Ministry of Defence

COMMANDER'S GUIDE TO HEAT ILLNESS PREVENTION

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FOREWORD

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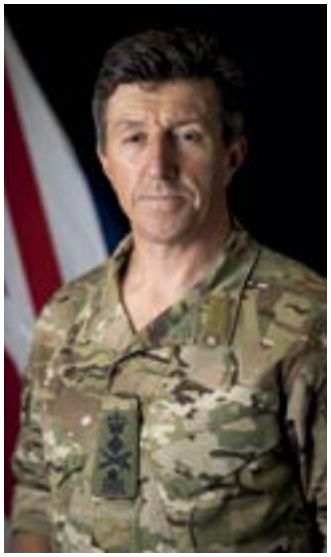


"We should be in no doubt that heat illness kills. We should also be in no doubt that our first duty as leaders is to place the wellbeing of those, we lead at the forefront of everything we do.

The Armed Forces continue to live and operate in very demanding conditions and climates across the world. As leaders, each of us has a responsibility to prevent heat illness, and this task begins with education.

This excellent policy document is written with this in mind. It equips us with the information to help deal with the challenge of heat illness in a practical and pragmatic manner. Ensure you read it, understand it, and implement it accordingly. Our goal is to eliminate deaths from heat illness."

CONTEXT

Heat illness can affect members of the armed forces and civilians performing physical activity (operational, training and day-to-day work) and can be life-threatening. So it is essential that all personnel understand the cause and effect of heat illness. You and others planning activities **must** assess and control the risks of heat illness.

In the military environment, most cases of heat illness result from physical exertion. This guide sets out seven policy statements that **must** be met and guidance on how to assess and manage the risk of heat illness as part of Defence standard risk-assessment process.

This guide applies to all personnel in Defence or under the supervision of Defence personnel, both regular and reserve, military and civilian, at home and overseas. It applies **to all Defence activity**, at all times of the year and in any location.

Climate change has made heatwaves more likely and more severe. There is an increased incidence of temperatures in the UK going over 40°C, leading to the Met Office issuing 'red' weather warnings. The UK population **must** be considered to not be acclimatised to these heatwaves.

A red weather warning means that it is very likely that there will be a risk to life and action **must** be taken to keep yourself and others safe. This reinforces Defence's obligations to protect our people during extreme temperatures.

If a non-essential physically demanding activity, or an activity that would lead to prolonged exposure to the heat, is planned during the period of a red weather warning, you **must** seriously consider postponing the activity. If postponing the activity is not an option, the direction and guidance in this chapter **must** be strictly followed.

For more detailed guidance refer to the main chapter of **JSP 375, Volume 1, Chapter 41 - Heat illness prevention.**

PLANNING

You have a duty of care, so you **must** make sure that the activities you are responsible for are safe. This includes making sure that risk assessments are carried out and that controls (mitigations) to reduce the risk are identified and communicated to relevant personnel. Heat illness is a significant hazard and **must** be considered during the planning phase, before an activity is carried out. Specialist advice and guidance can be provided by medical staff and training staff.

Policy Statement 1:

A commander or manager **must** be appointed to command or supervise any activity where the risk of heat illness exists. Those taking part in an activity **must** know who the commander or manager is.

Commander's action:

Identify who is responsible for planning the activity and it being performed. Make sure you are qualified, authorised and able to act, control measures are in place and followed, and everyone taking part knows who the commander or manager is.

Make sure your junior commanders know their responsibilities and are aware of the measures required for the activity to be carried out safely.

Policy Statement 2:

The risk of heat illness **must** be considered in the risk assessment for all Defence activities. The risk assessment **must** as a minimum consider the following risk factors.

a. Acclimatisation
b. Clothing and equipment
c. Expected work rate
d. Environment
e. Individual risk factors
f. Education and training
g. Medical plan
h. Fluid requirements
i. Body-worn heat illness monitoring equipment

Commander's action:

If you are responsible for performing or supervising an activity, you **must** complete a risk assessment that includes an evaluation of the risk of heat illness, and identify ways to control the risks. If there is already a risk assessment, you **must** apply the control measures in that risk assessment and actively assess the risk.

Your risk assessment **must** be recorded so that there is evidence that it took place. This record can be as simple as a note in a notebook or a logged message over the radio network. Reviews of risk assessments may be triggered by a specific event or circumstance (for example, a high drop-out rate) or can be scheduled (for example, taking a reading from a QT34 monitor every 30 minutes during the day).

THE FIVE-STEP RISK ASSESSMENT PROCESS

When carrying out risk assessments, the Defence five-step risk-assessment process **should** be followed. MOD Form 5010 is recommended for recording the risk-assessment process, but alternatives may be used.

1 Identify the hazard

2 Decide who might be harmed and how

3 Evaluate the risks and identify suitable and sufficient control measures

4 Record and implement findings

5 Review the risk assessment and update as necessary

The risk assessment process and associated tables provide detailed guidance. The risk assessment **must** as a minimum consider the following risk factors.

Acclimatisation. The risk of heat illness in hot climates (dry or humid) can be reduced, but not eliminated, by acclimatisation. All personnel performing an activity in the UK or Northern Europe **must** be considered as not acclimatised because the climate is temperate with only occasional heatwaves. Acclimatisation may not be possible for tasks carried out at short notice or for limited periods (for example, for air travel from a temperate climate to a hot climate), or if long periods are spent in air-conditioned buildings.

Clothing and equipment. Clothing affects a person's ability to shed excess heat and, along with carrying equipment, may put extra strain on the body. Particular attention is needed when an activity requires the use of specialist clothing or equipment (for example, waterproofs, body armour, ceremonial dress, firefighting equipment, Explosive Ordnance Disposal (EOD) suits or Chemical, Biological, Radiological and Nuclear (CBRN) suits). Clothing **must** be carefully considered to make sure that it is appropriate for the activity and can be adjusted as required (for example, by removing layers of clothing).

