

# Throwing Program for Baseball Players



## Atte Sports Ortho Consults

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*Axe, 2009*

<b>PHASE I</b>	<b>Return to Throwing</b>
<b>Step 1</b>	Warm up toss to 60° 15 throws to 30° (3x with 2-9 minute rest periods in between) 20 long tosses to 60°
<b>Step 2</b>	Warm up toss to 75° 15 throws to 45° (3x with 2-9 minute rest periods in between) 20 long tosses to 75°
<b>Step 3</b>	Warm up toss to 90° 15 throws to 60° (3x with 2-9 minute rest periods in between) 20 long tosses to 90°
<b>Step 4</b>	Warm up toss to 105° 15 throws to 75° (3x with 3-9 minute rest periods in between) 20 long tosses to 105° Return to throwing
<b>Step 5</b>	Warm up toss to 120° 15 throws to 90° (3x with 3-9 minute rest periods in between) 20 long tosses to 120°
<b>Step 6</b>	Warm up toss to 120° 15 throws to 105° (3x with 3-9 minute rest periods in between) 20 long tosses to 120°
<b>Step 7</b>	Warm up toss to 120° 20 throws to 120° (3x with 3-9 minute rest periods in between) 20 long tosses to 120°

<b>PHASE II</b>	<b>Return to Throwing</b> *All fast balls crow hop at ground level. *Warm up toss to 120° before each step *25 long tosses to 160° after each step	
<b>Step 8</b>	15 throws to 60'6" (@ 75%) (9 minute rest period) 20 throws to 60'6" (@ 75%) (9 minute rest period) 20 throws to 60'6" (@ 75%) (9 minute rest period) 15 throws to 60'6" (@ 75%) (9 minute rest period)	
<b>Step 9</b>	20 throws to 60'6" (@ 75%) (9 minute rest period) x 4	
<b>Step 10</b>	20 fastballs @ 50% (9 minute rest period) x 4 25 throws to 60'6" (@ 75%) (9 minute rest period)	
<b>Step 11</b>	20 fastballs @ 50% (9 minute rest period) 20 fastballs @ 75% (9 minute rest period) 20 fastballs @ 50% (9 minute rest period) 15 fastballs @ 75% (9 minute rest period) 25 throws to 60'6" (@ 75%) (9 minute rest period)	
<b>Step 12</b>	25 fastballs @ 50% (9 minute rest period) 20 fastballs @ 75% (9 minute rest period) x 4	
<b>PHASE III</b>	<b>Intensified Pitching</b> *Warm up toss to 120° before each step. *25 long tosses to 160° after each step.	
<b>Step 13</b>	25 fastballs @ 75% (9 minute rest period) 20 fastballs @ 100% (@ 75%) (9 minute rest period) 10 fastballs @ 75% (9 minute rest period) 15 fastballs @ 100% (9 minute rest period) 25 fastballs @ 75% (9 minute rest period)	
<b>Step 14</b>	"ACTIVE REST" 20 throws to 80' x 4	
<b>Step 15</b>	20 fastballs @ 75% (9 minute rest period) 20 fastballs @ 100% 5-off speed pitches (9 minute rest period) 15 fastballs @ 100% 5-off speed pitches (9 minute rest period) 20 fastballs @ 100% 5-off speed pitches (9 minute rest period) Field bunts and comebacks	
<b>Step 16</b>	25 fastballs @ 100% (9 minute rest period) 15 fastballs @ 100% (9 minute rest period) 5-off speed pitches 20 fastballs @100% 5-off speed pitches (9 minute rest period)	5-pick off throws to 1 <sup>st</sup> base 20 fastballs @100% 5-off speed pitches (9 minute rest period)
<b>Step 17</b>	15 fastballs @ 100% 5-off speed pitches (9 minute rest period) 15 fastballs @ 100% 3 pick off throws to 1 <sup>st</sup> base (9 minute rest period) 20 fastballs @ 100% 5-off speed pitches (9 minute rest period) 15 fastballs @100% 3 pick off throws to 2 <sup>nd</sup> base (9 minute rest period) 15 fastballs @100% 5-off speed pitches (9 minute rest period)	

<b>Step 18</b>	“ACTIVE REST” 20 throws to 80° x 4
<b>Step 19</b>	20 fastballs @ 100% 5-off speed pitches (9 minute rest period) 20 fastballs @ 100% 3 pick off throws to 1 <sup>st</sup> base (9 minute rest period) 20 fastballs @ 100% 3 pick off throws to 2 <sup>nd</sup> base (9 minute rest period) 15 fastballs @100% 5-off speed pitches (9 minute rest period) 15 fastballs @100% 5-off speed pitches (9 minute rest period)
<b>Step 20</b>	Batting Practice 110-120 pitches Field Bunts and comebacks
<b>Step 21</b>	Simulated game 1. 10 minute warm up of 50-80 pitches gradually increasing velocity 2. 5-8 innings for starters, 3-5 innings for relievers, 2-3 innings for closers 3. 15-20 pitches per inning, including 10-15 fastballs 4. 9 minute rest between innings.

