

# Heat Stress

Types – Prevention – First Aids



- **Heat stress** is an illness that can be caused by exposure to extreme heat. It occurs when the body is unable to maintain a healthy temperature in response to a hot environment.
- Is the net load to which a worker is exposed from the combined contributions of metabolic heat, environmental factors, and clothing worn which results in an increase in heat storage in the body .



# Impact of Heat Stress

Heat stress from extreme heat and humidity will annually affect areas now home to **1.2 billion** people by **2100**, assuming current greenhouse gas emissions, according to some studies.

**That's more than four times the number of people affected today.**

# Types of Heat Stress

from less sever to more sever

1. Heat Rash
2. Heat cramps
3. Heat Exhaustion
4. Heat Stroke

# Heat Rash

Also known as prickly heat ,  
Is skin irritation caused by sweat  
that does not evaporate from the  
skin. Heat rash is the most common  
problem in hot work environments.



## ➤ Symptoms

- Clusters of red bumps on skin
- Often appears on neck, upper chest, folds of skin

## ➤ First Aid

- Try to work in a cooler, less humid environment when possible
- Keep the affected area dry

# Heat Cramps

Are caused by the loss of body salts and fluid during sweating. Low salt levels in muscles cause painful cramps. Tired muscles—those used for performing the work—are usually the ones most affected by cramps. Cramps may occur during or after working hours.

## ➤ Symptoms

- Muscle spasms
- Pain

## ➤ First Aid

- Have worker rest in shady, cool area
- Worker should drink water or other cool beverages
- Wait a few hours before allowing worker to return to strenuous work
- Have worker seek medical attention if cramps don't go away

# Heat Exhaustion

Is the body's response to loss of water and salt from heavy sweating .

## ➤ Symptoms

- Cool, moist skin
- Heavy sweating
- Headache
- Nausea or vomiting
- Dizziness
- Light headedness
- Weakness
- Thirst
- Irritability
- Fast heart beat



## ➤ First Aid

- Have worker sit or lie down in a cool, shady area
- Give worker plenty of water or other cool beverages to drink
- Cool worker with cold compresses/ice packs
- Call Medical Help if signs or symptoms worsen or do not improve within 30 minutes.
- Do not return to work that day



# Heat Stroke

## This is a Medical Emergency !

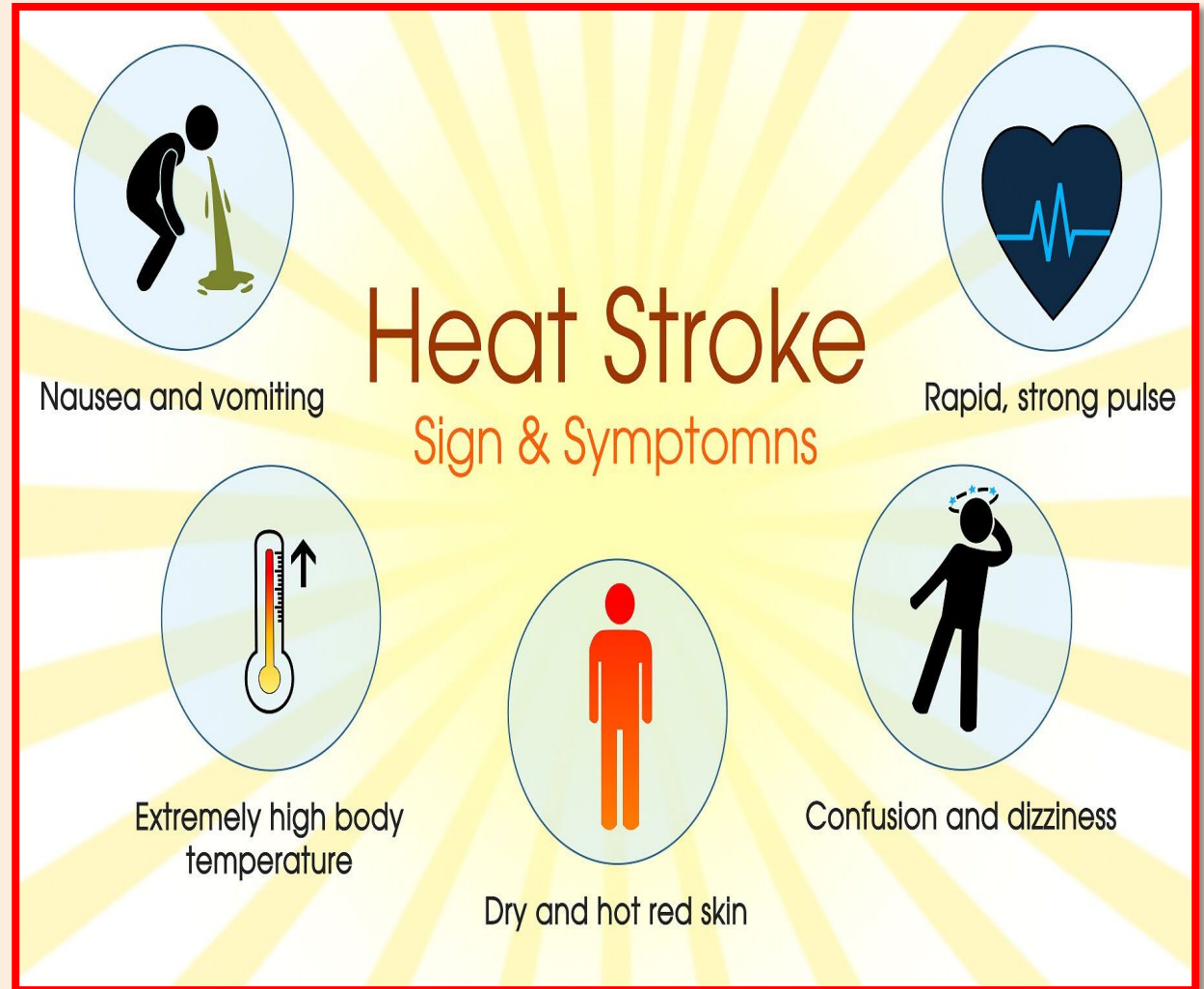
The most serious form of heat-related illness, happens when the body becomes unable to regulate its core temperature. Sweating stops and the body can no longer rid itself of excess heat.



