

## Youth Interval Throwing Program

The interval throwing program (ITP) is designed to gradually return motion, strength, and confidence in the throwing arm after injury or surgery by slowly progressing throwing distances. The ITP is initiated upon clearance by the athlete's physician to resume throwing, and performed under the supervision of the therapist.

The program is set up to reduce the chance of re-injury as well as improve ability to throw a ball. The ITP focuses on warm up, stretching, and strengthening. The follow points are considered most important:

1. The action of throwing involves transferring energy from the feet through the legs, core, and out the shoulder through the elbow and hand. Therefore, any return to throwing after injury must include attention to the entire body
2. When judging how much effort the athlete is using, an RPE (rate of perceived exertion) scale will be used from 1-10 when gauging how hard the athlete is throwing. A 1 would be no effort whatsoever while a 10 would be maximal effort, The chance for re-injury is reduced by a gradual progression. Most injuries occur as a result of fatigue.
3. **Proper warm up must be used to begin throwing.** See below for warm-up routine.
4. Video analysis is required for the athlete to send to their therapist. This will allow the therapist to assess proper throwing mechanics and lessen the chance of re-injury
5. Baseline requirements for throwing are as followed:
  - a. Pain-free and full motion
  - b. Enough power to get the ball thrown on a straight line to the throwing partner
  - c. Accurate throws to partner
6. Progression throughout the ITP will vary from athlete to athlete. Be open with your therapist on your progression and understand the difference between pain and soreness. Soreness is to be anticipated as the athlete progresses through. However, if the athlete is experiencing pain when throwing the athlete **MUST** notify their therapist.

Warm up: When warming up, the whole body needs to be addressed. The athlete may go for a light 5-8 min jog to begin with followed by stretching. Please use theraband exercises from the thrower's ten home program with light bands to warm up the arms. This is not meant to fatigue the arm, but to help with blood flow throughout the muscles. No more than 15 reps of each motion. Once theraband exercises have been performed, the athlete may perform stretches for the shoulder and elbow. Make sure the warm up has loosened muscles well enough prior to throwing. **DO NOT RUSH THIS STEP!** An adequate warm up will further reduce re-injury.

Throwing mechanics: It is important that the athlete maintains proper throwing mechanics throughout the program. The athlete must understand that primary power comes from the legs and core when throwing, therefore proper position will create the most structured throw. It is also essential that the athlete understands the shoulder and elbow's purpose is to transfer energy

from the legs/core through ball release. As the arm swings back before the ball is thrown, the arm should be raised to shoulder height with the elbow bent at 45-90 degrees (please refer to the therapist for an understanding of what 45-90 degrees of elbow bend looks like). If the arm is any straighter, this will increase stress on the inside of the elbow. Prior to ball release, the non-throwing foot should make contact to the ground with the non-throwing arm pulling through the armpit followed by rotation of the core. Video analysis is crucial for the therapist to ensure proper mechanics are being utilized. The athlete should consistently be consulting their therapist with questions and feedback on mechanics.

Weight training: The athlete should use a high repetition, low weight exercise program initially. As time progresses, the athlete should slowly reduce repetition and increase weight (see additional sheet). Strengthening should address a good balance throughout all muscles of the body. More attention must be given to the shoulder for any strengthening program. Furthermore, lower body strengthening and plyometrics should be included to address the athlete as a whole; since throwing is a full-body motion. Weight training should be performed on days where the athlete is not throwing. Consult with the therapist for additional guidance on weight training.

Batting: If the athlete also bats, they must notify their physician for further instruction on return to batting. An interval hitting program will be addressed as needed.

Throwing Program Progression: Throwing days will be every other day. For example, if the athlete throws on Monday, they won't throw again until Wednesday. The athlete will be required to throw at each step for two consecutive throwing days without pain in order to progress through to the next step. For example, the athlete will throw on Monday and Wednesday at 45 ft for step A before progression to step B. If the athlete experiences pain at any step, they are to let their therapist know and stay at the step they are currently at. The therapist may have them take an additional rest day.

