HOW TO PREPARE BEFORE YOU THROW

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EXPERIENCES

Cincinnati SportsMedicine & Orthopaedic Center

Lakers

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COMMON MISTAKES:

Most common thing we hear from injured players is they did not properly warm up and prepare themselves to throw

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THE FACTS:

Throwing is very dynamic and aggressive on the body.

- **Fastest motion the human body performs.**
- **The shoulder could rotate a full 360 degrees up to 27 times in a second.**

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PREPARE BEFORE YOU THROW:

The faster your body moves and the harder you throw, the more force it is on your body.

- **Because of this you can see how just picking up a baseball and throwing can be stressful on the body.**
- **Put yourself in the best position to start throwing**

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PREPARATION:

- Prepare your body
- Prepare your throwing

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PREPARE YOUR BODY:

Common sense tells us to prepare our body for common activities like running and jumping, yet people often neglect throwing.

There are three steps to prepare for a throwing program.

- **Get Loose/Gain Mobility**
- **Proper Warm-up**
- **Proper Movement**

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PREPARE TO THROW: STEP 1 "GET LOOSE"

The first step in preparing your body to throw is to get loose or mobile.

- **Thousands of pitchers have been studied and a few things have been found when it comes to throwing.**
  - **Throwing a baseball causes muscles to tighten and loose mobility of the shoulder and elbow**
  - **Not addressing this become cumulative and you eventually get a little tighter and tighter over the course of a season.**

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“BE YOU BEFORE YOU PICK UP A BALL”

What this means is, if you just threw 100 pitches yesterday in a game, I know your shoulder is tight.

If you ignore it and pick up a ball and try to throw, you are setting yourself up for trauma.

Throwing will loosen you up (before you tighten up again), but is a much more aggressive way to get mobility back

Return to baseline before the 100 pitches

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MYOFASCIAL RELEASE

Myofascial release is the best way to restore mobility

- **Foam Roller**
- **Massage Stick/baseball bat**
- **Trigger Point ball/baseball**

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EQUIPMENT

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FOAM ROLL GUIDELINES

Seek and Destroy:

- **Roll until you find a painful area and hold for 30-60 seconds (or until pain decreases)**
- **Roll each muscle 1-3 minutes**
- **Maintain good core control while rolling**

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AREAS OF EMPHASIS

Myofascial release techniques should focus on:

- **Lat**
- **Back of the shoulder**
- **Rotator Cuff**
- **Pec/Chest**
- **Biceps**
- **Forearm**

AVOID the front of the shoulder. It is a lot of pressure on the insertion of the rotator cuff and bicep tendon.

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WHAT ABOUT STRETCHING?

~~Sleeper Stretch??~~

Baseball players/overhead athletes are usually too loose to stretch effectively and end up torqueing themselves making things worse.

There is a difference between muscles and joints, it is possible to have tight muscles and loose joints.

One shoulder stretch that is effective on muscles and not on the joints :

Genie Stretch

Forearm stretching should always be done as there is no real risk involved.

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PREPARE TO THROW STEP 2: THE WARM UP

Now that mobility has been restored to baseline BEFORE you throw, its time to get your muscles ready to throw.

"ACTIVATING"

It is important to activate all the muscles and movement patterns that accelerate and decelerate your arm.

These include:

- **Rotator Cuff Muscles**
- **The Scapula Movement**

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ACTIVATION

By turning on these muscles, the body will be better prepared for the upcoming activities and throwing.

The simplest way to do this is with resistance tubing.

- **Quick**
- **Easy**
- **Portable**

Be careful with VOLUME. These warm-ups are designed to prepare the muscle NOT fatigue them.

- **THEY ARE NOT STRENGTHENING EXERCISES**

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THERABAND EXERCISE TUBING

Tubing with handles

- **Gripping the tubing helps warm up the forearm muscles**
- **Also a reflexive stimulus to engage your rotator cuff**

I recommend:

- **Green Band – Little league age**
- **Blue Band – middle school and early high school age**
- **Black Band – for older and experienced throwers**

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PREPARE TO THROW STEP 3: GET MOVING

The 3rd step in our logical progression: Dynamic Movements

- Move the joints with quick muscle contractions
    - Concentric and eccentric
    - Exercises for movement preparation
    - These movements need elasticity of the muscles.
    - Stretching and mobility work alone will not turn on the elastic components of your muscles.
    - I DO NOT want a baseball being the first elastic stimulus your body faces.

