

Tokyo Olympics

FASTER, HIGHER, STRONGER... HOTTER



Top (from left): Estonian decathlete Maicel Uibo using an ice block to cool down; Polish pole vaulter Robert Sobera putting on an ice vest; and Serbia's Novak Djokovic resorting to ice and an air conditioner during his third-round tennis match. Above (from left): Australian swimmer Kareena Lee wearing a garment to regulate her body temperature; US decathlete Zach Ziemek with an ice pack; and a woman trying to stay cool on the golf course. PHOTOS: REUTERS, AGENCE FRANCE-PRESSE

Athletes struggle in Tokyo's heat; issue could be factor in planning future sports events

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In Tokyo

The world's top athletes have struggled to cope with Tokyo's blazing humid summer, prompting experts to warn that the heat factor cannot be underestimated in the planning of future sporting meets in a fast-warming planet.

The heat and humidity have been major hurdles at the Tokyo Olympics, with athletes turning to popsicles, ice cream, mist sprays and cooling vests to keep cool. The brutal weather has also taken its toll on the public.

Data from the Fire and Disaster Management Agency shows that 20,963 people were sent to hospital for heat-related illnesses throughout Japan last month. This was 2½ times the 8,388 people in the same month last year.

Adults have reportedly collapsed

from heat exhaustion on the bustling streets of Shibuya to the agricultural plains of Kyushu. Japan is mourning the death last week of five-year-old Toma Kurakake in Fukuoka, after he was left on the school bus by his principal for an entire day.

All these incidents took place as the mercury soared. Even with natural variance in weather conditions in different years, the norm has been for summers to be hotter, longer and arriving earlier than usual.

University of Tokyo climatologist Hisashi Nakamura told The Straits Times that mean summer temperatures in Japan have climbed by about 1 deg C since the early 1980s, thus raising the odds of extreme high temperatures.

Another report, by the British Association for Sustainable Sport, shows Tokyo's mean temperature has risen by 2.86 deg C since 1900, or about three times higher than the global average of 0.96 deg C.

Yesterday was the hottest day in Japan this year. Heatstroke alerts were issued in many areas as 242 out of the Japan Meteorological Agency's 919 monitoring stations clocked temperatures of 35 deg C and above.

Tokyo hit 34.7 deg C, the hottest it has been in the capital this year.

Although the Olympic marathon and race-walk events were shifted to Sapporo in the chase for cooler climes, the northern city hit 35 deg C last month for the first time this century. Forecasts expect temperatures of up to 33 deg C today.

Dr Nakamura described Tokyo's scorching heat as "above normal", though it is Sapporo that is being blanketed by a concerning heatwave with daytime highs of as much as 7 deg C above the norm.

He attributed the warming to climate change, adding that this was being exacerbated by a phenomenon known as the "urban heat island" effect.

"High humidity enhances the risk of dehydration and heatstroke, especially during daytime outdoor activity," he added.

Tokyo's summers were somewhat cooler in the 1960s, but the

1964 Summer Games were still held in autumn, in October, with the city enjoying balmy daytime temperatures of about 20 deg C.

Rapid development in the five decades since then would have exacerbated the so-called "urban heat island" effect by which trapped heat is unable to dissipate, resulting in metropolitan areas feeling markedly hotter.

This phenomenon stems from rising urbanisation such as through the use of concrete and asphalt, as well as the increased density of human activities that produce waste heat, like air-conditioning or traffic, Singapore Management University (SMU) climate scientist Winston Chow said.

"These localised warmer urban temperatures are on top of higher long-term regional temperatures caused by climate change. This can exacerbate heat risks to its residents and visiting athletes who take part outdoors – especially visitors who are not fully acclimatised to Tokyo's summer heat," he said.

The trend, however, directly contradicts Tokyo's claims when it bid for the Games, promising "many days of mild and sunny weather

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(that would offer) an ideal climate for athletes to perform their best".

Now, many competitors including those from the tropical regions have said that Tokyo was the most punishing experience in their careers. Brazilian beach volleyball player Bruno Schmidt said the Tokyo Games have been much hotter and more humid than he expected. "The first two weeks here were one of the hottest that I had in my life, believe it or not."

Japan's capital city has long recognised the problem and tapped technology such as solar heat-blocking pavements to re-

duce road surface temperatures. Olympic organisers have also prepared ice baths and mist sprays, as well as added water points to ensure athletes stay cool and well-hydrated.

"This is something we need to be vigilant about," Tokyo 2020 chief executive officer Toshiro Muto said on Sunday amid athlete complaints and reports that dozens of volunteers had suffered heat-related ailments.

But Tokyo 2020 will likely serve as a model for future summer events – possibly as soon as Paris in three years. A record heatwave that swept the French capital in 2019 led to temperatures as high as 46 deg C that killed 1,500 people.

"The warming trend will continue over decades, which further increases the likelihood of extreme high temperatures," Dr Nakamura said.

The International Olympic Committee, in response to queries from ST, said "flexibility and adaptation to the consequences of climate change" will be taken into account when planning future events.

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Trying to beat the heat

As global temperatures rise, increasingly hot weather can prove fatal, stressing the human body beyond its limits. For athletes, hotter, more humid weather represents a real danger but there are tips for reducing the risks.

Globally, the world has warmed on average 1.1 deg C since pre-industrial times, but that increase is uneven. In some places, especially at higher latitudes, the temperature rise has been greater and so have the heatwave extremes.

In one recent study, researchers have attributed 37 per cent of deaths related to heat exposure around the world between 1991 and 2018 to global warming caused by humans.

