Appendix Four – Specific Strength Training

In order to prevent injury, rehabilitate and strengthen musculature for the passing and shooting motions, certain prescribed movements, resistance exercises, and stretching should be done before and during the season. A general bodily warm-up would be beneficial prior to doing these exercises and stretches, so as to elevate core temperature and enhance muscle performance.

The major focus of these movements is to strengthen and elongate musculature that is not used to the extent that it should in relation to other more prominent muscle groups; therefore, creating a disparity between stronger and weaker muscle groups.

Upcoming are samples of these exercises.

**ROTATOR CUFF, SUPPORTING MUSCLE GROUPS –**

Reference:

Rotator cuff stretch with arm overhead.

Finally, this exercise should be repeated with your arm as far overhead as possible. Your head should remain upright while the shoulder itself is over the table edge. Again, just allow the weight to pull your arm down gently.

Posterior cuff stretch.

The back portion of the shoulder joint can be stretched out in this position by gently pulling your arm across your body.

Interior cuff stretch.

The other portion of the rotator cuff can be stretched by reaching overhead and gently pulling on your elbow with the opposite hand.

Supraspinatus.

The rotator cuff in the shoulder needs to be strengthened separately from the other shoulder muscles. This first exercise should be done with the elbow straight and thumb turned toward the floor. Rather than putting the arm straight out to the side, slowly raise your arm in a plane about 90° forward of that posture. Do not lift your arm higher than just below shoulder level, slowly lower it to the starting position and repeat.

Lower trapezius

To strengthen muscles lower in your back, remain in the same position on the table and, this time, raise your arm behind you as high as possible, remembering to keep your elbow straight.

Strengthening the Forearm and Elbow

Elbow Flexion

The muscles in the arm which surround the wrist and elbow must be strengthened as well. The biceps can be exercised in a number of ways, one of which is demonstrated here in the standing position. Keeping the elbow held at the side, lift the weight slowly by bending the elbow, and then return slowly to the starting position.

Triceps

To exercise the triceps muscle, lie on your back with your throwing arm extended up towards the ceiling, and have your elbow completely flexed. Use your opposite hand to help support your arm, just below the elbow. Then, extend the elbow completely while holding onto a weight.

Forearm supination.

The musculature of the forearm and wrist plays an important part in the ultimate control of the ball. To strengthen the forearm, two separate exercises can be one. First, while seated at a pole and holding a bar weighted at one end, rotate your forearm until the bar is pointed at the ceiling.

Forearm pronation.

The second forearm exercise is also done seated, only this time with palm turned up while holding onto the weighted bar. Rotate the bar from right to left, until it is pointed straight up to the ceiling. Pay some attention to keeping your elbow as motionless as possible.
External rotation.
Another part of the rotator cuff can be strengthened by lying on your side with your elbow held close against your ribs. Slowly raise the weight until it is parallel with the ceiling and then lower it in a controlled fashion.

Internal rotation.
The other portion of the rotator cuff should be exercised while lying on your back. Again, raise your arm to the side, raise the weight until it is parallel with your body, and then lower it in a controlled fashion.

Shoulder flexion.
This particular exercise strengthens a portion of the deltoid as well as other muscles in the front of the shoulder. In this and in succeeding exercises it is important not to move the weight too far, controlling both the lifting and lowering. The elbow should be kept straight throughout the exercise.

Shoulder abduction.
Lifting the weight out to the side and then overhead strengthens the central portion of the deltoid, which is one of the most powerful muscles in the shoulder. Note how the hand slowly changes position as the exercise progresses until the palm faces the opposite side as your arm reaches straight overhead.

Strengthening the Back Muscles

Rhomboids
Back muscles are also important in throwing. Lying on your stomach, grasp the weight firmly and raise it until your arm is straight out to the side, keeping the elbow extended. Slowly lower it to the starting position.

Strengthening the Wrist

Wrist flexion
There are several exercises which can help strengthen the wrist muscles. This one is done while seated, with the forearm supported on the table and the wrist over the edge, palm facing up. Use the opposite hand to help stabilize the forearm. Lift the weight slowly, flexing the wrist, and then lower it back to the starting position.

Wrist extension
While in the same position as the previous exercise, this time turn the palm down over the floor. Lift and weight by extending the wrist and then lower it back to the starting position.

Ulnar deviation
To strengthen the muscles which control the side to side motion occurring at the wrist, stand with your arm at your side, holding onto the end of a weighted bar. Lift the weight as shown here by bending the wrist laterally. Return slowly to the starting position.

These exercises should be done daily. Begin the program by doing two sets of 10 each, using a light (two pound) weight for resistance. The amount of weight can be increased later, but this should be done gradually so that it does not cause soreness.

We hope that by working on these specific shoulder and arm conditioning and strengthening techniques, you may be able to avoid injury and to improve the efficiency of your throwing motion.