Expected Work Rate. The rate the human body generates heat is determined by the work rate. In the UK, the primary cause of heat casualties from exertion has been endurance activities (for example, loaded marches, log runs, stretcher races and fitness tests). It is **critical** to assess the work rate so the potential risk can be reduced by applying controls. 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.

Environment. The main way that a body loses heat is through sweat evaporating. The environmental factors that affect the efficiency of sweating are temperature, humidity and wind speed. Body temperature can also increase due to heat radiating from hot surfaces (for example, tarmac and vehicles). Physical exertion is affected by the nature of the activity, the environment and the terrain, particularly changes in level and the steepness of climbs.

Individual risk factors. People's responses to heat vary greatly. Personnel **must** inform the commander or manager of any physical or medical condition (for example, a known heart condition, breathing difficulties, sickle cell trait and so on) that could affect the information the risk assessment was based on and their ability to undertake the activity safely. Individual risk factors to consider are as follows.

Individual Risk Factors

Work Factors
Inexperienced personnel
Not acclimatised
Long-term fatigue
Lack of sleep
Air travel within the past 24 hours
Poor nutrition or diet, or a missed meal in the previous 24 hours

Lifestyle Factors
Individual drive and determination
Low or reduced physical fitness
Being overweight or obese
Smoking
Alcohol within the past 24 hours
Excessive motivation (for example, in pass or fail tests)
Use of sport supplements
Use of illicit drugs

Sunburn
Sunburn increases the risk of heat illness. Minor sunburn causes reduced performance, while severe sunburn may require personnel to be hospitalised. You will need to consider restricting the duties of personnel who are sunburned. Sunburn can be prevented by: • wearing appropriate clothing and headwear; • working in the shade; and • applying water-resistant sunscreen.

Health Factors
Previous heat illness
Previous poor performance in a fitness test
Previous collapse from physical exertion
Risk of exertional collapse due to sickle cell trait (ECAST)
Asthma
Recent or current illness (for example, a cold, fever or diarrhoea)
Medication (prescription or over the counter)
Recent vaccinations (for example, for COVID-19 vaccinations, personnel are recommended to keep to light duties for 72 hours if they experience any adverse symptoms)
Dehydration

Age and young people
A child's ability to thermoregulate (control their core body temperature) is not the same as, or as effective as, an adult's. So cadets and other young people may be at increased risk of heat illness and extra precautions **must** be considered in the risk assessment.

Education and Training. Inexperienced personnel are typically more vulnerable to heat illness as a result of:

- them being less aware of the causes, signs and risks;
- having less experience of the conditions which may give rise to heat illness; and
- less physical conditioning (for example nutrition, training, mental and physical resilience).

Medical Plan. As part of the overall risk assessment, commanders or managers **must** make sure that a medical plan has been developed. The medical plan **must** identify an appropriate response to any casualties or medical incidents. The commander or manager **must** make sure that the following elements have been considered as part of the medical plan.

- Exertional heat illness – acute treatment, in line with JSP 950 Leaflet 2-4-4
- The level of medical cover (staffing) needed for the activity
- The type and amounts of medical equipment needed for the activity (for example, equipment to optimise the 'strip, spray, fan' process)
- How any heat illness casualties will be evacuated, and where they will be evacuated to

See Chapter 5 (first aid at work) of JSP 375, Volume 1 and Military Command or Defence organisation policy for medical guidance.

Fluid requirements. Personnel **should** drink fluid regularly to make sure their urine remains pale yellow. Water requirements can increase from two to four litres a day to as much as eight to 12 litres a day in extreme conditions. Water intake **should** be staggered over each hour. Hydration 'bladders' can help personnel get a regular intake of water during an activity. (There is further guidance on hydration which can be found later in this Commander's Guide).

Body-worn heat illness monitoring equipment. Physiological status monitoring technology is currently being developed by Defence to monitor the potential risk of heat illness. When this technology is approved and made available it can be considered as an additional control measure as part of a risk assessment.

Policy Statement 3:

In the case of physically demanding selection events and fitness tests, as well as considering the factors at Policy Statement 2, the following factors **must** also be considered.

a. When planning an activity, a WBGT forecast and the work/rest tables **must** be used to inform the risk assessment.
b. When delivering the activity, a QT34 dynamic reading that is representative of the location of the activity **must** be used.

For all other Defence activities, as well as considering the factors at Policy Statement 2, the following factors **should** also be considered.

a. When planning an activity, a WBGT forecast and the work/rest tables **should** be used to inform the risk assessment.
b. When delivering the activity, a QT34 dynamic reading that is representative of the location of the activity **should** be used.