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TARGET MUSCLES?

For pitchers we need to target the muscle groups necessary to throw:

- **The chest**
- **Posterior shoulder**
- **Rotator cuff**

It does NOT take a lot of repetition to prepare the body.

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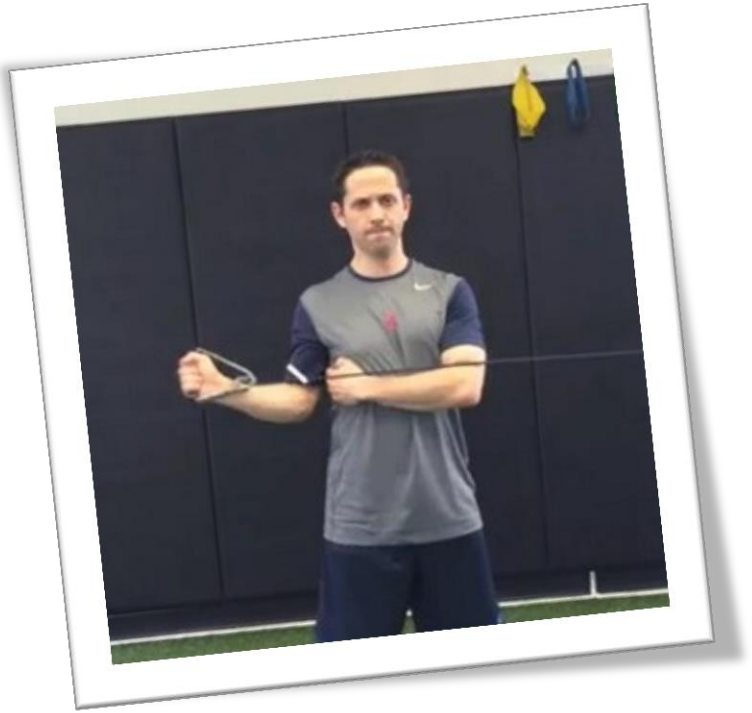
THROWING WARMUP

Perform this 3 minute warm-up program prior to throwing:

- **Mobility exercises x 10 reps**
  - Arm circles
  - Arm Hugs
  - Arm Swings
  - Field Goals
- **Stretches x 5 reps**
  - Genie Stretch
  - Forearm Stretch
- **Warm-Up x 10 reps**
  - ER @ Side
  - IR @ Side
  - ER @ 90 degrees
  - IR @ 90 degrees
  - Reverse Fly
  - Forward Fly
  - Reverse Throws
  - Forward Throws



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PREPARED BODY

This is the bare minimum that I teach athletes.

- **There are new concepts that prepare your body before throwing.**
- **Does not require dozens of exercises or many sets and reps**
- **Puts players in a more advantageous position to throw than most other athletes.**
- **Quick and easy**
- **Can be performed on the field before practice and games.**

Look into the bullpen next time you watch an MLB game. You will see many players performing this exact warm-up before the game.

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"PREPARE TO THROW, NOT THROW TO PREPARE"

Now I want to shift gears and talk about how to use your throwing program to prepare to throw.

- **You need to make sure you are properly warmed up, even within your throwing program, before you can start you throwing "work".**
- **You should NOT just jump on the mound, or throw at full intensity, or quickly progress to long tossing.**
- **I DO NOT want aggressive throwing to be the first thing your body feels.**
- **There is a big difference in your "warm-up" throwing and your "work" throwing.**