# Heat Stroke

## ➤ Symptoms

- Confusion
- Fainting
- Seizures
- Red, hot, dry skin.
- high body temp.



# Heat Stroke

## ➤ First Aid - while waiting for help:

- Call Medical Help immediately .
- Place worker in shady, cool area
- Loosen clothing, remove outer clothing
- Fan air on worker; cold packs in armpits
- Wet worker with cool water; apply ice packs, cool compresses, or ice if available
- Provide fluids (preferably water) as soon as possible
- Stay with worker until help arrives

# HEAT STROKE

## TREATMENT

Remove unnecessary clothing, apply cool water to the skin and fan the person.



Move the person to a shady spot or indoors and have him/her lie down with legs elevated.

Apply ice packs to the armpits, wrists, ankles and groin.

If able to drink liquids, have him/her sip cold water.

**HEAT STROKE** is a medical emergency!  
Bring the patient immediately to the hospital  
after instituting emergency measures.

# Differences between Heat Stroke & Heat Exhaustion

SIGNS OF

## HEAT EXHAUSTION

**DIZZINESS & FAINTING**

**EXCESSIVE SWEATING**

**RAPID, WEAK PULSE**

**NAUSEA OR VOMITING**

**COOL, PALE CLAMMY SKIN**

**MUSCLE CRAMPS**



## HEAT STROKE

**THROBBING HEADACHE**

**NO SWEATING**

**RAPID, STRONG PULSE**

**NAUSEA OR VOMITING**

**RED, HOT DRY SKIN**

**MAY LOSE CONSCIOUSNESS**

# How to prevent Heat Stress ?



⇒ **WATER.**

⇒ **REST.**

⇒ **SHADE.**

*The work can't get done  
without them.*

# Prevention of Heat Stress

- If you are a Supervisor:
  - ✓ Allow time for employees to adjust to hot jobs when possible. It often takes two to three weeks for an employee to become acclimated to a hot environment.
  - ✓ Adjust the work schedule, if possible. Assign heavier work on cooler days or during the cooler part of the day.
  - ✓ Reduce the workload. Increase the use of equipment on hot days to reduce physical labor.
  - ✓ Establish a schedule for work and rest periods during hot days.
  - ✓ Train workers to recognize signs and symptoms of heat stress disorders and be prepared to give first aid if necessary.
  - ✓ Choose appropriate employees: Avoid placing "high risk" employees in hot work environments for extended time periods. Realize individual employees vary in their tolerance to heat stress conditions.

# Prevention of Heat Stress

- If you are a Worker :

- ✓ Learn to recognize the symptoms of heat stress. Pace the work, taking adequate rest periods (in shade or cooler environment).
- ✓ Use adequate fans for ventilation and cooling, especially when wearing personal protective equipment (PPE).
- ✓ Wear light-colored, loose clothing (unless working around equipment with moving parts).
- ✓ Keep shaded from direct heat where possible (e.g., wear a hat in direct sunshine).
- ✓ Drink plenty of water: in hot environments the body requires more water.