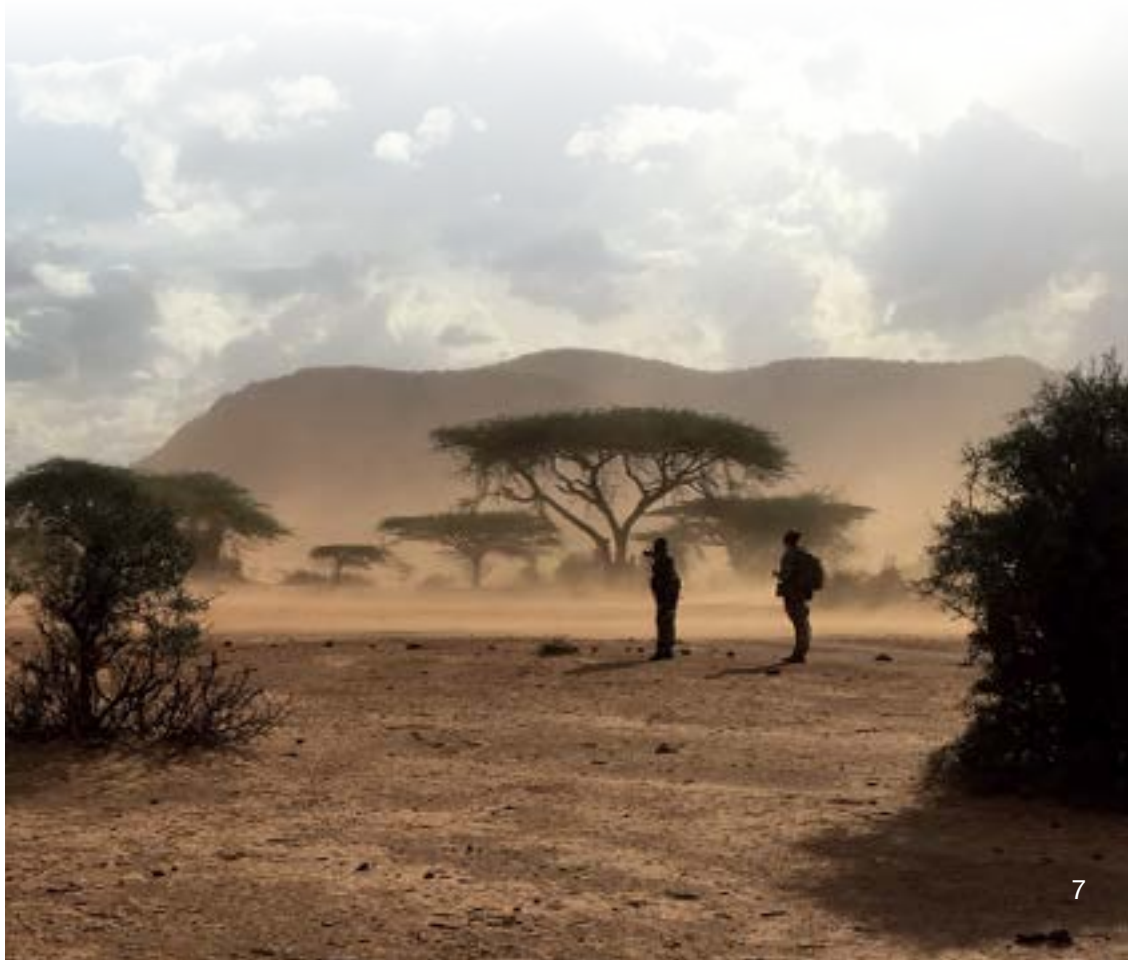
Commander's action:

Confirm if the activity is a physically demanding selection event or a fitness test (for example, an annual fitness test).

- **Physically demanding selection events and fitness tests**: In the recent past, the more serious cases of heat illness have been caused during these activities. Risk assessments **must** include WBGT forecasts and readings from the QuestTemp 34 (QT34), the Defence approved WBGT monitor. The forecasts and readings **should** be kept with the risk assessment.
- **Other activities.** Risk assessments for all other Defence activities **should** include WBGT forecasts or QT34 readings (or both).
- **Organised sport and adventurous training** should be in line with any National Governing Body guidelines. If such guidelines do not address and manage heat illness, this policy statement **must** be applied.
- Work/rest tables in JSP 375 (Volume 1, Chapter 41, Annex C) provide guidance to plan periods of rest during physical activity in order to reduce the risk of heat illness. When an activity **exceeds** any of the figures in the work/rest tables (work rate, WBGT forecast or duration) the responsible commander **must** re-assess the risk and consider stopping or pausing the activity, applying additional control measures and, if required, elevating the risk through their chain of command for approval.

What is a QuestTemp 34 (QT34) monitor?

- The QT34 is the only monitor approved by Defence for measuring WBGT outdoors and indoors.
- The WBGT is a combined measure of the dry-bulb temperature (the air temperature), wet-bulb temperature (the temperature the air can be cooled to through wind speed and the effect of evaporation) and globe temperature (a temperature that takes account of the effect of radiation such as sunlight). It is measured in degrees Celsius.
- You can use the QT34 monitor to check the difference between the dry-bulb temperature and the wet-bulb temperature. When the two numbers are close, the humidity is high and the risk of heat illness is increased. This is because the higher humidity prevents sweat from evaporating.



Policy Statement 4:

The controls in the risk assessment **must** be complied with. If the control measures in the risk assessment or any other aspect of this heat illness prevention policy cannot be complied with, the commander or manager **must** pause or stop the activity. However, if the activity must still go ahead, the commander or manager **must** consider applying additional control measures and, if required, elevate the risk through their chain of command for approval.

Commander's action:

Make sure you review the risk assessment and consider any further control measures that may be needed, before re-approving it. Once the risk assessment has been approved, it **must** be followed. If at any stage of the activity, including before it starts, the direction in this policy or the control measures in the risk assessment cannot be met, or anyone shows signs of cold injury, you **must** re-assess the risk.

You **must** then consider doing the following.

- **Pausing or stopping the activity** - If the activity needs to be paused or stopped, you **must** carry out a dynamic risk assessment in line with policy statement 5. However, there are a very limited number of activities that may need to continue without pausing or stopping. Examples include combat operations and other instances where pausing could cause a greater risk to life than continuing. The original risk assessments for these activities **must** indicate that a greater level of risk is acceptable for the task to be achieved. When this is the case, the level of risk must be elevated and approved at the appropriate level in the chain of command before the activity starts.
- **Applying further control measures** - Further control measures could be, for example, introducing alternative ways of working or personal protective equipment (PPE). If the risk that remains after applying further control measures is higher than the level of risk you are authorised to accept, you **must** elevate the risk through your Military Command's or Defence organisation's elevation process.
- **Elevating the risk** - If the risk of an activity is higher than the level of risk you are authorised to accept, you **must** elevate the risk in line with your Military Command's or Defence organisation's elevation process. In exceptional and unforeseeable operational circumstances where it is not possible or proportionate to refer the matter to a superior officer, you may accept the risk and take personal responsibility for the consequences. However, in these circumstances you **must** report your decisions up through your chain of command at the earliest opportunity.

Note: All decisions you make in connection with the actions above **must** be recorded in line with step 4 of the five-step risk assessment process during the planning stage, and in line with step 5 once the activity has started.

