Note to Participants: There are interactive pop-up questions throughout this lecture. If you choose to pause the lecture and return at a later time, a natural break time would be after answering the interactive questions. (You are able to pause at any time and the presentation will “remember” where you were. It’s just a more natural time to pause after the interactive questions.) For your convenience, this outline reflects where/when within the lecture the interactive questions occur.

This lecture has 100 slides and is 77 minutes in duration.

I. The shoulder story
   A. Axis of rotation
   B. Labrum and humeral head
   C. Glenoid
   D. Capsule and ligaments
   E. Stretching

Interactive Questions – slide 14 @ 12 minutes

II. Dynamic stability: The 4 P’s of the scapulohumeral muscles
   A. Glenohumeral PROTECTORS: Rotator cuff
      1. Live anatomy
      2. Rotator cuff muscles
   B. Arm PLACERS: Deltoids
      1. Scaption
      2. Performance during sports
         a. Normal shoulder during freestyle swimming
         b. Early cocking in baseball pitching
      3. The arm in the dependent position
      4. Interaction between the placers and protectors
      5. Anatomy of/exercises for
         a. Infraspinatus
         b. Teres minor
         c. Subscapularis

Interactive Questions – slide 47 @ 38 minutes

C. Scapular PIVOTERS: Scapular muscles
   1. Anatomy
      a. Levator scapulae
      b. Trapezius
      c. Serratus anterior
         i. Scapular winging
      d. Rhomboids
2. Scapular rotation
   a. Force couples
3. What is scapular lag?

Interactive Questions – slide 62 @ 51 minutes

D. POWER drivers: Lats and pecs
   1. Anatomy
      a. Pectoralis major
      b. Latissimus dorsi
   2. Normal shoulder during freestyle swimming
   3. Directional pull
   4. Axis of rotation in:
      a. Normal shoulders
      b. Dysfunctional shoulders

Interactive Questions – slide 73 @ 58 minutes

III. How these muscles work together
   A. The myth of muscle balance: measuring physiological cross-sectional area (PCSA)

Interactive Questions – slide 78 @ 61 minutes

   A. What can we do about sloppy shoulders?
   B. Studying the shoulder
      1. Townsend 1991: protectors, placers and power drivers
         a. Muscle function
         b. Injury prevention: Exercises
         a. Muscle function
         b. Injury prevention: Exercises

Interactive Questions – slide 93 @ 71 minutes

IV. Summary