**Anatomy:** The glenohumeral joint of the shoulder complex is a synovial joint composed of three bones: humerus, scapula, and clavicle. Overall, stability is achieved through the static and dynamic structures of the associated muscles, tendons and ligaments. Normally the head of the humerus remains centered in the glenoid fossa. This allows for the joint surfaces to align congruently with one another and move through a full range of motion. The glenoid labrum is a circumferential rim of fibrocartilage that helps to deepen the ball and socket joint of the shoulder aiding in stabilization of the shoulder joint and providing attachments for the ligaments of the shoulder. SLAP stands for Superior Labral tear from Anterior to Posterior. A SLAP tear or lesion occurs when there is damage to superior portion of the glenoid labrum.

**Causes/Mechanism of Injury:** A SLAP lesion typically occurs from a fall on an outstretched hand, sudden deceleration or traction forces such as catching a heavy falling object, and anterior and posterior instability. Many times a shoulder dislocation can cause damage to the glenoid labrum. The superior aspect of the labrum is more mobile and prone to injury due to its close attachment to the tendon of the long head of the biceps. Often these injuries are found in overhead and particularly throwing athletes.

**Symptoms:** The most common complaint in patients that present with SLAP lesions is anterior shoulder pain. The majority of patients with SLAP lesions will also complain of painful clicking and/or popping in the shoulder. Athletes performing overhead movements, especially pitchers, may develop “dead arm” syndrome in which they have a painful shoulder with throwing and can no longer throw with preinjury velocity. There are four types of SLAP lesions that can occur. A Type I lesion of the labrum has degenerative changes and fraying at the edges but remains firmly attached to the glenoid rim. With a Type II lesion, the superior labrum is detached completely from the anterior to the posterior glenoid rim and is lifted by the biceps tendon with associated unstable biceps tendon insertion. A Type III lesion means the superior labrum is displaced into the joint (bucket-handle), while labral attachment to the glenoid rim and biceps tendon remains intact with a stable biceps tendon insertion. A Type IV lesion is a bucket handle, as with type III, with splitting of biceps tendon.

**Treatment/Management:** Conservative intervention should address the hypermobility and instability of the shoulder using dynamic stabilization. If conservative management fails, surgery is indicated. The surgical intervention depends on the type of labral lesion but an advanced arthroscopic technique is most commonly used. Sutures are used if there is a need to reattach the labrum to the rim of the glenoid fossa. Studies of surgical labral repairs are generally good for return to pre injury level of function. Knowing the type of SLAP...
lesion is important for post op rehab. Type I and III SLAP lesions are treated by debridement and because the biceps tendon is stable, post-op rehab can progress as tolerated, with no restrictions of ROM. In Type II and IV labral lesions it is important to avoid stress on the repaired area post-operatively. ROM limitations should be followed closely and active biceps work must be limited for the first 6 weeks.

Generally following a SLAP repair it is important to avoid excessive external rotation as this puts excessive stress on the superior portion of the labrum. Early in rehabilitation exercises should be carefully monitored for exercises that stress the biceps tendon due to the attachment at the labrum. Physical therapy for SLAP lesions will help reduce pain and inflammation, treat the underlying instability and restore ROM. When strengthening is indicated an emphasis should initially be put on closed chain exercises and strengthening scapular and glenohumeral musculature and increase dynamic stability with progression to more functional strengthening.