HEAT-ILLNESS RISK PLANNING TOOL

Step 1: Identify the hazard
Step 2: Decide who might be harmed and how
Step 3: Evaluate the risks and identify suitable and sufficient control measures

Activity	Identify and evaluate the risks of the activity	Results	How do I control the risks of the activity?	Notes/control measures
Operations Specific tasks	There may be a greater risk from personnel pushing themselves too far to make sure they complete the task. This may mean that they continue the activity even at the point when the risk is highest, so greater levels of monitoring and responses are required. Control measures will need to be authorised from higher authority.		Improve response times and increase the level of medical support. Use stricter scrutiny and monitoring to make sure there can be an immediate response.	
Training	Untrained or less-experienced personnel can present a greater risk.		Can the training be rescheduled or more time allowed? Adjust the criteria to reduce intensity.	
Test Selection Assessment	Is it a 'pass or fail' exercise or a selection process? Activities that personnel consider to be more important present a greater risk.		If feasible, consider rescheduling the activity if the risk factors cannot be controlled or offering other opportunities. Restrict to light exercise the day before fitness assessments, to minimise the risk of illness or injury.	
Role	Assess the work rate.		Can work be broken down or breaks introduced? Share the tasks - use a team or substitutes?	
Duration	The longer the duration, the greater the risk. Is it a continuous activity or does it need scheduled rests? Conditions (environmental and personal) may change over the duration of activity. Unplanned extensions of the activity will need to be dynamically risk assessed.		Plan when to carry out dynamic risk assessments and elevate the risk if the activity goes beyond the planned duration. Use other people to help with monitoring the activity. Can the activity be changed if conditions change?	

HEAT-ILLNESS RISK PLANNING TOOL

Environment	What are the environmental conditions?	Results	How do I control the environmental risks?	Notes/control measures
Type	Temperate (moderate), tropical, desert, polar etc? All activity in the UK and northern Europe is considered to be not acclimatised.		Understand the effects of the environmental conditions - Theatre specific orders will provide more detail.	
Weather	Identify the weather factors – typical temperature and humidity. Is there an expected change? For weather forecasts, contact the JOMOC (Joint Operational Meteorology and Oceanography Centre) 24-hour phone line – military: 9360 58112, civilian: +44 (0)1923 958112.		Adjust the time the activity starts, the duration and the appropriate clothing.	
WBGT	Do you have access to a WBGT reading? Is a reading a 'must' for your activity? If you do not have a WBGT forecast, how do you manage the activity (approval from the chain of command or from referring to JOMOC)?		Make sure you know the WBGT forecast for the duration of the activity. Make sure it is available appropriately and you can access that and the QT34 readings.	
Topography (landscape)	Difficult terrain (sand, bog, ice), lack of shade and changes to the steepness of climbs can increase the physical effort and the risk.		Plan and recce routes to reduce the steepness and height gained and maximise shade. Avoid difficult terrain if reasonably possible for the activity.	
Operating space and vehicles	Is the operating space confined or a controlled environment (for example, a vehicle cabin, an air-conditioned space, a tunnel or an confined space)?		What if the device controlling the environment breaks? Can the personnel use other cooling methods or move out of the confined space?	

People	Who is taking part?	Results	How do I control the risks to individuals?	Notes/control measures
Numbers and experience of personnel	Can you manage the number of personnel taking part? How did the individuals perform during previous or similar activities? Have you identified individuals at a greater risk?		Make sure you have adequately trained staff to support personnel. Identify the individuals at most risk and allocate a 'buddy'. Hold pre-training and raise awareness of heat illness.	
Health, fitness and lifestyle	Are any individuals in a poorer condition than usual (for example, after a recent injury or loss of fitness)? Does anyone have a known health condition?		Make sure there is a graduated return to an appropriate level of fitness. Know your people and check the health and fitness of those taking part. If the fitness of individuals is not fully known, the risk assessment must take account of this.	
Clothing and equipment	Do the personnel have appropriate layers, equipment, load and so on? Can these change?		Make sure clothing and equipment is appropriate. Provide the opportunity for personnel to take action to cool down (for example, by taking off layers, soaking or resting in the shade). Provide the correct safety equipment.	
Hydration, nutrition and rest	Will personnel be able to have water and nutrition before, during and after activity? Have they missed meals? Are individuals rested or have they experienced recent fatigue or loss of sleep, or taken part in high-exertion activity?		Make sure enough water is available throughout the activity. Restrict social events, gatherings and so on involving alcohol in the 24 hours before the activity. Can you factor in periods of rest?	
Travel	Avoid activity in the 24 hours after air travel if this is feasible.		Apply acclimatisation measures and adjust the work rate. (All personnel performing an activity in the UK or Northern Europe are considered as not acclimatised.) Introduce longer or more frequent rest periods.	

Medical	What if there are casualties?	Results	What is my plan for dealing with cases of heat illness?	Notes/control measures
Response when there are casualties	What do you need to do? Where and Why? With whom? What will you do if it all goes wrong?		Conduct medical briefs and education events to raise awareness of heat illness (signs, symptoms and treatment). Make sure you have enough medics, first-aid training and emergency vehicles, and have rehearsed responses (for example, evacuations). Check your procedures (for example, that you have emergency phone numbers, know opening hours and so on).	

Step 4: Record and implement findings	
Action	**Comment**
Record	Record the heat risks as part of the overall risk assessment, and make sure the risk assessment is authorised by a named commander.
Report and elevate	Report additional risks and elevate risks that you cannot control, or that have not been authorised, up the chain of command.
Communicate	Make sure everyone taking part and all support staff understand the risks, control measures and medical plan. Use orders, briefs, exercise instructions and so on.
Training	Carry out pre-activity training if appropriate or necessary. Make sure you identify and monitor the individuals at greater risk. Use qualified staff to carry out the training.
Consider the balance of risk and reward	Does the reward for taking the risk reflect the level of risk taken? Would a greater risk arise from pausing the activity (for example, if not taking part in the later stages of pre-deployment training would transfer the risk from training to operations)? There are times when greater risk is acceptable (for example, when preparing for operations, to make sure personnel are operationally ready).
	A risk assessment must be approved by the activity commander.

Step 5: Review the risk assessment and update as necessary

Ask yourself the following and confirm higher up the chain of command.

