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# ***RISK FACTOR CHECKLIST***

**YOUTH BASEBALL PITCHING**

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## RISK FACTOR CHECKLIST YOUTH BASEBALL PITCHING

Things you **CAN'T** change but still increase the risk of injury... so, you should be aware!

Things you **CAN** and **SHOULD** change

Things you may **NEED** a professional to assess, but may be able to work on independently.

- Taller than average (2 inches taller than average)
- Growing > 2 ½ inches in last 12 months
- Heavier than average (> 10 pounds heavier than average)
- Throwing Velocity > 2 Standard Deviations of others for their age
  
- Pitching with fatigue
- Pitching with pain
- Pitching > 100 innings/season
- Pitching > 80 pitches/game
- Pitching on consecutive days
- Pitching multiple games in 1 day
- Regularly exceeding pitch count recommendations
- Positions – playing both pitcher and catcher
- Premature use of off-speed pitches
- Playing for multiple teams
- Participating in showcases
- Early sport specialization (single sport athlete)
- Throwing all year around
  
- Decreased dynamic balance
- Poor mechanics
- Limited flexibility of lower body
- Less than adequate hip flexion and internal rotation
- Relative supraspinatus (rotator cuff) and/or middle trap (mid back) weakness
- External rotation: Internal rotation strength < 60%
- Shoulder “total arc” range of motion loss > 5° (Total arc should be ~180 degrees)
- Shoulder internal rotation loss > 25°

### HOW MANY BOXES DID YOU CHECK? HOW MANY CAN YOU CHANGE?

It is unknown how many boxes checked correlates with injury. Likely, the more checked, the greater the risk.



# STATISTICS REINFORCING THE CHECKLIST

All findings are from studies of baseball players ranging from **7-18 years of age**.

Pitching with arm fatigue increased risk for injury **36x!**  
Not double, triple, or even 10x the risk of injury...  
**36x more likely to be injured.**

## YOUTH BASEBALL INCIDENCES ANNUALLY (7-12 YEARS OF AGE)

- Elbow Pain= 29.2% (1,460,000– 1,750,000 Athletes)
- Shoulder Pain= 15.9% (795,000 – 954,000 Athletes)
- “Serious Injury” = 5% (250,000 – 300,000 Athletes)

## EARLY SPECIALIZATION DEFINITION

- Playing an organized sport > 8 months out of a year
- Playing an organized sport more hours/week than the players age
- Organized sport to free play ratio > 2:1

## EFFECTS OF PITCH TYPE ON SHOULDER AND ELBOW PAIN (9-14 YRS OLD)

Curveballs are associated with **52%** of increased risk of shoulder pain.  
Sliders are associated with **86%** of increased risk of elbow pain.

## AVERAGE THROWING SPEED BY AGE WITH UP TO FIVE STANDARD DEVIATIONS AWAY

AGE	AVG MPH	1SD MPH	2SD MPH	3SD MPH	4SD MPH	5SD MPH
8	40	43	47	50	54	57
9	43	47	51	55	59	63
10	46	50	54	58	62	66
11	48	52	56	60	64	68
12	50	55	60	65	70	75
13	54	59	64	69	74	79
14	60	66	72	78	84	90

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# MINIMIZING RISK

## 10 SUGGESTIONS ANYONE CAN DO

### 1. **WATCH AND RESPOND TO SIGNS OF FATIGUE**

Decreased ball velocity, decreased accuracy, upright trunk during pitching, dropped elbow during pitching, or increased time between pitches.

- If a youth pitcher complains of fatigue or looks fatigued,

**STOP THROWING!**

2. No overhead throwing of any kind for at least 2-3 CONSECUTIVE months per year. No competitive baseball pitching for at least 4 months per year.
3. Follow limits for pitch counts and days rest.
4. Avoid pitching on multiple teams with overlapping seasons.
5. Learn good throwing mechanics as soon as possible. The first steps should be (1) basic throwing, (2) fastball pitching, (3) changeup pitching...breaking pitches are not fundamental and youth players need foundation first.
  - There is a huge need to master throwing mechanics & fastball consistency + ability to locate before moving on to an off speed pitch.
  - It has been shown in **EVERY** research study that the change up is the least stressful pitch on a thrower's arm... learn this next.**MASTER THIS.**
6. If a pitcher complains of pain in his elbow or shoulder, discontinue pitching until evaluated by a sports medicine practitioner.
7. A pitcher should not also be a catcher for his team. The pitcher-catcher combination results in many throws and may increase the risk of injury.
8. Avoid using radar guns until developmentally more mature.
9. Avoid showcases, especially in the "off" season.
10. **FOCUS ON FUN!**  
Athleticism and overall physical fitness (flexibility, hip mobility + strength, shoulder mobility + strength, trunk & lower body strengthening)

## THE PERFORMANCE PYRAMID

As described by Gray Cook -  
Functional Movement Systems

### SKILL

Sport-Specific

### PERFORMANCE\*

Endurance, Strength, Speed, Power,  
Quickness, Agility, Coordination

### MOVEMENT\*

Movement Quality Influenced by  
Mobility and Stability

\* Buffer Zone