

## Quick Quiz

1. Using the actual task, activity, or occupation that one is having difficulty with as the form of therapy is considered a:
  - a. Bottom Up Approach
  - b. Top Down Approach
  - c. Remedial Approach
  - d. Biophysiological Approach
  
2. What muscle/tendon is often involved in shoulder impingement syndrome?
  - a. Teres Minor
  - b. Supraspinatus
  - c. Deltoid
  - d. Infraspinatus
  
3. How many shoulder complex muscles actually have an attachment to the humerus?
  - a. Seven
  - b. Eleven
  - c. Five
  - d. Fifteen
  
4. What phenomenon complicates some shoulder conditions, such as primary shoulder adhesive capsulitis?
  - a. "Pain in the night"
  - b. Constraint
  - c. Developmental Disregard
  - d. Forced non-use
  
5. AC Joint palpation is achieved where?
  - a. Superior and Lateral to the Sternum
  - b. Lateral Aspect of the Elbow
  - c. Superior and Lateral Aspect of the Shoulder
  - d. Superior and Medial Aspect of the Shoulder
  
6. When reviewing research studies, what is the hierarchy of evidence for "best practice" considerations? Please place the following in order, from highest to lowest level of research; expert opinion, RCT, Quasi-experimental, Descriptive, Meta-Analysis, Case Reports and Qualitative
  
7. Idiopathic or primary shoulder adhesive capsulitis implies?

- a. Problem as a result of rotator cuff surgery
  - b. Etiology that has no known or identified cause
  - c. Status post “turf shoulder”
  - d. A condition that one will never overcome
8. Referred pain implies?
- a. Giving the pain to someone else
  - b. Something in the past
  - c. Discomfort
  - d. Pain that occurs away from the primary site of pathology
9. Speeds test is used to screen for?
- a. How fast one can get through this book
  - b. How fast one can use their upper extremity with coordination tasks
  - c. For biceps tendinopathy
  - d. None of the above
10. Insidious onset implies
- a. Immediate and abrupt
  - b. Traumatic
  - c. Slow, symptoms begin to slowly become apparent sometime after the initial pathological course has started
  - d. What happens after exercise
11. The “MOI” refers to:
- a. MOI or more...shoulder abduction, shoulder flexion, etcetera
  - b. Mechanism of injury
  - c. Impingement syndrome
  - d. Modern operating instructions
12. If a patient over the age of 65 presents with a shoulder problem and two major findings include night pain, weakness of external rotation and (+) impingement tests, what is the likelihood of them having some degree of a rotator cuff tear?
- a. 42%
  - b. 68%
  - c. 91%

13. Two really important scapulothoracic and parascapular muscles relative to scapular stability include:

- a. Supraspinatus and infraspinatus
- b. Deltoid and rhomboids
- c. Teres major and teres minor
- d. Trapezius and serratus anterior

14. Relative to muscular performance, in general, the most advanced role of muscle performance includes what type of muscular contraction?

- a. Concentric
- b. Eccentric
- c. Isometric
- d. Isotonic

15. What is the origin and insertion of the serratus anterior?

- a. Originates on the upper 8-9 ribs at the sides of the chest with insertion along the anterior aspect of the medial scapulae
- b. Originates and inserts posterior to the spine of the scapula
- c. Originates and inserts on the sternum and the clavicle respectively

16. One primary muscle that one is trying to elongate and stretch relative to the condition of primary shoulder adhesive capsulitis is?

- a. Supraspinatus
- b. Deltoid
- c. Trapezius
- d. Subscapularis

17. How many muscles make up the rotator cuff?

- a. Two
- b. Four
- c. Six
- d. Eight

18. One critical aspect of treating shoulder conditions involves more than “protocols” and “best practice”. What is that?