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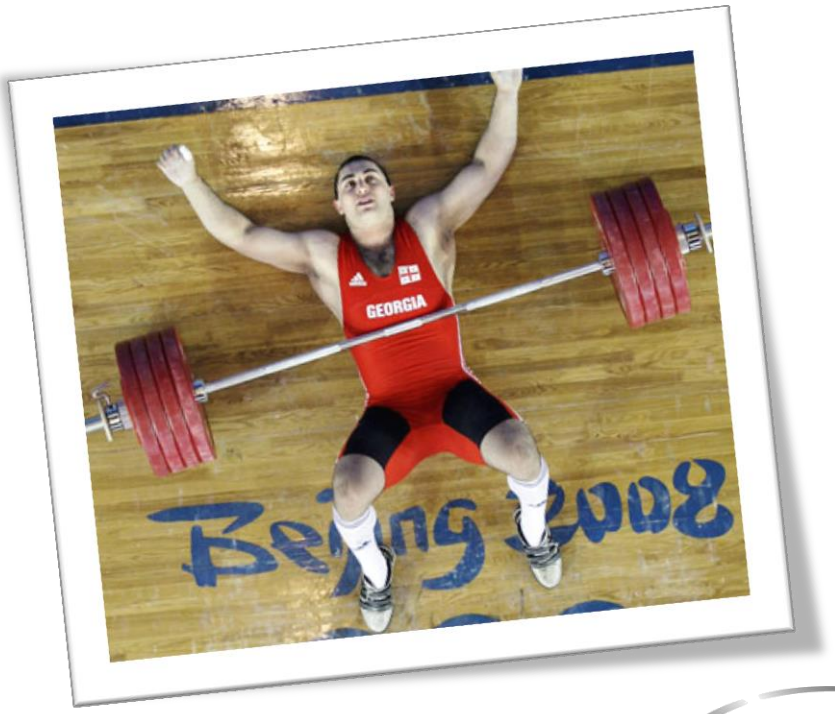
COMPARISON

Would you ever just throw your max weight on the bar and start deadlifting or squatting?

- **In strength and conditioning we incorporate a gradual increase in load.**
- **Warm up sets → work sets**
- **The SAME goes for THROWING**



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PREPARE TO THROW STEP 4: EASE INTO THROWING

3rd Throw Gunners

- **This is extremely stressful on the body. Remember throwing itself is stressful.**

KEEP IN MIND

- **You have to gradually apply stress to get the tissue used to the force.**

- **Not ALL throwing has to be designed to gain arm strength or increase velocity**

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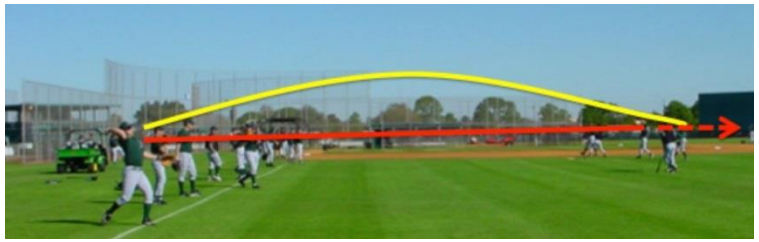
PREPARE TO THROW STEP 5:

LET THE DISTANCE DICTATE INTENSITY

Now that you've played light catch its time to start walking back.

- **Distance in your long toss program is a variable we use to adjust your intensity.**
- **Realistically there isn't much difference between throwing with full intensity at 100 feet or 200 feet.**
- **Full intensity is full intensity**
- **Resist the urge to throw on a rope at new distances**
- **"Let the distance dictate the intensity"**
    - **Meaning: throw the ball with an arc to firmly hit your partner in the chest on the decent.**
- **If the ball would sail past your partner another 100 feet**
    - **You are throwing too hard for the stretch out phase.**



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PREPARE TO THROW STEP 6: GET YOUR WORK IN

Time to throw on a line!!

- You've prepared your body
- You are mobile
- You've activated your muscles
- You did a dynamic warm-up
- You've eased into throwing and long toss
- CONGRATULATIONS…now you can throw!

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“WORK” THROWING

Now its time to incorporate your work throwing (whatever that may be for the day).

- **Long toss**
- **Weighted balls**
- **Bullpen work**
- **Throwing in a game**

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WHAT YOU WILL FIND

By going through the proper steps to prepare, you will find that you actually get better work in:

Not to mention:

- **Throw harder**
- **Throw more accurate**
- **Become more resilient to injury**

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BIOMECHANICS OF THE THROW

What does overhead throwing entail?

