

Intense heat causes health problems among sugar cane workers

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Hard work under hot sun causes health problems for sugar cane workers in Costa Rica, such as headache, nausea, and renal dysfunction. The

presence of symptoms is also expected to increase in line with ongoing climate changes, according to a dissertation from Umeå University.

Hot weather and hard labor is resulting in dehydration and [negative health effects](#) in men that cut sugarcane. According to recent research in Costa Rica, sugarcane harvesters experience headache, tachycardia, fever, nausea, difficulty breathing and dizziness on a regular basis during the harvest season. Urine samples taken before and after the work shift demonstrated that dehydration is common in harvesters. For many harvesters there were also indications of potential kidney injury in [urine samples](#) that contained protein, blood, leucocytes and casts.

"Results from this Costa Rican study demonstrate worrisome [health](#) outcomes in men employed to cut sugarcane. The heavy work these workers do combined with the [hot weather](#) and insufficient drinking water, make them feel ill and place them at risk for a potentially fatal condition known as heat stroke," said Jennifer Crowe, employed at the National University in Costa Rica, who conducted the work as part of her doctoral dissertation at the Department of Epidemiology and Public Health at the School of Medicine, Umeå University.

In this study, the energy needed to cut sugarcane was calculated and, using internationally recognized guidelines, a heat limit value was determined, above which working at 100% effort puts a worker at risk of becoming overheated and ultimately suffering a potentially fatal condition known as [heat stroke](#). After calculating this limit, researchers measured heat in the field and found that this limit was often reached as early as 8:00 in the morning and that the risk for adverse health effects increases throughout the rest of the shift.

Agricultural workers in the tropics are at high risk for heat-related [health effects](#) and the risk is expected to further increase with [climate change](#). Sugarcane harvesting in Costa Rica, as in other parts of Central America,

is largely done by cutting the cane with a machete by temporary, subcontracted workers who are often migrants and living in poverty. Sugarcane harvesters in Central America are known to be affected by an epidemic of chronic kidney disease of non-traditional origin, most likely related to [working conditions](#).

The results of this study demonstrate an urgent need to improve working conditions for sugarcane harvesters and are useful to researchers working to tackle the puzzle of chronic kidney disease in Mesoamerica and other parts of the world. They also highlight the need to make special provisions in climate change policy for sugarcane harvesters as well as other outdoor workers performing heavy labor in the tropics, who are already at risk under current conditions and will be even more so under the predicted temperature rise.

"This study demonstrated why heat is an important issue for sugarcane harvesters and contributed in the understanding of related negative health outcomes. We hope that these data provide a basis for moving towards fair and decent working conditions and improved health for sugarcane harvesters now as well as in the context of future climate change", says Crowe.

More information: The dissertation is available online: umu.diva-portal.org/smash/record.jsf?pid=diva2%3A750638&dswid=1145

Provided by Umea University

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