

America's Pastime

Prevention and treatment of overuse injuries in baseball and softball

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This is the second of a two-part article discussing baseball and softball overuse injuries. To better understand the discussion which follows, please read Part I which describes the nature of these injuries.

Many softball and baseball injuries can be prevented through appropriate conditioning and proper coaching that focuses on pitching, throwing, sliding and fielding techniques, avoiding pitched balls while batting, and using equipment safely.¹ In addition, allowing the body adequate time for recovery from the stresses of playing allows tissues to rebuild and strengthen.² Another concept is "prehabilitation" where a physician examines a player to identify weaknesses and flexibility deficits before the season so that preventive exercise and conditioning can begin before injury occurs.¹

Anyone who is over 40, diabetic, a smoker, or has any physical disability should see a family physician before starting to play softball or baseball.^{3,4}

General Overuse Injury Prevention Guidelines:

- Begin new activities or resume old ones with moderation.⁶ Overuse injuries occur when an athlete performs too much, too soon by increasing the volume, duration and/or intensity of activity too quickly. This does not permit adequate recovery time or allow tissues to adapt to a new activity level.²
- Participate in a comprehensive pre-season conditioning program to develop flexibility, endurance and strength.⁵ Those ball players who live near Rockville, Maryland, will be able to use Velocity Sports Performance, a new sports conditioning center that will open in September. This 15,000 square foot, climate controlled building offers a Digital Video Functional Motion Analysis System that analyzes sports movement for any sport and training equipment for conditioning programs, in addition to sports chiropractic, therapy, and massage services.⁸ It is owned and operated by sports chiropractor Steven Horowitz and physical therapist, Samantha Horowitz.
- Warm up with cardiovascular exercise at 60-80% of maximum heart rate.^{3,5,6,7} 10-15 minutes of stationary cycling, running, walking or playing catch is sufficient.
- Consider working with a coach to improve your pitching techniques or batting stance to prevent improper techniques from becoming habits.^{5,6}
- Don't play if you're in pain. Rest and ice can often help. If pain persists, have the injury examined by a professional.⁶ Too often, efforts to control inflammation relieve pain and a player prematurely returns to participation before healing is complete. Consequently, the player is reinjured.^{1,2} Adequate treatment and full rehabilitation should be completed before resuming play.⁵

- Facilitate tissue repair between games with rest and body therapy, if needed.

Shoulder and elbow injury prevention and treatment.

Injury prevention measures should include strengthening of the shoulder and elbow muscles, 10-15 minutes of cardiovascular warm-up at 60-80% of maximum heart rate prior to playing, and endurance conditioning of the shoulder and elbow muscles to enable throwing repeatedly throughout a game, especially for pitchers.¹⁰

Care must be taken when engaging in stretching exercises to prevent injury. Since pitchers put tremendous stress on the anterior structures of the shoulder, stretching of these tissues should be avoided. Also, stretching of the elbow should be approached cautiously since many throwers and most pitchers have some permanent flexion contracture that will be aggravated with arm extension during stretching.¹⁰ Forceful stretching may result in loose bodies within the joint by breaking off some of the bony growth within the joint.¹⁰

Coaches should limit the number of pitches per week for each player, make rest periods between pitching mandatory, and teach proper pitching techniques.⁵ 80 to 100 pitches per game maximum, 4 to 10 innings, and 30 to 40 pitches in a practice are reasonable guidelines.^{7,9} It is best not to pitch more than one softball game per day or on consecutive days, and rest adequately between pitching engagements.¹⁰

Pitchers experiencing pain in the windup should take a few days off before returning to the mound.³

Treatment of shoulder and elbow injuries involves reducing inflammation, relative rest from aggravating activities, and rehabilitation of the injured musculotendinous structures.¹⁰ Rehabilitation should begin with range-of-motion exercises and progress to strengthening, endurance exercises, and coordination training.

It is critical for the athlete to work with the physician, therapist, and coach to address problems with throwing techniques and biomechanics.¹⁰ It is often difficult to determine if a thrower's mechanics are poor due to compensation for an inherent weakness, or whether the poor throwing mechanics lead to weakness, fatigue and injury.¹⁰ For this reason, the health professional and coach should work together to assess the causality.

It is extremely important to identify any underlying pathology and instabilities and to correct them to prevent further injuries.¹⁰ Full-thickness rotator cuff tears are generally seen only in players over 40 years of age and they usually require surgery to correct.¹⁰

Glenohumeral instability is often the underlying pathology in throwers (mis)diagnosed with impingement or tendinitis. If the instability is recognized early and rehabilitation is applied, approximately 95% of athletes can return to their prior level or play without surgery.¹⁰

In the case of nerve impingement, treatment involves identification of the cause of impingement and treatment of this cause. Strengthening of the rotator cuff muscles should be a first step in treatment, however labral injuries which interfere with throwing are usually treated surgically.^{10,11}

Lower body and back injury prevention and treatment.

Ankles and Feet. Players unfamiliar with wearing cleats or spikes should wear them on a limited basis until they get used to the feel of how they engage the turf.³ If they cause any pain,

discontinue wearing them for two to three days. If problems continue, see a podiatrist specializing in sports.³

Catchers should alter their stance frequently to vary their weight displacement to avoid injuries to their ankles and feet.³

Plantar fasciitis. Catchers are prone to arch pain and plantar fasciitis. A podiatrist can evaluate the problem and may prescribe customized shoe inserts (orthoses) to help alleviate the pain.³ Proper warm-up and use of supportive shoes can reduce strain to the ligament.³

Achilles tendons. Adequate warm-up before, and stretching of the calf muscles after the game will help minimize pain and stiffness.³

Gastocnemious-soleus complex and Hamstring muscle group. Pre-game cardiovascular warm-up for 10-15 minutes is crucial for preventing injuries to these muscle groups.

Low back injuries. Incorporate trunk-stabilization exercises into your conditioning program.¹⁰

This article and all of our articles are intended for your information and education. We are not experts in the diagnosis and treatment of specific medical or mental problems. When dealing with a severe problem, please consult with a healthcare or mental health professional and research the alternatives available for your particular diagnosis prior to embarking on a treatment plan. You are ultimately responsible for your own health and treatment!

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