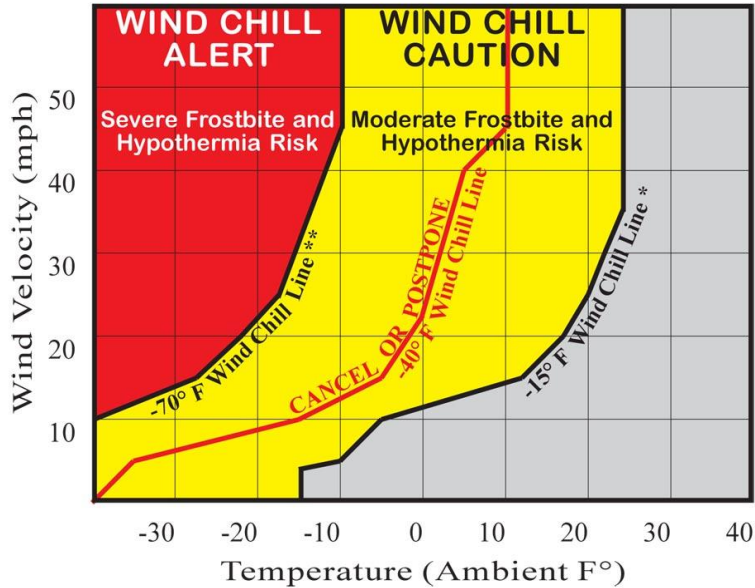


PART 2 – COMPETITION INDEX FOR COLD



CANCEL OR POSTPONE:

- Competition >1 minute duration at -4°F
- All Activity at -20°F for or at -40° Wind Chill

NOTES:

- * -15°F or greater Wind Chill – Exposed flesh can freeze in 1 minute
- ** -70°F or greater Wind Chill – Exposed flesh can freeze in less than 30 seconds

CURRENT STANDARD FOR ALPINE SKIING

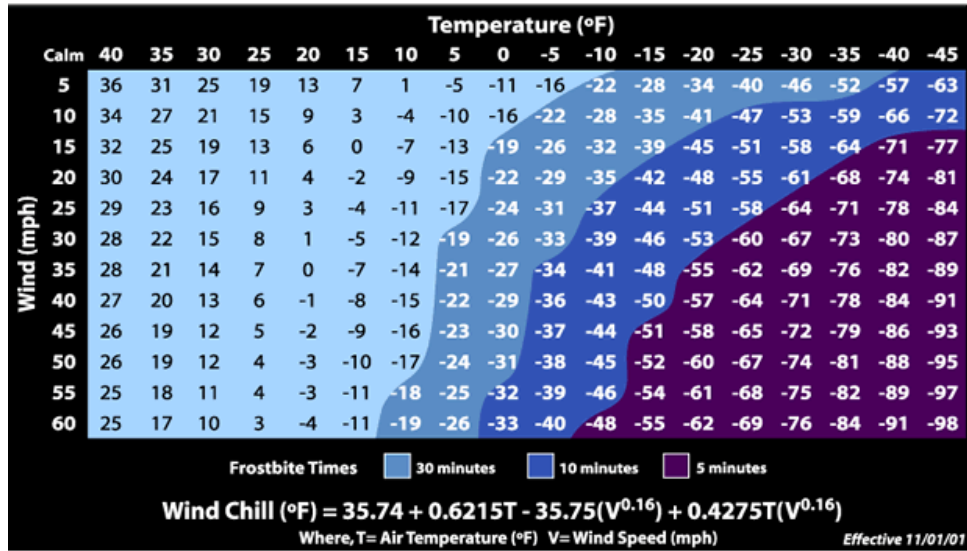
>-4 °F Ambient Temperature	Check for frostbite on exposed skin.
-4 °F to -10 °F Ambient Temperature	Severe frostbite and hypothermia risk. No metal jewelry. Eye protection for frostbite. Windscreen for genitalia. Modify pre race protocol to limit athletes' cold exposure to <30 minutes in duration total time.
< -10 °F Ambient Temperature or -40 °F wind chill	Lower limit for practice and training. Extreme frostbite and hypothermia risk. No exposed skin. Attempt to reschedule event. If competition cannot be rescheduled, a no strip rule will be enforced with all competitors wearing extra layers that include a wind shell for entire body. Modify pre race protocol to limit athletes' cold exposure to <20 minutes in duration total time.
< -40 degrees F wind chill	Postpone/cancel competition

