

## Wet Bulb Temperature Charts

### Constancy of Internal Body Temperature

- Effect of high and low atmospheric temperatures of several hours' duration on the internal body "core" temperature.

- In general, a nude person in dry air between 55° and 130°F is capable of maintaining a normal body core temperature somewhere between 97° and 100°F.

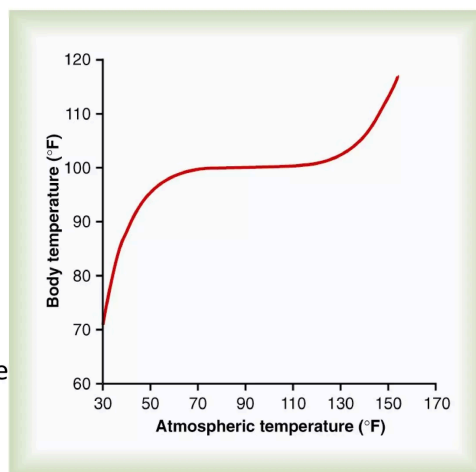
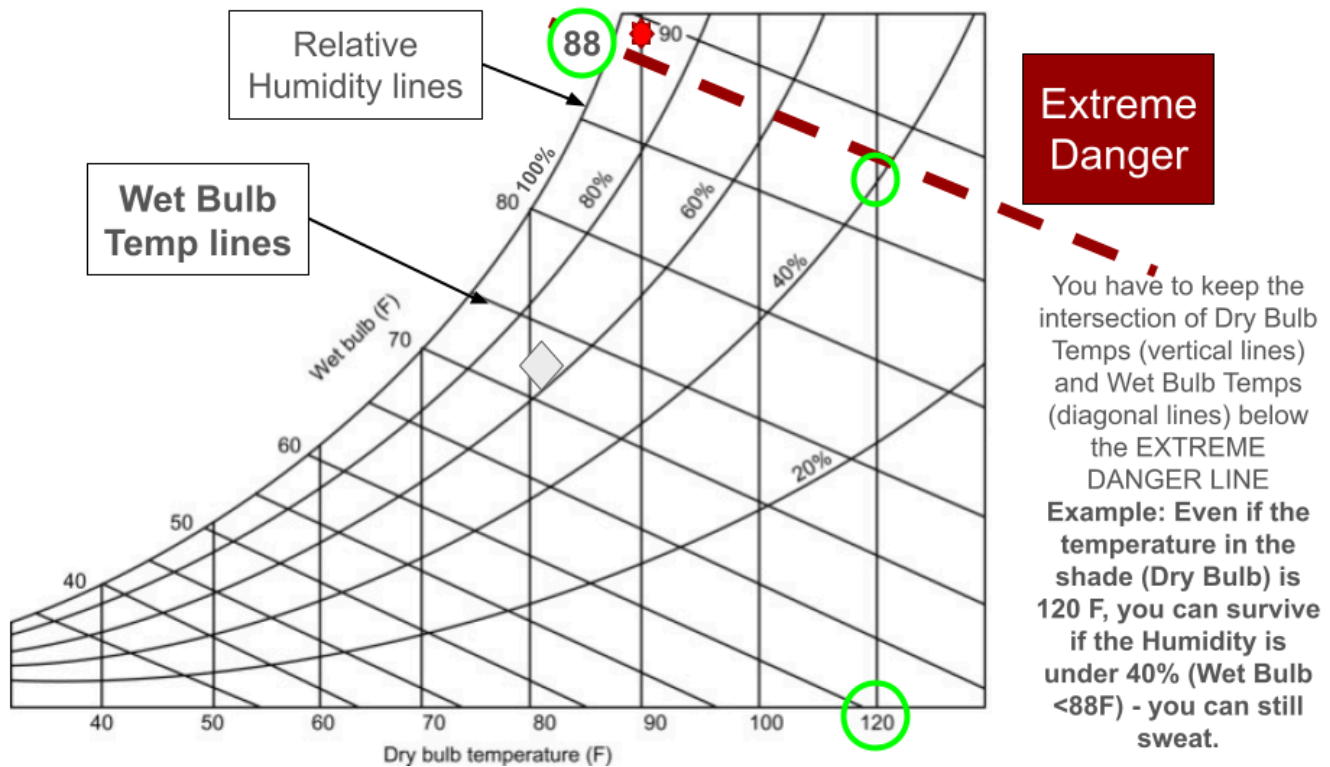


Figure 73-6; Guyton & Hall



[Wet-Bulb vs Dry-Bulb Temperature Measurements and Climate Change / ClimateCheck](https://www.climatecheck.org/2019/07/15/wet-bulb-vs-dry-bulb-temperature-measurements-and-climate-change/)



<https://arielschecklist.com/wbgt-chart/>

How to avoid exertional heat stroke when hiking in the desert.