### **Phase I**

\*All of phase 1 performed on flat ground, not the pitcher's mound

\*All warm up throws should start at around 30 ft and gradually increase the distance of the specific phase. There should be around 15-20 throws within the warm up.

### **45 ft Phase**

#### **Step A**

- 3 sets of 10 throws at 45 ft
- Rest 5 min between sets
- 5/10 RPE

#### **Step B**

- 5 sets of 10 throws at 45 ft
- Rest 5 min between sets
- 5/10 RPE

### **60 ft Phase**

#### **Step A**

- 3 sets of 10 throws at 60 ft

- Rest 5 min between sets
- 5/10 RPE

Step B

- 5 sets of 10 throws at 60 ft
- Rest 5 min between sets
- 5/10 RPE

**90 ft Phase**

Step A

- 3 sets of 10 throws at 90 ft
- Rest 5 min between sets
- 5/10 RPE

Step B

- 5 sets of 10 throws at 90 ft
- Rest 5 min between sets
- 6-7/10 RPE

Step C

- 3 sets of 20 throws at 90 ft
- Rest 5-10 min between sets
- 6-7/10 RPE

**120 ft Phase**

Step A

- 3 sets of 10 throws at 120 ft
- Rest 5 min between sets
- 6-7/10 RPE

Step B

- 5 sets of 10 throws at 120 ft
- Rest 5 min between sets
- 6-7/10 RPE

Step C

- 3 sets of 20 throws at 120 ft
- Rest 5-10 min between sets
- 6-7/10 RPE

**Flat ground throwing**

Step A

- 1 set of 15 throws at 60 ft
- 1 set of 10 throws at 90 ft
- 1 set of 10 throws at 120 ft
- 1 set of 20 throws at 60 ft flat-ground pitching mechanics

Step B

- 1 set of 15 throws at 60 ft
- 1 set of 10 throws at 90 ft
- 1 set of 10 throws at 120 ft
- 1 set of 20 throws at 60 ft flat-ground pitching mechanics



- 1 set of 10 throws at 60 ft
- 1 set of 20 throws at 60 ft flat-ground pitching mechanics

## **Phase II**

### **Stage 1: FASTBALLS ONLY**

#### **Step 1:**

- 15 throws off mound 50%

#### **Step 2:**

- 30 throws off mound 50%

#### **Step 3:**

- 45 throws off mound 50%

#### **Step 4:**

- 60 throws off mound 50%

#### **Step 5:**

- 70 throws off mound 50%

#### **Step 6:**

- 45 throws off mound 50%
- 30 throws off mound 75%

#### **Step 7:**

- 30 throws off mound 50%
- 45 throws off mound 75%

#### **Step 8:**

- 65 throws off mound 75%
- 10 throws off mound 50%

### **Stage 2: FASTBALLS ONLY**

#### **Step 1:**

- 60 throws off mound 75%
- 15 throws in batting practice

#### **Step 2:**

- 50-60 throws off mound 75%
- 30 throws in batting practice

#### **Step 3:**

- 60 throws off mound 75%
- 15 throws in batting practice

### **Stage 3: FASTBALLS AND BREAKING PITCHES**

#### **Step 1:**

- 30 throws off mound 75% warm up
- 15 throws off mound 50% BREAKING BALLS
- 45-60 throws in batting practice FASTBALLS ONLY

#### **Step 2:**

- 30 throws off mound 75% warm up



- 30 breaking balls 75%
- 30 throws in batting practice

Step 3:

- 30 throws off mound 75% warm up
- 60-90 throws in batting practice (gradually increase breaking balls here)

Step 4:

- Simulated game (progress with 15 throws per workout)

**Adapted From:**

- 1) Interval Throwing Program by the Advanced Continuing Education Institute, LLC, 2004.
- 2) Discussion with Eleni Polites, M.O.T., OTR/L
- 3) Consultation with Dr. Brian bear, MD at OrthoIllinois