



## **Arm Care Tips for Youth Athletes to Prepare for a Safe Return to Organized Baseball Activities**

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Due to the COVID-19 global pandemic restrictions, people have been required to live in increasingly sedentary and isolated conditions limiting access to athletic and workout facilities. In the interest of public health, there has been a direct negative impact on youth athletes. With scholastic athletic activities postponed in many areas, and changing conditions in commercial gyms, physical readiness and athletic conditioning has been compromised for many student-athletes. Overuse injuries in baseball players are very common, including shoulder injuries to the growth plate, labrum and rotator cuff and elbow injuries to the growth plate, cartilage, muscles, tendons and ligaments. All concerned should be very cognizant of these risks during this unprecedented time and plan accordingly to decrease risk as much as possible.

There are several factors of increasing prevalence that quarantine causes which directly impact an athlete's ability to throw. Inability to go outside and participate in the sport or activity of one's choice leads to deconditioning. Inactivity followed by a sudden and often rapid increase in throwing, can place mechanical stress on shoulder and elbow leading to injury.

To reduce the risk of injury to the throwing shoulder and elbow, it is important to plan for a gradual increase in activity to prepare your body for competition. This program must balance a sufficient amount of stress needed to prepare oneself to play with the appropriate rest to avoid injury. The following baseball return to play recommendations should be considered in order to be readily prepared for competition.

### **1. Mobility:**

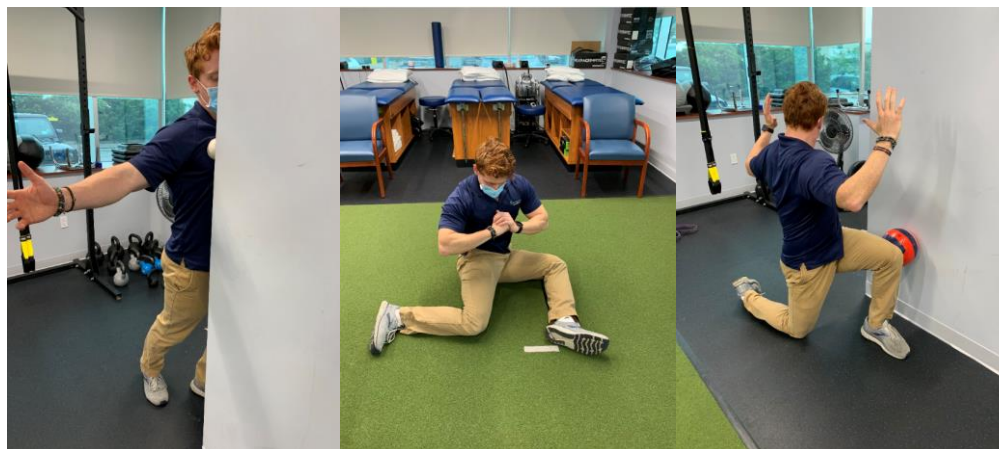
Achieving and maintaining optimal mobility of the shoulder, thoracic spine and hips are critical in making sure one's body is prepared for the demands of throwing. A loss of as little as 5° of total range of motion in one's throwing shoulder places an athlete at an increased risk of shoulder or elbow injury, including the need for possible Tommy John surgery. Likewise, decreased motion in the thoracic spine and hips has been shown to increase upper extremity biomechanical stress and likelihood of injury. A regular stretching program is an excellent way to maintain motion and limit the loss of rotation caused by inactivity and also by the rapid reintroduction of throwing. Low load long duration stretching has been found to be successful in causing significant improvements in mobility and reducing the risk of injury. Ideally, stretching is performed after the athlete is warmed up and again after activity during a cool down period. The horizontal adduction stretch and modified sleeper stretch (Figure 1) should be included in a thrower's regular in-season maintenance, out of season and preseason

programs. Additionally, soft tissue mobility drills and techniques are an excellent way to prepare for and recover after throwing. Drills and tissue mobilization techniques that address posture, thoracic rotation, hip mobility and decrease tightness in the anterior shoulder, particularly the pec minor, should also be included in one's program. (Figure 2)

(Figure 1: Horizontal adduction stretch *left*, Modified Sleeper stretch *right*)



(Figure 2: Pec Minor Self release *left*, Thoracic rotation drill *center*, Hip Rockers *right*)



## 2. Strength/Coordination

Building and maintaining shoulder, core and leg strength is another key component of preparing for baseball activities. The shoulder rotator cuff and muscles around the shoulder blade are active throughout the throwing motion and with proper training can help decrease injury risk. By utilizing resistance bands, available for sale online, or light objects at home such as cans of soup or water bottles, athletes can successfully train their shoulders at home. (Figure 3) 3 to 4 sets of these exercise at 10-12 reps daily, 3-4 days per week are recommended to prepare for one's baseball season. These exercises should be continued 2-3 days per week during the season.

(Figure 3: Side Lying External Rotations *left*, Banded Rows *right*)



Core control and leg strength are also critical in creating power and velocity while throwing. Including single leg strengthening exercises, rotational core strengthening, and dynamic balance activities (Figure 4) in one's strengthening program will prepare the athlete for transition back to baseball, improved performance and decreased injury risk.