# WBGT Chart

## CHART A: FAHRENHEIT

Wet Bulb Globe Temperature (WBGT) from Temperature and Relative Humidity																	
Relative Humidity (%)	Temperature in Degrees Fahrenheit																
	68.0	71.6	75.2	78.8	82.4	86.0	89.6	93.2	96.8	100.4	104.0	107.6	111.2	114.8	118.4	122.0	
	0	58.6	60.9	64.3	65.5	67.7	69.9	72.1	74.3	76.4	78.5	80.6	82.6	84.7	86.6	88.6	90.5
	5	59.6	62.1	65.6	67.0	69.3	71.7	74.0	76.4	78.6	80.9	83.1	85.3	87.5	89.9	92.1	94.2
	10	60.7	63.3	66.9	68.4	70.8	73.3	75.8	78.2	80.7	83.0	85.5	88.0	90.3	92.8	95.1	97.6
	15	61.7	64.5	68.1	69.6	72.2	74.8	77.4	80.0	82.6	85.2	87.8	90.2	92.8	95.4	98.0	
	20	62.7	65.6	69.4	70.9	73.6	76.3	79.2	81.8	84.5	87.1	89.8	92.5	95.2	97.8		
	25	63.8	66.7	70.5	72.2	75.1	77.8	80.6	83.4	86.2	89.0	91.8	94.6	97.4			
	30	64.8	67.6	71.7	73.4	76.3	79.2	82.1	84.9	87.8	90.8	93.6	96.6	99.4			
	35	65.6	68.6	72.7	74.6	77.5	80.5	83.5	86.4	89.4	92.4	95.3	98.3				
	40	66.7	69.6	73.8	75.7	78.8	81.8	84.8	87.8	90.9	94.0	97.0					
	45	67.5	70.6	74.8	76.8	79.9	83.0	86.1	89.2	92.3	95.4	98.6					
	50	68.4	71.5	75.8	77.8	81.1	84.1	87.4	90.5	93.7	96.9						
	55	69.3	72.4	76.7	78.8	82.1	85.3	88.5	91.9	95.1	98.3						
	60	70.1	73.3	77.7	79.8	83.2	86.4	89.8	93.1	96.3	99.6						
	65	70.9	73.8	78.6	80.9	84.2	87.5	90.8	94.1	97.5							
	70	71.7	75.0	79.5	81.7	84.9	88.6	91.9	95.3	98.6							
	75	72.4	75.9	80.3	82.7	86.1	89.6	92.9	96.4								
	80	73.2	76.7	81.2	83.6	87.1	90.4	93.9	97.4								
	85	74.0	77.4	82.0	84.5	88.0	91.5	94.9	98.5								
	90	74.7	78.2	82.9	85.3	88.9	92.3	95.9	99.4								
	95	75.5	78.9	83.6	86.1	89.6	93.2	96.8									
	100	76.1	79.7	84.4	86.9	90.5	94.1	97.7									
NOTE: This chart is calculated using temperature and humidity, assuming a very clear sky (maximal solar load), and atmospheric pressure of 1ATA (760 mmHg). Chart A was developed by Professor Yoram Epstein to be used in Ariel's Checklist for hikers in Israel.																	

