EDUCATION AND TRAINING INITIATIVES TO BOOST HEALTH AND WORK PRODUCTIVITY IN A WARMING WORLD

Andreas D. Flouris

FAME Lab, University of Thessaly, Greece
Occupational heat stress = conditions under which a worker’s body is storing heat

- Harsh environmental conditions
- Insulated and/or impermeable protective clothing
- Increased metabolic heat from physically demanding tasks
Mission: to address the negative impacts of workplace heat stress on the health and productivity of workers in strategic European industries
Mission: to develop and evidence-based heat mitigation plan for Qatar
Mission: assessing and managing occupational heat stress risk in Greek industries

Supported by the Greek Ministry of Labour and Social Affairs
Mission: understanding heat stress for workers in the electric power industry and providing recommendations for mitigation (work with Dr. Glen Kenny)

Funded by the Electric Power Research Institute
Assess needs
- hazards assessment
- profile of the target population
- background on the social context of training

Gain support
- identify and involve key actors that provide ongoing advice, support, networking

Establish education objectives and content
- identify specific learning objectives to create an activist workforce that will advocate effectively for a healthier work environment

Select education methods
- select methods based on objectives, content areas and the profile of the workforce

Implementing an education programme
- carry out the plan

Evaluate and follow up
- allow learners to judge the progress toward new knowledge, skills, attitudes or actions
- allow educators to judge the effectiveness of the training and what has been accomplished
< Wet-Bulb Globe Temperature (WBGT) ——> largest evidence base for use in occupational settings

< Popularize adoption of WBGT for work settings

From the webpage of the Greek National Weather Service
FACTORS DETERMINING RESPONSE TO HEAT

**Intra-individual**
- Consecutive shifts
- Acclimation state
- Hydration state
- Shift duration
- Medication
- Sleep state
- Illness

**Heat stress**
- Metabolic heat
- Environment
- Clothing

**Inter-individual**
- Physical characteristics
  - Chronic disease
  - Religion
  - Age
  - Sex

**Heat strain**
- Psychophysiological
- Physiological
- Performance

Notley et al. 2019, Am J Ind Med
Worker Education & Training

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COLLABORATION WITH KEY ACTORS

- Workshops with industry and worker stakeholders
  - Florence, Italy
  - Athens, Greece
  - Tønder, Denmark
  - Nicosia, Cyprus
  - Ljubljana, Slovenia
  - Loughborough, UK
  - Madrid, Spain

- Supporting European Trade Union Confederation

- Supporting Global Heat Health Information Network

- Meetings/Workshops with policy makers
  - WHO, Geneva
  - Honk Kong, China
  - Wellington, New Zealand
  - Doha, Qatar
  - Athens, Greece
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Technical report on occupational heat stress to be jointly published in 2021 by:
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From the webpage of the Ministry of Administrative Development, Labour and Social Affairs
INFORMATION FOR WORKERS & EMPLOYERS

WORKING IN THE HEAT?

Dehydration is a serious threat to your health

Hydration is about maintaining your body’s water and electrolytes stores by ingesting fluid and salt to match the amounts you lose through sweating

70% OF EUROPEANS WORKING IN HIGH HEAT ARE DEHYDRATED

THIRST

DOES IT PROTECT?

Thirst may not be sufficient to secure that you stay hydrated in hot conditions

WATER AND SALT

Read these steps to secure adequate daily water and salt intake

HABITS

DAY-TO-DAY

It is not only about hydrating at work. Hydrating at home is equally important

BALANCE

Find your balance. Hydration needs vary from person to person

SWEAT LOSS

Your water needs may be high if you are a “heavy-sweater”

ELECTROLYTES

If your blood pressure is normal, extra salt to your meals may help

STAY PROTECTED

Get support personalized to your needs at www.heat-shield.eu

Funded by EU Horizon 2020 grant agreement No 668786
HEAT AFFECTS YOUR HEALTH AND PRODUCTIVITY

HOT FACTs upon which you can ACT to minimize the detrimental effects on your organization’s performance