Axe, 2001

- Advance throwing level if not sore.
- If soreness subsides after warm-ups, repeat previous level.
- If sore during workout, take 2 days off.
  - Drop down one level upon return.
- If sore 1 hour after workout or next day, take 1 day off.
  - Repeat most recent level.
- If sore during warm-ups and workout take 2 days off.
  - Drop down one level up on return.

### INSTRUCTIONS

1. Baseline/Preseason
  - To establish a base for training and conditioning, begin with step 4 and advance one step daily following soreness rules.
2. Non-throwing arm injury
  - After medical clearance, begin step 4 and advance one step daily following soreness rules.
3. Throwing arm – bruise or bone involvement
  - After medical clearance, begin with step 1 and advance program as soreness rules allow throwing every other day.
4. Throwing arm – tendon/ligament injury (mild)
  - After medical clearance, begin with step 1 and advance program to step 7 throwing every other day as soreness rules allow.
  - Throw every third day on steps 8-12 as soreness rules allow
  - Return to throwing every other day as soreness rules allow for steps 13-21.
5. Throwing arm – tendon/ligament injury (moderate, sever, or post op)

- After medical clearance, begin throwing at step 1.
- For steps 1-7, advance no more than 1 step every 3 days with 2 days of active rest (warm-up and long tosses) following each workout.
- Steps 8-12 advance no more than 1 step every 3 days with 2 days active rest (see step 14) following each workout.
- Steps 13-16 advance no more than 1 step every other day with 1 day active rest (see step 14) between steps.
- Advance steps 17-21 daily as soreness rules allow.

### PITCH COUNTS

*USA Baseball Medical Safety Advisory Committee 2004 and 2006  
American Sports Medicine Institute Guidelines, 2006*

- Pitch count limits pertain to pitches throw in games only. These limits do not include throws from other positions, instructional pitching during practice sessions, and throwing drills, which are important for the development of technique and strength.
- BACKYARD PITCHING PRACTICE AFTER A GAME IS STRONGLY DISCOURAGED!
- The risk of throwing breaking pitches until physical maturity requires further research but throwing curves and sliders, particularly with poor mechanics appears to increase the risk of injury.
- Pitchers should develop proper mechanics as early as possible and include more year-round physical conditioning as their body develops.
- A pitcher should be prohibited from returning to the mound in a game once he/she has been removed as the pitcher
- Baseball players – especially pitchers – are discouraged from participating in showcases due to the risk of injury. The importance of “showcases” should be de-emphasized, and at the least, pitchers should be permitted time to appropriately prepare.
- Baseball pitchers are discouraged from pitching for more than one team in a given season.

### **USA Baseball Medical & Safety Advisory Committee Recommendations for Limits with Youth Pitchers**

*USA Baseball Medical Safety Advisory Committee 2004 and 2006  
Kerut, 2008  
American Sports Medicine Institute*

Age in years	Pitches/Game	Pitches/Week	Pitches/Season	Pitches/Year
9-10	50	75	1000	2000
11-12	75	100	1000	3000
13-14	75	125	1000	3000
15-16	90	2 games/week		

17-18	105	2 games/week	
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**USA Baseball Medical & Safety Advisory Committee Recommendations for Days of Rest After a Pitching Event**

Age in years	1 Day Rest	2 Days Rest	3 Days Rest	4 Days Rest
9-10	21-33 pitches	34-42 pitches	43-50 pitches	51+ pitches
11-12	27-34 pitches	35-54 pitches	55-57 pitches	58+ pitches
13-14	30-35 pitches	36-55 pitches	56-69 pitches	70+ pitches
15-16	30-39 pitches	40-59 pitches	60-79 pitches	80+ pitches
17-18	30-39 pitches	40-59 pitches	60-89 pitches	90+ pitches

**USA Baseball Medical & Safety Advisory Committee Recommendations for Types of Pitches Thrown by Age**

Axe, 2001

Pitch	Age (years)
Fastball	8+ 2 years
Change-Up	10+ 3 years
Curve ball	14
Slider/Forkball	16+ 2 years

