BEING HEAT ILLNESS AWARE AT THE TOKYO PARALYMPIC GAMES

AN ATHLETE GUIDE

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INTERNATIONAL PARALYMPIC COMMITTEE

Photo by Alexandre Loureiro
WHY IS HEAT ILLNESS A PROBLEM?

1. Athletes develop heat illness when the **body’s cooling mechanisms are not able to work** properly

2. Some **sports are at a higher risk** of getting a heat illness

3. Some **Paralympic athletes are at a higher risk** of experiencing heat illness symptoms because of their impairment e.g. SCI

4. Heat illness can happen in any weather and anywhere, but the likelihood is increased in how weather and in competition and it can be **life-threatening if not treated properly**
WHAT FACTORS CONTRIBUTE TO EXERTIONAL HEAT ILLNESS?

Athletes with tetraplegia are at a greater risk of heat injury when compared to athletes with paraplegia who, in turn, have a greater risk of heat injury when compared to able-bodied athletes.
WHAT ARE THE SIGNS AND SYMPTOMS WHEN I OR A FELLOW ATHLETE GETS TOO HOT?

Signs
(what you can see, maybe in another athlete)

Symptoms
(what you feel)

- Faint or dizzy
- Excessive sweating
- Cool, pale, clammy skin
- Nausea or vomiting
- Rapid, weak pulse
- Muscle cramps
- Throbbing headache
- No sweating
- Body temperature above 103°F
- Red, hot, dry skin
- Nausea or vomiting
- Rapid, strong pulse
- May lose consciousness

Altered mental state, dizziness, confusion

Elevated body temp $T_{re} 37.5^\circ C - < 40.6^\circ C$
Elevated body temp $T_{re} > 40.6^\circ C$
HEAT ILLNESS CONTINUUM

There are different degrees of heat illness you can experience so you need to know what to look out for.

Laintano et al (2019)
WHAT ARE THE WARNING SIGNS AND SYMPTOMS FOR THE DIFFERENT HEAT ILLNESSES?

**Warning Signs & Symptoms**

- **Heat Illness**
  - **Very Mild Severity**
    - Itchy rash
    - Light dizziness
    - General weakness
  - **Mild Severity**
    - Heat Odema
    - Heat Rash
    - Heat Syncope
  - **Moderate Severity**
    - Heat Cramps
  - **High Severity**
    - Heat Exhaustion
  - **Very High Severity**
    - Headache and nausea
    - Chills or goose bumps
    - Stop sweating
    - Faintness / dizziness

**Increasing severity of heat-related illnesses**
## What is the Treatment for a Heat Illness?

<table>
<thead>
<tr>
<th>Illness</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Odema</td>
<td>• Move to cool, shaded area, elevate affected area, remove jewelry/tight clothing</td>
</tr>
<tr>
<td>Heat Rash</td>
<td>• Apply something cold, (e.g. a damp cloth or ice pack (wrapped in towel) for up to 20 min</td>
</tr>
<tr>
<td>Heat Syncope (faint)</td>
<td>• Lie down, ideally in a cool, shaded area, drink fluids</td>
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<tr>
<td></td>
<td>• Seek medical help</td>
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<tr>
<td>Heat Cramps</td>
<td>• Sip water or a sports drink</td>
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<tr>
<td></td>
<td>• Gently stretch, massage and ice the muscle</td>
</tr>
<tr>
<td></td>
<td>• Call medical help if no improvement in 1 hour</td>
</tr>
<tr>
<td>Heat Exhaustion</td>
<td>• Call for medical help</td>
</tr>
<tr>
<td></td>
<td>• Lay down on back in a cool, shaded area</td>
</tr>
<tr>
<td></td>
<td>• Remove excessive layers of clothing</td>
</tr>
<tr>
<td></td>
<td>• Give a sports drink or water – unless likely to vomit</td>
</tr>
<tr>
<td></td>
<td>• Cool with a cool water spray or wet cloths and a fan</td>
</tr>
<tr>
<td>Heat Stroke</td>
<td>• Call for medical help</td>
</tr>
<tr>
<td></td>
<td>• While you wait for help to arrive, immediately cool the victim with any means at hand, preferably by immersing the casualty in cold water</td>
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<tr>
<td></td>
<td>• Monitor the casualty closely</td>
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</tbody>
</table>
WHAT SHOULD I DO IF I OR A FELLOW ATHLETE HAS HEAT STROKE?