Biomechanics in Sports are typically broken down into 3 phases:

- **Cocking (Early and Late Phases)**
- **Acceleration Phase**
- **Follow Through (Deceleration Phase)**

- **Younger athletes learning the techniques have more variability within the throwing motion.**

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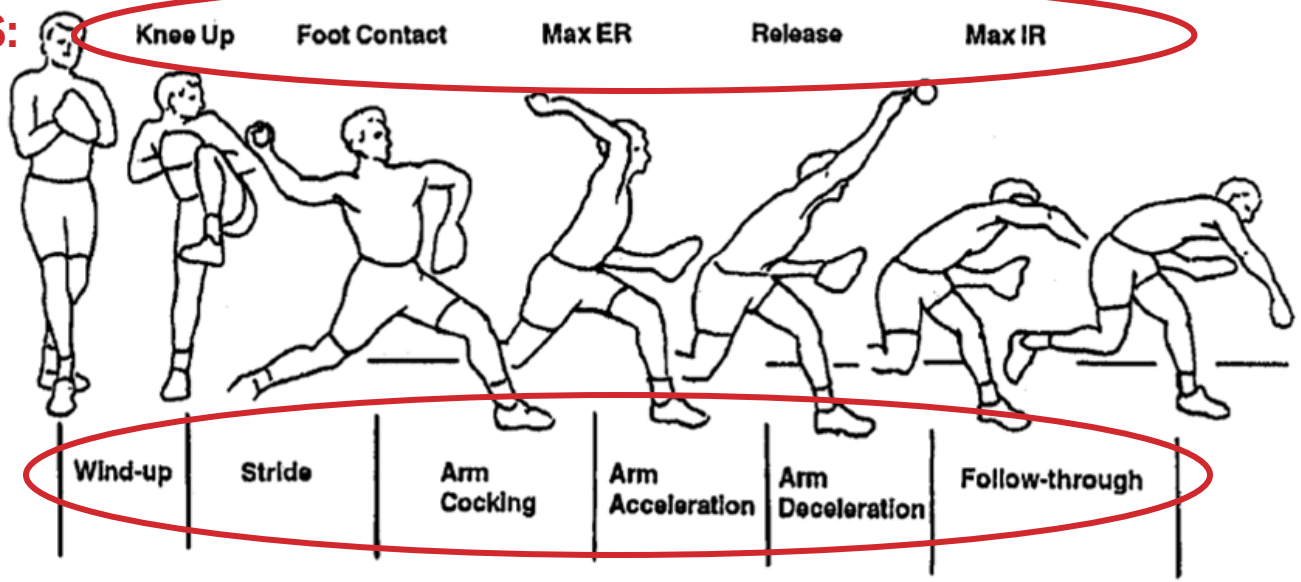
BIOMECHANICS

CRITICAL POINTS:



PHASES:

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WHY IS THIS IMPORTANT?

The Moral of the Story:

- **Overhead throwing has many consistencies, but there are variations from individual to individual.**
  - **Flexibility**
  - **Mobility**
  - **Strength and Power**
- **Our goal is to teach the youngsters to develop proper mechanics and reach their optimal performance.**

"Consistency is the key to avoiding injury"

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OVERHEAD THROWING

Throwing goes beyond the shoulder:

- Legs for balance, agility, and power
  - Foot placement – essential
  - Knee flexion angle – important for generating torque
- Lumbopelvic- hip complex
  - Pelvis angular velocity - drives the upper trunk and quadrant
  - Trunk position – (consistency) ball release associated with directional tilts
- Thorax and Upper Quadrant
  - Scapulothoracic
  - Scapulohumeral
  - Elbow

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RESEARCH

A study done by Craig Garrison PT in September of 2013 found that 30 baseball players diagnosed with ulnar collateral ligament tears demonstrated decreased balance compared to healthy controls.

