

Work / rest tables

Guidance on using work / rest tables

1. The work / rest tables in this annex indicate the safe durations of continuous work or intervals of work and rest in varying clothing and equipment, at different work rates and in different climates. Beyond these durations or intervals there is an increased risk of body temperature rising to unsafe levels. The appropriate table to use for carrying out a risk assessment for an activity depends on:

- a. the relevant acclimatisation status and clothing and equipment worn (see figure 1);
- b. the work rate (using the examples in figure 2); and
- c. the forecast WBGT and QT34 measurements (see paragraphs 4, 5 and 6).

Acclimatisation and clothing and equipment

2. Figure 1 below indicates the work / rest table to be used, according to the clothing and equipment worn and whether or not personnel are acclimatised. All personnel in the UK and Northern Europe, and those in hot environments who have not undergone a graded supervised programme of increasing exercise to adapt to the environment, are to be considered to be not acclimatised.

Figure 1: Acclimatisation and clothing

Clothing and Equipment	Not acclimatised (including all personnel in the UK and Northern Europe)	Acclimatised
Physical training (PT) kit	Table 1	Table 5
Multi-terrain pattern (MTP) clothing or single-service equivalents	Table 2	Table 6
MTP clothing plus body armour	Table 3	Table 7
CBRN PPE	Table 4	Table 8

Please note that all significant revisions to Annex C (V1.1 Jan 22) are shown in red text.

Choosing the work rate

3. The work rate examples in figure 2 below are categorised by the rating of perceived exertion (RPE) and are based on averages, so some people may be working much harder than others.

Figure 2: Work rate examples

	Condition	Example
Easy work (RPE of 1, 2 or 3)	Feels like you can keep going for hours. Easy to breathe and carry a conversation	<ul style="list-style-type: none"> Office work under normal conditions Light manual labour such as cleaning and maintenance Basic operation of a vehicle or aircraft, including routine embarking and disembarking Weapon training Static guard or sentry duty Chemical, biological radiological and nuclear (CBRN) sentry duty
Moderate work (RPE of 4, 5 or 6)	Breathing heavily, can hold a short conversation. Still quite comfortable but becoming noticeably more challenging	<ul style="list-style-type: none"> Office work in a difficult environment Moderate manual labour involving some lifting and use of machinery or equipment Light manual labour in a difficult environment or within a time limit Marching at normal walking speed Moderate operation of a vehicle or aircraft Ceremonial events Mobile guard or sentry duty Defence decontamination lane, CBRN recces and surveys
Hard work (RPE of 7 or 8)	Borderline uncomfortable. Short of breath, can speak a sentence but not maintain a conversation	<ul style="list-style-type: none"> Hard manual labour involving lifting and using heavy machinery or equipment Moderate manual labour in a difficult environment or within a time limit Annual or role fitness tests and selection events Obstacle courses, circuit training, stretcher runs and speed marching Demanding operation of a vehicle or aircraft (combat operations or high G-force manoeuvres) Patrolling in CBRN personal protective equipment (PPE)
Very hard work (RPE of 9 or 10)	Very difficult or not possible to maintain exercise intensity. Can barely breathe and unable to speak or only able to speak a few words	<ul style="list-style-type: none"> Hard manual labour in a difficult environment or within a time limit Firefighting and emergency response (including handling casualties) Vehicle or aircraft emergency-response procedures Guard or sentry duty in an emergency, including fire and manoeuvre Evacuating a casualty while wearing CBRN PPE

WBGT forecasts

4. The Joint Operational Meteorology and Oceanographic Centre (JOMOC) is the first point of contact for planning forecasts for the UK and the rest of the world. JOMOC will direct commanders and line managers to the Met Office for the area of the planned activity. If there is no Met Office within the area, JOMOC will provide the planning forecast directly or through the Met Office Military Information Distribution System (MOMIDS). JOMOC can be contacted 24 hours a day on the following numbers:

Military personnel: 9360 58112

Civilian personnel: (01923) 958112 (+ 44 (0)1923 958112 from overseas)

Website: www.jomoc.net

5. To make sure JOMOC can provide a bespoke service, the following timelines apply.

- a. Four weeks before a planned activity - The commander or line manager gives JOMOC details of the location and date, the security classification of the activity and the point of contact. JOMOC will discuss what Met Office services can be offered and will also provide information on the climate of the location of the activity.
- b. Two weeks before an activity - JOMOC will confirm the details for the forecast with the commander or line manager.
- c. 48 hours before an activity - JOMOC will email the forecast. A link will also be provided to the nearest Met Office.
- d. 24 hours beforehand and throughout an activity - JOMOC will email detailed forecast each day for the duration of the activity.

