

Football Nova Scotia Policy and Procedures Related to Dehydration, and Heat Related Illnesses

Dehydration

General Policy.

Dehydration can compromise athletic performance and increase the risk of exertional heat injury. Various studies by the National Athletic Trainer's Association have shown that athletes do not voluntarily drink sufficient water to prevent dehydration during physical activity. Drinking behavior can be modified by education, increasing accessibility, and optimizing palatability. However, excessive overdrinking should be avoided because it can also compromise physical performance and health. The team has adopted practical recommendations from nationally certified associations and derived from bodies of research regarding fluid replacement for athletes to lessen the risk and prevent the likelihood of dehydration. The policies and procedures for risk prevention require a cooperative effort of educated athletes, coaches, and athletic training staff to ensure the safety of athletes. The prevention procedures presented herein are non-negotiable and the disregard for the prevention of dehydration may result in termination of employment.

Description & Symptoms.

All team staff members working with athletes are responsible for knowing the following symptoms of dehydration:

- Thirst
- Irritability
- General discomfort

Followed by...

- Headache
- Weakness
- Dizziness
- Cramps
- Chills
- Vomiting

- Nausea
- Head or Neck Heat Sensations
- Decreased Performance

Risk Factors.

All team staff members working with athletes are responsible for recognizing the following risk factors for dehydration:

- Extreme heat or cold
- Excessive perspiration
- Inadequate fluid intake
- Bouts of vomiting or diarrhea prior to exercise
- Dark-colored urine
- Alcohol consumption
- Caffeine use
- Barriers to evaporation and specifically, the types of athletic equipment that do not allow water vapor to pass through and inhibit evaporative, convective, and radiant heat loss.
- Athletes who are currently or were recently ill may be at an increased risk
- Athletes with a history of heat illness are at greater risk for recurrent heat illness
- Increased body mass index (thick fat layer or small surface area). For example, obese individuals are at an increased risk because the fat layer decreases heat loss. Also, they are less efficient and therefore have a greater metabolic heat production during exercise. Conversely, muscle-bound individuals have increased metabolic heat production and a lower ratio of surface area to mass, contributing to a decreased ability to dissipate heat.
- Athletes in poor physical condition.
- Athletes wearing excessive or dark-colored clothing or equipment because excessive clothing or equipment decreases the ability to thermoregulate, and dark-colored clothing or equipment may cause a greater absorption of heat from the environment.
- Overzealous athletes because they override the normal behavioral adaptations to heat and decrease the likelihood of subtle cues being recognized
- Athletes with no or minimal physiologic acclimatization to heat
- Athletes who take certain medications or drugs, particularly medications with a dehydrating effect are at an increased risk

Required Preventive Measures

Hydration Protocols.

The Coaches will communicate and coordinate with the training staff frequently and closely to implement a hydration protocol of risk prevention for dehydration that includes the following considerations:

- the athlete's sweat rate
- sport dynamics (i.e. rest breaks, fluid access)
- environmental factors
- acclimatization state of participants
- exercise duration
- exercise intensity
- individual preferences

A proper hydration protocol considers each sport's unique features. Rehydration opportunities are frequent in football so the athlete can consume smaller volumes at a convenient pace based on sweat rate and environmental conditions

Athlete Education.

The team will educate athletes on the effects of dehydration and the factors for risk in seasonally conducted health and awareness sessions implemented by coaches and training staff.

Basic Responsibilities.

Coaches and training staff are to implement the hydration protocol during all practices and games, and adapt it as needed. Further, the team, its coaches and training staff will inform athletes on how to monitor hydration status and assist in hydration efforts by:

- Providing a scale to assist athletes in monitoring weight before, during, and after activity.
- Informing athletes that two pound weight loss represents approximately one quart of fluid loss and for activity up to two hours in duration, most weight loss represents water loss, and that fluid loss should be replaced as soon as possible
- Encouraging athletes to drink as much and as frequently as comfort allows

- Requiring athletes to drink one to two 8 oz. glasses of water in the hour before practice or competition, and continue drinking during activity at intervals of every 15 to 20 minutes
- Ensuring that after activity, the student-athlete will rehydrate with a volume that exceeds the amount lost during the activity
- Fluids for the hydration of athletes must be provided using the optimal oral rehydration solution (water, CHOs, electrolytes) before, during, and after exercise.
- Fluids must be readily available, easily accessible, and the consumption promoted
- When extreme temperatures are present, promotion of fluid intake for student-athletes assumes the highest priority for training staff and coaches. Weather conditions are communicated by the coaches and training staff to athletes prior to the start of each practice and competition.

Practice and Competition Scheduling.