- What is the consequence of stopping, or not going ahead with, the activity? Can alternatives be found?
- Have I identified all the risks and the individuals at greater risk?
- How often do I need to review the situation?
- Have I recorded any extra control measures?

Notes

EXAMPLE WORK RATES including 'ratings of perceived exertion' (RPE).

	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**	• 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**	• 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**	• 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 physically demanding 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**	• 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

Work/rest tables

Use 'work/rest tables' to plan periods of rest during an activity in order to reduce the risk of heat illness. The tables are in JSP 375 (Volume1, Chapter 41, Annex C). You can get access to the tables through your headquarters or controlling station.

There are known WBGT upper limits for some specific activities, such as annual fitness tests. Details on specific activities can be found in Military Command or Defence organisation policy.

Active management and rapid responses to changing conditions or signs of risk are vital for avoiding serious cases of heat illness. The **RAPID** checklist below is intended as a guide for commanders to use just before and during a planned activity, to make sure the key elements of the safe system of work and training are in place. It does **not** replace the Defence five-step risk-assessment process used to carry out a formal risk assessment of the activity.

	What to do	Comment
R	Assess, understand and control the **R**isks	• Make sure there is an up-to-date risk assessment? • Make sure the risk assessment is checked and signed by the person responsible for the activity. • Do you understand the controls set out in the risk assessment?
A	What are the specific considerations relating to the **A**ctivity?	• Does the activity increase risk? Do you understand the intensity of the activity? What clothing and equipment is needed? • Is it a test? What is the duration? Do you have the correct equipment? • How would you manage an emergency?
P	Are the **P**ersonnel prepared and competent for the activity?	• Consider acclimatisation, education and training, experience, fitness, injuries, and the effect of other activity (flight or social event). • Are those taking part rested, fed and hydrated, wearing the right clothing and carrying the right kit? • Do you have enough personnel with the necessary 'skills, knowledge, experience and behaviours' (SKEB) for the activity?
I	Has the correct **I**nformation been supplied to the participants?	• Does everybody understand the control measures? • Do those taking part understand the causes, signs and symptoms of heat illness and know what to do if they have or witness them? • Does the medical plan have adequate resources (both staff and equipment) and have staff been adequately briefed? Are the casualty procedures rehearsed and agreed with all staff?

D	**D**ynamically risk manage the activity	• All activity **must** be 'dynamically' risk managed, with risk assessments carried out while the activity is underway as well as before it starts.
		• How will you manage a situation and prevent an emergency?
		• What could trigger a review of the risk assessment?
		  • Difficulty – is the activity more difficult than you thought (terrain, intensity and so on)?
		  • Duration – is the activity lasting longer than planned?
		  • Casualty – has there been a heat-illness casualty?
		  • Environmental – has there been a change to the weather forecast or WBGT (a measure of heat stress in direct sunlight, which takes account of factors such as temperature, humidity, cloud cover, wind strength and the height of the sun)?

CONDUCT

Policy Statement 5:

All activity **must** be dynamically risk managed, if heat illness symptoms are observed:

a. The activity **must** be paused, **must** be dynamically risk assessed and further control measures **must** be applied.
b. The activity **must** only be be restarted once further control measures have been applied and with the approval of the commander or manager at Policy Statement 1.
c. All suspected and confirmed heat illness casualties **must** be reported and investigated in accordance with the Defence organisations Policy.

Commander's action:

Monitor the activity, liaise with junior commanders, safety staff and medical providers, and make sure that effective treatment is delivered to any suspected heat-illness casualties.

When heat illness is suspected, the activity **must** be paused. The commander or manager **must** carry out a dynamic risk assessment and **must** put further control measures in place to prevent other cases of heat illness. These extra control measures **must** be recorded, in line with step 5 of the five-step risk assessment process.

Act quickly if you identify suspected heat-illness casualties or any change to factors that can increase the risk of heat illness (increased duration or intensity, or a change in weather or WBGT).

If considered necessary, do not restart the activity until clearance has been given (over the phone or radio) by the named commander of the activity.

Defence tasks can often be extremely demanding. To adequately prepare military personnel for operations, the training and selection activities **must** be robust and realistic. They will sometimes push people beyond what is comfortable for them, but in a controlled and safe environment.

No life should be risked by pushing on through life-threatening conditions during training or assessment.

The chain of command must report all suspected or confirmed (clinically diagnosed) cases of heat illness to the Defence Accident Investigation Branch (DAIB), within 48 hours, on their Duty phone line (01980 348622). As a minimum, reports should specify the time, location, WBGT reading, weather forecast (if available) and type of activity being undertaken. Personal details of the casualty should include their name, rank, service or staff number and a description of the illness or injury.

TRAINING

Policy Statement 6:

Those involved in planning or undertaking activities which involve risk of heat illness **must** receive suitable training.

Commander's action:

Make sure that:

- you have received sufficient training to confidently apply this policy statement;
- those under your command have a basic awareness of heat illness; and
- you have access to medical advice to help with planning and undertaking activities.

To help all personnel understand the causes and effects of heat illness, an introduction to heat illness prevention training is available on the Defence Learning Environment (DLE) as Module 1. The training **must** be completed by all military personnel at the earliest opportunity (phase 1 training for new entrants) and then at least every two years for the rest of their career. For all non-military personnel, Module 1 training **must** be completed before any activity where a risk of heat illness could reasonably be expected.

Commanders, managers and those planning activities **must** assess the risks of heat illness and take action to reduce and prepare for those risks. To support this, a more detailed package of heat illness prevention training courses for commanders or managers is available on the DLE as Modules 2 and 3.

- Module 2 **must** be completed by all commanders or managers in advance of them commanding, managing or planning any activity where a risk of heat illness could reasonably be expected.

- Module 3 is a standalone course to make sure acclimatisation for deployment is managed effectively. This module **must** be completed by all commanders or managers in advance of them commanding, managing or planning deployments where a risk of heat illness could reasonably be expected. This module **should** also be completed by all personnel before deployment if a risk of heat illness could reasonably be expected.