**References**

1. Axe M, Hurd W, Snyder-Mackler L. *Data-based interval throwing programs for baseball players. Sports Health: A Multidisciplinary Approach* March 2009; 1:145-153
2. Axe M. *Recommendations for protecting youth baseball pitchers. Sports Medicine and Arthroscopy Review* 2001; 9:147-153
3. USA Baseball Medical & Safety Advisory Committee Position Statement on Youth Baseball Injuries Updated: May 2004. [http://mlb.mlb.com/usa\\_baseball/article.jsp?story+medsafety11](http://mlb.mlb.com/usa_baseball/article.jsp?story+medsafety11) (accessed 21 December 2007).
4. USA Baseball Medical & Safety Advisory Guidelines: May 2006. <http://www.asmi.org/asmiweb/usabaseball.htm> (accessed 21 December 2007).
5. Kerut, EK; Ker, DG; Fleisig, GS; Andrews, JR. *Prevention of arm injury in youth baseball pitchers. J. La. State Med Soc*, March/April 2008. 160:95-98

## Throwing and Reconditioning System

### Lifts:



Step 1



Step 2



Step 3



Step 4

Step 1. Kneeling on right knee with left knee up, keep hips forward and turn shoulder to the left. Pull the t-band up to the chest.

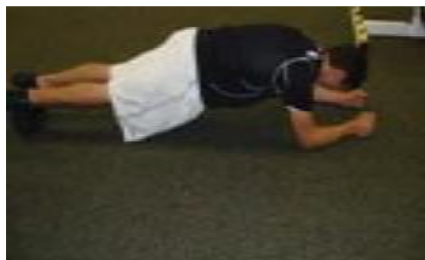
Step 2. Rotate shoulders so they are now over the hips keep the t-band tight.

Step 3. Continue to rotate the shoulders over the left knee while still holding onto the t-band.

Step 4. Once completely rotated to the left push arms out in front of the body making a diagonal line.

\*\*Perform 3 sets of 8 repetitions. Gradually building up to 3 sets of 15 repetitions.

### Hovers:



Step 1. Get into push up position, making sure that your elbows are underneath your shoulders.

Step 2. Tighten your abdominals, back and gluts.

Step 3. Push up keeping your body tight, making sure you are in a straight line.

\*\*Hold 10 seconds 5 times then gradually increase the hold time.

### Side Supports:



Step 1. Lay on your right side. Make sure that your head, shoulders, hips, knees and ankles are in a straight line.

Step 2. Tighten your abdominal, back, and gluts. Keep your right elbow underneath your right shoulder.

Step 3. Push up onto your ankles and elbows and hold. If this is difficult you can bend your knees and gradually work up to your ankles.

\*\*Hold 10 seconds 5 times then gradually increase the hold time.

### Side Stepping:



Step 1



Step 2

Step 1. Place your feet shoulder width apart, bending your knees keeping your back in a long straight line.

Step 2. With t-band wrapped around your toes take small side steps to the right keeping your feet the shoulder width apart.

Step 3. Step about 20 feet then begin to take side steps to the left returning to starting position.

\*\*Repeat this exercise twice gradually increasing to four times.

### Windmills:



Step 1



Step 2



Step 3



Step 4

Step 1. Stand on right leg.

Step 2. Bending forward from the hips keeping back flat and arms out to the side.

Step 3. Dropping the left hand down crossing the midline of the body.

Step 4. Repeating step 3 with right hand.

Step 5. Repeat on the left leg.

As this becomes easier, begin to rotate the trunk keeping the back flat.

\*\*Repeat this exercise 3 sets 8 gradually increasing to 3 sets of 15 each side.

### Walking Lunges:



Step 1. Step forward with right leg and keep left leg back. Bending both knees keeping the right knee over top the ankle.

Step 2. To progress, hold onto a ball with arms straight out and rotate the trunk toward the right.

Step 3. Repeat on the left leg.

### Prone Leg Extension:



Step 1. Lay on the bench stomach down with legs off the edge.

Step 2. Hold onto the bench and lift your legs so they are in line with your body.

Step 3. Hold this position for 10 seconds, 3 sets.  
 \*\*Gradually build up the hold time and increase sets.

**Shoulder Protraction/Retraction:**



Step 1



Step 2

Step 1. Place throwing arm on table top in a straight position, opposite hand goes behind the head.  
 Step 2. Keeping arm straight, slide arm back pinching the shoulder blades together.  
 Step 3. Hold the pinch for 8 seconds.  
 \*\*Make sure the shoulders stay level with each other.

**Shoulder Elevation/Depression:**



Step 1



Step 2

Step 1. Place throwing arm on table top in a straight position out to the side. The opposite hand goes behind the head.  
 Step 2. Pull the arm close to you keeping the arm straight and pinching the shoulder blades together.  
 Step 3. Hold pinch for 8 seconds.

