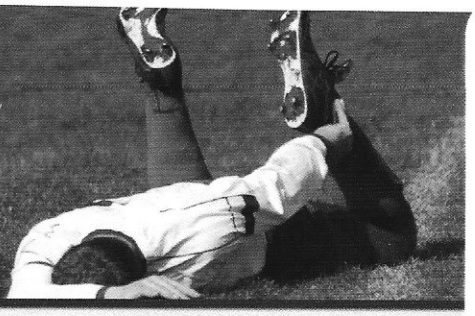


8 Areas To Examine When A Player Is Injured

• PULSE • RESPIRATION • TEMPERATURE AND SKIN
• SKIN COLOR • PUPIL SIZE • MOVEMENT ABILITY
• PAIN REACTION • LEVEL OF CONSCIOUSNESS

Pulse

Normal Range: 60-80 beats per minute in children;
80-100 beats per minute in adults

- A rapid, weak pulse indicates SHOCK
- Absence of a pulse indicates CARDIAC ARREST

Please note that athletes may have slower pulses than the typical population because of the effects of training.

Respiration

Normal: 12-20 breaths per minute in children;
13-17 breaths per minute in adults

- Shallow breathing indicates shock
- Irregular or gasping indicates there is an air obstruction
- Frothy blood from the mouth indicates a chest injury

Temperature and Skin Reaction

Normal Temperature: 98.6 F

- Temperature changes are caused by disease or trauma

Skin
- Infection: Hot, dry skin
- Shock: Cool, clammy skin

Skin Color

Red	White	Blue
Lack of Oxygen	*Shock*	*Air not being carried adequately*
Heat Stroke	*Heart Disease*	*Airway Obstruction*
High Blood Pressure		

Pupil Size

Injuries can alter the size of pupils:

- Dilated Pupils: May indicate an unconscious athlete
- Unequal Pupils: May indicate neurological problems

However, some people naturally have unequal pupils. If so, it should be noted during a pre-season screening.

Movement Ability

Inability to move a muscle part may indicate a serious Central Nervous System (CNS) injury.

Pain Reaction

Pain or lack of pain can assist the athletic trainer in making a judgment:

- Immovable body part with severe pain, numbness or tingling indicates a CNS injury
- Injury that is extremely painful, but not sensitive to touch may indicate a lack of circulation

Level of Consciousness

Is the injured individual alert and aware? Use the AVPU scale:

Alert: Evaluate the level of alertness

Verbal: Is the person able to respond verbally?

Pain: What is the response to pain?

Unresponsive: The patient does not respond to eye, voice, motor or pain stimulus

National ALLIANCE For Youth Sports

Developed by Karen M. Lew, MEd., ATC, LAT
for the National Alliance for Youth Sports

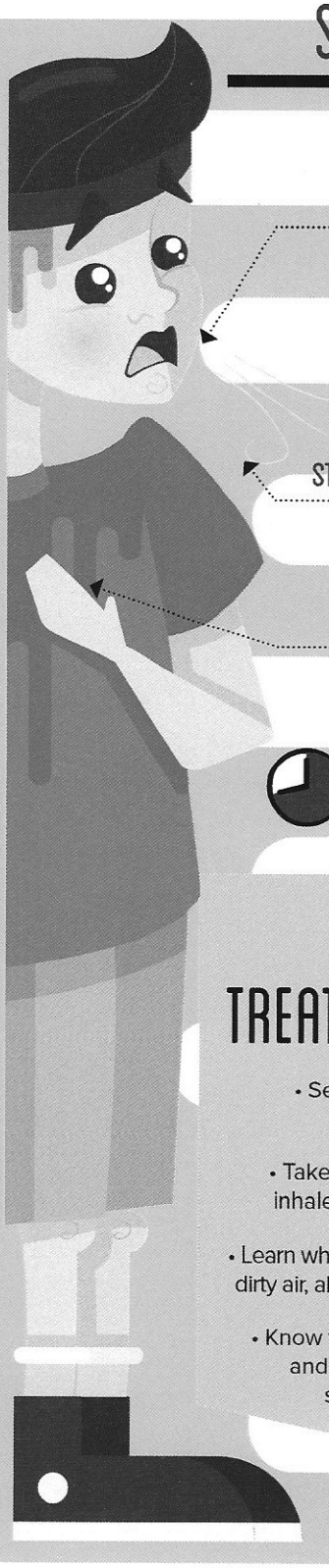
VCD-EILO VS. ASTHMA

Understand the difference between Vocal Cord Dysfunction-Exercise Induced Laryngeal Obstruction and Asthma