QT34 measurements

6. The QuestTemp 34 (QT34) is the only WBGT monitor approved by Defence. Guidance on getting and using a QT34 is provided in Annex D.



Work / rest tables

7. Use the work rate and WBGT in the appropriate table (tables 1-8, below) to determine the maximum duration of continuous work or the work / rest intervals for the activity.

8. The work / rest tables are based on information for adult males but can also be applied to adult females during the overall risk assessment. They **should** be used as approximate guidance only in risk assessments for those aged under 18.

- 9 Please note the following:
- a. personnel **should** be rested and hydrated at the start of the activity;
 - b. continuous physical activity **should** be followed by rest and rehydration;
 - c. one hour work / rest intervals can be repeated up to a maximum of four times (for a maximum total of four hours) and **should** be followed by several hours of enough rest and rehydration to return to starting body temperatures and hydration levels;
 - d. all periods of work **should** include rehydration breaks;
 - e. rest requires minimal physical activity (sitting or standing) in the shade;
 - f. when considering the risk assessment and identifying the appropriate work / rest table, commanders and line managers need to use their own judgement when the exact clothing and equipment is not specified in figure 2 or a single-service alternative applies;
 - g. for activities outside the parameters in the work / rest tables, see Policy statements 3 and 4 of JSP 375 Chapter 41 Part 1;
 - h. the 'rate of perceived exertion' (RPE) scale assesses individual work rates based on physical effort. During group activities, the work rate of the activity **should** be determined by the highest individual RPE maintained for more than three minutes;
 - i. **consider the measurement of the WBGT in all environments where heat illness is a risk, including at night;**
 - j. there are known WBGT upper limits for some specific activities, such as annual fitness tests. Details on specific activities can be found in the Military commands or Defence organisations policy; and
 - k. example dress states are presented in the work rest tables. If the dress state to be used differs from those presented, Commanders and Line Managers **should** select the nearest in the table and make adjustments according to the exact dress state and other factors in their risk assessment.

Table 1: not acclimatised, maximum continuous exercise durations and alternative work-rest schedules permitted for a 4-hour period when **wearing PT kit (shorts & t-shirt)**.

WBGT (°C)	Maximum Exercise Duration (Minutes)			
	Easy Work	Moderate Work	Hard Work	Very Hard Work
20 to 21.9	240	240	205 OR 30 work 30 rest	145 OR 20 work 40 rest
22 to 23.9	240	240	185 OR 30 work 30 rest	135 OR 20 work 40 rest
24 to 25.9	240	240	175 OR 30 work 30 rest	130 OR 20 work 40 rest
26 to 27.9	240	225 OR 50 work 10 rest	150 OR 30 work 30 rest	110 OR 20 work 40 rest
28 to 29.9	240	195 OR 40 work 20 rest	130 OR 20 work 40 rest	90 OR 20 work 40 rest
30 to 31.9	240	160 OR 30 work 30 rest	110 OR 20 work 40 rest	75 OR 20 work 40 rest
32 to 33.9	200 OR 40 work 20 rest	110 OR 30 work 30 rest	70 OR 20 work 40 rest	40 OR 10 work 50 rest
34 to 35.9	145 OR 40 work 20 rest	85 OR 20 work 40 rest	45 OR 10 work 50 rest	20 OR 10 work 50 rest
36 to 37.9	100 OR 30 work 30 rest	50 OR 20 work 40 rest	25 OR 10 work 50 rest	10
38 to 40	70 OR 20 work 40 rest	30 OR 10 work 50 rest	15	10

Note: This work rest table is guidance which Commanders and Line Managers can extrapolate from. If activity is planned to exceed then additional controls measures are required or the risk must be elevated. This is in accordance with Policy statements 3 and 4 of JSP 375 Chapter 41 Part 1 Directive.

