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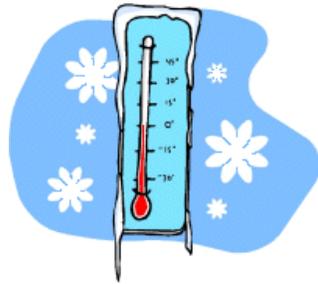
SPORTS MEDICINE MONTHLY

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Surgical & Non-Surgical Care. Sports Medicine. Physical Therapy.

Exercise and Sports in Colder Climates

As the temperatures and the wind chills most commonly seen during an Oklahoma winter don't consistently reach depths where a cold-related injury can occur during athletics, many are usually unfamiliar with what precautions, if any, should be taken when children and youth competitions are held outside during the colder months. As temperatures in Oklahoma have already dropped into the teens in November, information and direction for competition in the cold is certainly helpful to have. Likewise, as many recreational and club teams often travel out of the state, it is important for coaches, administrators, and private athletic organizations and clubs to answer the question of how cold is too cold for athletics.



General Wind-Chill Event Planning Guidelines:

- 30-26 Degrees F: -Awareness, Slight Risk
- 25-16 Degrees F: -Provide Additional Clothing
-Cover as much exposed skin as possible
-Provide opportunities for re-warming
- 15-1 Degrees F: -Modify/Shorten Activity
-Increase opportunities for re-warming
- 0 Degrees or below: -Activity Termination

*Information taken from the
National Athletic Trainers' Association
Position Statement: Environmental Cold Injuries*

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Preventing Cold-Related Injuries

All hypothermia-related injuries and fatalities are preventable. With an understanding of a few simple precautions, coaches, administrators, and youth and recreational teams alike can be better equipped to make scientifically supported decisions on how to best protect themselves during the colder climates.

- #1. All athletes should have a Comprehensive, Physician-Supervised Physical Examination
- #2. Ensure for proper pre-event nutrition and hydration
- #3. Know the wind chill at your venue
- #4. Reference the United States National Weather Service Wind Chill Chart

		Temperature (°F)																	
		40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Wind (mph)	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
	55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98	

Frostbite Times: 30 minutes, 10 minutes, 5 minutes

Wind Chill (°F) = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})
Where: T= Air Temperature (°F) V= Wind Speed (mph) Effective 11/01/01

- #5. Use layered clothing with internal layers that allow for evaporation and minimal absorption
- #6. Be prepared with opportunities for participant re-warming

- Call us first.
- Accepting new patients and all insurance.

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Cold-Related Injuries

With most having a limited familiarity on how a cold-related injury or illness may present, many may not be aware of the common signs and symptoms that occur with cold-related injuries. Therefore, with normal core temperature set at 98.6 degrees Fahrenheit:

Mild Hypothermia:

- Core Temperature < 98.6 but > 95 degrees
- Fine Motor skill impairment
- Lethargy, Apathy, Mild Amnesia

Moderate Hypothermia:

- Core Temperature < 95 but > 90 degrees
- Cessation of Shivering
- Very cold skin upon palpation
- Gross motor skill impairment
- Impaired Mental function

Superficial Frostbite:

- Redness
- Swelling
- Gray Skin Appearance
- Stiffness, tingling, or burning sensation



Deep Frostbite:

- Swelling
- Mottled or Gray Skin
- Skin that feels hard and does not rebound
- Numbness or anesthesia
- Blister-like vesicles

Early recognition of cold-related injuries directly correlates to an improved overall patient outcome. Much like the hotter months of the year, in spite of the intensity of any athletic event and the focus that must be given to competition and coaching, always make a cognizant effort to be on the look out for signs and symptoms that your athletes could be struggling with any environmental related injury.

First-Aid Treatment

Mild Hypothermia:

- Removal from the environment
- Removal of any damp or wet clothing
- Insulation via warm, dry clothing or blankets
- Head Covering
- Heat can be applied **to the core only** if available

Moderate Hypothermia:

- In addition to treatments mentioned for mild hypothermia, the patient should be transported to a physician or emergency facility during re-warming

Superficial Frostbite:

- Removal of any opportunity and likelihood for refreezing
- Very Gradual Re-warming via:
 - *Room Temperature
 - *Direct skin to skin contact, without friction
 - *Warm water can be used, but it should not exceed 98 degrees Fahrenheit

Deep Frostbite:

- Removal of any opportunity and likelihood for refreezing
- In addition to those treatments discussed for superficial frostbite:
 - *Removal of any constrictive clothing
 - *Immersion in a warm water bath (98-104 degrees Fahrenheit) that is gently circulated
 - *Consultation with a medical professional

When preparing for events in colder climates, you can always review these guidelines, signs and symptoms, and general treatment parameters free of charge in the newsletter archive on our website.

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