SOFT TISSUE INJURY
If your child has suffered an acute injury to a muscle/tendon (strain), ligament (sprain), or other soft tissue, PLEASE follow the basic first aid principle RICE:

- **Rest:** Avoid moving or using the injured body part for a minimum of 48 to 72 hours. However, do not avoid all activity. Even with an ankle sprain, you can exercise other muscles to minimize deconditioning, especially cardiovascular conditioning.
- **Ice:** Use a cold pack, an ice/slush bath, or a compression sleeve filled with cold water to help limit swelling after an injury. Ice the area as soon as possible after the injury and continue to ice it for 15 to 20 minutes, four to eight times a day, for the first 48 to 72 hours or until swelling improves.
- **Compress:** Spiral an elastic/ACE wrap/bandage around the injured site. Apply the wrap with moderate compression. Only remove the wrap to ice the injured body part. Compressive wraps or neoprene sleeves both work.
- **Elevate:** Keep the injured limb above your heart whenever possible to help prevent or limit swelling.

Go to a medical doctor if you experience severe pain or throbbing, numbness, tingling, or experience a loss in sensation to the injured area for more than 20 minutes.

Sprains/Strains can take days to months to recover. As the pain and swelling improve, gently begin using the injured area. You should feel a gradual, progressive improvement.

**Things to remember:**
- If you use a gel pack, ALWAYS place the pack in a pillowcase/towel. NEVER place it directly on the skin!
- Ice can be uncomfortable, burning, aching and create numbness (normal stages of icing).
- Never put heat on an acute injury.

**FLUID REPLACEMENT**
Severe clinical hypohydration and hyperhydration can degrade athletic performance and are potentially fatal.

**Dehydration (Hypohydration)**
A 3 to 4% bodyweight (BW) loss may cause the athlete to exhibit a decrement in athletic performance; this may lead to an increase in cardiovascular stress during exercise. Greater than 1% BW loss can compromise cognitive function, reaction time, short term memory, and mood state. Early signs and symptoms of dehydration include:

- Headache
- Dizziness
- General malaise
- Fatigue
- Physical exhaustion
- Muscle twitching
- Muscle cramping
- Nausea
- Gastrointestinal cramping
- Vomiting
- Heat sensations
- Chills

**Treatment**
- Note: Thirst is not an accurate indicator of fluids loss
- Consume 18-24 ounces of fluid for every pound of body weight lost during activity
- Monitor urine color. Drink freely until re-hydrated or until urine is lighter (lemonade)
- Post Exercise - Increase carbohydrate and electrolytes. Ingesting carbohydrates and protein after exercise provides substantial benefits by restoring muscle glycogen and facilitating muscle recovery
- Severe Cases = IV infusion

**Remember**
- Hydration begins at least 24 hours prior to the sport/activity/performance

**Too much Fluid Consumption - Hypernatremia (hyperhydration)**

“Exercise-associated hypernatremia typically results from ingesting water or hypotonic beverages (including sports drinks) beyond sweat losses.” Significantly low serum sodium levels are identified after activity that exceeds 4 hours in duration. When physically active individuals adequately replace sodium losses and do not consume excess fluids, hypernatremia may be prevented. Early signs and symptoms include:
- Thirst
- General malaise
- Fatigue
- Headache
- Vomiting
- Extremity swelling
- Altered mentation
- Mood changes
- Seizure

**Treatment**
- Seek medical attention immediately

**EXERTIONAL HEAT ILLNESS**

**Signs of Exertional Heat Illness (Mild to Severe)**
- Headache
- Dizziness
- Nausea
- Muscle cramping
- Nausea
- Vomiting
- Diarrhea
- Weakness
- Hot and wet or dry skin
• Increased heart rate
• Decreased blood pressure
• Increased respiratory rate
• Dehydration
• Combativeness

If these symptoms persist or worsen, contact a health care provider (MD) immediately.

TYPES OF EXERTIONAL HEAT ILLNESS
Exercise Associated Muscle Cramps
• “Sudden or sometimes progressively and noticeably evolving, involuntary, painful contractions of skeletal muscle during or after exercise.” 2
• Contributing factors – dehydration, electrolyte imbalances, altered neuromuscular control, fatigue, deconditioned

Treatment
• Re-establish normal hydration status
• Replace sodium loss with a sports drink or other sodium source
• Light stretching, relaxation, and massage of the involved muscle may help acute pain of a muscle cramp
• Ice injured area

Heat Syncope (Orthostatic dizziness)
• “Heat syncope usually occurs during the first 5 days of unaccustomed heat exposure (e.g., during the preseason), before the blood volume expands and cardiovascular adaptations are complete, and in those with heart disease or taking diuretics.” 2

Treatment
• Re-establish normal hydration status
• Replace sodium loss with a sports drink or other sodium source

Heat Exhaustion
• “Heat exhaustion is the inability to effectively exercise in the heat, secondary to a combination of factors, including cardiovascular insufficiency, hypotension, energy depletion, and central fatigue (rectal temperature <104ºF)”2

Treatment
• Remove athlete from play and immediately move to a shaded or air-conditioned area
• Remove excess clothing and equipment
• Cool athlete until rectal temperature is approximately 101°F
• Have athlete lie comfortably with legs propped above heart level
• If athlete is not nauseated, vomiting or experiencing any CNS dysfunction, rehydrate orally with chilled water or sports drink
• If athlete is unable to take oral fluids, implement intravenous infusion of normal saline
• Monitor heart rate, blood pressure, respiratory rate, rectal temperature and CNS status
• Transport to an emergency facility if rapid improvement is not noted with prescribed treatment
• Athlete may not return to sport without MD clearance
• Gradually progress back to sport

**Exertional Heat Stroke**

• Exertional heat stroke is the most severe heat illness. It is characterized by neuropsychiatric impairment and a high core body temperature, typically >105°F

**Treatment**

• Remove clothing/equipment
• Immersion therapy should include constant monitoring of core temperature by rectal thermistor [or thermometer]
• If immersion is not possible, transport immediately
• Alternative cooling strategies should be implemented while waiting for and during transport. These strategies could include: spraying the body with cold water, fans, ice bags or ice over as much of the body as possible and/or cold towels (replace towels frequently)
• Monitor airway, breathing, circulation, core temperature, and CNS status (cognitive, convulsions, orientation, consciousness, etc.) at all times
• Place an intravenous line using normal saline (if appropriate medical staff is available)
• Cease aggressive cooling when core temperature reaches approximately 101°-102°F
• If rapid onsite cooling was administered and rectal temperature has reached approximately 101°-102°F, transport athlete to medical facility for monitoring of possible organ system damage
• Athlete may not return to sport without MD clearance
• Gradual return to sport over a one week time period

**Tips to help re-hydrate and cool your body**

• Remain in a cool environment
• Drink plenty of fluids
• Increase electrolytes (sodium, potassium, chloride, magnesium) preferably through fruits, vegetables, or sports drinks
• Do not skip any meals
• Some athletes may need to add salt to their food to help retain water
• Monitor your weight closely
• Monitor urine level first thing in the morning.
• Urine should be pale (lemonade) in color, not dark (apple juice)

**Resources**

1. Fluid Replacement
2. Exertional Heat Illnesses
3. NATA: Exertional Heat Illness Consensus Statement