Table 2: not acclimatised, maximum continuous exercise durations and alternative work-rest schedules permitted for a 4-hour period when wearing MTP.

WBGT (°C)	Maximum Exercise Duration (Minutes)			
	Easy Work	Moderate Work	Hard Work	Very Hard Work
20 to 21.9	240	195 OR 30 work 30 rest	120 OR 20 work 40 rest	90 OR 20 work 40 rest
22 to 23.9	240	165 OR 30 work 30 rest	110 OR 20 work 40 rest	80 OR 20 work 40 rest
24 to 25.9	240	145 OR 30 work 30 rest	100 OR 20 work 40 rest	75 OR 10 work 50 rest
26 to 27.9	240	125 OR 30 work 30 rest	90 OR 20 work 40 rest	60 OR 10 work 50 rest
28 to 29.9	205 OR 50 work 10 rest	110 OR 20 work 40 rest	80 OR 20 work 40 rest	50 OR 10 work 50 rest
30 to 31.9	180 OR 40 work 20 rest	100 OR 20 work 40 rest	70 OR 20 work 40 rest	40 OR 10 work 50 rest
32 to 33.9	140 OR 30 work 30 rest	80 OR 20 work 40 rest	50 OR 10 work 50 rest	25 OR 10 work 50 rest
34 to 35.9	120 OR 30 work 30 rest	75 OR 20 work 40 rest	40 OR 10 work 50 rest	20
36 to 37.9	95 OR 30 work 30 rest	55 OR 20 work 40 rest	30 OR 10 work 50 rest	15
38 to 40	80 OR 20 work 40 rest	45 OR 10 work 50 rest	20 OR 10 work 50 rest	10

Note: This work rest table is guidance which Commanders and Line Managers can extrapolate from. If activity is planned to exceed then additional controls measures are required or the risk must be elevated. This is in accordance with Policy statements 3 and 4 of JSP 375 Chapter 41 Part 1 Directive.

Table 3: not acclimatised, maximum continuous exercise durations and alternative work-rest schedules permitted for a 4-hour period when **wearing MTP with body armour and helmet**.

WBGT (°C)	Maximum Exercise Duration (Minutes)			
	Easy Work	Moderate Work	Hard Work	Very Hard Work
20 to 21.9	240	110 OR 20 work 40 rest	80 OR 20 work 40 rest	60 OR 10 work 50 rest
22 to 23.9	195 OR 50 work 10 rest	105 OR 20 work 40 rest	75 OR 20 work 40 rest	55 OR 10 work 50 rest
24 to 25.9	180 OR 40 work 20 rest	95 OR 20 work 40 rest	70 OR 10 work 50 rest	50 OR 10 work 50 rest
26 to 27.9	150 OR 40 work 20 rest	85 OR 20 work 40 rest	65 OR 10 work 50 rest	45 OR 10 work 50 rest
28 to 29.9	130 OR 30 work 30 rest	80 OR 20 work 40 rest	55 OR 10 work 50 rest	35 OR 10 work 50 rest
30 to 31.9	115 OR 30 work 30 rest	75 OR 20 work 40 rest	50 OR 10 work 50 rest	30 OR 10 work 50 rest
32 to 33.9	100 OR 30 work 30 rest	65 OR 20 work 40 rest	40 OR 10 work 50 rest	20
34 to 35.9	90 OR 30 work 30 rest	60 OR 20 work 40 rest	35 OR 10 work 50 rest	15
36 to 37.9	80 OR 20 work 40 rest	50 OR 10 work 50 rest	25 OR 10 work 50 rest	10
38 to 40	70 OR 20 work 40 rest	40 OR 10 work 50 rest	20	10

Note: This work rest table is guidance which Commanders and Line Managers can extrapolate from. If activity is planned to exceed then additional controls measures are required or the risk must be elevated. This is in accordance with Policy statements 3 and 4 of JSP 375 Chapter 41 Part 1 Directive.

Table 4: not acclimatised, maximum continuous exercise durations and alternative work-rest schedules permitted for a 4 hour period when **wearing CBRN PPE** (Mk4A suit, boots and gloves, general service Respirator, virtus helmet and virtus body armour).

