

Research uncovers risk factors for mysterious kidney disease in farm workers

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Researchers from the Center for Health, Work & Environment at the Colorado School of Public Health (ColoradoSPH) on the University of Colorado Anschutz Medical Campus have identified new risk factors for a mysterious kidney illness affecting tens of thousands of farm workers worldwide. Their findings have been published in the *Journal of Occupational and Environmental Medicine*.

Partnering with Pantaleon, one of the largest sugar producers in Central America, ColoradoSPH researchers examined 330 sugarcane cutters in Guatemala over the course of a six-month harvest season. More than one-third of the workers showed a decline in kidney function over the course of the harvest, while the other two-thirds of the workers' kidney function remained the same or improved. The researchers discovered that factors including smoking, living in the local community, and low kidney function before employment were associated with a decline in kidney function. The researchers found no association with other [health](#) conditions, the amount of water workers drank, sugary drink consumption, or home use of pesticides.

Following worker protection guidelines for rest and hydration set forth by the World Health Organization (WHO), Pantaleon already provides rest breaks, shade, water and electrolyte solutions similar to sports drinks to their employees. Based on the findings of this study, these preventive measures are not sufficient to protect all workers from kidney injury.

Previous studies have identified an illness called "Mesoamerican

Nephropathy," also referred to as Chronic Kidney Disease of Unknown Origin (CKDu). Notably, this new study shows that when a workforce has access to water, rest, and shade, the rates of CKDu onset and [kidney injury](#) are lower, and the injury is less severe than that seen in previous studies.

"Water, rest and shade are important for anyone doing heavy labor in hot climates. It's vitally important that employers continue to focus on that. But our study shows that hydration, rest and shade are probably not enough to stop the global epidemic of kidney disease," explained Dr. Jaime Butler-Dawson, lead author of the study and researcher at the Center for Health, Work & Environment. "We now have a better idea of some strategies to help keep workers safe and healthy," she said.

Pantaleon has long prided itself on its commitment to [worker](#) health and sustainability. The company initially sought the input of Dr. Lee Newman, director of the Center for Health, Work & Environment in 2016 to conduct a rigorous third-party evaluation of their workplace health programs. The partnership has grown since and they have launched multiple studies. The goals of the collaboration are to evaluate Pantaleon's progress towards achieving its sustainability goals and to help identify and eliminate the health risks of agricultural workers.

Researchers at the Center for Health, Work & Environment see these findings as part of a larger picture of evolving science in the field of Total Worker Health, an integrated approach to workplace health and safety coined by the National Institute for Occupational Safety and Health (NIOSH), part of the Centers for Disease Control and Prevention.

"What we are seeing in our research is that protecting workers from hazards and supporting their health requires a more holistic approach, what NIOSH refers to as Total Worker Health. That is why we are examining work-related factors and personal risk factors. Both need to

be addressed together," said Butler-Dawson.

Dr. Butler-Dawson and her team are focusing future research on delving deeper into understanding the factors that contribute to declining kidney function, such as why workers who live closer to the sugarcane field are more likely to have impaired kidney function at the end of the harvest season. They are also examining why two-thirds of the workers in this study maintained healthy [kidney](#) function or improved their [kidney function](#). Her team is collaborating with researchers in the Colorado School of Public Health's Center for Global Health to design and test ways to improve the health of sugarcane workers and other agricultural workers in the region.

Provided by CU Anschutz Medical Campus

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