Recognise → Evaluate → Act

If you or another athlete has signs or symptoms of heat stroke, seek medical help and the primary goal of treatment should be cooling the whole body within 30 minutes of recognising the heat illness, ideally immersing the body in cold water.

Box 1: Methods of body cooling

- Body immersion in iced water
- Evaporative cooling: spraying water over the patient and facilitating evaporation and convection with the use of fans
- Immersing the hands and forearms in cold water
- Use of ice or cold packs in the neck, groins, and axillae
- Invasive methods: iced gastric, bladder, or peritoneal lavage
CAN I RATE THE LEVEL OF HEAT ILLNESS?

HEAT ILLNESS SYMPTOM INDEX
Rate each of the symptoms using the scale below

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeling Tired</td>
<td>0</td>
</tr>
<tr>
<td>Cramps</td>
<td>1</td>
</tr>
<tr>
<td>Nausea</td>
<td>2</td>
</tr>
<tr>
<td>Dizziness</td>
<td>3</td>
</tr>
<tr>
<td>Thirst</td>
<td>4</td>
</tr>
<tr>
<td>Vomiting</td>
<td>5</td>
</tr>
<tr>
<td>Confusion</td>
<td>6</td>
</tr>
<tr>
<td>Muscle Weakness</td>
<td>7</td>
</tr>
<tr>
<td>Heat sensations on head or neck</td>
<td></td>
</tr>
<tr>
<td>Chills</td>
<td>8</td>
</tr>
<tr>
<td>Feeling light-headed</td>
<td>9</td>
</tr>
<tr>
<td>Stop practice</td>
<td>10</td>
</tr>
</tbody>
</table>

The Heat illness symptoms index can quantify mild and moderate heat-related illness symptoms and can be used to gauge the extent of some of the symptoms as well as whether the treatment you are using is helping.
CAN HEAT ILLNESS SUSCEPTIBILITY BE LESSENED?

As exercise intensity and/or duration of your competition increases in the heat of Tokyo, so does your risk of developing a heat illness.

But the black arrows represent a positive shift to **cope better with Tokyo heat stress** from using heat acclimation, **cooling** and **hydration strategies**.
10 STRATEGIES TO PREVENT HEAT ILLNESS

1. Before arriving in Tokyo **heat acclimate**
2. Reduce **duration of warm-up** (intensity and/or duration)
3. Drink **more fluids little and often** before competition and avoid caffeine
4. Use multiple **cooling strategies** (pre, during and post competition if able)
5. Wear **less** (layers), **loose** (breathable fabrics) and **light** (reflective colours)
6. Wear **hats** to protect from direct sunlight
7. Look for **shade** whenever possible
8. When not competing, **slow down** = less heat produced
9. Try to **eat light** - the more calories you take in, the more body heat you produce
10. To avoid the worst effects of the heat, **check the weather forecast** and **plan ahead**

Become familiar with heat illness signs & symptoms
SUMMARY: WHAT CAN I DO TO BE HEAT AWARE IN TOKYO?

**HEAT ACCLIMATE**
Develop a heat acclimation protocol with your coach to prepare yourself for the competition environment.

**KEEP HYDRATED**
Consume fluids little, but often and monitor your own hydration status.

**STAY COOL**
Use precooling, per (during exercise) cooling and post cooling to maintain core temperature and thermal comfort.

**KNOW HEAT ILLNESS SIGNS & SYMPTOMS**
Understand what the signs and symptoms of heat illness are so you can prevent them in you and your fellow athletes.
Hey Paralympic athlete!
What is your experience with exercise in the heat?

Are you competing in the 2020 Tokyo Paralympics?

We would like to hear from you!
Join our research project now by completing our survey before August 23, 2021.

Contribute to the professionalization of Paralympic Sports!
It only takes 15-20 minutes!

Find the survey via: bit.ly/heat-survey
or scan the QR code!
Available in: English, Deutsch, Español, Português, Français, Nederlands, العربية, 日本語, 普通话, русский

More about the research project
We aim to better understand heat-related illness issues and heat preparedness in Paralympic athletes. We hope to ultimately enhance heat preparation and reduce the risk of heat illness in the future.

We ask you to tell us about your experiences with heat illness issues and how you prepare yourself for competing in the heat.

We are an international team consisting of researchers and practitioners from Japan, the United Kingdom, Australia and the Netherlands!
RESOURCES THAT SUPPORTED THIS PRESENTATION


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THANK YOU