WBGT (°C)	Easy Work	Moderate Work	Hard Work	Very Hard
20 to 21.9	90 OR 30 work 30 rest	55 OR 10 work 50 rest	40 OR 10 work 50 rest	20
22 to 23.9	85 OR 20 work 40 rest	55 OR 10 work 50 rest	35 OR 10 work 50 rest	20
24 to 25.9	85 OR 20 work 40 rest	55 OR 10 work 50 rest	35 OR 10 work 50 rest	20
26 to 27.9	75 OR 20 work 40 rest	50 OR 10 work 50 rest	35 OR 10 work 50 rest	20
28 to 29.9	75 OR 20 work 40 rest	50 OR 10 work 50 rest	30 OR 10 work 50 rest	15
30 to 31.9	70 OR 20 work 40 rest	45 OR 10 work 50 rest	30 OR 10 work 50 rest	15
32 to 33.9	70 OR 20 work 40 rest	45 OR 10 work 50 rest	25 OR 10 work 50 rest	15
34 to 35.9	65 OR 20 work 40 rest	45 OR 10 work 50 rest	25 OR 10 work 50 rest	15
36 to 37.9	65 OR 20 work 40 rest	40 OR 10 work 50 rest	25 OR 10 work 50 rest	10
38 to 40	60 OR 20 work 40 rest	40 OR 10 work 50 rest	20	10

Note: This work rest table is guidance which Commanders and Line Managers can extrapolate from. If activity is planned to exceed then additional controls measures are required or the risk must be elevated. This is in accordance with Policy statements 3 and 4 of JSP 375 Chapter 41 Part 1 Directive.

Table 5: acclimatised, maximum continuous exercise durations and alternative work-rest schedules permitted for a 4-hour period when **wearing PT kit (shorts & t-shirt)**.

WBGT (°C)	Easy Work	Moderate Work	Hard Work	Very Hard Work
20 to 21.9	240	240	240	240
22 to 23.9	240	240	240	240
24 to 25.9	240	240	240	195 OR 30 work 30 rest
26 to 27.9	240	240	230 OR 50 work 10 rest	145 OR 30 work 30 rest
28 to 29.9	240	240	160 OR 40 work 20 rest	110 OR 20 work 40 rest
30 to 31.9	240	170 OR 40 work 20 rest	135 OR 30 work 30 rest	85 OR 20 work 40 rest
32 to 33.9	170 OR 50 work 10 rest	120 OR 30 work 30 rest	80 OR 20 work 40 rest	40 OR 10 work 50 rest
34 to 35.9	155 OR 40 work 20 rest	85 OR 20 work 40 rest	45 OR 20 work 40 rest	20 OR 10 work 50 rest
36 to 37.9	105 OR 30 work 30 rest	55 OR 20 work 40 rest	25 OR 10 work 50 rest	10
38 to 40	65 OR 20 work 40 rest	30 OR 10 work 50 rest	15	10

Note: This work rest table is guidance which Commanders and Line Managers can extrapolate from. If activity is planned to exceed then additional controls measures are required or the risk must be elevated. This is in accordance with Policy statements 3 and 4 of JSP 375 Chapter 41 Part 1 Directive.

Table 6: acclimatised, maximum continuous exercise durations and alternative work-rest schedules permitted for a 4-hour period when wearing MTP.

WBGT (°C)	Easy Work	Moderate Work	Hard Work	Very Hard Work
20 to 21.9	240	240	200 OR 30 work 30 rest	115 OR 20 work 40 rest
22 to 23.9	240	240	160 OR 30 work 30 rest	90 OR 20 work 40 rest
24 to 25.9	240	240	135 OR 20 work 40 rest	85 OR 20 work 40 rest
26 to 27.9	240	200 OR 50 work 10 rest	105 OR 20 work 40 rest	70 OR 10 work 50 rest
28 to 29.9	240	155 OR 30 work 30 rest	90 OR 20 work 40 rest	55 OR 10 work 50 rest
30 to 31.9	240	125 OR 30 work 30 rest	75 OR 20 work 40 rest	45 OR 10 work 50 rest
32 to 33.9	180 OR 40 work 20 rest	90 OR 20 work 40 rest	55 OR 10 work 50 rest	25 OR 10 work 50 rest
34 to 35.9	135 OR 30 work 30 rest	75 OR 20 work 40 rest	40 OR 10 work 50 rest	20
36 to 37.9	100 OR 30 work 30 rest	55 OR 20 work 40 rest	30 OR 10 work 50 rest	15
38 to 40	80 OR 20 work 40 rest	40 OR 10 work 50 rest	20 OR 10 work 50 rest	10

Note: This work rest table is guidance which Commanders and Line Managers can extrapolate from. If activity is planned to exceed then additional controls measures are required or the risk must be elevated. This is in accordance with Policy statements 3 and 4 of JSP 375 Chapter 41 Part 1 Directive.