Implications: Balance as well as shoulder ROM deficits should be considered in the prevention and treatment of UCL tears in baseball players

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CONSISTENCIES

5 common pitching parameters correlated to shoulder torque and elbow loads:

(Players age 9-18)

- **Lead with the hips**
- **Hand on top**
- **Arm in throwing position**
- **Closed front shoulder**
- **Lead foot towards target**

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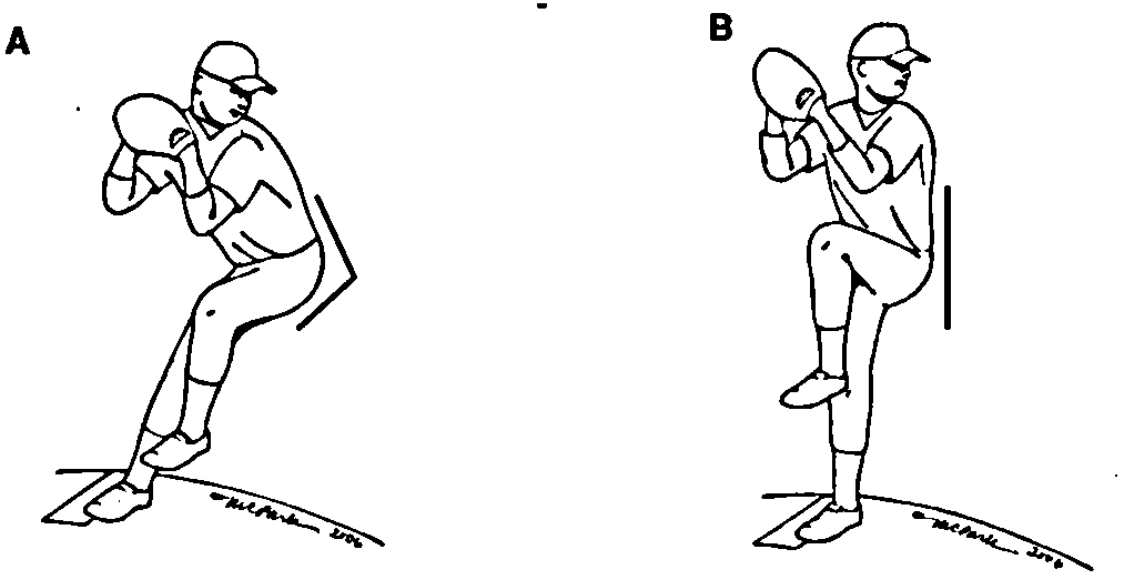
LEAD WITH THE HIPS



- Early Cocking Phase
- Hips should move towards home plate before the rest of the body.
- Pelvis leads the trunk
- If you don't lead with hips, timing becomes off and sequence of movements tend to vary more.

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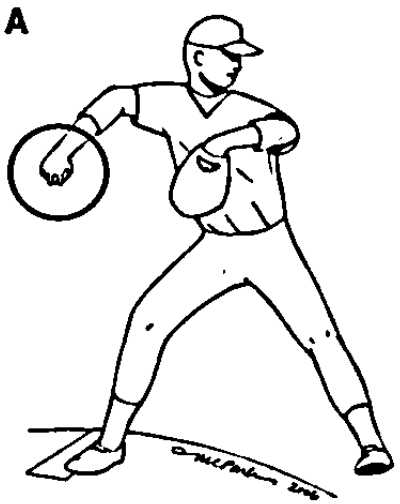
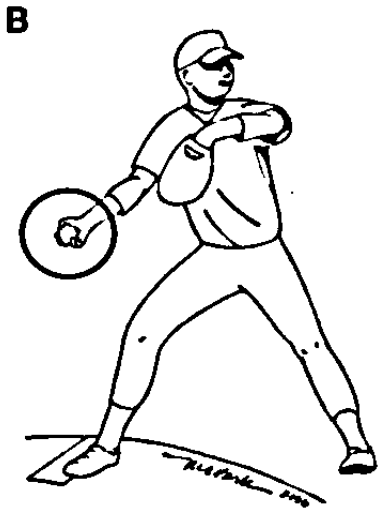
HAND ON TOP





- Forearm should be on top the ball (pronation) as it exits the glove in the early cocking phase.
- Hand points towards 2nd base
- Elbow aligns the shoulder and positions it for throwing