(Figure 4: Single Leg Step Up *left*, Reverse Step Down *center*, Split trunk rotation *right*)



### 3. Guidelines for Return to Play

Guidelines have been developed and implemented at all levels of baseball to implement gradual return to play, limit overthrowing, achieve proper rest and ultimately reduce the chance of throwing related injury. A graduated return to throwing program should be followed based on the age, and position of the athlete involved and take into account the amount of time available to return to play. We recommend starting with throwing every other day, increasing the number of throws and distance based on the requirements of your position



(Figures 5 and 6). Upon return to play the latest pitch count guidelines (Figure 7) based on age should be closely followed by pitchers at all levels to limit the chance of throwing related injuries. However, with a rapid return to play after prolonged shut down due to Covid restrictions we recommend following the 50/30/20/10 rule when starting back to play, and initially cut pitch volumes in half week one, by 30% week two, by 20% week three and 10% week four. This will allow for the safest return to activity and further limit risk.

(Figure 5)

**Accelerated Infielder Return to Throwing Program**

Column1	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week 1	Mobility Warm Up 30'x20 45'x20	Upper Body Strength	Mobility Warm Up 30'x25 45'x25	Lower Body Strength	Mobility Warm Up 30'x20 45'x30	Rest	Mobility Warm Up 30'x10 45'x25x2
Week 2	Rest	Mobility Warm Up 45'x20 60'x20	Upper Body Strength	Mobility Warm Up 45'x30 60'x30	Lower Body Strength	45'x10 60'x30x2	Rest
Week 3	Mobility Warm Up 45'x20 60'x20 75'x20	Rest	Mobility Warm Up 45'x10 60'x25 75'x25	Upper Body Strength	Mobility Warm Up 45'x10 60'x30 75'x30	Lower Body Strength	Mobility Warm Up 45'x20 60'x20 75'x20x2
Week 4	Rest	Mobility Warm Up 45'x20 60'x20 75'x20 90'x10	Upper Body Strength	Mobility Warm Up 45'x15 60'x15 75'x20 90'x20	Lower Body Strength	Mobility Warm Up 45'x10 60'x10 75'x20 90'x20x2	Rest



(Figure 6)

**Accelerated Outfielder/Pitcher Return to Throwing Program**

Column1	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week 1	Mobility Warm Up 45'x20 60'x20	Upper Body Strength	Mobility Warm Up 45'x25 60'x25	Lower Body Strength	Mobility Warm Up 45'x20 60'x30	Rest	Mobility Warm Up 60'x10 75'x25x2
Week 2	Rest	Mobility Warm Up 60'x20 75'x20	Upper Body Strength	Mobility Warm Up 75'x30 90'x30	Lower Body Strength	Mobility Warm Up 75'x10 90'x30x2	Rest
Week 3	Mobility Warm Up 60'x10 75'x10 90'x20 120'x20	Rest	Mobility Warm Up 75'x10 90'x25 120'x25 ----- Pitchers: 25 pitches 75% effort (fastballs only)	Upper Body Strength ---	Mobility Warm Up 60'x10 75'x10 90'x20 120'x30 ----- Pitchers: 30-40 pitches at 80% effort (fastballs/change ups)	Lower Body Strength	Mobility Warm Up 75'x20 90'x20 120'x20x2 ----- Pitchers: 45 pitches 90% effort (all pitches)
Week 4	Rest	Mobility Warm Up 45'x10 60'x10 90'x10 120'x30 ----- Pitchers: 50 pitches 100% effort (all pitches)	Upper Body Strength	Mobility Warm Up 60'x15 75'x15 90'x20 120'x20x2	Lower Body Strength	Mobility Warm Up 60'x10 75'x10 90'x20 120'x25x2 ----- Pitchers: Simulated game 30-40 pitches	Rest (Progress to Throwing in game next outing)



(Figure 7)

### Pitch Count Limits and Required Rest Recommendations

It is important for each league to set workload limits for their pitchers to limit the likelihood of pitching with fatigue. Research has shown that pitch counts are the most accurate and effective means of doing so. See required rest recommendations below.

Age	Daily Max (Pitches in Game)	0 Days Rest	1 Days Rest	2 Days Rest	3 Days Rest	4 Days Rest	5 Days Rest
7-8	50	1-20	21-35	36-50	N/A	N/A	N/A
9-10	75	1-20	21-35	36-50	51-65	66+	N/A
11-12	85	1-20	21-35	36-50	51-65	66+	N/A
13-14	95	1-20	21-35	36-50	51-65	66+	N/A
15-16	95	1-30	31-45	46-60	61-75	76+	N/A
17-18	105	1-30	31-45	46-60	61-80	81+	N/A
19-22	120	1-30	31-45	46-60	61-80	81-105	106+

It is important to take the necessary measures to protect our baseball athletes from injury while allowing for a safe and successful return to competition. By following and maintaining a proper arm care program, athletes can enjoy a long and successful season despite having been shut down from activity by the COVID-19 pandemic restrictions. Arm care is a lasting commitment for baseball players and all throwing athletes alike. Following recommended guidelines and a preparatory program are key for career longevity and healthy participation as organized athletics resume.