VCD-EILO SYMPTOMS

- BREATHING SOUNDS HIGH PITCHED, GRATING
- STRUGGLE WITH INHALATION
- TIGHTNESS IN THE THROAT
- RAPID ONSET, RAPID RECOVERY

ASTHMA SYMPTOMS



- BREATHING SOUNDS LIKE WHEEZING
- STRUGGLE WITH EXHALATION
- TIGHTNESS IN THE CHEST
- GRADUAL ONSET, GRADUAL RECOVERY

TREATMENT OPTIONS

- See a speech language pathologist
- Adjust breathing from mouth breathing to nasal or shared breathing
- Practice diaphragmatic breathing and relaxation exercise
- Practice breathing-recovery exercises to stop attack from turning into full episode

TREATMENT OPTIONS

- See a physician, allergist or immunologist
- Take medication – such as an inhaler or pills – as prescribed
- Learn what your triggers are – exercise, dirty air, allergies, etc. – and avoid them
- Know the early signs of an attack and stop exercising before symptoms progress

Sources: American College of Sports Medicine, Ithaca College, NATA

WHAT TO KNOW ABOUT

DENTAL INJURIES

Athletes who don't wear mouthguards are

1.6 - 1.9 TIMES

more likely to sustain an oral or dental injury.

Treatment of dental and oral injuries can cost upwards of

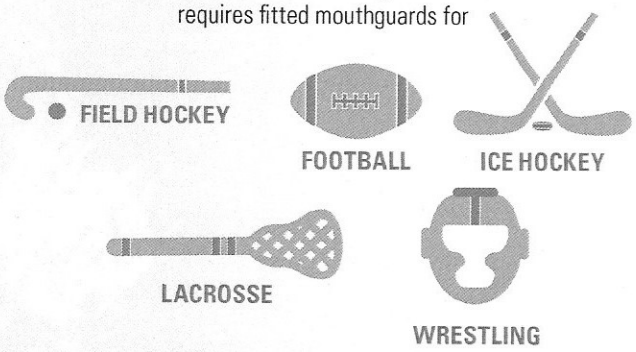
$15,000

over an individual's lifetime.

APPROXIMATELY 39%

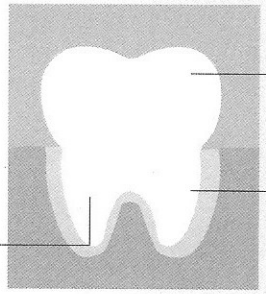
of dental injuries in the United States are sports related.

The National Federation of State High School Associations requires fitted mouthguards for



Mouthguards are only mandatory for wrestling if the athlete wears braces or an orthodontic device.

DENTAL INJURIES FALL INTO THREE CATEGORIES:



A PROPERLY FITTED MOUTHGUARD CAN PROTECT by splinting the teeth and dissipating energy.

THE NATIONAL COLLEGIATE ATHLETIC ASSOCIATION REQUIRES FITTED MOUTHGUARDS FOR FIELD HOCKEY, FOOTBALL, ICE HOCKEY AND LACROSSE.

WEARING A MOUTHGUARD WILL NOT AFFECT AN ATHLETE'S ABILITY TO BREATHE.

IF YOU SUSPECT A **DENTAL OR ORAL INJURY**

REPORT ANY DENTAL INJURIES TO YOUR ATHLETIC TRAINER, TEAM PHYSICIAN OR HEALTH CARE PROVIDER IMMEDIATELY.

ATHLETES SHOULD WEAR A MOUTHGUARD when participating in sports, even if it's not required.

A TOOTH COMPLETELY REMOVED FROM THE SOCKET should be re-planted within 5-10 minutes or submerged in a storage medium, such as low-fat milk, until it can be replanted by a medical expert.

MOUTHGUARD CARE TIPS

CLEAN YOUR MOUTHGUARD with lukewarm water and a mild antimicrobial agent before and after use.

STORE YOUR MOUTHGUARD in a clean, rigid, ventilated plastic container.

DON'T EXPOSE YOUR MOUTHGUARD TO HEAT sources or direct sunlight for long periods of time.

EXAMINE YOUR MOUTHGUARD DAILY for fit and any damage, such as tears or loss of resiliency.

REPLACE YOUR MOUTHGUARD if it is damaged or becomes loose.

Source: National Athletic Trainers' Association Inforgraphic provided by the National Athletic Trainers' Association

CONCUSSION 101

WITH MORE ATTENTION BEING PAID TO CONCUSSIONS, they're no longer being thought of as simple "bumps on the head" or "bell-ringers." Help keep young athletes protected by better understanding the symptoms, treatment and prevention of concussions.