CURRENT STANDARD FOR NORDIC SKIING

<-4 °F Ambient Temperature	FIS* - No competition limit. Severe frostbite and hypothermia risk. No metal jewelry. Eye protection for frostbite. Windscreen for genitalia.
< -20 °F Ambient Temperature or < -40 °F wind chill	Lower limit for practice and training. Extreme frostbite and hypothermia risk. No exposed skin. Wear extra layers. Wind shell for entire body.



NWS Windchill Chart



* FIS = Federation Internationale de Ski (Adapted from reference 2 and the FIS rules)

PART 3 – COMPETITION AND PRACTICE INDEX FOR HEAT

Minnesota North and South Region Activity and Rest Break Guidelines

Normal Activities: Provide at least 3 separate rest breaks each hour with a minimum duration of 3 minutes each during the workout.

Use discretion for intense or prolonged exercise; watch at-risk players carefully. Provide at least 3 separate rest breaks each hour with a minimum duration of 4 minutes each.

Maximum practice time is 2 hours:

For Football: players are restricted to helmet, shoulder pads, and shorts during practice. If the WBGT rises to this level during practice, players may continue to work out wearing football pants without changing to shorts.

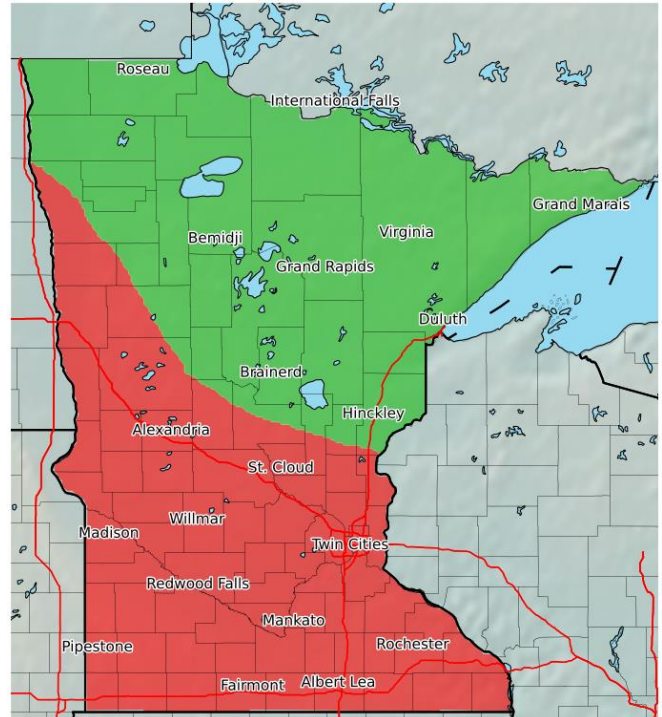
For All Sports: Provide at least 4 separate rest breaks each hour with a minimum duration of 4 minutes each.

Maximum practice time is 1 hour:

For Football: no protective equipment may be worn during practice, and there may be no conditioning activities.

For All Sports: There must be 20 minutes of rest breaks distributed throughout the hour of practice.

No outdoor workouts. Delay practice until a cooler WBGT level is reached.



Activity Modification Chart

WBGT** Range (°F)	Practice Recommendation	All Sports Changes	Additional Football Changes
South < 77.1 North <73.5	Normal Activities	Provide at least 3 separate rest breaks each hour with a minimum duration of 3 minutes each during the workout.	
South 77.1 - 82 North 73.5 – 78.4	Caution for intense or prolonged exercise	Watch at-risk players carefully. Provide at least 3 separate rest breaks each hour with a minimum duration of 4 minutes each.	
South 82.1 - 85 North 78.5 – 81.4	Maximum practice time is 2 hours	Provide at least 4 separate rest breaks each hour with a minimum duration of 4 minutes each.	Players are restricted to helmet, shoulder pads, and shorts during practice. If the WBGT rises to this level during practice, players may continue to work out wearing football pants without changing to shorts.
South 85.1 – 87.1 North 81.5 – 83.5	Maximum practice time is 1 hour	20 minutes of rest breaks distributed throughout the hour of practice.	No protective equipment may be worn during practice, and there may be no conditioning activities.
South >87.1 North >83.5	No outdoor workouts or non-air conditioned indoor workouts	Delay practice until a cooler WBGT level is reached.	