- Module 4 (The Wet Bulb Globe Temperature (WBGT): Monitoring the Environmental Conditions) is not a mandatory course and will not replace the existing in-depth specialist training courses (for example, those completed by specialist users of the QT34 WBGT monitor). Module 4 has been developed following a training needs analysis and a recommendation that there should be a training package for personnel as 'occasional users' who want to know more about what the QT34 monitor is and how it works. This module may, for example, be used by commanders or managers to gain a better understanding that will help them in carrying out risk assessments.

HEAT ILLNESS - RECOGNITION, PREVENTION AND TREATMENT

Preparation

The **universal training precautions (UTP)** help with preparing individuals and reducing the risk of a collapse due to exertion. The precautions include the following.

- Acclimatise to heat or altitude.
- Progressively increase the duration and intensity of activity.
- Have enough hydration to maintain clear, light-yellow urine.
- Avoid stimulants, diuretics, energy drinks, antihistamines, decongestants, non-steroidal anti-inflammatory drugs (NSAIDs), opioids, methylphenidate and weight-loss or performance-enhancing supplements before and during exercise.
- Avoid alcohol before exercise.
- Follow cycles of work and rest.
- Observe personnel for at least 10 minutes after exertion.
- Make sure medical facilities are available and provide prompt medical attention when early signs of distress are observed.

Signs & symptoms

The symptoms of heat illness are varied, and each casualty will display symptoms differently. The list below is of common symptoms, but other symptoms may be seen.

- Agitation
- Nausea or vomiting
- Staggering or loss of co-ordination
- Cramps
- Disturbed vision
- Confusion
- Collapse or loss of consciousness
- Dizziness

Actions

At the **first** sign of symptoms, do the following.

- Immediately pause the activity for everyone (you do not need authorisation through the chain of command).
- Start treatment and summon medical help if medics are not already present.
- Check the group to see if others are struggling.
- Assess the situation and evaluate the seriousness.

While exercising, fatigue and muscle discomfort is normal and does not need to be reported. Encourage individuals to report unusual discomfort or physical distress when exercising, or if they have a current illness, and to get immediate medical attention if necessary.

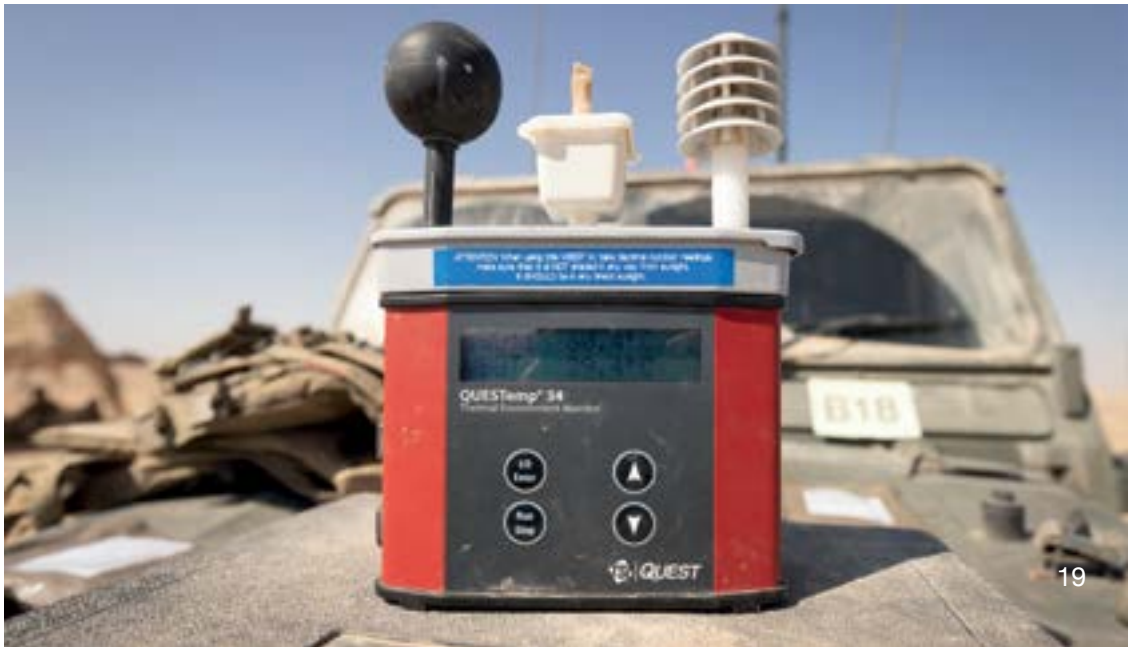
If anyone has concerns about another person, they **must** be encouraged to report it. Commanders and medics have a responsibility to protect highly motivated personnel from themselves. If in doubt, do not hesitate to sit an individual out, even if they want to continue.

Treatment

- **Move the casualty to the shade and start to cool them down.**
- **Strip** off heavy clothing and boots, raise their feet if they are conscious.
- **Spray** or drizzle water over the remaining light clothing.
- **Fan** air over the casualty.
- If the casualty is conscious, get them to drink cool water. If unconscious, carry out CABC (Catastrophic haemorrhage, Airway, Breathing and Circulation checks.
- Alert medical cover.
- Consider evacuation – moderate and severe cases **must** be safely evacuated, if reasonably possible, for professional medical care.
- In mild cases, the affected individual **must** rest for at least 30 minutes. After 30 minutes, if the individual is fully recovered and the task is operationally essential, consider allowing them to continue under close supervision rather than arranging an evacuation.

Reporting

All suspected and confirmed cases of heat illness **must** be reported in-line with Military Command or Defence organisation occurance-reporting procedures and the responsibility for this rests with the chain of command. As a minimum, reports **should** specify the time, location, WBGT reading, weather forecast (if available) and type of activity being undertaken. Personal details of the casualty **should** include their name, rank, service or staff number and a description of the illness or injury.