- A concussion is defined as a "trauma-induced alteration in mental status that may or may not involve loss of consciousness."
- This can be caused by a bump, blow or jolt to the head or by a hit to the body that causes the head and brain to move quickly back and forth.
- Concussion signs and symptoms can appear immediately or not be noticed until days or even weeks after the injury.

HOW TO REMAIN SAFE ON THE FIELD

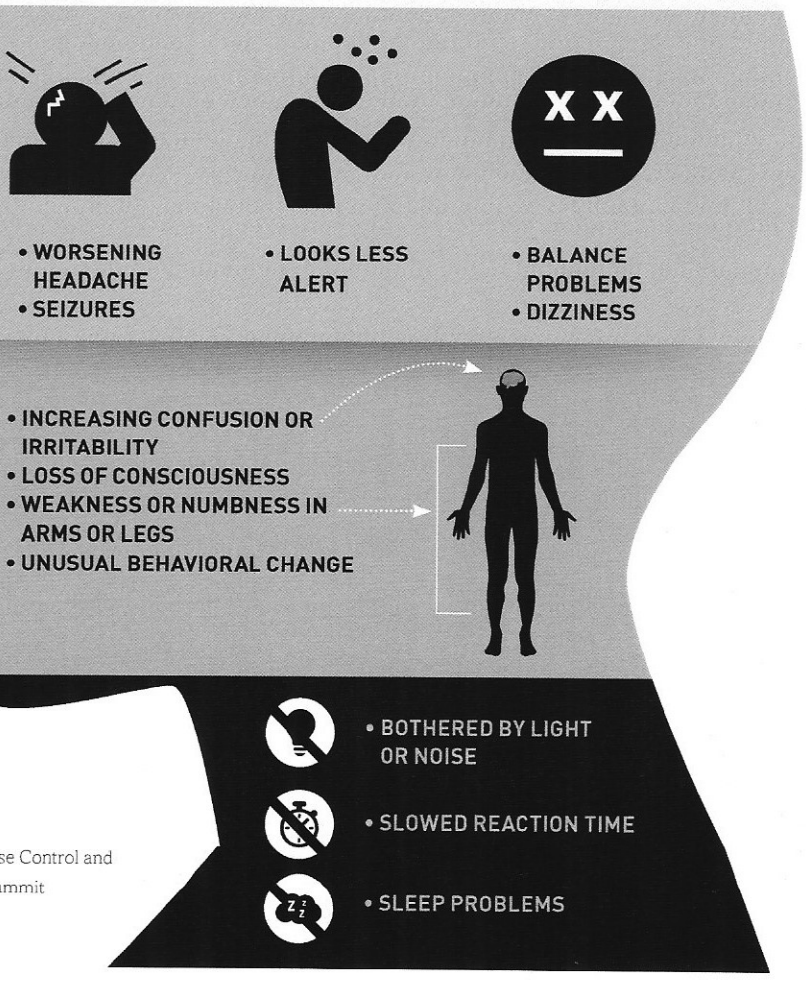
- Make sure all helmets and safety equipment are sport specific, properly fitted and refurbished according to industry standards.
- Follow sports safety rules and use proper techniques.
- Practice good sportsmanship.

YOU HAVE A CONCUSSION – NOW WHAT?

- **Report symptoms**: Tell a coach, parent or athletic trainer if you suspect an athlete has a concussion.
- **Get checked out**: Only a health care professional experienced with concussion management can tell if a concussion has occurred and when it is OK to return to play.
- **Get plenty of rest**: Immediately after the concussion is sustained, rest is recommended. This includes keeping a regular sleep routine and avoiding activities that require a lot of concentration.
- **Give time to recover**: It's important to allot time to heal. Another concussion sustained while the brain is healing can result in long-term problems or even death in rare cases.
- **Take it slow at first**: After the physician or athletic trainer gives the OK to return to activity, an athlete shouldn't jump in all at once. The athletic trainer will work with the athlete to develop a safe plan for progressively returning to play.
- **Address concerns**: If there are concerns, don't hesitate to bring them up with a health care provider (athletic trainer, physician, etc.).