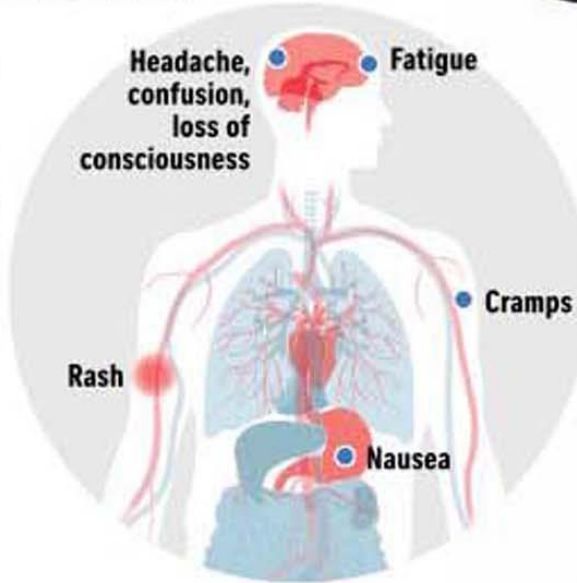
HOW THE BODY DEALS WITH HEAT

The human body tries to keep a constant internal temperature of 38.6 deg C. While the body generates heat, it also absorbs heat from the environment. So it needs to try to deal with this extra heat using several clever methods.

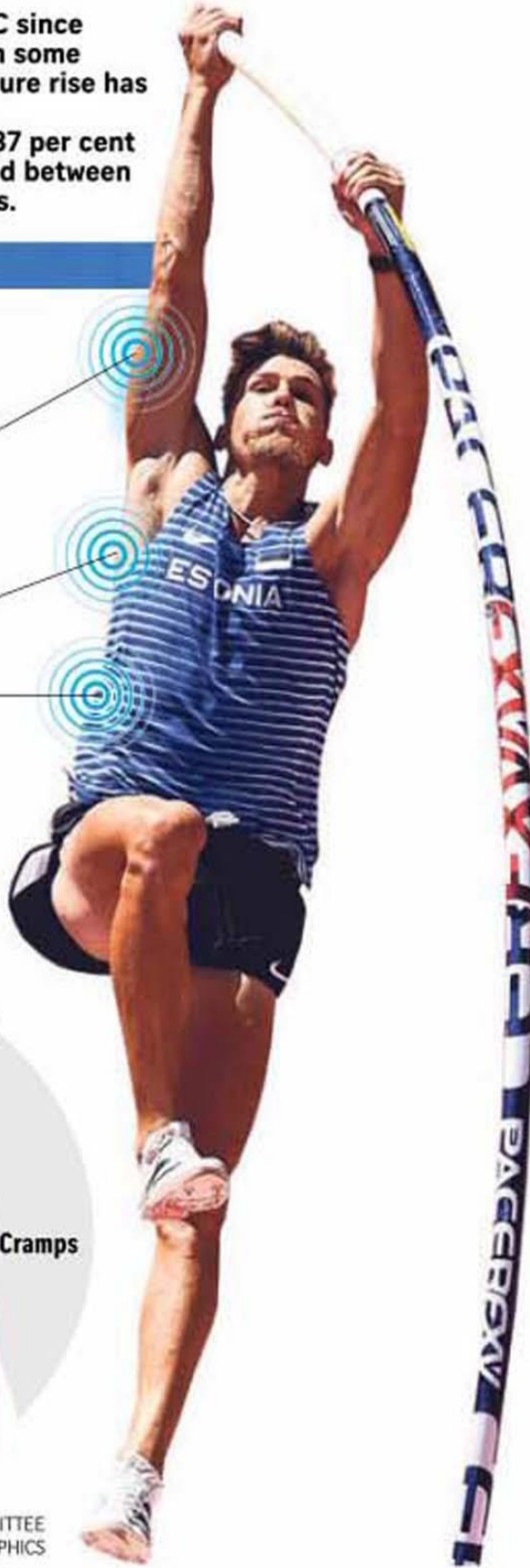
- 1 Sweating and evaporation of moisture from the skin helps cool the body.
- 2 Blood vessels near the skin also dilate, carrying heat from the body's core to the surface.
- 3 But there's a limit to how much the body can sweat before becoming dehydrated. And physical activity and the amount of clothes worn can also reduce the body's ability to reduce heat.
- 4 Heat stress can lead to exhaustion and eventually death

5 For heat exhaustion, the signs include nausea, fatigue, cramps and rash

6 For heatstroke, victims suffer headaches, confusion and loss of consciousness and ultimately organ failure from heat damage if not treated quickly.



Sources: NATIONAL GEOGRAPHIC, INTERNATIONAL OLYMPIC COMMITTEE
PHOTO: REUTERS STRAITS TIMES GRAPHICS



HEAT STRESS MANAGEMENT FOR ATHLETES

The International Olympic Committee has these tips for athletes competing in hot and humid conditions, such as those for the Tokyo Games.



Acclimatise

Practise in the heat before a major sporting event. This involves repeated exercising in high temperatures – such as in purpose-built chambers or improvised low-tech hot rooms. It can take between seven and 14 days for your body to acclimatise



Stay hydrated

Dehydration accelerates the rise in whole-body temperature, and this can consequently have a negative influence on performance.



Pre-cooling strategies and accessories

Before the start of your competition, avoid unnecessary heat exposure and, where possible, warm up in the shade. Consider ice vests, cold towels or fanning, and ensure access to cold fluids.



Other tips

Wear sunglasses, use sunscreen and lightly coloured clothing that still allows sweat evaporation.



A matter of timing

Consider shifting the timing of when to compete, either to the cooler parts of the day or a cooler season for a major sporting event.