

Heat Injuries

Heat injuries are conditions that occur when players are exposed to a high Heat Index. The Index factors in the effects of both the actual temperature and humidity levels. There are 3 common types of heat illnesses found in athletes:

- **Heat Cramps**
- **Heat Exhaustion**
- **Heatstroke**

Heat illnesses often don't occur in isolation, but rather as a continuum with overlapping symptoms. It is important to recognize symptoms as early as possible and take the necessary steps to avoid progression, since heat stroke can be life-threatening

Heat Cramps:

- Usually occur in the arms, legs or abdominal muscles
- May be associated with profuse sweating
- May occur with poor fluid and salt replacement when exercising in extreme heat

Heat Exhaustion:

Symptoms may include:

- Dehydration; usually severe
- Profuse sweating
- Pallor
- Cold and clammy skin
- Muscle cramps
- Excessive thirst
- Headache
- Nausea and vomiting
- Abdominal cramps
- Fast heart rate
- Dizziness or light headedness, especially with standing

Some Key Points:

Usually severe dehydration is present as well as hyperventilation and lack of coordination and lethargy.

Heat Stroke:

A LIFE THREATENING MEDICAL EMERGENCY!

- Any of the symptoms seen with heat exhaustion
- Core temperature above 103, which may occur with a rapid rise in body temperature (body temperature may be above 106 degrees F)
- Hot, red, dry or damp skin

- Confusion
- Bizarre behavior
- Hallucinations
- Decreased consciousness or unconsciousness
- May no longer show evidence of sweating
- Seizures
- Coma

A Key Point:

While associated with high body temperature, this is not usually easily checked on the playing field

Basic First Aid for Heat Injuries

- Have player stop all activity
- Move to a cool environment (if unable to move to an air-conditioned area, move to the shade)
- Remove helmet and any restrictive clothing
- Provide fluid replacement (heat cramps may need sodium losses replaced)
- Cooling (sponge with cool water)
- Watch for signs of progression

Seek emergency care for any symptoms of heat stroke, any progression of symptoms or if the player does not respond to conservative treatment

Emergency treatment for heat stroke while waiting for emergency medical personnel:

- Move child to cool environment
- Remove helmet and any restrictive clothing
- Provide cool fluids if child is alert enough to drink, but do not force fluid intake
- Cool by any available means including:
 - Spray or sponge with a cool water
 - Applying ice bags to neck, armpits and groin

Prevention of Heat Injuries

- Acclimation
- Make sure the players are adequately hydrated
- Limit, modify or avoid practice in the middle of day or on days of high heat index
- Have children stay out of direct sun when not actively involved in practice
- Build in frequent breaks
- Remove head coverings and other unnecessary equipment and clothing when not needed
- Have a schedule for practice that includes frequent and mandatory water breaks
- Be aware of children who may be at increased risk including children who:
 - are overweight or obese

- have an underlying medical condition
- taking certain medications, such as some of those used for ADHD
- have had a recent illness
- have pre-activity dehydration
- are poorly conditioned
- are not acclimated to the heat
- have had prior heat-related illness
- are sunburned

Some Specific CDC Recommendations:

To prevent HRI, use precautions similar to those provided in this course with the modifications below.

- *Decrease the intensity of activities that last longer than 30 minutes.*
- *Have youth take brief rests if the WBGT is between 73°F and 82°F.*
- *Modify or cancel the activity if the WBGT is greater than 82°F.*

*Note: The **WBGT** is a measure is a measure of the heat stress in direct sunlight which takes in to account: temperature, humidity, wind speed, sung angle and cloud cover.*

Modification could involve longer and more frequent rest breaks than are usually permitted within the rules of the sport.

Encourage players to ingest fluids at least every 15–30 minutes during activity to maintain hydration, even if they are not thirsty)

Additional recommendations include:

- Use appropriate sunscreen
- Encourage wearing loose fitting, light colored clothing
- Start activities slowly and gradually increase the intensity

Some recommendations from the National Trainers’ Association (nata.org)

www.nata.org/sites/default/files/hydration_heat_illness_handout.pdf.