KNOWING THE RED FLAGS

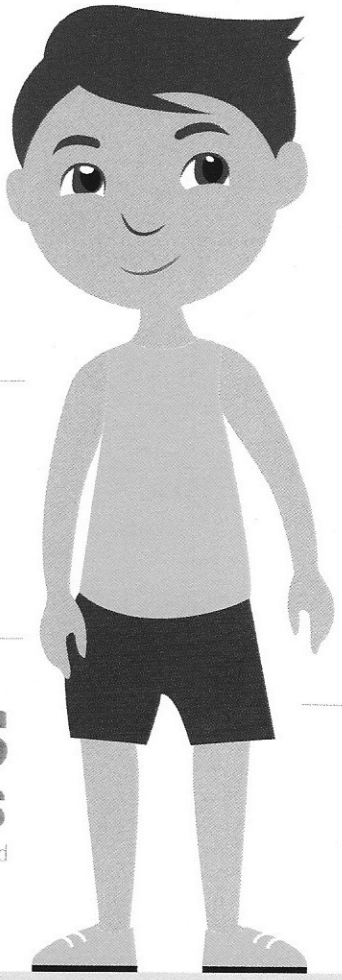
- CAN'T BE AWAKENED
- REPEATED VOMITING
- SLURRED SPEECH
- CAN'T RECOGNIZE PEOPLE OR PLACES



Sources: NATA, Sanford Orthopedic Sports Medicine, Center for Disease Control and Prevention, Heads Up Concussion, Fifth Annual Youth Sports Safety Summit

Illustration by: Thinkstock/ bakhtiar_zein
Infographic courtesy of the National Athletic Trainers' Association

The Risk of Overuse Injuries



OVERUSE INJURIES CAN BE CAUSED BY

training errors, improper technique, excessive sports training, inadequate rest, muscle weakness and imbalances and early specialization.

LONG-TERM CONSEQUENCES INCLUDE

loss of playing time, reduced function and psychological exhaustion.

SYMPTOMS OF OVERUSE INJURIES

tend to be gradual, resulting in athletes going undiagnosed and untreated for longer periods of time.

COMMON OVERUSE INJURIES ARE

general stress, inflammation and tendinitis.

INJURIES TO THE GROWTH PLATE CAN RESULT

from repeated microtrauma, which is microtearing of the muscle fibers and connective tissues.

STRESS FRACTURES

occur when shock that can't be absorbed from fatigued muscles is transferred to the bone.

OVERUSE INJURIES ARE MORE FREQUENT IN

Rowing • baseball • volleyball • cross-country • track and field • other low-contact sports

APPROXIMATELY 50% of all sports-related injuries for pediatric athletes—children ages 6 to 12 and adolescents ages 13 to 18— are due to overuse

Acute overuse injuries occur when there is too much activity, too quickly, while chronic overuse injuries result from repetitive activities over the course of several weeks or months.

