

WBGT Reference Guidelines

The Kestrel 5400 is preloaded with the following WBGT guidelines. These guidelines are provided for reference only. **YOU ARE RESPONSIBLE FOR SELECTING GUIDELINES SUITABLE TO YOUR ACTIVITY, ENVIRONMENT AND PARTICIPANTS.**

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TB Med 507

Heat Category	WBGT ^{6,7} Index (°F)	Easy Work (250 W)	Moderate Work (425 W)	Hard Work (600 W)
1 WHITE	78-81.9	No Limit on Work, ½ qt water/hour	No limit on work, ¾ qt water/hour	40/20 Work/ Rest ratio, ¾ qt water/hour
2 GREEN	82-84.9	No limit on work, ½ qt water/hour	50/10 work/ rest ratio, ¾ qt water/hour	30/30 min work/rest ratio, 1 qt water/hour
3 YELLOW	85-87.9	No limit on work, ¾ qt water/hour	40/20 Work/ Rest ratio, ¾ qt water/hour	30/30 min work/rest ratio, 1 qt water/hour
4 ORANGE	88-89.9	No limit on work, ¾ qt water/hour	30/30 work/ rest ratio, ¾ qt water/hour	20/40 work/ rest ratio, 1 qt water/hour
5 BLACK	>90	50/10 work/ rest ratio, 1 qt water/hour	20/40 work/ rest ratio, 1 qt water/hour	10/50 work/ rest ratio, 1 qt water/hour

TB Med 507 Notes

- » The work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified heat category. Fluid needs can vary based on individual differences (±1/4 qt/hr) and exposure to full sun or full shade (±1/4 qt/hr).
- » **No limit:** No limit equals no limit to work time per hour (up to 4 continuous hours).
- » Rest means minimal physical activity (sitting or standing), accomplished in shade if possible.
- » **CAUTION:** Hourly fluid intake should not exceed 1 ½ qt.
- » Daily fluid intake should not exceed 12 qts.
- » Work/rest and water consumption table applies to average sized, heat-acclimated soldier wearing ACU, hot weather. (See TB MED 507 for further guidance.)
- » If wearing body armor, add 5° F to WBGT in humid climates.
- » If wearing NBC clothing (mission-oriented protective posture (MOPP 4)), add 10° F to WBGT index for easy work, and 20°F to WBGT for moderate and hard work.
- » Descriptions of Easy/Moderate/Hard Work can be found in the full guideline, Departments of The Army, The Navy, and The Air Force, Occupational and Environmental Health: Prevention, Treatment, and Control of Heat Injury. Technical Bulletin MED No. 507. 1980: 1-21, Table 3-1.

Source: Departments of The Army, The Navy, and The Air Force, Occupational and Environmental Health: Prevention, Treatment, and Control of Heat Injury. Technical Bulletin MED No. 507. 1980: 1-21.

ACGIH Guidelines

Work Load (WBGT °F)			
Work/rest regimen	Light	Moderate	Heavy
Continuous work	86°	80°	77°
75% work, 25% rest, each hour	87°	82°	78°
50% work, 50% rest, each hour	89°	85°	82°
25% work, 75% rest, each hour	90°	88°	86°

WBGT Correction Factors in °C		
Clothing Type	Clo* value	WBGT correction
Summer lightweight working clothes	0.6	0
Cotton coveralls	1.0	-2
Winter work clothing	1.4	-4
Water barrier, permeable	1.2	-6

*Clo: insulation value of clothing. One clo = 5.55kcal/m²/hr of heat exchange by radiation and convection for each degree C difference in temp between the skin and the adjusted dry bulb temp. American Conference of Governmental Industrial Hygienists (ACGIH). 1992. 1992-1993 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati: American Conference of Governmental Industrial Hygienists.

NATA Guidelines

WBGT (°F)	Activity Guidelines and Rest Break Guidelines
<82.0	Normal activities: provide ≥3 separate rest breaks of minimum duration 3 min each during workout.
82.0-86.9	Use discretion for intense or prolonged exercise. Watch at-risk players carefully. Provide ≥3 separate rest breaks of minimum duration 4 min each.
87.0-89.9	Maximum practice time = 2 h. For football: players restricted to helmet, shoulder pads, and shorts during practice. All protective equipment must be removed for conditioning activities. For all sports: provide ≥4 separate rest breaks for minimum duration 4 min each.
90.0-92.0	Maximum length of practice = 1 h. No protective equipment may be worn during practice and there may be no conditioning activities. There must be 20 min of rest breaks provided during the hour of practice.
>92.1	No outdoor workouts, cancel exercise, delay practices until a cooler WBGT reading occurs.

Source: NATA Position Statement: Exertional Heat Illness. Journal of Athletic Training volume 50, number 9 2015, Table 5

HIGH SCHOOL STATE GUIDELINES

The following states have their own WBGT guidelines for high school athletics:

- » Georgia
- » Illinois
- » Minnesota
- » North Carolina
- » Vermont

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