

# Sri Lanka Association for the Advancement of Science (SLAAS) Section A Newsletter

August-2022

Volume 17 – Issue 02

## Environmental Heat and Health

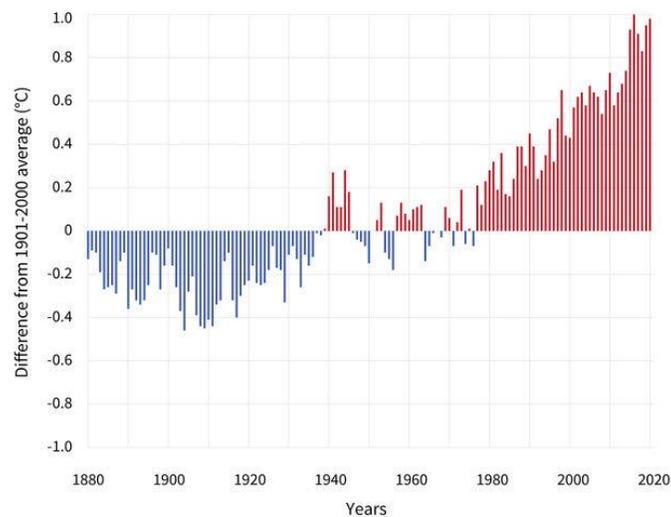
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### Global temperature is rising

Air temperatures on Earth have been rising since the Industrial Revolution. According to the National Oceanic and Atmospheric Administration (NOAA), the average temperature on Earth lies around  $57^{\circ}\text{F} \pm (13.9^{\circ}\text{C})$ . The temperature of the earth has risen by  $0.14^{\circ}\text{F}$  ( $0.08^{\circ}\text{C}$ ) per decade since 1880 and more than twice that i.e  $0.32^{\circ}\text{F}$  ( $0.18^{\circ}\text{C}$ ) per decade over the past 40 years since 1981. (<https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>)

The Intergovernmental Panel on Climate Change (IPCC) has concluded that the world must limit temperature rise to  $1.5^{\circ}\text{C}$ . Global heating of even  $1.5^{\circ}\text{C}$  is not considered safe, however; every additional tenth of a degree of warming will take a serious toll on people's lives and health.

### GLOBAL AVERAGE SURFACE TEMPERATURE



Yearly surface temperature compared to the 20th-century average from 1880–2020. Blue bars indicate cooler-than-average years; red bars show warmer-than-average years. Source: NOAA Climate.gov graph, based on data from the National Centers for Environmental Information.

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### This Issue

1. Environmental Heat and health
2. List of Activities

## Effects of global warming

Global warming has resulted a significant public health concern: the climate change, which has brought about extreme weather conditions, loss of life, property, agricultural production, melting of glaciers, rising sea level and submerging of land, spread of vector borne disease etc.

Out of all the above mentioned, rising global ambient temperatures affect all populations. Exposure to heatwaves, or heat and hot weather that lasts for several days, can have a significant impact on the society. Heatwaves are among the most dangerous of natural hazards, but rarely receive adequate attention because death tolls and destruction as a result of such are not felt immediately. Between 2000 and 2016, the number of people exposed to heatwaves increased by around 125 million. The warmest year on record was 2016 and 2020 has now being ranked as the second warmest year.

Awareness on health risks posed by heatwaves and prolonged exposure to increased temperatures remains insufficient. Some populations are more exposed to, or more physiologically or socio-economically vulnerable to physiological stress, exacerbated illness, and an increased risk of death from exposure to excess heat. These include the elderly, infants and children, pregnant women, outdoor and manual workers, athletes, and the poor. Gender can play an important role in determining heat exposure.

### How does heat impact health?

Heat gain in the human body is a combination of external heat from the environment and internal body heat generated from metabolic processes. Rapid rises in heat gain due to exposure to hotter than average conditions compromise the body's ability to regulate temperature and can result in a cascade of illnesses, including heat cramps, heat exhaustion, heatstroke, and hyperthermia.

Deaths and hospitalizations from heat can occur extremely rapidly i.e on the same day, or have a lagged effect of several days later. Even small differences from seasonal average temperatures are associated with increased illness and death. Temperature extremes can also worsen chronic conditions, including cardiovascular, respiratory, and cerebrovascular disease and diabetes-related conditions.

