Managers and supervisors
Introduction

• The Ministry of Labour (MOL) in UAE issues a Decree every year concerning the mid-day break during the summer months for those working under the sun:
  15 June-15 September
  between 12.30 pm – 3.00 pm

• Abu Dhabi Occupational Health and Safety Center (OSHAD) supports MOL by raising awareness on heat illnesses and injuries through the Safety in Heat Program.
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OSHAD Video

• OSHAD Video
Legal Requirements

• The Ministry of Labor issues a ministerial decree every year concerning the determination of the Mid-day break during the summer months

• This applies to all workplaces in the UAE

• Requires a midday break and also provisions to be supplied to all affected workers

• Includes mechanism to fine and prosecute breaches
Legal Requirements

- Cop 11.0 adds additional requirements for employers to:
  - Undertake a specific risk assessment for working in the heat
  - Provide specific training to all workers, including managers, supervisors and first aiders
  - Develop and implement a heat stress program
Heat Stress

• Heat injuries and illnesses result when the body cannot effectively get rid of heat as fast as it is generated. If not recognized and treated early this can lead to serious illnesses even death

• Many different symptoms or signals can be identified to show a person is suffering for heat stress

• It is important that as managers and supervisors you are able to spot these and take early preventive action
Symptoms of exposure to Heat

- Heat stress can result in:
  - Heat Rash
  - Heat Cramps
  - Heat Syncope
  - Heat Exhaustion
  - Heat Stroke

- Heat can also increase the risk of injuries in workers as it may result in sweaty palms, fogged-up safety glasses, and dizziness.
Common Symptoms - Heat Rash

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather.

Symptoms
• Red cluster of pimples or small blisters
• Occurs on the neck and upper chest, in the groin, under the breasts, and in elbow creases

First Aid
• Work in a cooler place
• Keep the affected area dry
• Use dusting powder to increase comfort
Common Symptoms - Heat Cramps

Heat cramps affect workers who sweat a lot during strenuous activity. This sweating depletes the body’s salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

Symptoms
• Muscle pain or spasms usually in the abdomen, arms, or legs

First Aid
• Stop all activity, and sit in a cool place
• Drink clear juice or a sports beverage
• Do not return to strenuous work for a few hours after the cramps subside because further exertion may lead to heat exhaustion or heat stroke
• Seek medical attention if any of the following apply:
  - The employee has heart problems
  - The employee is on a low-sodium diet
  - The cramps do not subside within one hour
Common Symptoms - Heat Syncope

Heat syncope is a fainting episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include dehydration and lack of acclimatization.

**Symptoms**
- Light-headedness
- Dizziness
- Fainting

**First Aid**
- Sit or lie down in a cool place when they begin to feel symptoms
- Slowly drink water, clear juice, or a sports beverage
Common Symptoms - Heat Exhaustion

Heat exhaustion is the body’s response to an excessive loss of the water and salt, usually through excessive sweating. Workers most prone to heat exhaustion are those that are elderly, have high blood pressure, and those working in a hot environment.

**Symptoms**
- Heavy sweating
- Extreme weakness or fatigue
- Dizziness, confusion
- Nausea
- Clammy, moist skin
- Pale or flushed complexion
- Muscle cramps
- Slightly elevated body temperature
- Fast and shallow breathing

**First Aid**
- Rest in a cool, shaded or air-conditioned area
- Drink plenty of water or other cool, non-alcoholic beverages
- Take a cool shower, bath, or sponge bath
Common Symptoms - Heat Stroke

Heat stroke is the most serious heat-related disorder. It occurs when the body becomes unable to control its temperature: the body’s temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. When heat stroke occurs, the body temperature can rise to 106 degrees Fahrenheit or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not given.

Symptoms
• Hot, dry skin or profuse sweating
• Hallucinations
• Chills
• Throbbing headache
• High body temperature
• Confusion/dizziness
• Slurred speech

First Aid
• Call emergency contact number and notify supervisor
• Move the sick worker to a cool shaded area
• Cool the worker using methods such as:
  - Soaking their clothes with water
  - Spraying, sponging, or showering them with water
  - Fanning their body
Roles and Responsibilities

- As a manager, supervisor or Occupational Safety and Health professional, you have an important role to help prevent workers being exposed to extreme heat and possible heat stress.

- It is important that preventative measures are implemented to protect workers.

