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Heat-Related Illness: Symptoms and Prevention in Farmworkers

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Background

Heat-related illness (HRI) is an emerging public health concern, especially affecting those working outdoors. Agricultural workers are often unnecessarily subject to dangerous environmental conditions. From 2003-2013, 478 occupational fatalities resulted from extreme heat alone. Moreover, workers are often paid by productivity, exacerbating pressures to withstand hot and humid environments. HRI is heat exhaustion which may lead to heat stroke based on symptoms.

Heat exhaustion symptoms include:

Dizziness Increased heart rate
Weakness Headache
Nausea Vomiting
Heavy sweating Cramps

Heat stroke symptoms include:

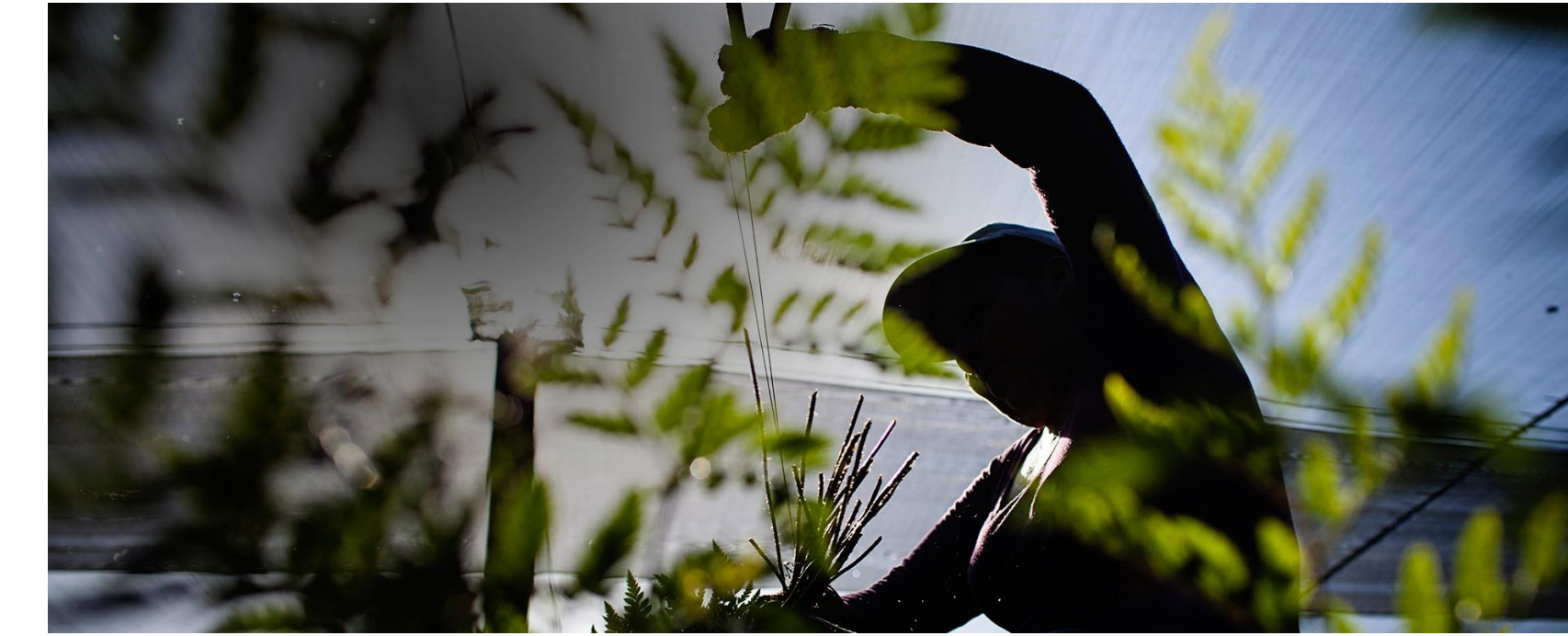
Confusion Fainting
Convulsion Coma
Red, hot, dry skin
Elevated core body temperature

Methods

A cross-sectional sample of Latino fernery workers in Central Florida were surveyed by community interviewers to assess agricultural tasks performed at work including repetitive motions, HRI symptoms, HRI prevention practices, and barriers to HRI prevention practices.

This community-based participatory research (CBPR) project, embedded in a longstanding partnership with The Farmworker Association of Florida (FWAF), utilized trained community interviewers to obtain informed consent and survey data in the participants native language.

All forms and survey data was de-identified for participant protection and stored in a secure, locked cabinet. Participants received \$25 grocery gift cards to offset travel, time, and inconvenience.



Results

Table 1: Demographic characteristics of fernery workers.

Characteristic	N = 23 , %
Age (years), M±SD (range)	35.8±7.4 (25-52)
Gender	
Male	5 , 22%
Female	18, 78%
Hispanic	23 ,100%
Primary Spoken Language	
Spanish	23, 100%
Country of birth	
Mexico	23, 100%
Number of Adults ≥18 in house, M±SD (range)	1.95 ± 1.0 (0-5)
Bedrooms in home, M±SD (range)	3 ± .9 (1-5)
Number of children, M±SD (range)	3.1 ± 1.5 (0-5)
Average alcoholic beverages per week, M±SD (range)	1.9 ± 5.4 (0-24)
Drinks no alcohol	16, 70%
BMI, M±SD (range)	29.1 ± 5.3 (22.5-43.8)
Time worked in agriculture this year, weeks	
>4 weeks	20, 87%
Crop worked	
Ferns	23, 100%

Table 2: Heat related illness symptoms among fernery workers.

Heat-related illness symptoms in past week	N=23
Cramps	7 (30)
Nausea or vomiting	10 (44)
Hot, dry skin	17 (74)
Confusion	1 (4)
Dizziness	9 (39)
Headache	13 (57)

Table 3: Heat prevention practice barriers.

Barriers to Heat Prevention Practices	Frequency in this Sample
No shade	39%
Financial pressure	48%
No cool break space available	61%
No opportunity to change work duties	78%

Table 4: Fernery workers heat prevention practices.

Heat Prevention Practices	Always	Usually	Rarely
Rest breaks in the shade	13%	4%	44%
Lightweight/loose fitting clothes	61%	13%	17%
Long-sleeved shirt	57%	4%	26%
Wide-brimmed hat	65%	4%	22%
Application of sunscreen	0%	0%	76%
Drink more fluids	87%	0%	4%



Conclusions

In this pilot study, we found farmworkers experience a number of HRI symptoms. While most symptoms are in the heat exhaustion range, hot, dry skin is considered a heat stroke symptom. We don't believe most farmworkers are experiencing symptoms of this severity and could perhaps be a reporting error however, further exploration is indicated. Also of importance, almost half or more revealed headache, nausea, vomiting, or cramps in the last week.

This study illustrates the barriers farmworkers face in mitigating HRI. The seasonal nature of agriculture leads to farmworkers often moving from one field to another with little opportunity to rest and no permanent shelter for shade. They are paid per piece or bundle collected and as a result, taking breaks lowers their daily pay. Workers should not have to choose between protecting their health and protecting their salary.

This important work will be continuing in the summer of 2015 with over 150 farmworkers being studied.

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