

## Interval Throwing Program

### Introduction

The focus of this rehabilitation program is to provide gradual increasing stress on the shoulder and elbow to return the athlete to throwing, while limiting re-injury. Because each athlete is different, time progression may vary, and is best performed under supervision of the rehabilitation team. Athletes are naturally competitive, yet it is imperative to be patient and not push through pain. Soreness, aching, and fatigue are normal and will resolve with rest. Throwing must cease, however, if there is sharp pain until it subsides. If continued pain, contact your physician.

### Key Principles:

1. Motion → Strength → Endurance → Confidence → Performance
2. Kinetic chain – Energy must be efficiently transferred from the ground and lower body, through the trunk, to the shoulder, elbow, and hand, to the ball at release. Any inflexibility or weakness will increase stress down the chain. Especially early on, focus more on lower extremity and core flexibility and strength.
3. Always warm-up and stretch adequately.
4. Allow proper recovery. Fatigue places the shoulder and elbow at risk.
5. Proper throwing mechanics are essential.
6. Progression to the next stage of the program requires full, pain-free range of motion, adequate strength, and endurance.

**Stretching** – All muscle groups should be stretched in a systematic way: legs, core, back, neck, shoulder, and elbow. Sleeper stretches increase flexibility of the posterior shoulder. Dynamic warm-ups engage the entire kinetic chain. Off-days should focus on flexibility and recovery.

**Weight training** – Day of throwing program, after throwing. High-repetition, low-weight exercises should be instituted to increase endurance. Balance anterior and posterior musculature. Slow, controlled eccentric motions are best to activate muscle groups (weighted ball drops, 90/90 elastic bands). Progress to maintenance program throughout the season.

**Hitting** – This should also be gradually incorporated. Do not increase volume concurrently with throwing, alternate. Begin with gentle swings, then hitting off the tee, followed by soft toss, and finally to live pitching.

**Technique** – The Crow-hop method (hop, skip, throw) best simulates throwing and allows emphasis of throwing mechanics better than standing flat-footed. Velocity should match distance, but do not throw harder than necessary to get the ball there.

**Timeline** – Complete each step for 2-3 sessions without pain or symptoms before progressing to the next step. Rest 1-2 days between sessions. There are approximately 70-75 throws at each step, at varying distances. If any pain is encountered, halt the session, and stay at that step or move back a step until pain free. Once phase 1 is complete, then progress to position specific training. Begin game situations, with 50-75-100% effort on throws. When pitchers begin throwing off the mound, begin with fastballs only until 100%

## PHASE 1

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Warm-up – Jog, increase blood flow, dynamic warm-ups and stretch. Using crow-hop, begin at a comfortable distance (30-45'), then progress to the next distance.

Cool-down – After each session, properly stretch and ice.

**The throwing program is performed every other day with rest in between. Complete 2-3 sessions without any pain or symptoms before advancing to the next step.**

### Step 1

# of Throws	Distance (ft)
Warm-up	30-45'
25	45'
Rest	3-5 min
Warm-up	30-45'
25	45'

### Step 2

# of Throws	Distance (ft)
Warm-up	30-45'
25	45'
Rest	3-5 min
Warm-up	30-45'
25	45'
Rest	3-5 min
Warm-up	30-45'
25	45'

### Step 3

# of Throws	Distance (ft)
Warm-up	30-45'
25	60'
Rest	3-5 min
Warm-up	30-45'
25	60'

### Step 4

# of Throws	Distance (ft)
Warm-up	30-45'
25	60'
Rest	3-5 min
Warm-up	30-45'
25	60'
Rest	3-5 min
Warm-up	30-45'
25	60'

### Step 5

# of Throws	Distance (ft)
Warm-up	30-45'
25	60'
Rest	3-5 min
25	60'
Rest	3-5 min
20-25	75'

### Step 6

# of Throws	Distance (ft)
Warm-up	30-45'
25	60'
Rest	3-5 min
Warm-up	30-45'
25	75'
Rest	3-5 min
Warm-up	30-45'
25	75'

**Step 7**

# of Throws	Distance (ft)
Warm-up	30-45'
10	60'
20	90'
Rest	3-5 min
10	60'
20	90'

**Step 8**

# of Throws	Distance (ft)
Warm-up	30-45'
7	60'
18	90'
Rest	3-5 min
7	60'
18	90'
Rest	3-5 min
7	60'
18	90'

**Step 9**

# of Throws	Distance (ft)
Warm-up	30-45'
5	60'
5	90'
15	120'
Rest	3-5 min
5	60'
5	90'
15	120'

**Step 10**

# of Throws	Distance (ft)
Warm-up	30-45'
5	60'
10	90'
15	120'
Rest	3-5 min
5	60'
10	90'
15	120'
Rest	3-5 min
5	60'
10	90'
15	120'

**Step 11**

# of Throws	Distance (ft)
Warm-up	30-45'
10	60'
10	75'
10	90'
10	120'
Rest	3-5 min
20-30	60' pitching mechanics

**Step 12**

# of Throws	Distance (ft)
Warm-up	30-45'
10	60'
10	75'
10	90'
10	120'
Rest	3-5 min
20-30	60' pitching mechanics
Rest	3-5 min
10	90'
20	60' pitching mechanics

## PHASE 2

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Begin throwing 50% velocity, increase to 75%, then 100%. Fastballs only until 100% achieved. When throwing off the mound, ensure proper mechanics (Stay on top of the ball. Keep the elbow up, throw over the top. Follow through with the arm and trunk.). For pitchers, increase number of throws per session as indicated (total number of throws 75-90 per session, adjust intervals as needed). Position players can begin fielding with 50-75-100% effort on throws.

### PITCHERS

#### Step 1

# of Throws	Distance (ft)
Warm-up	45'
5-10	60'
5-10	75'
5-10	120'
15, 30, 45, 60, 70	60' off mound 50%

#### Step 2

# of Throws	Distance (ft)
Warm-up	45'
5	60'
5	75'
5	120'
45, 30, 10	60' off mound 50%
30, 45, 65	60' off mound 75%

- At this time, if the pitcher has successfully completed the above phase without pain or discomfort and is throwing approximately 3/4 speed, the pitching coach and trainer may allow the pitcher to proceed to the next step of "Up/Down Bullpens". Up/Down Bullpens is used to simulate a game situation. The pitcher rests in between a series of pitches to reproduce the rest period in between innings.

#### Day 1

# of Throws	Distance (ft)
10 Warm-up	120'
10 Warm-up	60' mound
40 pitches	60' mound
Rest	10 min
20 pitches	60' mound

#### Day 2 – OFF / Recovery

#### Day 3

# of Throws	Distance (ft)
10 Warm-up	120'
10 Warm-up	60' mound
30 pitches	60' mound
Rest	10 min
10 Warm-up	60' mound
20 pitches	60' mound
Rest	10 min
10 Warm-up	60' mound

#### Day 4 – OFF / Recovery

#### Day 5

# of Throws	Distance (ft)
10 Warm-up	120'
10 Warm-up	60' mound
30 pitches	60' mound
Rest	8 min
20 pitches	60' mound
Rest	8 min
20 pitches	60' mound
Rest	8 min
20 pitches	60' mound

- At this point, the pitcher is ready to begin a normal routine, from throwing batting practice to pitching in the bullpen. This program should be adjusted as needed by your physician, athletic trainer, or physical therapist.