The University of Vermont Cold Weather Protocol

**Purpose:** This document outlines the UVM Athletic Medicine Department’s policy regarding athletic participation in cold weather. Cold injuries are a common result of prolonged exposure to cold environments during physical activity. Athletic Departments whose teams practice/compete in settings or geographic regions that predispose their student-athletes to cold injury must be aware of the inherent risk to them. Implementation strategies must be used to minimize risks when possible. Individual responses to cold vary physiologically with combinations of cold, wet, and windy conditions. Clothing insulation, exposure time, and other non-environmental factors must be considered, as well. Therefore, this protocol is to be used as a guide in deciding whether UVM athletic teams should practice/compete during cold conditions. The final decision should come from a team approach including the athletic director or designee, certified athletic trainer and coach. In situations where regularly scheduled contests are a factor, the ability to reschedule the contest, change start time, modify overall time of exposure to the student-athletes, and/or willingness of both teams to participate must be considered.

**Prevention of Environmental Cold Injury:**
- Educate athletes and coaches concerning the prevention, recognition, and treatment of cold injury and the risks associated with activity in cold environments.
- Utilize practice and competition guidelines that take into account air temperature and wind speed conditions. (See Wind Chill Chart and Tables attached to protocol)
- Monitor environmental conditions before and during the activity and adjust activities if weather conditions change or degenerate lower than safe level.
- Provide the opportunity for athletes to re-warm during and after activity using external heaters, a warm indoor environment, or the addition of clothing.
- On the field, include water and electrolyte beverages for rehydration as well as warm fluids for possible re-warming purposes, heat packs, blankets, external heaters and cell phone/radio to summon emergency medical transportation.
- Proper layered clothing should be worn and encouraged by staff and coaches:
  * Several layers around the core of the body
  * Long pants designed to insulate. On very cold days, a nylon shell or wind pant can be worn on top of them for additional wind break
  * Long sleeve shirt/sweatshirt/coat designed to insulate and break the wind
  * Gloves
  * Ear protection/Hat (this should be done even when wearing a helmet)
  * Face protection
  * Wicking socks that do not hold moisture inside

**Signs of Cold Stress:** Student-athletes should be instructed on signs of cold stress (wind chill, frostbite and hypothermia). Fatigue, confusion, slurred speech, red or painful extremities, swollen extremities, blurred vision, red watery eyes, dizziness, headache, numbness, tingling of skin and extremities, shivering, uncontrollable shivering, etc....are a few warning signs of cold stress.
The following guidelines can be used in planning activity depending on the wind-chill temperature:

- **30 degF and below**: Be aware of the potential for cold injury and notify appropriate personnel of the potential.
- **25 degF and below**: Provide additional protective clothing, cover as much exposed skin as practical, and provide opportunities and facilities for re-warming.
- **15 degF and below**: Consider modifying activity to limit exposure or to allow more frequent chances to re-warm.
- **0 degF and below**: Consider terminating or rescheduling activity.

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Cold Exposure Policy – Home Events
- UVM Athletic Medicine and/or Athletic Director will check weather at least 3 days prior to game. In the event of anticipated inclement weather, UVM Athletic Medicine and AD or designee will confer to discuss who should contact visiting team to discuss our Cold Exposure Policy, along with discussing a plan of action should the weather be a concern on the day of competition.

- After initial contact is made with visiting team, UVM Athletic Medicine/AD/Designee will check the weather each day leading up to the game to monitor changes. (Weather.com is one reliable source that looks at all areas of importance – wind speed, air temperature, and humidity)

- Temperature (actual or real feel) from 25 - 0 degrees will result in heightened awareness of cold injury and all preventative measures previously mentioned will be put into effect before, during, and after the contest.

- Temperature (actual or real feel) below 0 will result in likely termination of outside contest.

- Athletic Medicine personnel from both teams, Athletic Director or Designee, Officials and Home/Visiting coaching staff will be involved in the decision making process.

Cold Exposure Policy – Away Events
- UVM Athletic Medicine and/or Athletic Director will check the weather at least 3 days prior to game. In the event of anticipated inclement weather, UVM Athletic Medicine/AD will contact the host institution to discuss our cold exposure policy and discuss plan of action should the weather be a concern on the day of competition.

