

Strength & Conditioning for Baseball/Softball

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“What makes this lab special is not just the equipment or the building, it’s the collaboration between five extremely talented, intelligent and passionate experts in their respective fields.” said Walter.

What I get from this quote:

No matter how great of a system you have in place, the system will fail until everyone is on the same page, and shares the same vision(s).

Long term risks of Sport Specialization in Baseball

Begin with the end in mind: *The long-term goal is to prevent many of these injuries from occurring in the first place.*

Athletes who specialized in baseball before age 13 demonstrated a higher frequency of arm injuries than those who did not specialize. Additionally, current research suggests that specialization does not correlate with an athlete's long-term success in the sport.

Youth pitchers are at 2-5 times greater risk of requiring shoulder or elbow surgery or ending their baseball career if they also played catcher, threw more than 80 pitches per game, threw more than 100 innings per year, or threw more than 8 months per year. The most perilous factor for these players, however, was regularly throwing with arm fatigue, which may place them 36 times more at risk of requiring surgery or ending their baseball career.

If an athlete sustains an overuse throwing injury, pursuing evidence-based training and rehabilitation programs can reduce the time lost as well as the likelihood of developing another throwing-related injury.

Injury Prevention

Every sport has its common compensation and injury patterns.

It is important to know that it isn't the specific drill that makes an athlete better, but it's the progression up to, the placement of, and the progression away from it that ensures enhanced performance.

In the sport of baseball, the top 3 overuse injuries are: medial elbow tendinitis, rotator cuff pain, and hip impingement.

“Where you think it is it ain't.” To that point, the site of pain is rarely the ultimate cause of pain. Pain only tells you there is a problem, it does not tell you what the problem is. You are typically going to do some therapy and correctives to the painful region, but you should also address specific movement patterns that control force production. Stability always precedes force production.

Deceleration is the key to preventing medial elbow pain, so you are really only as fast as you can slow down. Most of the force generation from a throw should come from the inside out – an explosion pattern of force production with rotation. If you can't explode, you implode. Implosion means using more of your arms and legs to generate power. Your arms and legs are designed to amplify force, not generate it. When they have to do both you get hurt. The posterior oblique subsystem of the body is critical in deceleration of a throw.

Injury Prevention

Staying healthy should be the number one goal of every S&C program. If the athletes aren't on the field, or aren't healthy while on the field, they've been underprepared or wrongfully prepared.

A system of Prehab/Rehab protocols must be introduced and implemented. These are the things usually seen as “optional,” when in reality these are the things that keep athletes healthy for the long run.

This is a great time to increase ROM of weak areas (usually the ankles, hamstrings, core, and upper back muscles).

In addition to Prehab/Rehab protocol, athletes must also consistently work on running mechanics to ensure the hamstrings are prepared for a 90 foot max effort sprint.

Two ways to attack the posterior obliques:

First,

Iron Mans

You know how Iron Man flies? If not watch the movie. That's exactly what you are going to do, but without the really cool suit.

Lie face down on the ground with arms by your side and legs straight.

Start by slowly squeezing your glutes. Pull back your shoulders. Lift your head then your feet. You should feel slight arching in your back. Do not keep excess tension in your hands or your feet. Hold for four seconds, then slowly relax for four seconds. Repeat 10 times.

Do not hold your breath. This will engage the posterior oblique subsystem. If this is too difficult to do, perform the exercise with one arm and opposite side leg at a time. Then alternate. Slowly work up to both arms and legs together. Keep your head in neutral, not extending too much.

Two ways to attack the posterior obliques:

Second, T-Spine Rotation Variations.

The spine is broken into different sections
With different functions at each section.

-The Lumbar spine (lower back) is the
Weight-bearing section which doesn't want
to rotate.

-The Thoracic Spine is critical for baseball
due to its rotational and postural functions.
This is where we want to rotate.



T-Spine Rotations/Mobility

It's vital for transfer of power to be mobile at the T-Spine.