Table 7: acclimatised, maximum continuous exercise durations and alternative work-rest schedules permitted for a 4-hour period when **wearing MTP and Body Armour and helmet.**

WBGT (°C)	Easy Work	Moderate Work	Hard Work	Very Hard Work
20 to 21.9	240	230 OR 50 work 10 rest	105 OR 20 work 40 rest	70 OR 10 work 50 rest
22 to 23.9	240	175 OR 30 work 30 rest	90 OR 20 work 40 rest	60 OR 10 work 50 rest
24 to 25.9	240	140 OR 30 work 30 rest	85 OR 20 work 40 rest	55 OR 10 work 50 rest
26 to 27.9	240	115 OR 20 work 40 rest	70 OR 10 work 50 rest	45 OR 10 work 50 rest
28 to 29.9	215 OR 50 work 10 rest	95 OR 20 work 40 rest	60 OR 10 work 50 rest	40 OR 10 work 50 rest
30 to 31.9	180 OR 40 work 20 rest	85 OR 20 work 40 rest	55 OR 10 work 50 rest	30 OR 10 work 50 rest
32 to 33.9	125 OR 30 work 30 rest	70 OR 20 work 40 rest	45 OR 10 work 50 rest	20
34 to 35.9	100 OR 30 work 30 rest	60 OR 20 work 40 rest	35 OR 10 work 50 rest	15
36 to 37.9	85 OR 30 work 30 rest	50 OR 10 work 50 rest	25 OR 10 work 50 rest	10
38 to 40	70 OR 20 work 40 rest	40 OR 10 work 50 rest	20	10

Note: This work rest table is guidance which Commanders and Line Managers can extrapolate from. If activity is planned to exceed then additional controls measures are required or the risk must be elevated. This is in accordance with Policy statements 3 and 4 of JSP 375 Chapter 41 Part 1 Directive.

Table 8: acclimatised, Maximum continuous exercise durations and alternative work-rest schedules permitted for a 4-hour period when **wearing CBRN PPE** (Mk4A suit, boots and gloves, general service Respirator, virtus helmet and virtus body armour).

WBGT (°C)	Easy Work		Moderate Work		Hard Work		Very Hard	
20 to 21.9	110	OR 30 work 30 rest	60	OR 10 work 50 rest	40	OR 10 work 50 rest	25	
22 to 23.9	100	OR 30 work 30 rest	55	OR 10 work 50 rest	40	OR 10 work 50 rest	20	
24 to 25.9	95	OR 30 work 30 rest	55	OR 10 work 50 rest	35	OR 10 work 50 rest	20	
26 to 27.9	85	OR 20 work 40 rest	50	OR 10 work 50 rest	35	OR 10 work 50 rest	20	
28 to 29.9	80	OR 20 work 40 rest	50	OR 10 work 50 rest	30	OR 10 work 50 rest	15	
30 to 31.9	80	OR 20 work 40 rest	50	OR 10 work 50 rest	30	OR 10 work 50 rest	15	
32 to 33.9	75	OR 20 work 40 rest	45	OR 10 work 50 rest	25	OR 10 work 50 rest	15	
34 to 35.9	70	OR 20 work 40 rest	45	OR 10 work 50 rest	25	OR 10 work 50 rest	15	
36 to 37.9	65	OR 20 work 40 rest	40	OR 10 work 50 rest	25	OR 10 work 50 rest	10	
38 to 40	65	OR 20 work 40 rest	40	OR 10 work 50 rest	20		10	

Note: This work rest table is guidance which Commanders and Line Managers can extrapolate from. If activity is planned to exceed then additional controls measures are required or the risk must be elevated. This is in accordance with Policy statements 3 and 4 of JSP 375 Chapter 41 Part 1 Directive.