

## Baseball is in Full Swing

### Conditioning Points for Parents and Players

The season is underway and in full swing for most players and some may already be experiencing arm pain or soreness. Youth baseball has become increasingly competitive over recent years, joining other sports in which athletes are frequently exposing themselves to overuse injuries. Today's trend is for our youth baseball players to compete in multiple leagues and/or play in multiple games per week as they pursue increased playing time, exposure, and opportunities in baseball. However, the frequency of play, along with the mechanics of throwing, stresses the musculoskeletal system with the frequent, high velocity action of the overhead throw. Therefore, it is important to undergo a proper conditioning program prior to and during the baseball season. Too often athletes spend little or no time preparing for their sport and just start playing baseball. Additionally, many players never give themselves an off season to recover and rebuild the specific muscles used for baseball. Such training errors could cause a decrease in performance or shorten a season all together.

Many people think the more I throw the stronger I will be. This is not necessarily true, and actually in most cases, the opposite effect occurs. The arm, and in particular the rotator cuff, undergoes a phenomenon known as stretch weakness. As the arm is used, or overused, the muscles become excessively stretched and lose strength over time. This "stretch weakness" often leads to a weaker rotator cuff and forearm towards the end of the season and a higher propensity to injury and tissue breakdown. Such a phenomenon further emphasizes the importance of a solid preseason training program and maintenance throughout the season.

Injury typically occurs when the kinetic chain breaks down. For example, when fatigue sets in to the legs, throwing mechanics often change, adding more stress to the arm as the player compensates to maintain velocity using the arm more and legs less. Remember, a chain is only as strong as its weakest link. In baseball, the weak links typically are the shoulder and elbow. It is important to insure that these areas are fatigue resistant and have an appropriate threshold point for tissue failure throughout the season. Maintenance of strength and flexibility, in particular in the upper extremity, and targeting specific areas such as the rotator cuff and forearm are paramount in a conditioning program for baseball. Functional training or movement simulated resistance training is a good way to target these injury prone areas. Functional training, in addition to the more traditional strengthening and flexibility exercise, is an important aspect of your off-season, preseason, and in-season conditioning programs.

When possible, it is helpful to have a baseline of your current performance/strength levels to compare improvements or any reductions in performance. For example, rotator cuff strength tests with numerical data or at least a side to side comparison of strength to examine if any deficiencies are present. If you start into a season with a deficit in your throwing arm, your risk of injury is heightened and performance potentially reduced.

Preseason conditioning should start 8-12 weeks prior to the start of your season. Even if you did not participate in a preseason program, it's not too late to improve performance and reduce chances of injury.

**Preseason Training** program should include:

1. Flexibility Training
2. Speed Work
3. Baseball Specific Exercises
  - a. Shoulder and Arm work - Rotator cuff, Shoulder girdle, and Forearm
  - b. Core
  - c. Lower Extremity Strengthening
    - Strength training should be done three to four times per week, starting with high reps, lower intensity progressing to lower reps, high intensity. The goal is to build fatigue resistant muscle and increase power. This can also be achieved by varying reps/intensity from exercise to exercise to address endurance and power within the same workout.
    - Speed training should be done two to three times per week, starting with a dynamic warm up and proper static stretching.
    - Recovery is very important in any training program. Recovery should begin with a good cool down after each workout. Recovery can also be a relatively active work such as pool workouts.

For example, a preseason workout program may be:

- Flexibility daily (with particular attention to the posterior Rotator cuff)
- Strength Training on M, T, TH, F
- Speed and Agility on Tuesday and Thursday
- Recovery days on Wednesday and Saturday (could institute cross-training workout) with total rest on Sunday

**In-Season Training**

1. Shoulder Specific Exercise
  - Shoulder - Rotator cuff all planes in particular internal and external rotation (with arm at side and at shoulder level). Forearm and shoulder girdle (around shoulder blade)
  - Perform 2x per week but not before games or heavy practice.
2. Core and Lower Extremity Strengthening.
  - Perform 1-2x per week but not before games or heavy practice.

It is important to target the specific muscles used for your sport, in this case baseball. Baseball is a repetitive sport therefore you have to build specific muscles to take repetitive stress if you want maximum performance and minimal injury. Remember even if you missed preseason training it's not late to start.

For any additional information on baseball performance training please contact UPMC Sports Performance at 724-444-8850 or for injury related questions please contact Centers for Rehab Services 1-888-723-4CRS (4277).

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Coming Next Issue - What do I do if my arm is sore?