**Shoulder Protraction/Retraction on Wall:**



Step 1

Step 1. Place finger tips on a wall shoulder height.  
 Rounding out the shoulders.  
 Step 2. Keeping the fingers on the wall, slowly pull both shoulder blades together keeping the shoulders down.  
 (This is not a shrug).  
 Step 3. Hold the pinching shoulder blades for 8 seconds.



Step 2

**Shoulder Elevations/Depression on Wall:**







Step 1

Step 1. Place finger tips on a wall shoulder height.  
 Step 2. With your thumbs, rotate them down and out making a half moon. Shoulders and arms will rotate with the thumbs keeping the shoulders down.  
 Step 3. Rotate the thumbs back to starting position concentrating on using the shoulder blades pinching them together to rotate the thumbs.  
 Step 4. Hold the pinching shoulder blades.



Step 2

## Y's

Step 1. Lie on table face down, with both arms hanging straight to the floor, and thumb rotated up (hitchhiker).  
 Step 2. Raise arm out to the side with arm slightly in front of shoulder, parallel to the floor.  
 Step 3. Hold 2 seconds and lower slowly.

Step 1



Step 2

## T's



Step 1



Step 2

Step 1. Lie on table, face down with both arms hanging straight to the floor and palm facing down.  
 Step 2. Raise arm out to the side, parallel to the floor, squeezing both shoulder blades together.  
 Step 3. Hold 2 seconds and lower slowly.



### I's



Step 1

Step 1. Lie on table, face down with both arms hanging straight down with palms facing down and thumbs pointed out.  
 Step 2. Raise both arms straight back parallel with body, squeezing shoulder blades together.  
 Step 3. Hold 2 seconds and lower slowly.



Step 2

### W's



Step 1

Step 1. Lie on the table. Pinch your shoulder blades down and back.  
 Step 2. Keeping your thumbs up, rotate your thumbs back toward the ceiling.  
 Step 3. Hold 2 seconds and lower slowly.



Step 2

### External Rotation at 0° Abduction



Step 1

Step 1. Stand with involved elbow fixed at side elbow at 90° and involved arm across the front of the body.  
 Step 2. Grip tubing handle while the other end of tubing is fixed, pull arm out keeping elbow at side.  
 Step 3. Return tubing slowly and controlled.

**\*\*Perform 3 sets of 8 repetitions. Gradually building up to 3 sets of 15 repetitions.**



Step 2

### Internal Rotation at 0° Abduction

Step 1



Step 2



Step 1. Stand with elbow at side fixed at 90° and shoulder rotated out.  
 Step 2. Grip tubing handle while other end of tubing is fixed. Pull arm across body keeping elbow at side.  
 Step 3. Return tubing slowly and controlled.

\*\*Perform 3 sets of 8 repetitions. Gradually building up to 3 sets of 15 repetitions.

### Shoulder Abduction to 90°



Step 1

Step 1. Stand with arm at side, elbow straight and palm against side.  
Step 2. Raise arms to the side with thumb up, until arm reaches shoulder level (90°).



\*\*Perform 3 sets of 8 repetitions. Gradually building up to 3 sets of 15 repetitions.

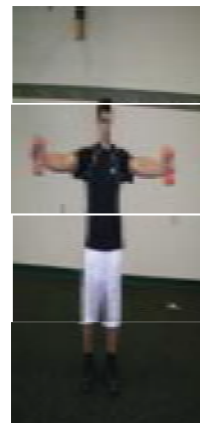
Step 2

### Scaption, External Rotation



Step 1

Step 1. Stand with elbow straight and thumbs up.  
Step 2. Raise arm to shoulder level at 90° angle in front of the body.  
Step 3. Do not go above shoulder height. Hold 2 seconds and lower slowly.



Step 2

\*\*Perform 3 sets of 8 repetitions. Gradually building up to 3 sets of 15 repetitions.

### Sleeper Stretches – Side Lying

Start side lying on the throwing shoulder with shoulder perpendicular to table, elbow at shoulder height and sin on upper arm. The outside border of the shoulder blade is pressed against the table. All of the internal rotation stretches are designed to stretch the back part of the shoulder, increase internal rotation and should not be uncomfortable. There should be no soreness or pinching the front of the shoulder. If discomfort is felt in the front of the shoulder, re-position elbow and repeat stretch. If discomfort continues, discontinue exercise and speak with therapist during your next session.

Hold these stretches for 20 seconds and repeat 5 times 3-4 times a day.

#### **Sleeper at 110°**



Step 1



Step 2

#### **Sleeper at 90°**



Step 1



Step 2

#### **Sleeper at 70°**



Step 1



Step 2

#### **Sleeper at 45°**



Step 1



Step 2