- a. Having a colleague that is good at treating the shoulder
- b. Having a physician that you can call upon for help
- c. Keen critical reasoning and critical thinking skills

19. Following a rotator cuff operation, most individuals can begin gentle AROM when?

- a. At two weeks
- b. At four weeks
- c. At seven weeks
- d. At nine weeks

Answers and comments to the Quick Quiz:

**B-Top Down;** If one is attempting to help an individual don a shirt, then the intervention is working on donning a shirt. Doing what is functional, or occupation-based, and finding what is meaningful for the client is a top down approach. In contrast, if one works on range of motion or strengthening, these skilled-based client factors are considered a bottom up approach (Brown & Chien, 2010).

**B- Supraspinatus;** If the clinician deals within the medical model (adult population), regardless of the setting, whether it be a neurological or orthopedic venue, shoulder impingement syndrome is the number one most commonly seen condition in upper quadrant conditions. The supraspinatus is the implicated tissue involved with impingement syndrome (Shenouda & El-Tokhy, 2014).

**B- Eleven;** These eleven muscles include the muscles that attach to the humerus, or those that act on the shoulder complex rather than the muscles that extend the wrist and hand, or those that act on the distal upper extremity.

**D- Forced Non-Use;** Two types which are primary (idiopathic) or secondary (adhesive capsulitis). Primary Frozen Shoulder is idiopathic with no MOI and has an insidious onset. The pain and disability progresses to a phenomenon of forced non-use, which leads to a maladaptive guarded posturing of the arm. Forced Non-Use, also referred to as learned non-use, is primarily seen in individuals recovering from a stroke, or some event that leaves one limb affected and the other not affected. This phenomenon can also occur in children living with cerebral palsy and adults after having experienced a stroke. Learned non-use, or forced non-use, simply means the child/client with an affected limb subconsciously chooses not to use that limb and uses the unaffected, “good”, limb instead. This phenomenon is extremely challenging to overcome and can inhibit the progress of the therapeutic interventions. Therefore, treatment goals may be directed toward increasing the quantity of arm use (Coker, Lebkicher, Harris, & Snape, 2009).

### **C- Superior and Lateral Aspect of the Shoulder**

Order from highest to lowest is as follows: **Meta Analysis, Randomized Controlled Trials (RCT), Quasi-Experimental, Descriptive, Qualitative, Case Reports and Expert Opinions;** The top of the hierarchy includes both meta-analysis and RCT. Meta-analysis is a research design where scholars go to the existing literature and find a number of similar studies, to

include like-populations, like-treatments, and like-outcomes. Like the RCT, the conclusion has power to it, which implies it is generalizable to the population at large. Quasi-experimental designs take place when populations are accessible, such as in the outpatient clinic. They also include two populations with one outcome. Case reports and expert opinion occupy the lowest forms of evidence. Expert opinion comes from other professionals, such as surgeons and colleagues who have been compelling to one's professional growth (Hansen, 2014).

**B- Etiology that has no known or identified cause;** There is no known etiology or identified cause, although there is a definite population that may be more prone to developing this condition (Levine, 2007).

**D- Pain that occurs away from the primary site of pathology** (Walsh & Sadowski, 2001)

**C- For Biceps Tendinopathy** (Bennett, 1998) This test can also be used for superior labrum lesions since the long head of the bicep attaches to the superior rim of the labrum.

**C- Slow, symptoms begin to slowly become apparent sometime after the initial pathological course has started;** Slow, insidious is onset that creeps up on client. As what occurs with primary/idiopathic shoulder adhesive capsulitis (different from secondary shoulder adhesive capsulitis) (Ryan, Brown, Minns Lowe, & Lewis, 2016).

### **B- Mechanism of Injury**

**C- 91%;** Each piece of information (i.e. data to include age, temporal element such as night pain, description of symptoms, MOI, positive testing signs) is a "clinical marker". Each clinical marker adds to one's clinical reasoning, which may lead to a differential assessment if given the diagnosis is too general or provided an unclear diagnosis. With each decade of life, the incidence of rotator cuff tears grows substantially, which is yet another factual clinical marker (age) to consider (Litaker, Piro, Bilbeisi, & Brems, 2000).