The team, coaches and training staff will encourage event scheduling and rule modifications to minimize the risks associated with exercise in the heat. Practice times, frequency and duration of practices should reflect acknowledgement of extreme heat or cold to reduce the risk of dehydration.

Equipment and Apparel Considerations.

Clothing to be worn at practice and competition will be provided by the team and the color and fabric of that clothing will be lighter, regardless of school colors, for use in extreme heat and promoted by coaches and training staff to mitigate the risk of dehydration. Where sports equipment is worn at practice, it is the responsibility of the coaches and training staff to plan accordingly for the removal of equipment that may change the scope of practice sessions.

Heat-Related Illness

General Policy.

Heat-related illness is inherent to physical activity and its incidence increases with rising ambient temperature and relative humidity. Athletes who begin training in the late summer experience exertional heat-related illness more often than athletes who begin training during the winter and spring. The team is based on recommendations from nationally certified associations and research regarding identification of symptoms and procedures to lessen the risk and prevent the likelihood of heat-related

illness occurring among its athletes. The policies and procedures for risk prevention require a cooperative effort of educated athletes, coaches, and athletic training staff to ensure the safety of athletes. The prevention procedures presented herein are non-negotiable and the disregard for the prevention of heat-related illness may result in termination of employment.

Descriptions & Symptoms

Exercise-Associated Muscle (Heat) Cramps.

Exercise-associated muscle (heat) cramps represent a condition that presents during or after intense exercise sessions as an acute, painful, involuntary muscle contraction. Causes include fluid deficiencies (dehydration), electrolyte imbalances, neuromuscular fatigue, or any combination of these factors.

Heat Syncope.

Heat syncope, or orthostatic dizziness, can occur when a person is exposed to high environmental temperatures. This condition results from peripheral vasodilation, postural pooling of blood, diminished venous return, dehydration, reduction in cardiac output, and/or cerebral ischemia. Heat syncope usually occurs during the first five days of acclimatization, before the blood volume expands, or in persons with heart disease or those taking diuretics. It often occurs after standing for long periods of time, immediately after cessation of activity, or after rapid assumption of upright posture after resting or being seated.

Exercise (Heat) Exhaustion.

Exercise (heat) exhaustion is the inability to continue exercise associated with any combination of heavy sweating, dehydration, sodium loss, and energy depletion. It occurs most frequently in hot, humid conditions. At its worst, it is difficult to distinguish from exertional heat stroke without measuring rectal temperature. Other signs and symptoms include pallor, persistent muscular cramps, urge to defecate, weakness, fainting, dizziness, headache, hyperventilation, nausea, anorexia, diarrhea, decreased urine output, and a body-core temperature that generally ranges between 36C (97F) and 40C (104F).

Exertional Heat Stroke.

Exertional heat stroke is an elevated core temperature (usually 40C [104F]) associated with signs of organ system failure due to hyperthermia. The central nervous system neurologic changes are often the first marker of exertional heat stroke. Exertional heat

stroke occurs when the temperature regulation system is overwhelmed due to excessive endogenous heat production or inhibited heat loss in challenging environmental conditions and can progress to complete thermoregulatory system failure. This condition is life threatening and can be fatal unless promptly recognized and treated. Signs and symptoms include tachycardia, hypotension, sweating (although skin may be wet or dry at the time of collapse), hyperventilation, altered mental status, vomiting, diarrhea, seizures, and coma. The risk of morbidity and mortality is greater the longer a student-athlete's body temperature remains above 41C (106F) and is significantly reduced if body temperature is lowered rapidly.

Exertional Hyponatremia.

Exertional hyponatremia is a relatively rare condition defined as a serum-sodium level less than 130 mmol/L. Low serum-sodium levels usually occur when activity exceeds 4 hours, a student-athlete ingests water or low-solute beverages well beyond sweat losses (also known as water intoxication), and/or a student-athlete's sweat sodium losses are not adequately replaced. The low blood-sodium levels are the result of a combination of excessive fluid intake and inappropriate body water retention in the water-intoxication model and insufficient fluid intake and inadequate sodium replacement in the latter. Ultimately, the intravascular and extracellular fluid has a lower solute load than the intracellular fluids, and water flows into the cells, producing intracellular swelling that causes potentially fatal neurologic and physiologic dysfunction. Affected athletes present with a combination of disorientation, altered mental status, headache, vomiting, lethargy, and swelling of the extremities (hands and feet), pulmonary edema, cerebral edema, and seizures. Exertional hyponatremia can result in death if not treated properly. This condition can be prevented by matching fluid intake with sweat and urine losses and by rehydrating with fluids that contain sufficient sodium.

Symptoms List by Type of Illness.