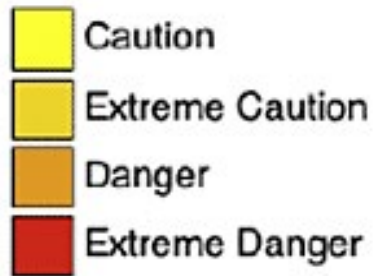
# How to know it is Too Hot ?

For outside work the we use the **Heat index Tablet** to determine the ho hot it is and what health dangers are associated

It Depends on 2 determining factors to consider :

***Air temp & Humidity***

# Heat Index table and corresponding Health impacts



		temperature (°C)																
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
Relative Humidity (%)	40	27	28	29	30	31	32	34	35	37	39	41	43	46	48	51	54	57
	45	27	28	29	30	32	33	35	37	39	41	43	46	49	51	54	57	
	50	27	28	30	31	33	34	36	38	41	43	46	49	52	55	58		
	55	28	29	30	32	34	36	38	40	43	46	48	52	55	59			
	60	28	29	31	33	35	37	40	42	45	48	51	55	59				
	65	28	30	32	34	36	39	41	44	48	51	55	59					
	70	29	31	33	35	38	40	43	47	50	54	58						
	75	29	31	34	36	39	42	46	49	53	58							
	80	30	32	35	38	41	44	48	52	57								
	85	30	33	36	39	43	47	51	55									
	90	31	34	37	41	45	49	54										
	95	31	35	38	42	47	51	57										
100	32	36	40	44	49	54												

Heat stress Index (°C)	Category	Dangers
27–32	Caution	Fatigue possible with prolonged exposure and/or physical activity
32–41	Extreme caution	Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity
41–54	Danger	Sun stroke, heat cramps or heat exhaustions likely, and heatstroke possible with prolonged exposure and/or physical activity
Above 54	Extreme danger	Heat/sunstroke highly likely with continued exposure

This video by a professional ambulance trainer demonstrates what to look for if someone has suffered from heat stroke and how to treat it

## **HEAT STROKE**

[https://www.youtube.com/watch?v=jvGC\\_dQJUtE](https://www.youtube.com/watch?v=jvGC_dQJUtE)

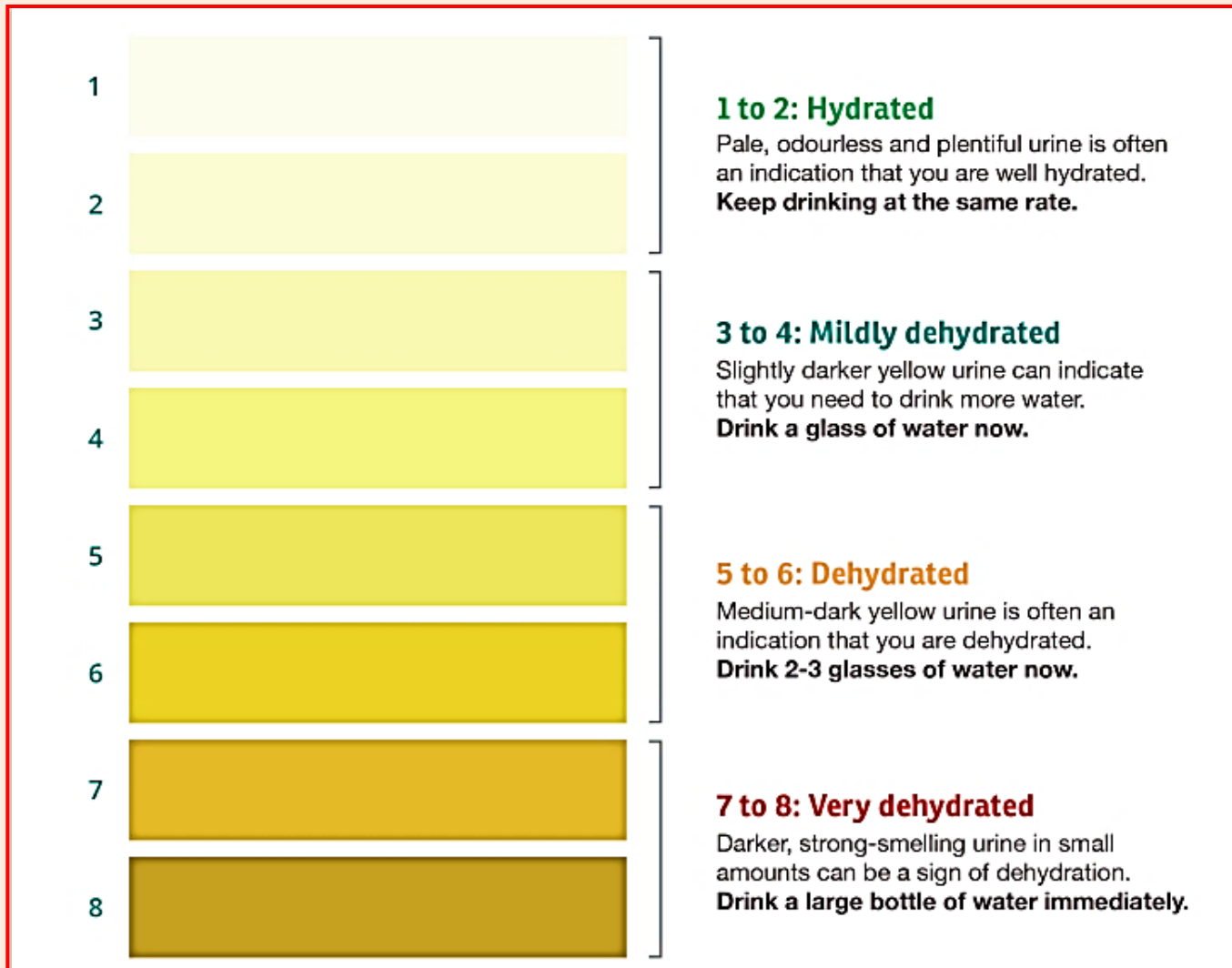
Are you drinking enough **WATER** ??