Wet Bulb Globe Temperature (WBGT) from Temperature and Relative Humidity

		Temperature (°C)																														
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Relative Humidity (%)	0	15	16	16	17	18	18	19	19	20	20	21	22	22	23	23	24	24	25	25	26	27	27	28	28	29	29	30	31	31	32	32
	5	16	16	17	18	18	19	19	20	21	21	22	22	23	24	24	25	26	26	27	27	28	29	29	30	31	31	32	33	33	34	35
	10	16	17	17	18	19	19	20	21	21	22	23	23	24	25	25	26	27	27	28	29	30	30	31	32	32	33	34	35	36	36	37
	15	17	17	18	19	19	20	21	21	22	23	23	24	25	26	26	27	28	29	29	30	31	32	33	33	34	35	36	37	38	39	
	20	17	18	18	19	20	21	21	22	23	24	24	25	26	27	27	28	29	30	31	32	32	33	34	35	36	37	38	39			
	25	18	18	19	20	20	21	22	23	24	24	25	26	27	28	28	29	30	31	32	33	34	35	36	37	38	39					
	30	18	19	20	20	21	22	23	23	24	25	26	27	28	29	29	30	31	32	33	34	35	36	37	39							
	35	18	19	20	21	22	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39								
	40	19	20	21	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39									
	45	19	20	21	22	23	24	25	26	27	27	28	29	30	32	33	34	35	36	37	38											
	50	20	21	22	23	23	24	25	26	27	28	29	30	31	33	34	35	36	37	39												
	55	20	21	22	23	24	25	26	27	28	29	30	31	32	34	35	36	37	38													
	60	21	22	23	24	25	26	27	28	29	30	31	32	33	35	36	37	38														
	65	21	22	23	24	25	26	27	28	29	31	32	33	34	36	37	38															
	70	22	23	24	25	26	27	28	29	30	31	33	34	35	36	38	39															
	75	22	23	24	25	26	27	29	30	31	32	33	35	36	37	39																
80	23	24	25	26	27	28	29	30	32	33	34	36	37	38																		
85	23	24	25	26	28	29	30	31	32	34	35	37	38	39																		
90	24	25	26	27	28	29	31	32	33	35	36	37	39																			
95	24	25	26	27	29	30	31	33	34	35	37	38																				
100	24	26	27	28	29	31	32	33	35	36	38	39																				

Note: This table is compiled from an approximate formula which only depends on temperature and humidity. The formula is valid for full sunshine and a light wind

Using the heat guidelines

The heat stress graph is designed to give a competition safety estimate in hot, humid conditions. It is most relevant for long distance running and prolonged high intensity events like soccer, football, and tennis. The ranges also apply to indoor activities when there is no air conditioning in the practice or competition facility. It should be applied to practices and games.

Using a weather radio or local radio station, collect the air temperature and relative humidity data every hour during the event and plot it on the relative humidity vs air temperature chart.

The decision to cancel or postpone an event should be made when the heat stress moves into the danger range.

Although competition can be continued in the other ranges for increased heat stress risk, coaches and athletes should be aware that exertional heat stroke can occur in the lower risk ranges. Track and cross country runners should stay out of the heat between events and stay well hydrated. A rest break should be provided in activities that require continuous activity like soccer and tennis.

[High-resolution printable color version of Heat/Cold Indexes](#)
[High-resolution printable grayscale version of Heat/Cold Indexes](#)

** WBGT = Wet Bulb Globe Temperature = 0.7 (Wet Bulb Temperature) + 0.2 (Black Globe Temperature) + 0.1 (Ambient Temperature)