Here are some great drills:



Half-Kneeling T-Spine Rotation



Kneeling T-Spine Rotation

When rotating, a simple cue for the athletes is “follow your elbow with your eyes.” This engages the neck and the upper vertebrae.



In-Season Overview

Maintaining arm strength is everything—and not just for pitchers.

“Training must be designed to *strengthen* and *protect* the throwing arm and shoulder at the same time”

Through it all, Remember these seven simple yet effective ways for players to maintain strength throughout the baseball season:

1. Maintain Body Weight

According to O’Neal, Rates of Force Development (RFD) are a key factor in athletic performance, and athletes with more weight are generally more likely to produce greater force. That means it’s very important to maintain weight throughout the season. This can be difficult for some players, so they should bring food to the field, stay properly hydrated, and potentially have something to eat mid-game.

2. Manage Stress

It’s important to balance time on the field with time in the weightroom. During the season, players will often be practicing out on the field, which doesn’t leave much time for other types of strength training. O’Neal recommends sneaking weightroom sessions in on the same days you have extensive on-field work in order to balance high-stress days with low-stress days. That means certain days will be more demanding, but it will still allow for the same amount of off days for rest and recovery, which is key to reducing stress on the body.

Through it all, Remember these seven simple yet effective ways for players to maintain strength throughout the baseball season:

3. Keep Sessions Short

It can help to keep weightroom sessions short during the season, for multiple reasons. For one, you want to allow for adequate on-field training. Secondly, three or four 20-40 minute sessions throughout the week are enough to maintain strength without over-exerting your players. Be sure to design full-body workouts so that athletes can hit all the key areas.

4. Know the Right Intensity

Athletes don't need to be sore after a workout in order to build or maintain strength. In fact, during the season, constant soreness will only limit a player's ability to perform at a high level. In order to reduce soreness, try to avoid brand-new exercises during these sessions and avoiding high amounts of eccentric stress. This might mean slightly modifying certain exercises so that it reduces some of the stress being put on the athletes.

5. Don't Waste Energy

The season is a grind and having enough energy to both train and perform in games is key. When it comes to in-season training, focus should be put on quality over quantity. As players become fatigued, they are likely to start using bad form and technique, so it's important that you stop doing reps once technique starts to suffer. This is just as true for on-field reps, such as swings and throws, as it is for exercises in the weightroom.

Through it all, Remember these seven simple yet effective ways for players to maintain strength throughout the baseball season:

6. Condition Correctly

Baseball is a sport of short, quick action with a lot of rest in between. Therefore, endurance running will do little to help players prepare for the demands of the game. Instead, focus on keeping speed work fast with adequate rest time between reps. This will help to mimic the actual nature of the game.

7. Maintain Mobility

To translate training in the weightroom to performance on the field, players will need to have adequate mobility. According to O'Neal, having a mobility/stretching routine before and after every practice can go a long way in helping to keep players healthy and performing their best. These only have to be about five minutes each for players to reap the benefits.

Strength Training

The National Strength & Conditioning Association suggests from piles and piles of research to implement strength training through linear progression. The goal is progressive overload. Typically you're trying to get heavier every set, or every week- Depending on your current goals.

Some of the most beneficial linear progressions of rep schemes i've found in my time of training athletes include:

4x 12, 12, 10, 10 reps

4x 12, 10, 8, 8 reps

4x 10, 8, 5, 5 reps

4x 10, 8, 5, 3 reps

4x 8, 8, 6, 6 reps

4x 5, 5, 3, 3 reps



In-Season Upper Body Strength

An [article on batsfinder.com](#) suggests these seven exercises to build and maintain arm strength for baseball players:

- Face-Pulls/Dumbbell Curls: 3 to 5 sets/session
- Bench Press for Triceps: 3 to 5 sets/session (Alternate Variations between Close grip, Moderate grip, DB's vs. KB's vs. BB (or multi-grip bar), one-arm.
- 45-Degree Raises: hold a 5-pound dumbbell in each hand so that your arms are extended on your both sides and the hands are facing inward, then raise each hand at a 45-degree angle and bring your arms to shoulder height without losing the fixed position of the elbows.
- Push-Ups/Inverted-Row: 3 sets/session
- Wrist-Throwing Exercise: 1) Include your forearm at 90-degrees to your shoulder and hold a baseball in your hand; 2) Support your elbow with the other hand; and 3) Throw the baseball by using only your wrist.
- Long-Distance Throwing: Practice 20 to 30 throws on 30-foot distance, then 20 to 30 throws on 60-foot distance and then the same on the 90-foot distance.
- Fast Tossing: Work with another player, stand about 10 feet apart, and rapidly tossing a baseball to and from between each other

In-Season Lower Body Strength

Athletes run one-leg at a time, so we need to train them that way. In all planes of movement. Linear squats are great, but how much does a traditional squat transfer?

Bilateral BB Squats, both front or back squats, tend to place high amounts of force and stress on the shoulder's ball joints and the scaps which make up the athlete's shoulder blades. It's important to be healthy in these areas, especially during the season.

Therefore, if you're implementing bilateral squat patterns, research suggests avoiding the Barbell. Instead, implement Dumbbells, Kettlebells, Bands, or Bodyweight.

Ways to implement the squat pattern/train quads: Split-Squats (varying the width of the stance, and varying the load between Goblet rack position vs. Unilateral/Bilateral Suitcase rack position, varying between both feet on the floor or Rear-Foot-Elevated), Step-ups (varying the rack position and height of the step-up), Forward/Backward Lunges focusing on vertical posture (varying the rack position), Any and all jump variations.

Ways to train hamstrings: Trap Bar DL, Single-Leg DL (varying between 1-DB and 2-DB), Bilateral DB RDL, Glute Bridges (varying between unilateral and bilateral, varying between shoulders and feet on the floor vs. shoulders on the floor with the feet up on a bench for increased ROM), Back Extensions, GHD

In-Season Speed

Like every sport, baseball players must possess the ability to accelerate, decelerate, and change direction.

Athletes must be able to move forward/backward, side-to-side, and possess the abilities to rotate with power and coordination.

From the Texas A&M Baseball Strength & Conditioning Coach:

First, athletes need to learn the “power position,” or “athletic position” which requires knees bent, hips back, and the chest out over the knees.

Athletes use the power position for almost every athletic movement, both inside and outside the weightroom. It is required to get into a jump, change direction, decelerate, and create movement effectively. For example, when the ball is hit back toward a pitcher, the first thing he does is gather himself into the power position so he can react with the most power and speed. We repeatedly teach the power position in warm-ups and workouts until it becomes second nature.

Once players have it down, we go over proper landing and change-of-direction mechanics, including linear deceleration. The deceleration component is crucial for keeping players healthy because it teaches them to land and slow down using proper technique, muscle recruitment, and firing patterns. It also enables them to fully utilize the speeds and velocities they are capable of creating. Together, these skills build the foundation for our lateral speed, linear speed, and plyometric training, which allows players to turn the strength and power they are developing in the weightroom into athletic ability on the field.

Organizing Speed Training

It's beneficial to break speed into Linear, Lateral, and Change of Direction to make sure you're addressing all aspects of speed.

Then, create a system to rotate through each of aspect of speed, based on your in-season/off-season schedule.

Ways to implement Linear Speed- Sprints, Ball-Drop Sprints, Trap Bar Jump, Vertical Jump, Unilateral Jumps, 4-Plane Resistance Runs (banded runs).

Ways to implement Lateral Speed- Pro-Shuttle, Ice-Skater with a Stick (multiple variations), Lateral Sprints, Mini-Banded Lateral Hop/Monster walks, Ladder Drills.

Ways to implement Change of Direction- Dot-Drill, Med-Ball Slams, 5-yard Linear/Lateral Shuffle (approach a cone and retreat in the opposite direction)