

Study to look at construction workers' risk of heat stress

It is part of project to find out how rising temperatures affect health and productivity

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Scientists here will start a new study into how susceptible construction workers are to heat stress at their worksites and dormitories next month.

Forty employees' and migrant workers' core temperatures and thermal demands will be tracked as they work, allowing scientists to propose solutions to reduce and prevent heat stress.

The study is part of Project Heat-Safe, which was started in 2020 to find out how rising temperatures affect the health and work productivity of groups of people in Southeast Asia. The research project is based in the National University of Singapore (NUS).

Rising temperatures owing to climate change are increasing the threat of heatwaves across Asia, and countries in the region will be hit with more punishing drought conditions by the end of this century, the United Nations' climate science body said in a new report last month.

Singapore's heat woes are compounded by the humidity and the urban heat island effect.

The new study's lead principal investigator, Associate Professor Jason Lee from NUS' Yong Loo Lin School of Medicine (NUS Medicine), said people at higher risk of heat-related complications include outdoor workers, and seniors with existing conditions such as cardiovascular disease.

While heat-induced death and exertional heatstroke are well-known dangers, other lesser-known heat-related risks in the construction and labour sectors are accidents and loss of productivity.

"Studies done overseas have shown that when you're hot or hyperthermic, you tend to make wrong or unsound decisions. If a machine requires 10 steps to operate, you may skip some steps and that may result in accidents and injuries," said Prof Lee.

For the new study, his team will closely profile the workers over 24 hours using a range of tools – from studying their urine samples to assess hydration status to getting them to pop thermometer pills.

Resembling a vitamin capsule, a

temperature-sensing pill will travel down a person's digestive tract and detect his deep body temperature.

The pill will wirelessly transmit the temperature data to a handheld sensor, and be passed out af-

ter a couple of days.

The team will also observe how the workers rest in their dorms.

"If they don't rest well, their overall thermal stress can be exacerbated. The start state at every work day is key," added Prof Lee, who is also the deputy director of the Human Potential Translational Research Programme at NUS Medicine.

In June and July, Prof Lee and his

team will conduct similar fieldwork at a construction site in Cambodia and in an indoor factory in Vietnam.

The researchers will revisit the worksites in Singapore and the two countries at the end of the year, when the weather tends to be cooler, to compare data between both seasons.

With the findings, the team will propose cost-effective solutions to



help workers beat the heat.

Possible solutions may include specific work-rest cycles and sheltered resting places with fans and good wind flow.

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