- After initial contact is made with the host institution, UVM Athletic Medicine/AD will check the weather each day leading up to the game to monitor changes. Communication will be maintained with the host institution should any changes occur following initial discussion.

- Temperature (actual or real feel) from 25 – below 0 degrees will result in heightened awareness of cold injury and all preventative measures normally taken at UVM will be recommended to host institution and hopefully put into effect before, during and after the contest.

* It should be noted that this protocol came from much research through the NATA, NCAA and other Division I institutions with similar climates. The protocol is meant to be used as a guideline and may need to be altered in cases where acclimation to the climate has not adequately taken place.
Recognition of Heat Stroke

The ability to rapidly and accurately assess core body temperature and CNS functioning is critical to the proper evaluation of exertional heat stroke. Medical staff should be properly trained and equipped to assess core temperature via rectal thermometer when feasible.

Most critical criteria for determination are, 1) hyperthermic (rectal temperature > 104°F) immediately post-incident and 2) CNS dysfunction (altered consciousness, coma, convulsions, disorientation, irrational behavior, decreased mental acuity, irritability, emotional instability, confusion, hysteria, apathy).

Other possible salient findings include nausea, vomiting, diarrhea, headache, dizziness, weakness, hot and wet or dry skin (important to note that skin may be wet or dry at time of incident), increased heart rate, decreased blood pressure, increased respiratory rate, dehydration, and combativeness.

Aggressive and immediate whole-body cooling is the key to optimizing treatment of exertional heat stroke. The duration and degree of hyperthermia may determine adverse outcomes. If untreated, hyperthermia-induced physiologic changes resulting in fatal consequences may occur within vital organ systems (e.g. muscle, heart, brain, etc....)

Emergency Treatment of Heat Stroke

Immediate whole-body cooling is the best treatment for exertional heat stroke and should be initiated within minutes post-incident. It is recommended to cool first and transport second if onsite rapid cooling is possible. Cooling can be successfully verified by measuring rectal temperature. If onsite cooling is not an option, the athlete should be immediately transferred to the nearest medical facility.

The following procedures are recommended if exertional heat stroke is suspected:

1) Remove clothing and equipment
2) Move athlete immediately to air-conditioned facility or shaded area
3) Cool athlete immediately by:
   A. Place ice bags or ice over as much of body as possible, cover body with cold towels (replace towels frequently), fan body or spray with cold water or
   B. Immerse athlete in tub of cold water
4) Monitor ABCs, core temperature, and CNS (cognitive, convulsions, orientation, consciousness, etc...)
5) Place an intravenous line using normal saline (if appropriate medical staff is available)
6) Cease aggressive cooling when core temperature reaches approximately 101°F; continue to monitor
7) Transport athlete to nearest emergency medical facility
Recognition of Heat Exhaustion

Most critical criteria for determination are 1) athlete has obvious difficulty continuing intense exercise in heat, 2) lack of severe hyperthermia (usually < 104°F), and 3) lack of severe CNS dysfunction. If any CNS dysfunction is present, it will be mild and symptoms will subside quickly with treatment and as activity is discontinued.

Other possible salient findings include physical fatigue/dizziness, dehydration and/or electrolyte depletion, ataxia and coordination problems, syncope, profuse sweating, pallor, headache, nausea, vomiting, diarrhea, stomach/intestinal cramps, persistent muscle cramps, and rapid recovery with treatment.

Emergency Treatment of Heat Exhaustion

The following procedures are recommended if heat exhaustion is suspected:

1) Remove athlete from play and immediately move to an air-conditioned or shaded area
2) Remove excess clothing and equipment
3) Cool athlete
4) Have athlete lie comfortably with legs propped above heart level
5) If athlete is not nauseated, vomiting, or experiencing and CNS dysfunction, rehydrate orally with chilled electrolyted drink or water. If athlete is unable to take oral fluids, implement intravenous line using normal saline (if appropriate medical staff is available).
6) Monitor heart rate, blood pressure, respiratory, core temperature, and CNS status
7) Transport to nearest emergency medical facility if rapid improvement is not noted with prescribed treatment