



Heat and Humidity as Risk Factors

THE CHALLENGES OF EXERCISING IN THE HEAT:

Key Points

- During exercise, the muscles produce heat. This heat must be dissipated, otherwise the body runs the risk of “overheating.” Overheating can result in serious, potentially life-threatening injuries.
- Sweating is one of the heat-dissipating mechanisms of the body. When sweat evaporates, it cools off the body. Evaporation of sweat works best when the air is dry. In moist, damp air, sweat cannot evaporate easily and cooling off is more difficult.
- High temperatures and high relative humidity make it hard for the body to dissipate heat; heavy sweating occurs, but the water lost does not help to cool off the body. Under these conditions, participants run the risk of overheating.
- Water lost as a result of heavy sweating can lead to dehydration. Dehydration can reduce performance, decrease the body’s ability to dissipate heat, and endanger health.
- During exercise in the heat, adequate hydration is a must. Participants must drink water whenever the risk of dehydration is present.
- Thirst is not a good indicator of a need for water. In fact, dehydration has already started if a participant feels thirsty.
- During most exercise conditions, the rate at which participants lose water exceeds the rate at which they can absorb it by drinking. This is accentuated during exercise in a hot environment. Therefore, participants need to drink fluids before they are thirsty.
- Children run a higher risk of overheating when exercising in the heat, because their sweating mechanism is not fully developed. In addition, children tend to not drink enough during exercise, in particular if the beverage is not flavored.

If the humidex is above 30°C, in particular if it exceeds 35°C,

- Tell participants to bring extra water or sport drinks; ensure there will be access to water during the practice or the competition, and bring a big jug of fluids.
- Tell participants to dress in loosely fitting, lightweight, and light-colored clothes.

- Plan for low-intensity activities.
- Plan for shorter work bouts, with frequent and longer pauses.
- Schedule practices early in the morning or during the evening; avoid the hours between 9 a.m. and 6 p.m.
- Consider changing the location of the practice to a shaded area
- Ask participants to bring umbrellas to create shade during breaks.
- Consider exercising indoors, in a facility with air conditioning.

Other Safety Measures to Avoid Heat Injuries

- Plan for participants to have enough time to get used to the environment they will face in competition. Insisting on heat acclimatization may mean not entering competitions if participants cannot train in a similar climate for approximately two weeks beforehand.
- In order to protect participants (in particular young children) against the potentially harmful effects of ultra violet (UV) rays, the following is recommended: they should wear a hat or a cap with a visor; clothes should cover the upper part of the body, the neck, the arms and the legs; sun screen lotion (protection factor of 30 or more) should be applied on the exposed skin, including the face and the hands. Participants should not expose their body to the sun without effective protection when the UV index is high.
- Before exercise, participants should drink 400 to 600 mL of fluid.
- During exercise, participants should drink 150 to 250 mL of fluid every 15 minutes. Remind participants to drink, lead by example, and never restrict them from drinking during a practice or a competition.
- After exercise, participants should rehydrate by drinking as much fluid as thirst dictates, and even force themselves to drink.
- Beverages should be cool (8 to 10°C and not too sweet; children prefer flavored sport drinks and these promote drinking.
- Tell the participants to bring a personal water bottle with cold fluids to each practice or competition; inform their parents about the importance of hydration; make sure each bottle is clean and well identified.
- Tell the participants to monitor their hydration level by checking their urine. If it is dark, there is not much of it, and it has a strong smell, the participants are most likely dehydrated and should force themselves to drink.

NB: Particular attention should be paid to these measures during the first few hot days of spring or summer, when participants are not yet acclimatized to hot and humid weather.