ACCIDENTS - WORKERS’ HEALTH - ORGANIZATION PERFORMANCE

- Heat stress impairs physical and mental work capacity
- Substantial productivity losses surpassing 15% on hot days
- Heat increases work injuries, leads to accumulated fatigue & acute sickness
- Frequent work in the heat causes chronic health hazards (e.g., doubled risk of kidney disease)

Request the development of a heat mitigation plan for your organization

- Create a buddy system and take breaks (e.g., 2-5 min per hour) that protect health and maintain productivity
- Ensure your work uniform is safe, comfortable, and made from breathable fabrics that reflect radiation
- Plan outdoor and physically demanding work in the cooler parts of the day
- Ensure easy access to drinking water at all times via water stations, personal water bottles, etc.

STAY PROTECTED Get personalized support at www.heat-shield.eu
Online platform providing forecasts and guidance up to 30 days in advance

Designed for workers and employers
PERSONALIZED WARNING SYSTEM

BUILD YOUR PROFILE

Be kind. This information will let us calculate your heat alert threshold.

Let's start with the basic information

Email (required)

m.morabito@ibilmet.cnr.it

Password (required)

********

Street Name

Nr

ZIP

City

Country (EU)

select

NEXT
PERSONALIZED WARNING SYSTEM

Short term heat stress risk

**Wednesday**

![Heat Stress Icon](image)

05/23/2019

**Thursday**

![Heat Stress Icon](image)

05/23/2019

**Friday**

![Heat Stress Icon](image)

05/24/2019

**Saturday**

![Heat Stress Icon](image)

05/25/2019

**Sunday**

![Heat Stress Icon](image)

05/26/2019

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**HEAT STRESS RISK LEVELS**

- NOT SIGNIFICANT
- LOW
- MODERATE
- HIGH

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**Hydration**

- Drink about half a liter of water per hour
- Drink about a liter per hour
- Drink more than a liter of water per hour

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**Work breaks**

- No further breaks are needed
- Small breaks
- Increase the number of breaks with cooling
- Frequent breaks in shade or cooled area

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**LONG TERM RISK**

**EDIT PROFILE**

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www.heat-shield.eu
According to your profile’s features, the heat stress threshold is expected to exceed in the next five days, in the area you selected.

Please check the suggestions indicated in your profile.

Heat Shield Staff
PERSONALIZED WARNING SYSTEM

Heat Shield

Forecast → Dashboard U.C.

Long term heat stress risk

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Support for the heat-related recommendations by the Global Heat Health Information Network

Global partnership urges stronger preparation for hot weather during COVID-19

As the Northern hemisphere enters what is expected to be another record-breaking heat season, our network of health and climate experts have called for stronger preparation to keep people safe in hot weather without increasing the risk of the spread of COVID-19.

COVID-19 amplifies the health risks of hot weather, presenting individuals and local decision-makers with new challenges in the optimal ways to stay safe from both heat-related illness and COVID-19. Communities around the world are facing unprecedented compound risks as the health and socio-economic impacts of the pandemic coexist with already deadly heat waves.

The COVID-19 pandemic amplifies health risks for many people in hot weather. To reduce heat-related illness and loss of life, authorities and communities should prepare for hot weather and heatwaves — in addition to managing COVID-19 — before extreme heat strikes.

Authorities should expect and urgently prepare for hot weather and heatwaves, in addition to managing COVID-19. Common public health actions to reduce heat-related illness and death include modified in locations where they are restricted, unsuitable or in contradiction to public health measures to limit the transmission of COVID-19. These measures include: "leave hot apartments for public spaces," go to public air-conditioned locations such as public centers, parks, and libraries; "regularly check on vulnerable persons;" "stay away from activities without air conditioning;" and "seek urgent medical care if showing signs of heat stroke."

Furthermore, hot weather conditions may complicate COVID-19 responses by increasing patient loads, and creating occupational health risks for health workers and responders.

This unprecedented situation highlights the need to clarify issues and decision-making options. This technical brief offers key considerations for decision-makers and practitioners on adapting existing plans, protocols, and procedures for managing the risks of extreme heat during the COVID-19 pandemic. The accompanying FAQ sections and checklists present further options, supporting evidence and resources to help all stakeholders and communities take informed action.
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