**D- Trapezius and Serratus Anterior;** Muscles that act on the scapula are referred as scapulothoracic and parascapular (Alexander et al., 2007).

**B- Eccentric;** The eccentric contraction is the most advanced role of muscle performance. In elbow flexion, the bicep is the prime mover (concentric contraction). In elbow extension, the tricep is the prime mover (concentric contraction). When going into elbow extension controlled and smoothly, the biceps are in an eccentric contraction and are controlling the movement. For example, as one picks up a bottle of water and brings it to his or her mouth for a drink, the bicep is one primary muscle creating elbow flexion. The bicep during this phase is acting concentrically. The insertion is pulling toward the origin as the bicep is contracting and

shortening. After taking a drink, one now slams the water bottle to the table. The ballistic motion of elbow extension is created by a concentric contraction of the tricep. The reality is most people do not ballistically slam their water bottle to the table but rather go into the second phase of resisting the weight of both the water bottle and gravity. As one performs this with a bit more grace, resisting weight/resisting gravity, there is tension in the bicep (not tricep) during phase two of elbow extension. The insertion of the bicep is pulling away from the origin and the muscle is elongating with tension, hence an eccentric contraction. During progressive resistive exercise (PRE), phase one often includes a concentric contraction of a muscle or muscle groups and phase two often includes an eccentric contraction of a muscle or muscle groups. PRE's, or the strengthening program via a developmental process can be graded depending on the client. One might want to consider isometrics first, including working on the muscle without moving the joint. Follow up isometrics with isotonic concentrics and then finally eccentrics for some individuals (i.e. band or dumbbells). If the client is not ready for the eccentric phase yet and is still reporting pain, stay with concentric treatment (Grabiner & Owings, 2003).

**A- Originates on the upper 8-9 ribs at the sides of the chest with insertion along the anterior aspect of the medial scapulae;** Serratus anterior is a large span of muscle tissue along the rib cage that clinically has an attachment to medial anterior scapula. When the passive or active tension of the serratus anterior is affected, it can cause scapular winging, which can eventually lead to pathology (Kent, 1971).

**D- Subscapularis;** One of three structures implicated in primary shoulder adhesive capsulitis, otherwise known as primary frozen shoulder (Favejee et al., 2011).

**B- Four;** The rotator cuff consists of four muscles. The rotator cuff collectively is the musculotendinous cuff (muscle and tendon). The partner to the cuff is the deeper glenohumeral capsule (ligamentous capsule). Both of these structures work together to provide both stability and mobility. Capsular tissue is much more difficult to stretch and elongate (approximate 13:1 ratio), so a lot of effort is required upon the therapist and the patient from a stretching standpoint to prevent tissue deformation or elongation. Some conditions will involve both the capsule and the cuff, while other times conditions may involve just the cuff or just the capsule (Nam et al., 2012).

**C- Keen critical reasoning and critical thinking skills;** Although protocols will be discussed, they will not occupy the majority of this textbook. Protocols are put in place primarily for post-surgical therapy and used a lot like a recipe (i.e. when an individual has surgery, there is a protocol to be followed- pre/post). The intent of this textbook is to enhance one's critical thinking and clinical reasoning skills concerning assessment and treatment of the shoulder.

**B and C- at four-six weeks;** Massive tears with repair require skilled therapy. One primary goal of post-surgical treatment is to prevent secondary adhesive capsulitis while maintaining the integrity of the repair. With a massive tear with repair, although there are different surgical procedures, there is still one consistent order from surgeons, and that being PROM to prevent secondary adhesive capsulitis for the first 4-6 weeks. Most surgeons still refrain from having their patient's actively move their shoulder for the first four to six weeks after surgery. Mild or moderate tears lesions may be done arthroscopically and the post-surgical rehabilitation is less involved. (Nam et al., 2012)