient to run in place using a flotation device while tethered to the side of the pool using an elastic cord. Which action would be the MOST appropriate to increase resistance?

1. increase the water temperature
2. **increase the speed of movement**
3. increase the depth of the water
4. remove the flotation device

**Correct Answer: 2** (Ruoti p. 20)

The therapeutic effects of immersion in water relate to the principles of hydrodynamics and thermodynamics. Some of the more relevant concepts associated with these principles include density, specific gravity, hydrostatic pressure, buoyancy, and viscosity.

1. Changes in the water temperature can influence variables such as oxygen uptake, but would not significantly influence resistance.
2. **The viscosity of water provides resistance to a body in motion. Viscosity refers to the thickness or resistance to the flow of a liquid. The faster the relative speed of the body, the greater the magnitude of resistance.**
3. Increasing the depth of the water would not result in a significant change in resistance since the patient is using a flotation device and therefore their level of immersion would remain relatively constant.
4. Removal of the flotation device would likely increase resistance since the patient may tend to move faster without the flotation device, however, it remains less desirable than simply continuing to use the belt and increasing the speed of movement.

System Specific: Other Systems

Content Outline: Clinical Application of Foundational Sciences