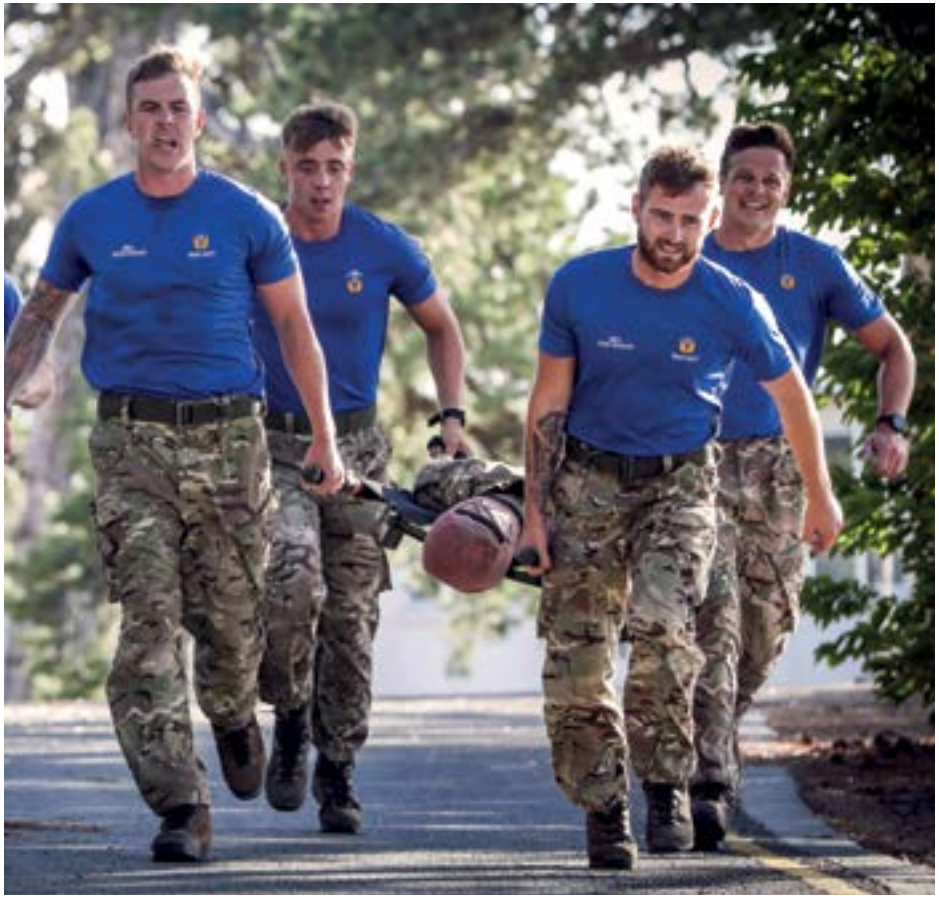
Policy Statement 7:

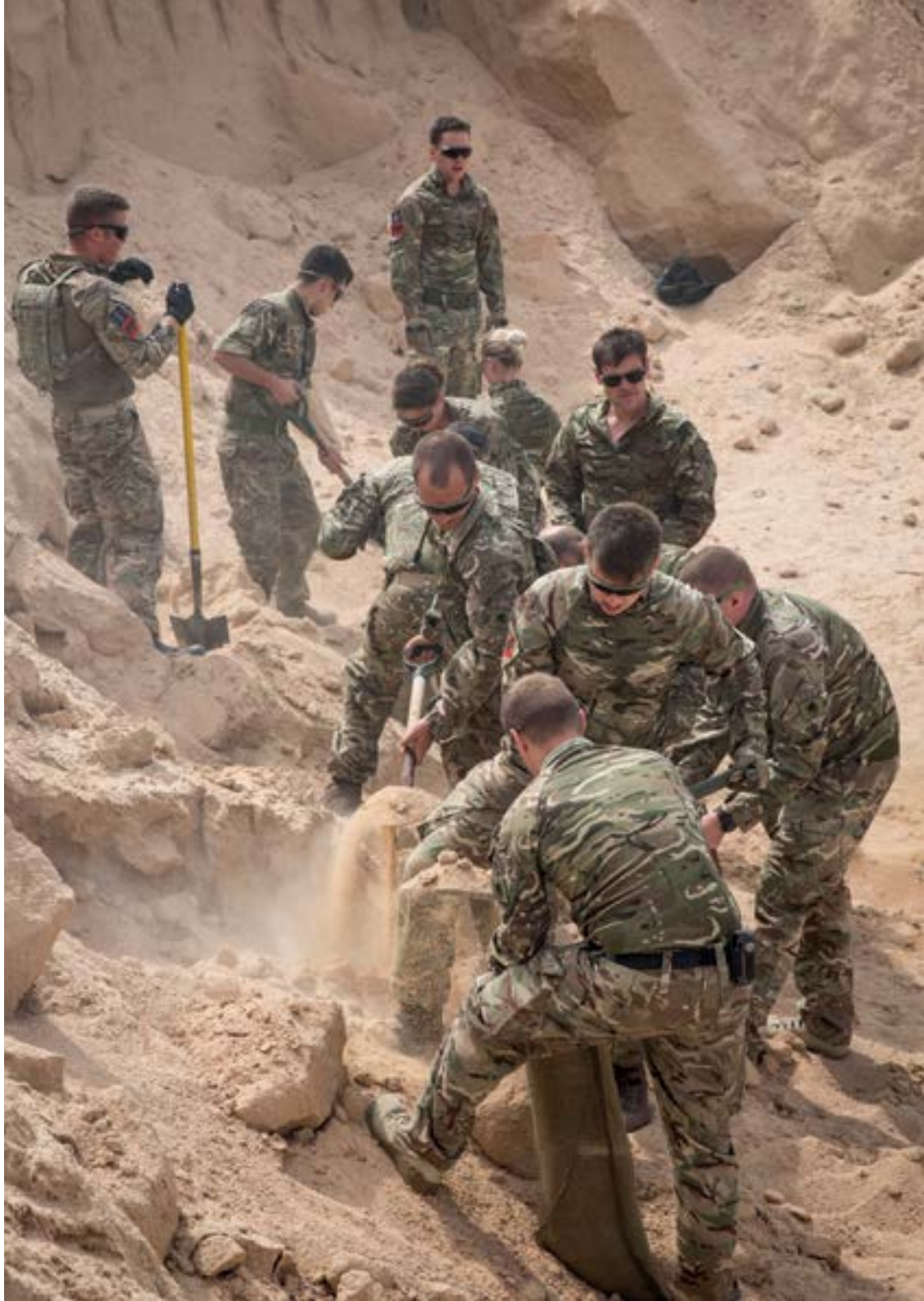
The commander or manager, together with their chain of command, **must** make sure that this policy is followed and provide assurance of this.