- Development of heat stress programs should be considered early in the year to allow proper planning and implementation.
Specific Responsibilities

General

• Comply with all legal requirements
• Undertake a specific risk assessment
• Implement control measures to reduce exposure
• Comply with the midday break rule
• Ensure workers are acclimatized
• Early planning of work to reduce the exposure to heat for workers
• Ensure all workers are trained on how to recognize the symptoms of heat stress
Roles and Responsibilities

- Provision of cooled or air conditioned areas for workers to rest
- Provide appropriate drinks and meals suitable for hot conditions
- Develop and implement a full heat stress program
- Ensure first aid is available
Specific Responsibilities

Managers

• Early planning of work to reduce exposure to hot conditions
• Ensure workers are trained
• Provide lightweight PPE and clothing
• Ensure midday break rule is implemented
• Provide shaded areas for workers to cool down
Specific Responsibilities

Supervisors

- Make sure plenty of cool drinks are available
- Be aware of the common symptoms and monitor the condition of your workers regularly
- Ensure plenty of shaded areas are available for workers to cool down
- Ensure workers follow the midday break rules
- Allow more time for the job – workers need to self-pace themselves
Specific Responsibilities

First Aiders

• Know the common symptoms for heat related illnesses

• Know the correct action to take in each instance

• Be prepared
Risk Assessment

• A specific risk assessment must be undertaken

• Should consider
  • **Who** – is at risk
  • **What** – work are they doing
  • **Why** – are they doing it
  • **When** – are they doing it
  • **How** – are they doing it
Control Measures

• The risk assessment should identify control measures that can be implemented to reduce exposure and risk of heat related illnesses

• Should consider:
  - adding Insulation to building ceilings to minimize solar heat transfer;
  - providing shaded work areas;
  - providing cooled and air-conditioned rest areas with water or electrolyte drinks, as per qualified physician’s instructions;
  - using exhaust ventilation such as extraction hoods above heat-generating processes like a furnace or oven to remove heat;
  - using forced air-ventilation such as fans to increase airflow across the skin and increase evaporation and cooling; and
  - using cooled air from an air-conditioning system to cool work areas.
Heat Stress program

- Each employer must implement a heat stress program if a risk has been identified
- The program should identify what actions must be taken
- Must be specific to the workplace
Heat Stress program

- The heat stress program must include the following elements:
  - Acclimatization Procedure for new workers
  - Training and Awareness Procedure for those responsible of OSH
  - Requirements for the provision of appropriate drinks
  - Provision of appropriate lightweight clothing
  - Design and placement of shaded areas
Heat Stress program

- Process to schedule work to the coolest parts of the day
- Pre-job training (inductions) prior to working in high temperatures
- Permit to work procedure for extreme high temperature working
- Audit and Inspection to monitor the program
- Process for investigation and reporting of heat related incidents
Awareness and Training

• A vital part of a successful program is the provision of awareness and training

• Worksites must ensure that workers are given awareness sessions on heat related illnesses

• Specific training should be given prior to working in high temperature environments
  - Workers- on their roles
  - Manager – how to develop and implement a heat stress program
  - Supervisors / First Aiders – how to monitor
General Awareness

- General awareness session should be given in a language understood by workers and should consider the following:
  - Risks of working in heat
  - The importance of maintaining good hydration and eating a well balanced diet
  - The signs and symptoms of heat illnesses
  - Use and distribution of materials such as posters, videos, leaflets, etc
  - In addition to displaying of posters illustrating monitoring of hydration status by urine color in toilets and rest rooms (Example of a urine chart can be found in the Technical Guideline – Safety in the Heat under the “system”).
Specific Training
Workers

- Training for workers should consider the following:
  - how to recognize the signs and symptoms of heat related illnesses in themselves and others and how the body overheats
  - the importance of drinking water (at least 2 litres every 2-3 hours) and the addition of a little extra salt to meals
  - how to self-monitor urine color to determine hydration levels
  - the importance of acclimatization, work pacing, rest breaks and effects of clothing on heat stress
  - the procedures to call for first aiders and/or medical assistance if experiencing the symptoms of a heat related injury/illnesses
  - the requirements of the employer’s heat stress program.
Specific Training
Managers / Supervisors

• Training for managers should consider the following:

  - how to recognize the signs and symptoms of heat related illnesses and how the body overheats