CHART A: CELSIUS

Wet Bulb Globe Temperature (WBGT) from Temperature and Relative Humidity																	
Relative Humidity (%)	Temperature in Degrees Celsius																
	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	
	0	14.8	16.1	18.0	18.6	19.8	21.1	22.3	23.5	24.7	25.8	27.0	28.1	29.3	30.3	31.4	32.5
	5	15.3	16.7	18.7	19.4	20.7	22.0	23.3	24.6	25.9	27.2	28.4	29.6	30.9	32.2	33.4	34.6
	10	16.0	17.4	19.4	20.2	21.6	23.0	24.3	25.7	27.1	28.4	29.7	31.1	32.4	33.8	35.1	36.4
	15	16.5	18.0	20.1	20.9	22.4	23.8	25.2	26.7	28.1	29.6	31.0	32.4	33.8	35.2	36.7	38.1
	20	17.1	18.7	20.8	21.6	23.1	24.6	26.2	27.7	29.2	30.6	32.1	33.6	35.1	36.6	38.2	39.7
	25	17.6	19.3	21.4	22.3	24.0	25.5	27.0	28.6	30.1	31.7	33.2	34.8	36.3	37.9	39.5	
	30	18.2	19.8	22.0	23.0	24.6	26.2	27.8	29.4	31.0	32.7	34.2	35.9	37.4	39.1		
	35	18.7	20.3	22.6	23.6	25.3	26.9	28.6	30.2	31.9	33.5	35.2	36.8	38.5			
	40	19.3	20.9	23.2	24.3	26.0	27.6	29.4	31.0	32.7	34.4	36.1	37.8	39.5			
	45	19.7	21.5	23.8	24.9	26.6	28.3	30.1	31.8	33.5	35.2	37.0	38.7				
	50	20.2	22.0	24.3	25.5	27.3	29.0	30.8	32.5	34.3	36.1	37.9	39.6				
	55	20.7	22.4	24.8	26.0	27.8	29.6	31.4	33.3	35.0	36.8	38.6					
	60	21.1	22.9	25.4	26.6	28.4	30.2	32.1	34.0	35.7	37.5	39.4					
	65	21.6	23.2	25.9	27.1	29.0	30.9	32.7	34.5	36.4	38.2						
	70	22.1	23.9	26.4	27.6	29.4	31.4	33.3	35.1	37.0	38.9						
	75	22.5	24.4	26.9	28.2	30.1	32.0	33.8	35.8	37.7	39.5						
	80	22.9	24.8	27.4	28.7	30.6	32.5	34.4	36.3	38.2							
	85	23.3	25.2	27.8	29.2	31.1	33.0	35.0	36.9	38.9							
	90	23.7	25.7	28.3	29.6	31.6	33.5	35.5	37.5	39.5							
	95	24.2	26.1	28.7	30.1	32.0	34.0	36.0	38.0	40.0							
	100	24.5	26.5	29.1	30.5	32.5	34.5	36.5	38.5								
NOTE: This chart is calculated using temperature and humidity, assuming a very clear sky (maximal solar load), and atmospheric pressure of 1ATA (760 mmHg). Chart A was developed by Professor Yoram Epstein to be used in Ariel's Checklist for hikers in Israel.																	

CHART B



Heat Stress Category (WBGT)	Moderate Work		Hard Work	
	Work/Rest Cycle	Water Intake Per Hour	Work/Rest Cycle	Water Intake Per Hour
<b>White</b> ≤76.9°F (≤24.9°C)	60/15 MINUTES	300 ml (1/3 qt)	40/20 MINUTES	500 ml (1/2 qt)
<b>Green</b> 77-81.9°F (25-27.7°C)	60/15 MINUTES	750 ml (3/4 qt)	40/20 MINUTES	1000 ml (1 qt)
<b>Yellow</b> 82-84.9°F (27.8-29.4°C)	40/20 MINUTES	1000 ml (1 qt)	30/30 MINUTES	1000 ml (1 qt)
<b>Red</b> 85-88.9°F (29.5-31.6°C)	30/30 MINUTES	1000 ml (1 qt)	<b>Exercise is forbidden. Very high risk for heat casualties.</b>	
<b>Black</b> ≥89°F (≥31.7°C)	<b>Exercise is forbidden. Very high risk for heat casualties.</b>			

- Chart B was developed by Professor Yoram Epstein to be used in Ariel's Checklist for hikers in Israel.
- Environmental heat stress categories are given in Wet Bulb Globe Temperature values.
- These are minimum rest periods. You may plan for more rest but not less.
- Fluid recommendations are just general guidelines and may vary based on many factors. People should monitor individual fluid needs.
- **Warning!!** Do not read Chart B in isolation. These guidelines are for healthy, relatively fit hikers. For

novice, less fit, un-acclimated, sleep-deprived, or overweight individuals, the tour leader should refer to Moderate Work as Hard Work.

