



DANISH MARITIME AUTHORITY



Heat exhaustion and heatstroke

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Heat exhaustion and heatstroke

Heat exhaustion is not an illness in itself, but a symptom of something is wrong.

Staying in a warm climate there is a great risk for heat exhaustion and at last heatstroke. The risk increases considerably with hard physical work.

Our bodies are very sophisticated in adjusting the temperature, but also vulnerable, if we are not able to prevent intense influence in the temperature.

In this guideline it is described what is necessary to prevent heat exhaustion; as it is actually possible to do through acclimatization by finding out if you are in a special risk of heat exhaustion and how to prepare yourself for the heat from home.

If you are unlucky it is necessary that you are able to respond and act suitable. These guideline is ended with a description of the first aid for both layman and paramedic.

Acclimation:

Acclimation is the adjustment to stay in the heat. For most people it will typical take 5 days to adjust. After 14 days 95% are acclimatized. Acclimation goes faster the other way around, when you leave the heat.

The purpose of acclimation is to obtain the following physiological changes:

- Be able to sweat more.
- Be able to reduce the loss of salt in the sweat.
- Be able to spread the body heat better and thereby reduce the temperature of the body.

This prevents the risk for heat exhaustion and heatstroke.

Persons in special risk:

All can be befallen with Heat exhaustion and heatstroke, but some are in bigger risk than others. This will be a matter of:

- Persons which on short notice are send to warm/moist areas.
- Persons which overstrain themselves by work or exercise in warm moist surroundings.
- Infants and children up to 4 years old.
- People with overweight
- Persons with heart/cardiovascular- and lung diseases
- Persons who receives some kinds of medication (in particularly nerve medication, heart medication and diuretic medication). **Therefore always ask the doctor who prescribes the prescription of the above mentioned.**

How you prepare yourself to be send to the heat

- Start on adjusting before you arrive. Must be repeated every day – also after arrival.
- Expose yourself to heat, possible by exercising ½-1 hour a day gradually up to 2-4 hours.
- Get used to drinking 3-5 litre fluid day and night.
- Find out if you are in the special risk (see the above)

Good advices in the heat

- The work must be arrange properly according to your health
- Drink 3-5 litre fluid day and night. In extreme cases you can loose up to 5 litre sweat an hour and at the same time only absorb 1 litre.
- You should drink the whole time, also when it is chilly at night and in the morning.
- Do not drink sports drinks which contain more than 6% sugar.
- Make sure to supplement the salt supply (for example with chips, salami or salt on the food)
- Eat fruit which contains different salts which you need.
- Arrange your workday so there is opportunity to take a break, opportunity for fluid- and salt intake.
- Avoid warm clothes which do not allow the body to breath
- Work as much as possible in the shade
- Be aware of each other
- Make sure that the body is cooled down at least once day and night. Possible through a bath.

FIRST AID AND TREATMENT AT HEAT EXHAUSTION

Ease symptoms	Treatment (layman)
<ul style="list-style-type: none"> • Normal body temperature • Hefty sweating • Headache • Dizzy • Prickly feeling • Slackness • Normal tired • Loathing for food • Nausea • Apathy • Easy to irritate • Painful cramps in the large muscle groups. Especially legs, arm 	<ol style="list-style-type: none"> 1. Away from the heat, if possible into a room with air condition 2. Give water or fruit juice to drink 3. Reduces clothes to minimum 4. More salt on the food + fruit <p style="text-align: center; color: red; margin-top: 20px;">Contact paramedic onboard.</p>

Severe symptoms	Treatment (paramedic)
<ul style="list-style-type: none"> • Unbearable cramps in the large muscle groups. Especially legs, arms and stomach and often at night, where the cramps do not go away with salt contribution to the food. • Hefty sweating • Headache • Dizzy • Prickly feeling • Temperature 37-40 C. • Slackness • Normal tired • Loathing for food • Nausea • Apathy • Easy to irritate • Fainting • Fast respiration • Fast pulse 	<p>If the patient is consciousness and can drink.</p> <ol style="list-style-type: none"> 1. Away from the heat, if possible into a room with air condition 2. Clothes is reduces to minimum 3. Give Revolyt (12.7) 4. Measure temperature if over 40 C, Look at the section regarding heatstroke. Paramedic contacts nearest doctor/hospital or Radio Medical <p>If the patient is unconscious and can no drink.</p> <ol style="list-style-type: none"> 1. Away from the heat, if possible into a room with air condition 2. Secure free airways and give 6 litre/min 3. Apply venous needle (see medical adviser) 4. Set up 1 litre sodium chloride, 9mg/ml (16,1) 5. Clothes is reduces to minimum <p style="color: red; margin-top: 10px;">Look at the section regarding heatstroke. Paramedic contacts nearest doctor/hospital or Radio Medical</p>

FIRST AID AND TREATMENT AT HEATSTROKE

Severe symptoms	Treatment (paramedic)
<p>Heatstroke and sunstroke: Same symptoms as the above, but</p> <ul style="list-style-type: none"> • The temperature > 40 C • Possible dry skin 	<p>If the patient is consciousness and can drink.</p> <ol style="list-style-type: none"> 1. Away from the heat, if possible into a room with air condition 2. Clothes is reduces to minimum 3. Give water or fruit juice 4. Clothes is reduces to minimum or make the clothes wet 5. Measure temperature 6. Ice bags in groin and armpits 7. Keep on cooling until the temperature is 39- 40 C 8. Give Revolyt (12.7) <p style="text-align: center; color: red;">Paramedic contacts nearest doctor/hospital or Radio Medical</p> <p>If the patient is unconscious and can not drink.</p> <ol style="list-style-type: none"> 1. Away from the heat, if possible into a room with air condition 2. Secure free airways 3. Give 6 litre oxygen 4. Clothes is reduces to minimum or make the clothes wet 5. Measure temperature 6. Ice bags in groin and armpits 7. Keep on cooling until the temperature is 39- 40 C 8. Apply venous needle (see instructions in Danish Maritime Authority's medical adviser) 9. Set up 1 litre sodium chloride, 9mg/ml (16,1). <p style="text-align: center; color: red;">Paramedic contacts nearest doctor/hospital or Radio Medical</p>