  - the precautions to be taken for the prevention of heat related illnesses amongst the workforce

  - the importance of self-pacing and providing appropriate rest breaks for recovery

  - the procedures to call for first aiders and/or medical assistance

  - the requirements of the employer’s heat stress program
Specific Training
First Aiders

- Training for First Aiders should consider the following:
  - how the body overheats and how to recognize the signs and symptoms of heat related illnesses and its different types;
  - the precautions to be taken for the prevention of heat related illnesses
  - the first aid treatment of the different types of heat related illnesses
  - the procedures to call for medical assistance
  - the requirements of the employer’s heat stress program
Thermal Working Limit

- Employers must implement a process for assessing the environmental conditions and comparing it to the TWL heat stress index and implementation of the requirements of the relevant work zone control measures (refer to Technical Guideline – Safety in the Heat for guidance on this requirement).

- TWL, measured in watts per square meter (W/m²), is the maximum rate at which heat can be lost. TWL is calculated from parameters assuming that workers are well hydrated and acclimatized to the conditions.
Thermal Working Limit

• To determine TWL the following must be measured:

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Bulb Temperature (ambient air temperature)</td>
<td>°C</td>
</tr>
<tr>
<td>Wet Bulb Temperature (determined by the humidity/evaporation rate)</td>
<td>°C</td>
</tr>
<tr>
<td>Globe Temperature (determined by the radiant heat)</td>
<td>°C</td>
</tr>
<tr>
<td>Wind speed</td>
<td>m/s</td>
</tr>
</tbody>
</table>

• Instruments are available that carry out all of these measurements and internally compute the TWL.

Where to Monitor

• All hot work areas should be monitored:
• at least once per shift, during the heat of the day
• at any time that workers complain of excessive heat
• whenever anyone has reported signs of heat illnesses
TWL – Working Zones

Work in the Cautionary Zone

- TWL is between 115 and 140 W/m². Anything more than light work may lead to heat accumulation and illnesses if continued for too long.

- All possible measures must be taken to increase TWL to above 140 W/m² e.g. ventilation, shade, shielding, cooling PPE, etc.

- Work may still be carried out but work-rest cycling and increased fluid intake may be required.

- No unacclimatised workers may work in this zone

- Rotate workers if possible

- No lone or isolated workers may work in this zone

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Thermal Work Limit - Working Zones

Control Interventions, Rest-Work and Rehydration Schedules

<table>
<thead>
<tr>
<th>Working Zones</th>
<th>Interventions</th>
<th>Rehydration Schedule (per hr)</th>
<th>Work-rest Schedule (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk Unrestricted Zone</td>
<td>TWL: 140 - 220 &lt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cautionary Zone</td>
<td>No limits on self-paced work* for educated, hydrated workers.</td>
<td>Light Work 600 ml - 1 Litre / hr</td>
<td>Safe for all continuous self-paced work*</td>
</tr>
<tr>
<td>Medium Risk Cautionary Zone</td>
<td>TWL: 115 - 140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cautionary zone indicates situations in which environmental conditions require additional precautions.</td>
<td>Light Work 1.2 litres / hr</td>
<td>Safe for continuous self-paced light work*</td>
<td></td>
</tr>
<tr>
<td>High Risk Zone</td>
<td>TWL: &lt; 115</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strict Work/Rest cycling required</td>
<td>Heavy Work &gt; 12 Litres / hr *</td>
<td>Continuous paced work 45 work - 15 rest</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- Self-paced work* - workers must be allowed to adjust their work rate according to workplace conditions. Paced work is when the work rate is not under the worker's control.
- Unacclimatized workers are defined as new workers or those who have been off work for more than 14 days due to illness or on vacation leave in a cool climate zone.
- Light work* - sitting or standing, light arm work
- Heavy work* - carrying, climbing, lifting, pushing, whole-body work
- All work >12 Litres / hr * In general, fluid intake much above this level is not practical due to gastric discomfort as the upper limit for gastric emptying and fluid absorption is 12 litres / hr so control solutions to improve thermal conditions should be implemented in addition to providing adequate hydration to replace sweat lost.
Monitoring

- As part of the heat stress program regular monitoring must be undertaken including:
  - Inspections of the worksite
  - Audits of the procedures
  - Ongoing monitoring of the condition of workers
  - Daily checks on provision of drinks and meals