



To perform at your best, it is important to prepare smartly, acclimatize, and implement proper pre-, during, and post tennis hydration and cooling practices.

# PLAY IT COOL

## Risky Business

Playing tournaments means you will encounter very hot and/or humid environmental conditions. Training and competing in these extreme weather conditions is a challenge to all players' thermoregulatory (temperature control) systems. Proper planning and preparation, along with appropriate on-court management during play, will equip you to compete energetically through to the final point and reduce your overall risk of developing exertional heat-related illness.

When training and competing in hot and/or humid conditions, the risk for early onset of fatigue and heat-related illness is directly increased by the factors below:

- Inadequate hydration
- High sweating rate/loss
- Extensive sweat salt loss
- Poor heat acclimatization
- Poor nutrition
- Insufficient sleep
- Dehydration due to travel
- Overworking/undue fatigue
- Prolonged sun exposure
- Recent illness/infection
- Improper clothing attire



Some exertional heat illnesses are relatively minor when the indications and causes can be easily treated and promptly resolved by a healthcare provider. Exertional heat illness is considered major if the signs and symptoms described below progress to OR indicate a state which requires significant/extensive and immediate medical intervention.

Heat Illness	Signs & Symptoms
<b>Exertional Muscle Cramps (Minor Heat Illness)</b>	<b>Mild to intense muscle spasms in the legs, arms, and trunk triggered by muscle overload, muscle fatigue, and/or extensive body water and/or sodium deficits.</b>
<b>Heat Syncope (Minor Heat Illness)</b>	<b>Fainting or near-fainting is caused by extended exposure to heat, dehydration, and pooling of blood in the legs after exercise; characterized by dizziness, tunnel vision, weakness, and low blood pressure and heart rate.</b>
<b>Heat Exhaustion (Major Heat Illness)</b>	<b>Indicated by a normal or high body temperature (&lt;40°C/104°F), heavy sweating, (or absence of sweating), significant dehydration, energy depletion, excessive fatigue, weakness, headache, nausea, rapid breathing, low blood pressure, weak and rapid pulse, and collapse/fainting.</b>
<b>Exertional Heat Stroke (Major Heat Illness)</b>	<b>This is a medical emergency characterized by confusion, disorientation, impaired judgment, and possibly more severe central nervous system abnormalities (e.g., convulsions or coma), along with loss of body temperature control (≥40°C/104°F) and circulatory failure. This can lead to loss of consciousness, multiple organ (e.g., brain, kidneys, liver, spleen) failure, and tissue (including muscle) damage and death.</b>

Speak to your primary healthcare provider about proper match preparation, management, and recovery. Also ask about hydration testing, including assessment of sweating rate, sweat composition, and/or thermal strain. These tests help to determine the risk for heat-related illnesses and provide important information for developing individual guidelines for optimizing prevention, on-court management, and recovery.

## Prevention Is Key, Plan Ahead

### Heat Acclimatization:

- Allow adequate time for your body to adapt to hotter and more humid environments, so that you are more capable and likely to safely tolerate the new environmental challenges.
- The time it takes for complete heat acclimatization depends, in part, on the difference between environmental conditions in your recent/current location (and how long you were/have been there) and the new site.
- It could take up to 7 to 14 days of progressive exposure to the new conditions (exercising in the heat) for full acclimatization; but you will start to feel positive changes after 4-5 days.

### How Should You Acclimatize to the New Environment?

- Plan your schedule to include up to 7 to 14 days of progressive on-court heat exposure.
- Mimic the climate of your next tournament destination. If you are unable to train in a hot environment in advance, prepare by exercising in a warm room, while each day progressively increasing indoor temperatures and/or duration. Progressively longer daily time in a sauna can help too. Be sure to have someone with you and be careful to be well-hydrated and not overdo it!
- Upon arriving in a hot environment, train/practice first at the coolest part of the day. Each day progressively move those times, until you are training in the hottest part of the day. Gradually increase outdoor activity duration and intensity, with the goal of completing a 90-minute or so vigorous training/practice session in the heat without experiencing excessive difficulty or any early symptoms of heat illness. Give yourself 1-2 days to recover and prepare for your first match.
- Extensive and frequent exposure to extreme heat conditions during practices or early competition rounds may interfere with your body's ability to recover. Be sure to implement deliberate recovery strategies (see below) to cool the body after each heat exposure.