# Am I drinking enough water?

Using the chart below You can assess your hydration level depending on the color of your urine





## SHADE

When on a break, head for the shade. Avoid overheating by taking regular breaks. Don't forget the sunscreen!



## EAT FRESH

Try eating fresh and cool foods, such as salads and fruits.



## AVOID

Alcohol, tea, coffee, hot and spicy foods. They can cause dehydration.



## SOAK

Take a cool shower or bath to help you cool down.



## REST

Make sure you get enough sleep, and rest if you feel tired.



## CLOTHING

Wear lightweight, light colored, loosefitting clothes.



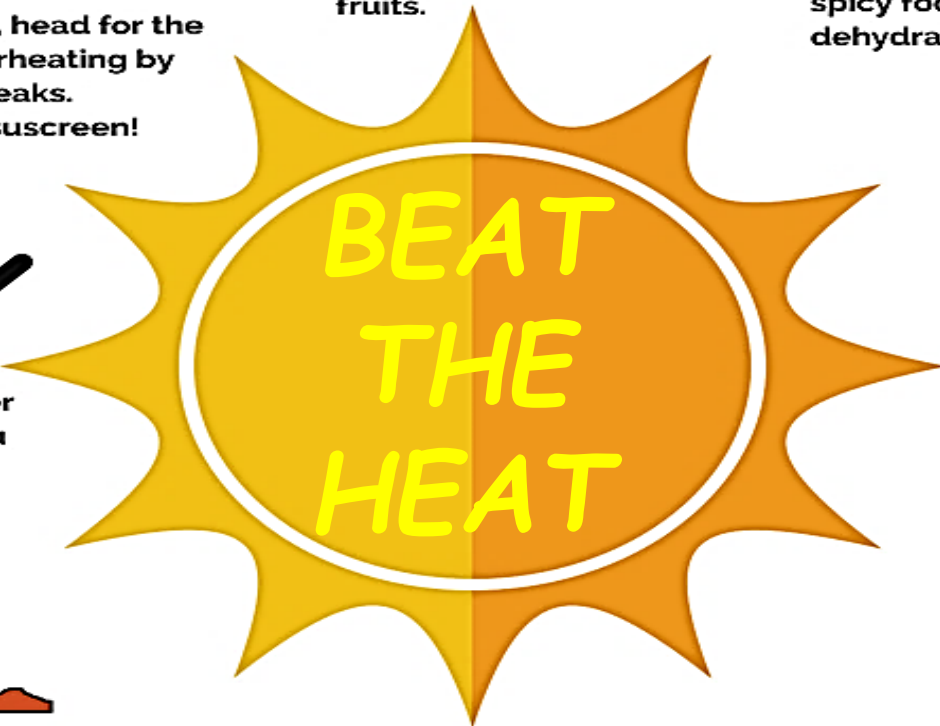
## KEEP EACH OTHER SAFE

Keep an eye on friends, family and coworkers. Share your heat safety knowledge!



## STAY HYDRATED

Drink more water!



# In summary

1. Water

2. Rest

3. Shade

Questions ?





Thank  
you!!

By Dr. Omar Alsalman

