

# baseball injury prevention

Many baseball injuries can be prevented by increasing the level of awareness and knowledge among players, parents and coaches. Nearly 500,000 baseball-related injuries are treated in hospitals, doctors' clinics, surgery centers and emergency rooms each year. Although the overall rate of high school baseball-related injuries has decreased within the last 10 years, the severity of injuries has increased. This might be attributable to the increased intensity during competition and the increased size and strength of players, resulting in faster throwing, harder hitting and more force in player-to-player contact.

## common injuries

- Tendonitis, rotator cuff tear, bursitis, impingement and instability of the shoulder
- Little league elbow (medial epicondylitis), tennis elbow (lateral epicondylitis), elbow bursitis, wrist sprains and wrist tendonitis/tenosynovitis
- Patellar tendonitis, chondromalacia, meniscus tears and ligament tears of the knee
- Muscle strains in the lower back, mid-back and hamstrings (back of thighs)

## preventing baseball injuries

- Establish a good stretching program for the upper and lower body muscles, including the rotator cuff/shoulder, back/trunk, gastrocnemius/soleus (calves), hamstrings and quadriceps (front of thighs), hip flexors (front of hip) and wrist/forearm. Stretches should be static (no bounce) and held for at least 30 seconds. It is important to stretch after every practice/game.
- Establish a good strengthening program for upper and lower body muscles, including the rotator cuff/shoulder, back/trunk, ankles, quadriceps and hamstrings. Closed-chain activities (feet or hands fixed on a stable surface) are safer and provide greater strength carryover to game play as opposed to open-chain activities (arms and legs moving freely in space). Proper technique of strength training is necessary to prevent overuse injuries.
- Establish activities during practice that will challenge the athlete's balance reactions and body awareness.
- Establish plyometrics/agility drills during practice that includes explosive/burst-like movements (jumping).
- Wear properly fitted, molded and cleated baseball shoes. Batting helmets should be worn at the plate, while waiting a turn to bat and when running bases. Catchers should wear appropriate equipment including, shin guards, a face mask, catcher's helmet and chest/neck protectors. All equipment should be properly fitted and in good condition.
- Tape or brace joints if they are unstable or have a history of repetitive injuries. Address instability with a strengthening program.
- Be proactive in learning the correct baseball techniques.
- Hydrate 30 minutes prior to practice/game and drink a combination of water/sports drinks during activities. Sports drinks are only recommended if practice/game lasts longer than one and a half hours.
- Pitchers should not over pitch or pitch through pain or fatigue. They should observe the proper number of rest days between games.

## preseason conditioning programs

A progressive conditioning program with emphasis on aerobic and muscular fitness training should be implemented at least two to four weeks prior to the season to address flexibility, strength, balance/coordination, endurance, agility and baseball-specific techniques. Be proactive in learning the correct baseball techniques, especially throwing and hitting.

## warm-up guidelines

Research shows that cold muscles are more prone to injury, always take time to warm-up and stretch. A comprehensive warm-up will take approximately 30 minutes.

- Start with five minutes of light aerobic activity, including jogging or jumping jacks, to gradually raise the heart rate and increase blood flow to muscles.
- Spend at least 15 minutes stretching, following the guidelines listed above.
- Spend ten minutes throwing, starting with short, light tosses building up to longer and harder throws. Start out throwing half speed, then three-quarters speed and finish by throwing a couple of throws at full-speed.



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# pitches and rest day guidelines

Maximum pitches per game and per week			
Age	Max pitches per game	Max pitches per week	Max pitches per season
8-10	50	80-100	650
11-12	60	110-120	
13-14	70	130-140	
15-16	80	150-160	
17-18	106	150-160	

*from American Sports Medicine Institute 2009*

Maximum pitches per day and rest days		
Age	Pitches per day	Number of rest days
15-16	61 or more	4
	41-60	3
	21-40	2
	1-20	1
17-18	76 or more	4
	51-75	3
	26-50	2
	1-25	1

*from Little League International 2006*

Pitch	Age that pitch is safe
Fastball	8
Change-up	10
Curve ball	14
Knuckle ball	15
Slider	16
Screwball	17

*from Contemporary Pediatrics 2004*



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