### What should you do to counteract effects of heat on health?

- Keep your home cool

Try to keep your living space cool. Ideally, the room temperature should be kept below 32 °C during the day and 24 °C during the night. This is especially important for infants and those over 60 years of age and having chronic health conditions.

Use the night air to cool down your home. Open all windows and shutters during the night and early hours in the morning, when the outside temperature is lower. This may only be possible if it's safe to do so in terms of thefts and mosquitoes.

Reduce the heat load inside the apartment or house by closing windows and shutters especially those facing the sun during the day. Turn off artificial lighting and as many electrical devices as possible.

Hang shades, draperies, awnings or louvers on windows that receive morning or afternoon sun.

Hang wet towels to cool down the room air. Note that the humidity of the air increases at the same time.

- Keep out of the heat

Avoid going outside during the hottest time of the day.

Avoid strenuous physical activity when it's hot. Do it during the coolest part of the day. Stay in the shade.

Do not leave children or animals in parked vehicles.

- Keep the body cool and hydrated

Take cool showers or baths.

Wear light, loose-fitting clothes of natural materials.

If you go outside, wear a wide-brimmed hat or cap and sunglasses.

Use light bed linen and sheets, and no cushions, to avoid heat accumulation.

Drink regularly, but avoid too much caffeine and sugar and alcohol.

Eat small meals and eat more often. Avoid foods that are high in protein

Every cell, tissue and organ in your body needs water to carry out its metabolic activity. For example, water:

- Gets rid of wastes through urination, perspiration and bowel movements
- Keeps your body temperature normal
- Lubricates and cushions joints
- Protects sensitive tissues

Lack of water can lead to dehydration — a condition that occurs when you don't have enough water in your body to carry out normal functions. Even mild dehydration can drain your energy and make you tired.

The general advice is to drink eight glasses of water per day. It's a reasonable goal to achieve. However, you might need to modify your total fluid intake based on several factors such as:

**Exercise** - If you do any activity that makes you sweat, you need to drink extra water to compensate the fluid loss. It's important to drink water before, during and after a workout.

**Environment** - Hot or humid weather can make you sweat and requires additional fluid. Dehydration also can occur at high altitudes.

**Overall health** - Your body loses fluids when you have a fever, vomiting or diarrhea. Drink more water or follow appropriate medical recommendations to drink oral rehydration solutions. Other conditions that might require increased fluid intake include bladder infections and urinary tract stones.

**Pregnancy and breast-feeding** - If you are pregnant or breast-feeding, you may need additional fluids to stay hydrated.

What you eat also meets a significant portion of the fluid requirement. For example, many fruits and vegetables, such as watermelon and spinach, considerably higher portion water by weight.

- If you feel unwell,

Try to get help if you feel dizzy, weak, anxious or have intense thirst and headache; move to a cool place as soon as possible.

Drink some water or fruit juice to rehydrate.

Rest immediately in a cool place if you have painful muscular spasms particularly in the legs, arms or abdomen, in many cases after sustained exercise during very hot weather, and drink oral rehydration solutions containing electrolytes. Medical attention is needed if heat cramps last more than one hour.

Consult your doctor if you feel unusual

Consult your doctor if you feel unusual symptoms or if symptoms persist. If one of your family members presents with hot dry skin and delirium, convulsions and/or unconsciousness, call a doctor/ambulance immediately. While waiting for help, move the person to a cool place, put him or her in a horizontal position and elevate legs and hips, remove clothing and initiate external cooling, for example, by placing cold packs on the neck, axillae and groin, fanning continuously and spraying the skin with water at 25–30 °C. Measure the body temperature. Do not give acetylsalicylic acid or paracetamol.

**Reference:**

World Health Organisation, Climate change and health. 30 October 2021

<https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>

World Health Organisation, Heat and Health. 1 June 2018.