- a. Exercise-associated muscle (heat) cramps: Dehydration, thirst, sweating, transient muscle cramps, fatigue
- b. Heat syncope: Dehydration, fatigue, tunnel vision, pale or sweaty skin, decreased pulse rate, dizziness, lightheadedness, fainting
- c. Exercise (heat) exhaustion: Normal or elevated body-core temperature, dehydration, dizziness, lightheadedness, syncope, headache, nausea, anorexia, diarrhea, decreased urine output, persistent muscle cramps, pallor, profuse sweating, chills, cool and clammy skin, intestinal cramps, urge to defecate, weakness, hyperventilation

d. Exertional heat stroke: High body-core temperature (.40C [104F]), central nervous system changes, dizziness, drowsiness, irrational behavior, confusion, irritability, emotional instability, hysteria, apathy, aggressiveness, delirium, disorientation, staggering, seizures, loss of consciousness, coma, dehydration, weakness, hot and wet or dry skin, tachycardia (100 to 120 beats per minute), hypotension, hyperventilation, vomiting, diarrhea

e. Exertional hyponatremia: Body-core temperature ,40C (104F), nausea, vomiting, extremity (hands and feet) swelling, low blood-sodium level, progressive headache, confusion, significant mental compromise, lethargy, altered consciousness, apathy, pulmonary edema, cerebral edema, seizures, coma

Risk Factors.

All team staff members working with athletes are responsible for recognizing the following risk factors for heat illnesses:

- Extreme heat and/or humidity
- Excessive perspiration
- Inadequate fluid intake
- Bouts of vomiting or diarrhea prior to exercise
- Dark-colored urine
- Alcohol consumption
- Caffeine use
- Barriers to evaporation. Certain types of athletic equipment do not allow water vapor to pass through and inhibit evaporative, convective, and radiant heat loss.
- Illness. Student- athletes who are currently or were recently ill may be at an increased risk. Some individuals with a history of heat illness are at greater risk for recurrent heat illness
- Increased Body Mass Index. Obese individuals are at an increased risk because the fat layer decreases heat loss. Obese persons are less efficient and have a greater metabolic heat production during exercise. Conversely, muscle-bound individuals have increased metabolic heat production and a lower ratio of surface area to mass, contributing to a decreased ability to dissipate heat.
- Individuals who are untrained are more susceptible to heat illness than are trained athletes.
- Excessive or dark-colored clothing or equipment decreases the ability to thermoregulate, and dark-colored clothing or equipment may cause a greater absorption of heat from the environment

- Overzealous athletes are at a higher risk for heat illness because they override the normal behavioral adaptations to heat and decrease the likelihood of subtle cues being recognized.
- Lack of acclimatization to heat. A student-athlete with no or minimal physiologic acclimatization to hot conditions is at an increased risk.
- Medications and Drugs. Athletes who take certain medications or drugs, particularly medications with a dehydrating effect are at an increased risk

Preventive Measures

Hydration Protocol.

The Team will communicate and coordinate with the team's training staff frequently and closely to implement a hydration protocol of risk prevention for dehydration. All coaches and staff must follow all Preventive Measures for Dehydration as listed in their entirety.

Preparation for Medical Care.

The team will ensure that appropriate medical care is available and that rescue personnel are familiar with exertional heat illness prevention, recognition, and treatment.

Evaluation by Health Care Providers.

The team shall ensure trainers and other health care providers attending practices or events are allowed to evaluate and examine any student-athlete who displays signs or symptoms of heat illness and have the authority to restrict the student-athlete from participating if heat illness is present.

Heat Adaptation.

Coaches and training staff will adapt athletes to exercise in the heat (acclimatization) gradually over 10 to 14 days. This will be accomplished by progressively increasing the intensity and duration of work in the heat with a combination of strenuous interval training and continuous exercise.

Education.

The team and training staff will educate athletes and coaches regarding the prevention, recognition, and treatment of heat illnesses and the risks associated with exercising in hot, humid environmental conditions.

Guidelines.

The team, coaches, and training staff will develop event and practice guidelines for hot, humid weather that anticipate potential problems encountered

Rest Breaks.

Coaches and training staff will plan rest breaks to match the environmental conditions and the intensity of the activity

Clothing Adjustments.

The team, coaches, and training staff will minimize the amount of equipment and clothing worn by the athlete in hot or humid (or both) conditions.

Warm-Up Considerations.

Coaches will minimize warm-up time when feasible, and conduct warm-up sessions in the shade when possible to minimize the radiant heat exposure for athletes.

Adaptation Considerations.

Coaches will allow athletes to practice in shaded areas and use electric or cooling fans to circulate air whenever feasible

Emergency Preparedness.

The team and training staff will have available for use the following supplies on the field, in the locker room, and at various other stations:

- A supply of cool water or sports drinks or both to meet the needs of athletes
- Telephone to communicate with medical personnel and to summon emergency medical transportation if necessary