



## **Heat Stress**

The *American Cancer Society* warns that the most common type of cancer is skin cancer. Among these, cancers related to sun exposure are the most frequently-occurring. Besides cancer, farmworkers are also at high risk for heat illness. They work outdoors in direct sunlight, humidity levels are often higher in the fields, and they generate large amounts of body heat. Because of this, farmworkers commonly suffer from heat illness. According to the National Library of Medicine, heat illness includes suffering from heat rash, heat cramps, and heat exhaustion (symptoms include heavy sweating, rapid breathing and a fast, weak pulse).<sup>1</sup> Heatstroke is also a form of heat illness and is life-threatening. It involves dangerous and detrimental symptoms such as seizures, confusion, and loss of consciousness.<sup>2</sup>

Although data and statistics on farmworkers and health illness are limited, a recent farmworker study conducted in North Carolina reports that 94 percent of respondents said they worked in extreme heat and 40 percent said they have previously felt those symptoms associated with heat illness.<sup>3</sup> The following is a list that provides research studies, patient education resources, and organizations that can assist with educating, serving or treating farmworkers with a risk for heat illness.

## **Research Material**

### ***Fields of Peril: Child Labor in U.S. Agriculture* by Human Rights Watch, 2010.**

This study documented the dangerous conditions under which children worked in agriculture and the effects these have on their health and education. Research was conducted in the states of Florida, Michigan, North Carolina and Texas and dozens of child farmworkers were interviewed who altogether worked in 14 states across the country. The report dedicates an entire section to the extreme temperatures that they work under. The children reported working under the harsh sun, the humidity and stuffiness of working among crops, limited access to water and heat illness symptoms such as dehydration, dizziness and feeling faint. The report also offers statistics and a case study regarding farmworker children and heat illness.

### ***Heat Related Illnesses: An Occupational Health Concern for Farmworkers* by Pamela Rao, 2007.**

While workers in many occupations are at risk for heat illness, farmworkers face special challenges because of the nature of their workplace. Most farmwork is performed in direct

<sup>1</sup> U.S. National Library of Medicine, National Institutes of Health, U.S. Department of Health and Human Services. *Health Topics: Heat Illness*. 2013. Available online: <http://www.nlm.nih.gov/medlineplus/heatillness.html>

<sup>2</sup> Maria C. Mirabelli, Sara A. Quandt, Rebecca Crain, Joseph G. Grzywacz, Erin N. Robinson, et al. *Symptoms of Heat Illness among Latino Farm Workers in North Carolina*. *American Journal of Preventive Medicine*: Vol. 39, No 5 (2010).

<sup>3</sup> Maria C. Mirabelli, Sara A. Quandt, Rebecca Crain, Joseph G. Grzywacz, Erin N. Robinson, et al. *Symptoms of Heat Illness among Latino Farm Workers in North Carolina*. *American Journal of Preventive Medicine*: Vol. 39, No 5 (2010).

sunlight and sufficient quantities of potable water may not be readily available or may not be imbibed due to reluctance to take time away from work. The work involves health physical labor, at times requires heavy or impermeable protective clothing, and usually takes place during the warmest season in a region. The report concludes that monitoring the environmental and work conditions coupled with appropriate preventive measures, can greatly reduce, if not eliminate, the likelihood that workers will develop a heat-related illness while working in the fields.

***Keeping Workers Hydrated and Cool despite the Heat* by Brenda Jacklitsch, 2011.**

Published under a NIOSH Science Blog on promoting safer and healthier workers, this article was written in response to the number of workers who suffer from heat stroke across various industries in the U.S. It summarizes what heat illness is, and how staying hydrated and keeping cool help avoid heat illness. The article also addresses common myths associated with heat stress, provides accurate answers and responds with advice on what to do in the event of certain signs and symptoms of heat stress.

***Symptoms of Heat Illness among Latino Farm Workers in North Carolina* by Maria C. Mirabelli, Sara A. Quandt, Rebecca Crain, Joseph G. Grzywacz, Erin N. Robinson, Quirina M. Vallejos and Thomas A. Arcury, 2010.**

This study surveyed 300 Latino farmworkers in North Carolina on health-related issues. Ninety-four (94) percent responded that they work in extreme heat and, upon assessing associations with work hours and activities, the study concluded that changing activities during hot conditions resulted in a decreased prevalence of heat illness among farmworkers. In order to improve the risk of heat illness for farmworkers, there should be clearer understanding of how their dangerous work environment consistently puts them at risk for heat stress.