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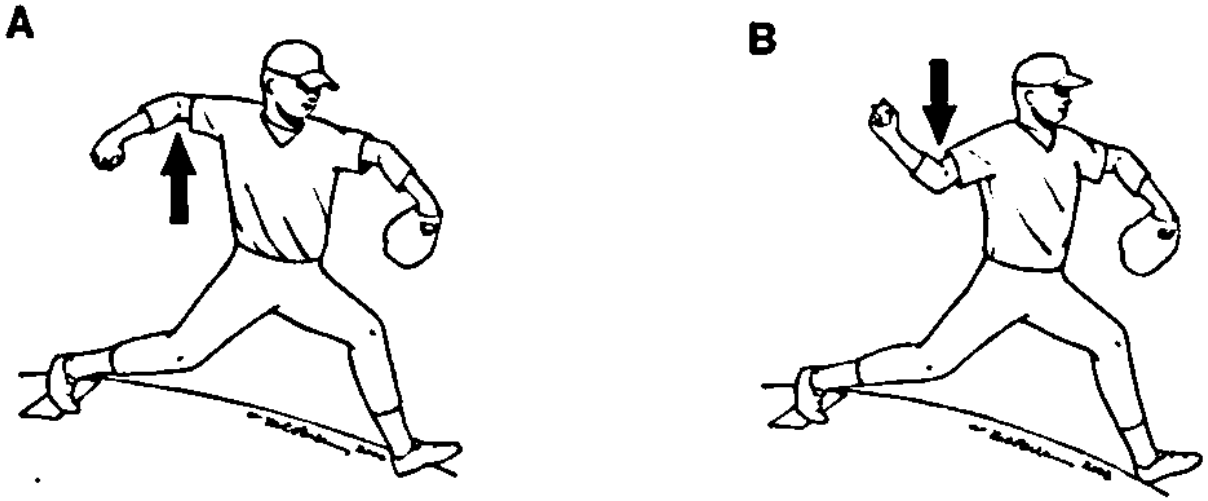
ARM IN THROWING POSITION



- Forearm should be at its highest point as the front foot hits the ground.
    - Shoulder should be at a 90 degree angle
- Can become a big timing issue, especially when pitching from a mound.

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CLOSED SHOULDER AND FOOT TARGET

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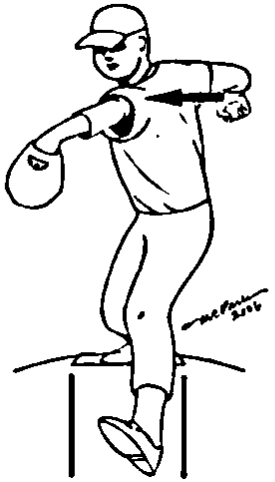

B

- Lead shoulder should be in a closed position as it moves towards home plate
- Closed trunk position
- Foot should land within the heel and toe of the planted foot
- Changes lateral tilt of trunk and elbow torque

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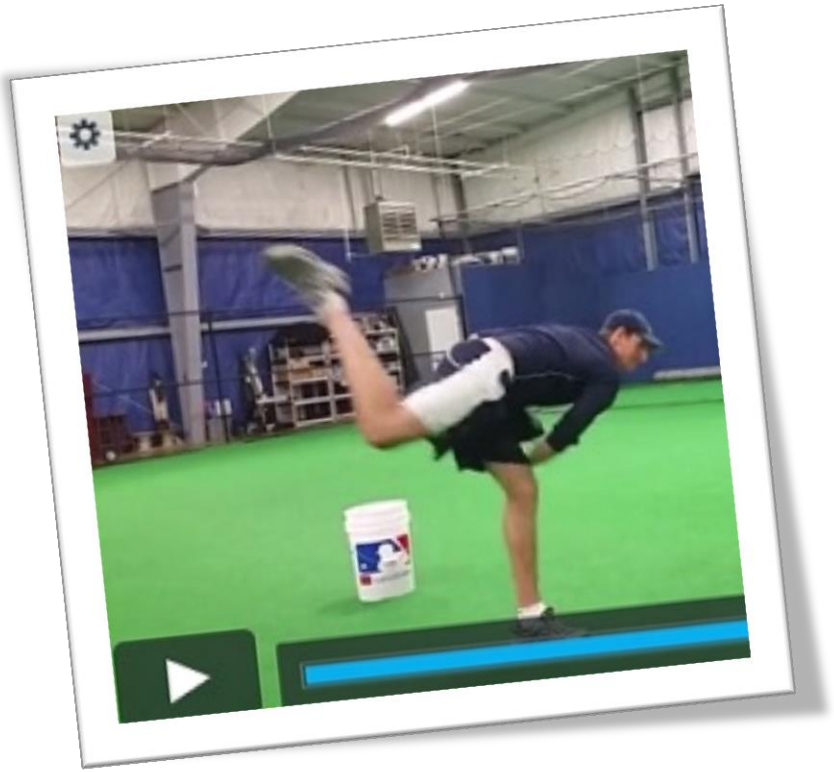
VIDEO ANALYSIS:

Video Analysis

- **Great for identifying movement faults in sport specific environment**
- **Video allows you to see the things that are difficult with the naked eye**
- **Provides visual feedback to the athlete**



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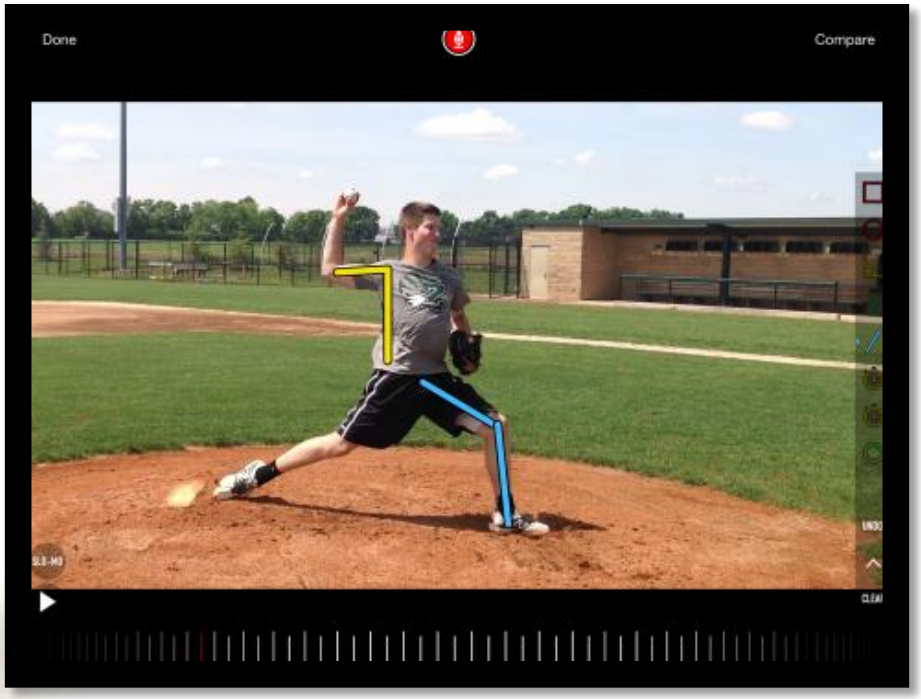
VIDEO ANALYSIS:

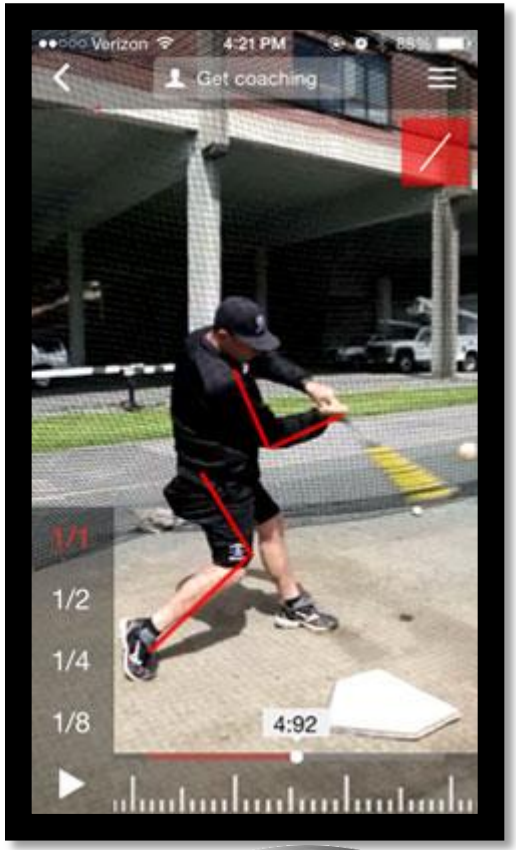
Coach's Eye

ubersense

Available on the App Store

GET IT ON Google play





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INJURIES IN OVERHEAD ATHLETES