WOMEN'S SPORTS, INCLUDING

Field hockey • soccer • cross-country • volleyball

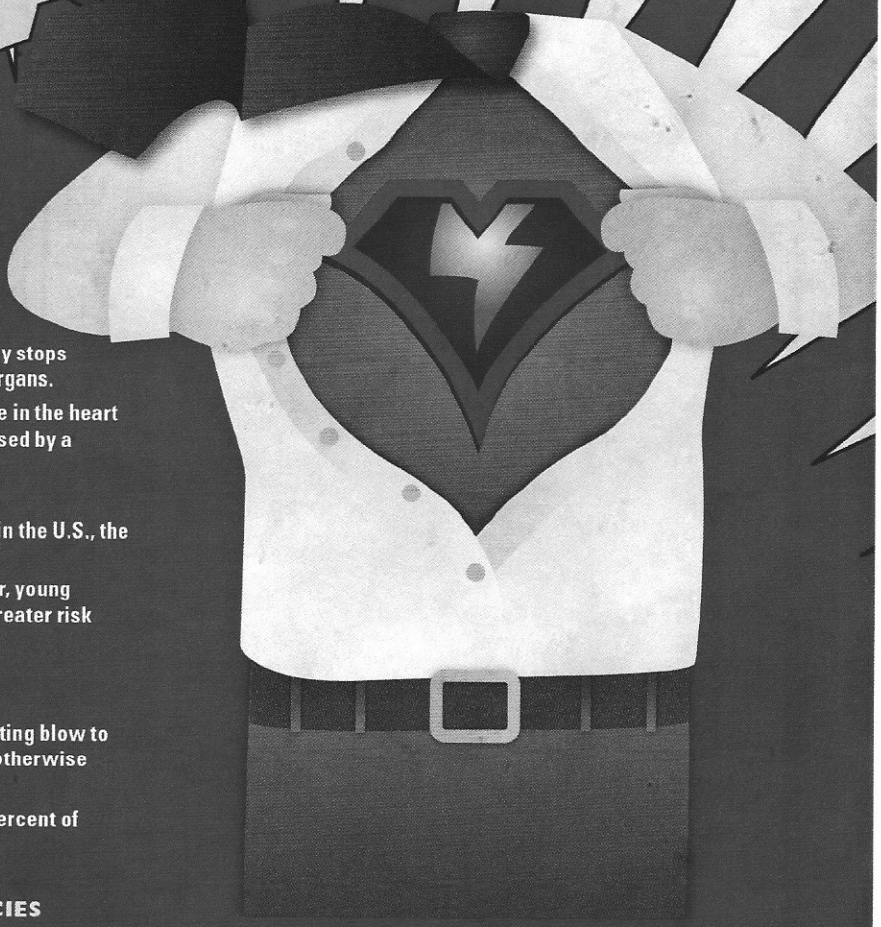
HAVE THE MOST OVERUSE INJURIES

PREVENTING OVERUSE INJURIES

- Avoid specialization and repetitive sport activity at a young age. Athletes who participate in a variety of sports tend to have few injuries and play longer.
- Limit training in one sport to no more than five days a week with at least one day off from any organized physical activity.
- Take time off from one sport for two to three months each year to allow physical injuries to heal, the body to recoup and for the athlete to focus on strength training and conditioning. This is also a psychological break that can help the athlete avoid burnout and overtraining syndrome.
- Pediatric athletes should only play one overhead throwing sport at a time and should avoid playing the same sport year-round. Participation in multiple sports throughout the year provides a wider range of skills as well as rest from repetitive, single-sport activities.
- Although there aren't injury thresholds for specific sports or age ranges, data suggest limiting vigorous physical activity to 16 to 20 hours a week for pediatric athletes.
- Conduct a pre-participation physical exam on an annual basis to detect life-threatening conditions as well as factors that may predispose the athlete to overuse injuries.

Source: National Athletic Trainers' Association, Journal of Athletic Training, American Academy of Pediatrics
Infographic provided by the National Athletic Trainers' Association

MATTERS OF THE HEART



SUDDEN CARDIAC ARREST

- SCA is a condition in which the heart unexpectedly stops beating, halting blood flow to the brain and vital organs.
- SCA is usually caused by an electrical disturbance in the heart that disrupts pumping, while a heart attack is caused by a blockage of blood flow to the heart.
- SCA results in death if not treated within minutes.
- 2,000 patients under age 25 die of SCA every year in the U.S., the Center for Disease Control estimates.
- The cause of SCA in athletes is unknown, however, young athletes with underlying heart conditions are at greater risk during vigorous exercise.

COMMOTIO CORDIS

- Commotio Cordis is caused by a blunt, nonpenetrating blow to the chest. It induces ventricular arrhythmia in an otherwise structurally normal heart.
- Commotio Cordis accounts for approximately 20 percent of sudden cardiac deaths in young athletes.

PREPARING FOR CARDIAC EMERGENCIES

- Schools, clubs and sports facilities should have emergency action plans that include a response plan for SCA events.
- All facilities where sports are played should have automatic external defibrillators (AEDs) within 1-3 minutes.
- Schools, clubs and sports facilities should have someone on staff trained in CPR.
- When CPR is provided and an AED shock is administered within the first 3 to 5 minutes after a collapse, reported survival rates from cardiac arrest are as high as 74%.

SCREENING ATHLETES FOR CARDIOVASCULAR ISSUES

- Athletes should undergo cardiovascular screening before athletic participation.
- A minimum standard of cardiovascular screening should include a comprehensive medical history, family history and physical exam.
- An electrocardiogram (ECG) can help identify underlying cardiac conditions that put athletes at greater risk. However, it's not a universal standard right now because of cost, physician infrastructure and sensitivity and specificity concerns.

SIGNS AND SYMPTOMS OF CARDIAC ARREST IN ATHLETES

MALE ATHLETES	FEMALE ATHLETES
Chest, ear or neck pain	Center chest pain that comes and goes
Severe headache	Lightheadedness
Excessive breathlessness	Shortness of breath with or without discomfort
Vague discomfort	Pressure, squeezing, fullness
Dizziness, palpitations	Nausea, vomiting
Abnormal fatigue	Cold sweat
Indigestion, heartburn	Pain or discomfort in arms, back, neck, jaw or stomach

NOTE: Many young cardiac arrest victims have no symptoms until the cardiac arrest occurs.

Sources: NATA, Korey Stringer Institute, American Heart Association
Infographic provided by the National Athletic Trainers' Association

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