# How Can You Stay Cool?

## Pre-Cooling:

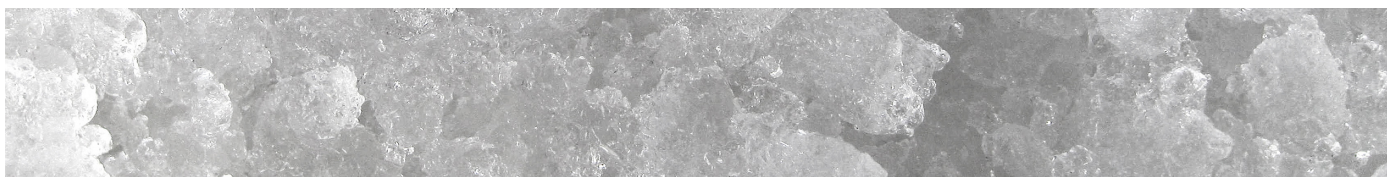
- These are steps to lower body core temperature before competing in hot and humid conditions.
- Generally, starting competition with a cooler body enables you to delay fatigue, increase your heat storage capacity, and perform more work before you reach a performance-limiting and potentially unsafe body core temperature.
- Stay out of the heat unnecessarily – prepare (stretch, etc.) in an air-conditioned area, warm-up in the shade (if possible).
- Choose one:
  - 30-40 minutes before the match, immerse in the ice bath for 5 minutes.
  - 20-30 minutes before the match, take a cold shower lasting 5 to 10 minutes in duration.
  - 1 hour before the match, apply an ice vest and/or ice blanket/towels to your torso for 15 minutes.
- 30 minutes before the match, drink 8-20 ounces of sports drink slushy.
- Other preparation steps - apply sunscreen before going on court, wear a hat/visor and dress in light-colored, breathable clothing.

## Per-Cooling:

- These are measures to reduce thermal strain (minimizing the rise in body temperature) during play/practice.
- Use an ice vest, ice towel, ice packs, and ice sausages on change of ends and between set breaks (and breaks during practice).
- Consume cool or cold water and sports drink regularly.
- Use an on-court umbrella and fan during change ends and between set breaks.
- Change clothes and socks at set breaks.
- If the Heat Rule is IN, take the 10-minute heat break and deliberately cool down (see below).

## Post-Cooling:

- This is the act of more deliberately lowering your body core temperature following a match or practice session, to enhance recovery and potentially reduce exercise-induced muscle soreness.
- Continuous cold immersion in an ice bath or cold shower: 5-10 minutes.
- Ice flush: 10 minutes.



# Hydration & Nutrition

## Pre-Match:

- 1-hour prior, hydrate with 12-16 oz of water/sports drink.
- Add salt to your on-court sports drinks, 590 mg (1/4 tsp) salt per 20 oz or 0.6 L.
- 2-4 hours before play, eat high carb, moderate protein, low fat.
- 30-60 minutes before play, consume a high-carb snack (gels, chews, chomps, fruit).
- Check your urine color or specific gravity to ensure adequate hydration.

## During Match:

- Drink up to 6-8 gulps every change of ends (a little more can be appropriate following extended games in the heat, especially if you are a heavy sweater).
- 1-1.5 L per hour (up to 2L/hour; generally 50:50 ratio of sports drink to water).
- 30-80 grams of carbs per hour from sport drinks, sports bars, gels, etc.



## Post Match:

- Drink about 16-20 oz of fluid per 1 pound of weight (mostly fluid) lost during play (equal to 1.0 - 1.2 liters of fluid per 1 kg weight loss) — not all at once.
- Complete a USG (urine specific gravity) test; wait 30 minutes after play.
- Within 30 minutes of finishing, consume a proper recovery snack of 30+ grams carbs, 15- 25 grams of protein, and low fat.



Take precautions to reduce the risk and prevent the onset of exertional heat illness. During a match, take multiple cooling options into account on each changeover:

- Umbrella shade
- Cold water & sports drink
- Ice towels & ice bags
- A change of attire break

Additionally, the Extreme Weather Conditions Rule allows you to take a 10-minute break between the second and third set when specified thresholds are reached for the environmental conditions, (based on air temperature, humidity, & court/sun radiant heat) or apparent air temperature (based on air temperature & humidity only).

- 10 minutes is adequate time to refresh, rehydrate, and noticeably decrease body core temperature. This can be accelerated by being in an air-conditioned area while implementing proper hydration strategies, cooling with ice and ice towels, and changing into dry breathable clothing and dry socks/shoes.

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The information provided within this "Play It Cool" topic is for informational purposes only and should not be treated as medical, psychiatric, psychological, health care or health management advice. If you have any health or related questions or concerns, please consult your physician or other qualified health care professional.