

CLIMATIC INJURIES

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Heat and cold injuries don't just affect people in the deserts or the Arctic, they can and do happen on Dartmoor and other areas of Great Britain. The Armed Forces have great experience in dealing with the risk, symptoms and treatment of heat and cold injuries. This section of the Guidance Booklet provides you with guidance for use during Ten Tors training and the Challenge. For the military, JSP 539 is mandatory. During the Challenge, the Director will be advised on the risk of climatic injuries by his staff and following dynamic risk assessment will implement contingency plans to reduce the risk to acceptable levels.

The chart below shows the maximum Wet Bulb Globe Temperature (WBGT) for various activities and acclimatisation levels. Serial 2, Medium, is the activity most applicable to Ten Tors. You will see that walkers at the start of their training are at risk of heat injuries above 26 (which for your purposes equates to degrees Centigrade) and 30 when fit. Looking at Serial 1, Low, you will see that you still have the flexibility to reduce the work rate and the load to the limits for almost static activities.

Table 2A.1 WBGT Index Threshold Values

Ser	Maximum Work Rate (not to be exceeded) ⁽⁷⁾	WBGT Index Threshold Values ⁽⁶⁾	
		Acclimatised	Un-acclimatised ⁽⁹⁾
1	Low. For example: Lying, Guard duty.	34	32
2	Medium. For example: marching 3.6kph (2.3 mph) with a 30kg load.	30	26
3	High. For example: marching 5.6kph (3.5 mph) with a 20kg load, patrolling, digging, field assaults.	27	24
4	Very High. For example: marching 8 Kph (5 mph) with no load, marching 5.6 Kph (3.5 mph) with a 30kg load..	25	20
5	Extreme. For example: running in sports kit, speed marching at 9.7 kph (6 Mph) with a 15kg load	20	Max 30 mins at 20

WARNING: This table is not to be used without due consideration of the guidance at Paragraphs 2A8 to 2A12.

⁶ There is no primary source for these values; they have been adapted from the following:

- a. Weller AS, Withy WR (2005). WBGT threshold limit values for use in British Armed Forces personnel. Final report, Qinetiq/05/01417/1.0.
- b. Bricknell MCM (1997). Setting heat stress limits for acclimatised soldiers exercising in heat. JRAMC 143: 44-48.
- c. Gonzalez RR et al. (1997). Heat strain models applicable for protective clothing systems: comparison of core temperature response. J Appl. Physiol. 83: 1017-1032.

⁷ Note as the WBGT increases the maximum level of physical activity decreases to keep the risk of heat illness minimised.

⁸ The WBGT index SI unit is °C.

⁹ UK and Northern European based personnel are considered to be un-acclimatised.

Every member of the Armed Forces is alerted to the symptoms and treatment of climatic injuries [using this leaflet](#). For your convenience, the key points have been extracted onto the Aide Memoire for Teams (Green Card).

If you wish to read more deeply into the subject, take a look at the [Commander's Guide](#) or [MoD Climatic Illness and Injury](#) for the detail.