- Little League Shoulder
- S.L.A.P Lesion
- Internal Impingement
- Rotator Cuff Pathology
  - Tendinopathies/Tears
- Neurovascular Pathologies
  - Suprascapular Neuropathy
  - Subclavian Artery
  - Axillary Artery Thrombosis
  - Ulnar Neuropathy
- Little League Elbow
- Medial Epicondyle Apophysitis
- Valgus-Extension Overload
  - Osteophytosis
  - Stress Fracture
- UCL Tears
- Flexor-pronator strain
- Radio-Capitular OCD

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USE OF ICE

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PROGRESSIONS

We must carefully assess where the athlete is TODAY, where they have been in the PAST and where they want to be in the FUTURE

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PLAYER CHECKLIST

Rotational Athletes of All levels NEED:

- **Ankle Mobility**
- **Hip Mobility**
- **Thoracic Spine Mobility**
- **CORE STRENGTH/STABILITY**

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DYNAMIC WARM-UP

- Knee Hug
- Pull Behind/Quad Stretch
- Leg Cradle
- Lunge with Rotation
- Lateral Step
- Straight Leg March
- Inchworm

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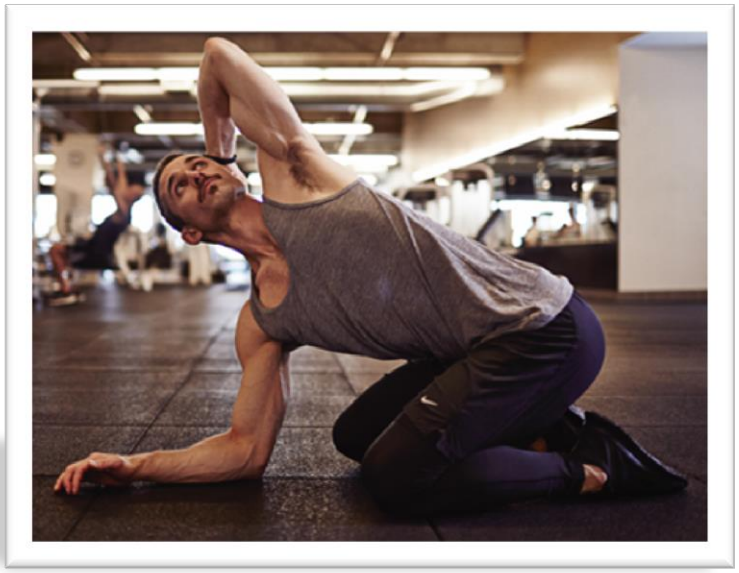
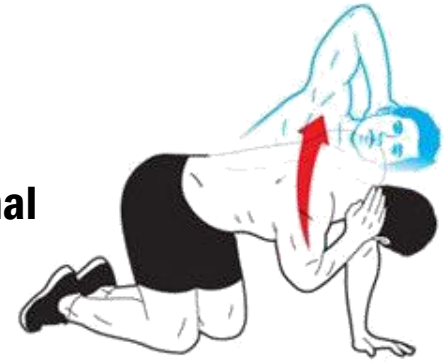
THORACIC MOBILITY





The shoulder requires at least 70 degrees of internal rotation.

If you don't have it, rotation has to come from somewhere else

Assists the rotator cuff in slowing down the shoulder

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CORE STRENGTH

Most Important tool for the rotational athlete

- **Driving force can NOT be lost in the middle.**
- **Pelvic Bracing**

“Throwing with a weak core is much like firing a cannon from a canoe.”

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MEDICINE BALL WORK

- Rotational Shot Put
- Rotational Scoop Toss
- Recoil Shot Put
- Step Behind Shot Put
- Overhead Stomp
- Rollover Stomp
- Split Stance Overhead Throw
- Recurve Overhead Throw
- Crow-hop to Over Head Throw

As throwing and pitching ↑ Med ball work must ↓

https://vimeo.com/65528750

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SPLIT SQUATS/HOLDS

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THANK YOU!

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