### ***Patient Education***

***FRESCO: Farmworkers Reducing Exposure to Sun and Heat and Cooling Off* by the National Center for Farmworker Health, 2012.**

The FRESCO Program is a lay health worker delivered heat and sun safety educational intervention for farmworkers. It contains educational tools that accompany the education sessions intended for the farmworker population. The goal of these sessions is to impact farmworkers' knowledge, attitudes, and self-efficacy and to motivate them to practice sun and heat safety behaviors. The kit includes a low literacy flipchart, available in either English or Spanish, a photonovel, teaching guide and lesson plans. For ordering information, contact [Erika Garcia](mailto:garcia@ncfh.org) (garcia@ncfh.org).

***Heat Can Harm You/El Calor Puede Hacerle Daño* by California Agricultural Associations and the University of California Division of Agriculture and Natural Resources, 2006.**

Written in English and Spanish, this patient education card describes what heat illness is, how body temperature regulates body heat, symptoms of heat illness and how to reduce heat stress when working. Each page is accompanied by a relevant illustration.

***Heat Stress, Farmworker Health and Safety: Trainer Guide and Workbook* published by the Association of Farmworker Opportunity Programs, 2010.**

AFOP has produced this trainer guide in an effort to prevent the number of incidents related to heat illness. This effort seeks to bring information and training to agricultural workers and their employers on the dangers of heat-related illness and how to prevent tragic incidents by providing life-saving training and improving the quality of life for farmworkers and their families. The workbook has two main sections dedicated to first learning about heat stress and illness and then teaching the most effective ways to educate the farmworker population regarding these issues.

***Water. Rest. Shade: A Factsheet* published by California's Division of Occupational Safety and Health (OSHA), 2010.**

Available in [English](#) and [Spanish](#), this illustrated factsheet is written at a lower literacy level and is intended to educate agricultural workers on the types of illnesses and the signs and symptoms associated with extreme heat exposure. It also includes tips on how you can stay safe and hydrated and the prevention measures that your employer should provide you with.

***Farmworker News: How Can I Get Sick from the Heat?* published by the National Center for Farmworker Health, 2010.**

Written in English and Spanish, this publication and its accompanying illustrations are intended to educate farmworkers on the different aspects of heat illness. Articles include an overview of heat illness and how it occurs in your body and the signs, symptoms and dangers associated with extreme heat exposure and what you should do in response to them. Lastly, the newspaper includes a short fotonovela on a farmworker teaching others about the measures he takes to prevent heat stress.

## ***Organizations***

***American Cancer Society***

With a skin cancer webpage that can be navigated in [English](#) and in [Spanish](#), the American Cancer Society offers volumes of information concerning basal and squamous cell skin cancers which occur in those areas that are often exposed to the sun. You can learn more about this type of cancer, how to protect yourself and where to turn to for treatment and support for it. The website also boasts the latest news and research relating to skin cancer and online support communities where patients and their families can connect and communicate in support of each other through the web. The ACS also provides a bilingual hotline where you can call for more information.

***California Occupational Safety and Health Administration: [99calor.org](http://99calor.org)***

This is the campaign effort on behalf of the state of California, one of the largest agricultural states in the nation, to protect outdoor workers from heat illness. Strategically targeting the most underserved populations of outdoor workers and including messages in Spanish, Punjabi, Hmong, Mixteco, and English, the campaign addresses heat safety, prevention and workers' rights. The website has sections that contain educational materials for workers, complete with illustrations and lower literacy levels and material for employers, such as training manuals.

***NIOSH Workplace and Safety Health Topics: Heat Stress***

In this website, NIOSH puts together a quick overview of heat stress and lists the different types of heat-related disorders (stroke, exhaustion, syncope, cramps and rash). It gives the symptoms associated with each condition and the type of first aid that should be followed if each is suspected. It also lists recommendations for the employer as well as the worker and gives more CDC resources you can turn to for more information.

***Pacific Northwest Agricultural Safety and Health Center: Heat Illnesses***

The PNASH website on heat illnesses is broken down into a few important sections beginning with a quick overview of the different types of heat illnesses that outdoor workers are at risk for. Next, it includes three simple and important rules to follow when working out under the sun. The resources section include many educational materials, training tools and articles in both English and Spanish in order to test the individual's knowledge of the dangers of the sun. There are also photonovelas included to help educate workers on heat illness.