<https://www.who.int/news-room/fact-sheets/detail/climate-change-heat-and-health>

World Health Organisation, Heatwaves

[https://www.who.int/health-topics/heatwaves#tab=tab\\_1](https://www.who.int/health-topics/heatwaves#tab=tab_1)

**List of activities of SLAAS Section A from April to July 2022****April**

24 <sup>th</sup> March to 7 <sup>th</sup> April	A series of oral health awareness programmes and oral screening programmes were held in Puttalam, Mannar and Vavuniya Districts to mark the World Oral Health Month. Around 500 children from selected deprived schools and pre-schools in each district were attended. Furthermore, parents of pre-school children were given oral health education. Dental surgeons and dental therapists of the three districts under the guidance of Dr. R.S.A. Pathmapperuma provided their service. This activity was coordinated by Dr. Nilantha Ratnayaka.
8 <sup>th</sup> April	Dr. Kaumadi Karunagoda was a recourse person for a workshop organized by NITM, Department of Ayurveda, on 'Kanta Poshana' for government community medical officers. The number of participants who attended the programme was 54. This activity was coordinated by Dr. Kumadi Karunagoda.
18 <sup>th</sup> April	A "No Plastic Initiative" on "Making Faculty of Medicine Colombo- A Plastic and Polythene free zone" was held in collaboration with the Faculty of Medicine Teachers Association from 8 am to 12 noon. Dr. Sachith Edirisinghe, Prof Erandi Lokupitiya and Dr Piyusha Atapattu were the resource persons. This activity was coordinated by Dr Yasaswi Walpita.
22 <sup>nd</sup> April	A workshop was carried out for the employees in the Ministry of Health on Stress Release with Dr. Thilina Wanigasekera as the resource person. There were 50 participants. This activity was coordinated by Dr Thilina Wanigasekera.
26 <sup>th</sup> March & 23 <sup>rd</sup> April	A Webinar series on research publication and presentation was carried out for undergraduates with Dr Romain Perera, Dr Hemali Jayakodi and Dr Kasuni Akalanka as the resource persons. There were 30 participants. This activity was coordinated by Ms Cinthuja Pathmanathan.
24 <sup>th</sup> April	A lecture on Ayurvedha Womens care was held for 56 Ayurveda Medical Officers with Dr. Kaumadi Karunagoda as the resource person. This activity was coordinated by Dr Kaumadi Karunagoda.
27 <sup>th</sup> April	A programme was conducted on employee motivation at the Ministry of Health with 58 persons in attendance. Different employee categories of the Ministry of Health participated. The resource person was Mr. Manoj Handapangoda. This activity was coordinated by Dr. Thilina Wanigasekera.

**May**

2 <sup>nd</sup> May	A lecture on current health issues related to pregnancy was conducted for undergraduate and postgraduate students of the Institute of Indigenous Medicine with Professor Anuradha Roi, India as the resource person. 123 students were present. This activity was coordinated by Dr Kaumadi Karunagoda.
2 <sup>nd</sup> May	A live radio programme "Prabhataya" was conducted on the Sri Lanka Broadcasting corporation by Dr Kaumadi Karunagoda. The programme was on traditional foods suitable for cancer. This activity was coordinated by Dr Kaumadi Karunagoda.
5 <sup>th</sup> May	An oral health awareness programme and a dental screening programme was conducted for preschool children in Kilinochchi district from 9 am to 2pm. Around 150 pre-school children were screened by the school dental therapists under the supervision of dental surgeons. This activity was coordinated by Dr. Nilantha Ratnayaka.
12 <sup>th</sup> May	A diary development programme was conducted in Batticaloa with Dr Samantha Iddamaldeniya as the resource person. There were 30 participants. This activity was coordinated by Dr. Samantha Iddamaldeniya.

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29 <sup>th</sup> May	A webinar was held to create awareness on healthy life-styles and NCD's for the office staff at "Ayubo Life" with Dr. Thilina Wanigasekera as the resource person. There were 30 participants. This activity was coordinated by Dr Thilina Wanigasekera.
30 <sup>th</sup> May	A programme on Scientific ways of limited space gardening for staff of the Ministry of Health was held at the Ministry of Health Auditorium with Dr Sampath Samaraweera and Mrs. Champa Gamage as the resource persons. There were 35 participants. This activity was coordinated by Dr Thilina Wanigasekera.
<b>June</b>	
15 <sup>th</sup> June	A workshop on drafting manuscripts and writing a winning abstract was conducted for undergraduates. This activity was coordinated by Dr. Kasuni Akalanka.



**Oral health  
awareness  
programme**

**Programme on  
Scientific ways of  
limited space  
gardening**



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