- For the first week or so, hold shorter practices with lighter equipment so players can acclimate to the heat.
- Follow a work-to-rest ratio, such as 10 minute breaks after 40 minutes of exercise

Sources:

CDC

Recognizing, Preventing and Treating Heat-Related Illness

http://www.cdc.gov/nceh/hsb/extreme/Heat_Illness/index.html

CDC

Extreme Heat and Your Health

Heat and Athletes

<http://www.cdc.gov/extremeheat/athletes.html>

CDC

Warning Signs and Symptoms of Heat Related Illnesses

<https://www.cdc.gov/extremeheat/warning.html>

Policy Statement from American Academy of Pediatrics

Climatic Heat Stress and Exercising Children and Adolescents

Reaffirmed February 2015

<http://pediatrics.aappublications.org/content/pediatrics/early/2011/08/04/peds.2011-1664.full.pdf>

Exertional heat illness in adolescents and adult: Epidemiology, thermoregulation, risk factors and diagnosis

UpToDate

https://www.uptodate.com/contents/exertional-heat-illness-in-adolescents-and-adults-epidemiology-thermoregulation-risk-factors-and-diagnosis?source=see_link&ionName=Exertional%20heat%20stroke&anchor=H25338621#H25338621

Exertional heat illness in adolescents and adults: Management and prevention

UpToDate:

https://www.uptodate.com/contents/exertional-heat-illness-in-adolescents-and-adults-management-and-prevention?source=see_link&ionName=Heat%20exhaustion&anchor=H12884557#H12884528

Throwing Injuries

American Sports Medicine Institute and Pitch Smart (mlb.com)

Positions Statement on Youth Baseball Pitchers (Updated January 2017)

Recommendations:

1. Watch and respond to signs of fatigue (such as 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, let him rest from pitching and other throwing.
2. No overhead throwing of any kind for at least 2-3 months per year (4 months is preferred). No competitive baseball pitching for at least 4 months per year.
3. Do not pitch more than 100 innings in games in any calendar year.
4. Follow limits for pitch counts and days' rest.
5. Avoid pitching on multiple teams with overlapping seasons.
6. Avoid pitching on consecutive days.
7. Avoid excessive throwing when not pitching.
8. Avoid throwing curveballs and sliders at a young age
9. Avoid pitching with injuries to other body regions (affects mechanics)
10. Learn good throwing mechanics as soon as possible. The first steps should be to learn, in order: 1) basic throwing, 2) fastball pitching, 3) change-up pitching.
11. Avoid using radar guns.
12. 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.
13. If a pitcher complains of pain in his elbow or shoulder, discontinue pitching until evaluated by a sports medicine physician. Inspire youth pitchers to have fun playing baseball and other sports. Participation and enjoyment of various physical activities will increase the youth's athleticism and interest in sports.

Major League Baseball/Pitch Smart 2017 Recommendations

Pitch Smart recommends the following safety guidelines to decrease the risk of injury to the upper extremity in the growing athlete who participates in youth baseball:

- Follow the guidelines about the number of innings pitched based on the individual's participation, not by the number of teams played on:

AGE	MAX PITCHES IN GAME	0	1	2	3	4
7-8	50	1-20	21-35	36-50	N/A	N/A
9-10	75	1-20	21-35	36-50	51-65	66+
11-12	85	1-20	21-35	36-50	51-65	66+
13-14	95	1-20	21-35	36-50	51-65	66+
15-16	95	1-30	31-45	46-60	61-75	76+

Tournament Recommendations

AGE	MAX PITCHES IN GAME	0	1	2	3	4
7-8	50	1-20	21-35	36+		
9-10	75	1-40	41-65	66+		
11-12	85	1-40	41-65	66+		
13-15	95	1-45	46-75	76+		
16-18	105	1-45	46-75	76+		

- Coaches should educate players to the importance of and techniques for stretching and strengthening the upper extremity. Five-minute stretching after play can help young players avoid throwing-arm pain. Pitchers and catchers under the age of 15 often experience tightness of a shoulder ligament known as the posterior-inferior glenohumeral ligament. If this ligament is not stretched, it will lead to pain or injury of the cuff and/or labrum as a player ages and continues to play baseball.