Commander's action:

The application of this policy must be assured (that is, its use **must** be guaranteed). Assurance **must** be carried out as set out in JSP 815.

As part of their overall assurance activity, the commander or manager, together with their chain of command, **must** make sure that this policy is being followed and put into practice effectively.





HYDRATION GUIDANCE

Adequate hydration is essential to maximise heat loss through sweating. Commanders **must** make sure that personnel are appropriately hydrated for the activity they are taking part in, so you **should** encourage drinking before, during and after a high-risk activity. Further guidance on hydration is set out in JSP 375 (Volume 1, Chapter 41, Annex F).

The recommended water intakes before and after high-risk activities are as follows.

- At least 500ml of water during the two hours before a high-risk activity.
- A further 300ml over the 15 minutes before the activity.
- One litre of water over one or two hours after the activity.

The table shows maximum intakes during an activity, based on WBGT and work rate.

WBGT (expressed in °C)	Maximum recommended fluid intake, in litres of water per hour (l/hr), for different WBGTs and work rates (see Annex C)			
	Easy work	Moderate work	Hard work	Very hard work
20°C to 24.9°C	0.25	0.5	0.75	1.0
25°C to 26.9°C	0.5	0.75	1.0	1.25
27°C to 29.9°C	0.5	1.0	1.25	1.25
30°C to 33.9°C	0.75	1.0	1.25	1.25
34°C or more	1.0	1.25	1.25	1.25
Note: a standard issued military water bottle holds one litre.				

The figures in the table above are maximum recommendations for the duration of the activity and drinking **should** always be appropriate to the nature of the activity.

In situations where the maximum recommended intake is 1.25l/hr for up to four hours, personnel **should** have electrolyte drinks rather than plain water, to reduce salt loss.

Factors to consider

The amount of fluid a person needs depends on many things, including:

- body weight and size;
- the weather and ambient temperature;
- the level and duration of physical activity.

Fluid includes not only water, but also other drinks that provide hydration and water contained in food.

Danger of overhydration

Overhydration does not further reduce the risk of heat illness and can cause severe medical consequences. Drinking too much water without eating or replacing electrolytes can lead to low levels of sodium in the blood (hyponatraemia), which is a serious and potentially fatal condition.

Replacing salts

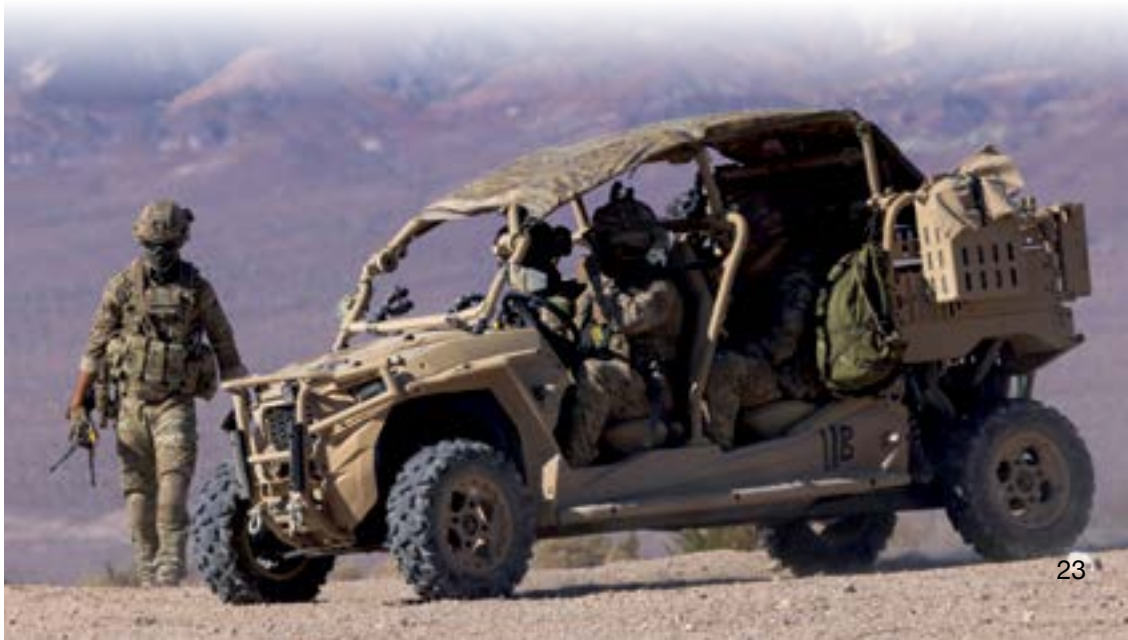
Under conditions that cause persistent sweating, acclimatised personnel should receive sufficient salt from their normal diet. It is therefore important to maintain food intake throughout the day. Non-acclimatised personnel may need extra salt with their food. However, salt **should** be added 'to taste' as excess salt intake is dangerous.

Electrolyte drinks

When eating is not possible, or a person has lost their appetite, electrolyte drinks **should** be provided to replace fluid and salt. If electrolyte drinks are not available, salt **should** be added to water – one sachet (1g) of salt to one litre of water, or two sachets to 1.5 litres of water.

Drinks to avoid

Sports drinks may help with recovery after prolonged physical activity, but water is the preferred option in all other circumstances. Caffeinated, stimulant or energy drinks are not recommended for rehydration. Sugary drinks encourage the growth of bacteria in water bottles or hydration bladders, which **should** be thoroughly cleaned at least daily.



ANNEX A TO JSP 375, VOLUME 1, CHAPTER 41 (V1.3 APRIL 2023)

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