Upper Body Plyometrics For The Overhead Athlete

Dale Gilbert, Washington Nationals, ATC, PTA; Jon Kotredes, Washington Nationals, ATC;
Jeff Allred, Washington Nationals, ATC

A good plyometric program is a must for all overhead athletes. It can assist in injury prevention, warm up and enhance performance in healthy athletes. It is also a necessary and important part of the rehab process for those returning to play from injury.

Plyometrics involves the quick stretching of a muscle from an eccentric muscle contraction to a concentric muscle contraction. This allows the muscle to produce a greater force.[1] There are 3 specific phases of a plyometric exercise. Phase 1 is the eccentric phase during which the muscle is stretched and eccentrically loaded. The amount and duration of the stretch during this phase will have a direct effect on the amount of force produced at the end of the exercise. The second phase known as the amortization phase is the time delay between the eccentric and concentric phase. The shorter the amortization phase is the more force will be produced during the final phase which is the concentric phase. During this phase, the muscle concentrically contracts or shortens to complete the cycle and produce the desired result.[1]

Plyometric program is an important component to all rehab protocols. Most protocols allow injured athletes to begin plyometric exercises during the advanced strengthening phase of the protocol.[2] Prior to beginning any plyometric activities the athlete should have regained normal pain free ROM, have no pain or discomfort on exam and their strength should be at least 70% of the contralateral side.[2] Failure to achieve these before beginning a plyometric program could cause a re-injury to the area.

In addition to being used during a good rehabilitation program plyometrics also have a role in helping healthy athletes maintain their ROM, strength and joint stability leading to a decreased risk of injury. An initial plyometric program could consist of a 2 handed drill such as a chest pass, overhead throw and side tosses.[3,2] Once successfully mastered, you can progress to one handed exercises such as IR tosses, ER tosses and 90/90 tosses. Whether used as part of your daily warm up or as a part of your strength and conditioning program these exercises require use of the core and lower body integrated with the upper body. Use of the entire body when performing these exercises as well as the throwing motion will also help decrease injury risk.

In conclusion whether you are a healthy athlete looking to improve your performance or an injured athlete working your way back to competition, plyometrics should be an important part of your program. The exercises shown below are just a few of the many plyometric exercises that you can add to your program if you are not already using them.

References

1. Davies, George, and James Matheson. “Shoulder Plyometrics.” Sports Medicine and Arthroscopy Review, vol. 9, no. 1, 2001, pp. 1–18.
2. Wilk, Kevin E., et al. “Rehabilitation of the Overhead Athlete’s Elbow.” Sports Health, vol. 4, no. 5, July 2012, pp. 404–14. https://doi.org/10.1177/1941738112455006.
3. Wilk, Kevin, PT, et al. “Current Concepts in the Rehabilitation of the Overhead Throwing Athlete.” The American Journal of Sports Medicine, vol. 30, no. 1, 2002, pp. 136–51.

Click on image or link to download video tutorial file.

Two Handed Exercises


Chest Pass: Athlete should stand facing the rebounder with the legs shoulder width apart. A 5-7 pound rebounder ball should be held at chest height with the hands on either side and the elbows flexed until the ball is held 3-4 inches in front of the chest and the elbows are slightly below 90 degrees. The exercise begins when the athlete extends both elbows while pronating and releasing the ball towards the rebounder. The athlete will then catch the ball on its return flight from the rebounder as they eccentricly decelerate and return to their starting position. Subsequent repetitions will repeat this process in a ryhthmic and continuious fashion. These exercises should be preformed in sets of 10-15 reps.

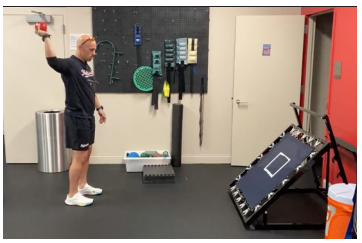

Overhead Toss: Athlete should stand facing the rebounder with the legs shoulder width apart. A 5-7 pound rebounder ball should be held with both hands on the sides several inches directly overhead with elbows facing the rebounder and bent to 90 degrees. The exercise begins when the athlete extends both elbows while pronating and releasing the ball towards the rebounder. The athlete will then catch the ball on its return flight from the rebounder as they eccentrically decelerate and return to their starting position. Subsequent repetitions will repeat this process in a rhythmic and continuious fashion. These exercises should be preformed in sets of 10-15 reps.


Side Toss: Athlete should stand perpendicular to rebounder with feet shoulder width apart. A 5-7 pound rebounder ball should be held with both hands on the sides. The front arm will be adducted across the chest and slightly elevated. The rear arm will have the elbow bent so that the rebounder ball may be held 3-4 inches above and 1-2 inches in front of the rear shoulder. The exercise begins when the athlete rotates the trunk and extends the rear elbow causing the ball to travel in a roughly 45 degree downward angle toward the rebounder. The athlete will then catch the ball on its return flight from the rebounder as they eccentrically decelerate and return to their starting position. Subsequent repetitions will repeat this process in a rhythmic and continuious fashion. This exercise should be completed bilaterally. These exercises should be preformed in sets of 10-15 reps.

One Handed Exercises


IR Tosses: Athlete should stand with feet shoulder width apart and perpendicular (90Deg) to a wall or rebounder. Arm should be at the side and elbow flexed to 90 degrees and palm of the hand facing the target holding a 1-2 pound plyoball. The exercise begins with internal rotation of the shoulder releasing the ball so it hits the wall or rebounder . The athlete will then catch the ball on its return flight from the rebounder as they eccentrically decelerate and return to their starting position. Subsequent repetitions will repeat this process in a rhythmic and continuious fashion. These exercises should be preformed in sets of 10-15 reps.


ER Tosses: Athlete should stand with feet shoulder width apart and perpendicular (90Deg) to a wall or rebounder. Arm should be at the side and elbow flexed to 90 degrees and the back of the hand facing the target holding a 1-2 pound plyoball. The exercise begins with external rotation of the shoulder releasing the ball so it hits the wall or rebounder. The athlete will then catch the ball on its return flight from the rebounder as they eccentrically decelerate and return to their starting position. Subsequent repetitions will repeat this process in a rhythmic and continuious fashion. These exercises should be preformed in sets of 10-15 reps.




90/90 Tosses: Athlete should stand with feet shoulder width apart facing a wall or rebounder. Shoulder should be abducted to 90 degrees, ER at 0 degrees and elbow flexed to 90 degrees. You should be holding a 1-2 pound plyoball. The exercise begins by internally rotating the shoulder, releasing the ball so it hits the wall or rebounder. The athlete will then catch the ball on its return flight from the rebounder as they eccentrically decelerate and return to their starting position. Subsequent repetitions will repeat this process in a rhythmic and continuious fashion. These exercises should be preformed in sets of 10-15 reps.