



**DES MOINES  
ORTHOPAEDIC SURGEONS, P.C.**

**DMOS – West**  
6001 Westown Parkway  
West Des Moines, IA 50266  
515-224-1414  
800-245-6129

**DMOS – East**  
Penn Medical Plaza  
1301 Pennsylvania Ave., Suite 213  
Des Moines, IA 50316  
515-263-9696  
800-688-3980

**DMOS – Carroll**  
405 S. Clark St., Suite 250  
Carroll, IA 51404  
712-792-2093  
877-284-1428

Heat Injury

Barron R.B. Bremner, D.O.  
DMOS

Now that temperatures are soaring, and football practice is right around the corner, preventing heat injury should be on the minds of all athletes, coaches, and parents. Heat injury is a spectrum from simple heat cramps, to heat exhaustion and heat stroke. Prevention and treatment of heat injuries may be intuitive; however there continue to be fatalities from this each year.

Normally, the body cools itself by the evaporation of sweat from the skin. As the water evaporates, the heat energy from the body is released to the environment. There are individual and environmental factors that may predispose one to overheating.

Table 1. Factors predisposing one to heat injury

Overweight and large athletes	Recent alcohol use
Age over 40	Caffeine
Poor fitness	Over the counter and prescription medicine use (TCAs, diuretics, beta blockers, antihistamines and decongestants)
Prior recent heat exposure	Dehydration prior to activity
Dark clothing	
Thick padding and helmets	

Of course, environmental factors play the largest role in injury, and high heat, humidity greater than 60%, and direct sun exposure should alert one to the risk of heat injury.

Heat cramps commonly occur in the legs, stomach and arms, and are treated with rest in the shade, hydration with water and sports drinks, and stretching. Sports drinks contain carbohydrates and sodium, which are needed to replaces the losses from prolonged exercise.

Heat syncope (fainting) and heat exhaustion are also from extreme water and/or salt loss during prolonged exercise. This is more common early in training season before athletes become acclimated. Signs may be altered mental status, core body

temperature up to 104 degrees F (normal 98.6 degrees F), nausea, vomiting, cramping. Treatment should include rest in a shaded area, fans, ice towels, ice baths, and plenty of rest and water/sports drinks.

Heat stroke is defined as a body temperature greater than 104 degrees F and is an emergency. Nausea and vomiting, confusion, and seizures may occur. One should call 911 and institute the same treatment measures as for heat exhaustion. An IV will be started and ice packs should be placed around the groin, armpits, and hand and neck. Immediate transport to the hospital is indicated.

Of course, prevention is the most important part to avoid heat illness, and most coaches and trainers are familiar with these strategies.

Table 2. Prevention of Heat Injury

Consume 24-26 oz water before exercise. Take 8 oz water right before practice and then every 20 minutes Practice in the coolest part of the day, early mornings and evenings Athletes should began exercise in the heat for 7-14 days prior to practice to acclimate to the heat Use light colored clothing, and avoid full pads on hot days Avoid caffeine and alcohol, and check with your doctor about prescription drug use Monitor urine color – it should be nearly clear Use sunscreen
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References: James York MD, Talk entitled, “ Heat Injury – Prevention and Management”. American Academy of Orthopedic Surgeons, “Heat Injury and Heat Exhaustion”

Dr. Bremner’s practice encompasses all areas of orthopaedics. He has special interests in sports medicine, joint replacement, arthroscopic surgery, and trauma. Dr. Bremner office is located at DMOS – East, 1301 Pennsylvania Ave, Suite 213, Des Moines, IA. He also provides satellite clinic services in Ankeny. To schedule an appointment or reach Dr. Bremner please phone 515-266-6363.