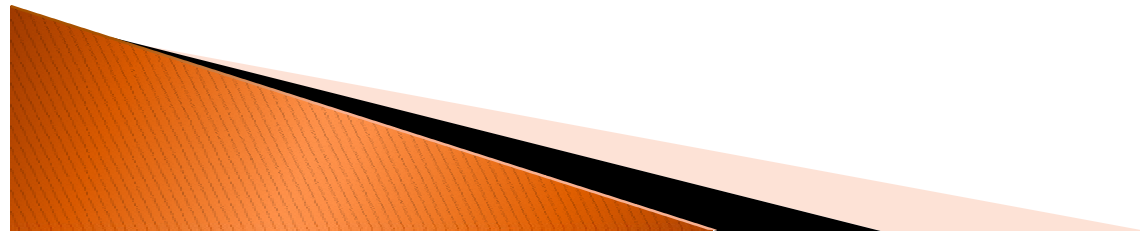


OCCUPATIONAL HAZARDS



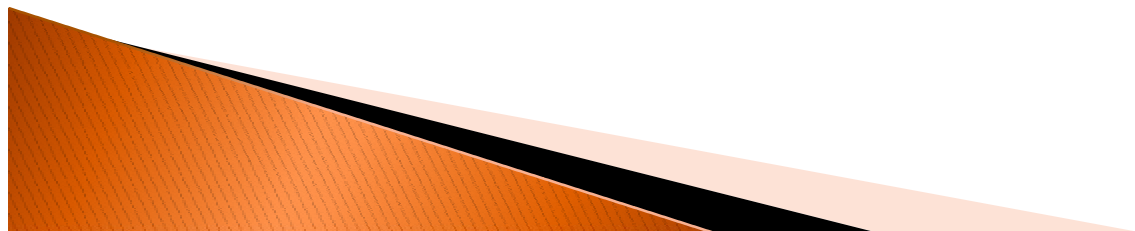
- } A hazard refers to any source of potential damage, harm or adverse health effect on something or someone under certain condition at work.
- } cause harm or adverse effects
(to individual as health effects)
or
(to the organization as property or equipment losses)
- } Risk; the chance or probability that a worker will be harmed if exposed to a hazard.

Types of occupational hazards :

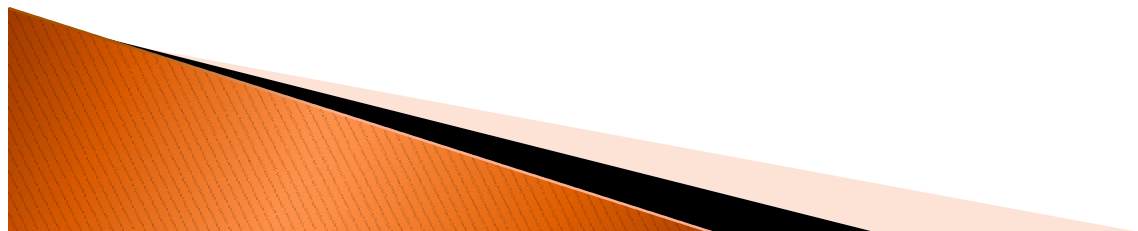
1. Physical hazards (noise, vibration, temperature, electricity, radiation, light and pressure).
2. Chemical hazards (dust, mists, fumes, gases, fibers, vapors and liquids).
3. Biological hazards (insects, mites, moulds, yeasts, fungi, bacteria, viruses and parasites) .
4. Ergonomic : fitness of the work process and work place to the workers (posture, movement, repetitive motion and light) .
5. Psychological hazards (tension, stress, and phobia) .
6. Accidents and mechanical hazards .

Physical hazards

- } Physical hazards can be defined as hazards that arise at work due to the influence of various forms of energy.

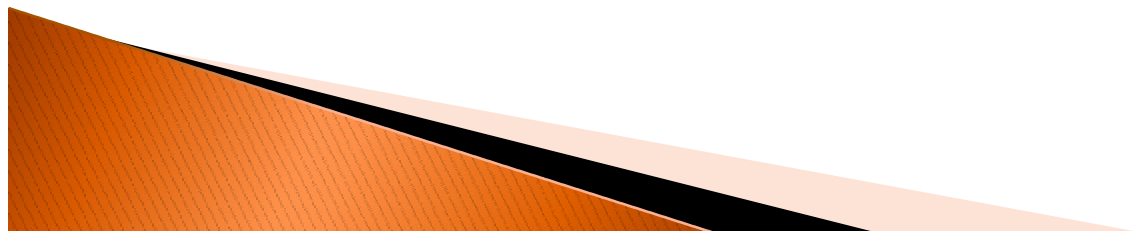


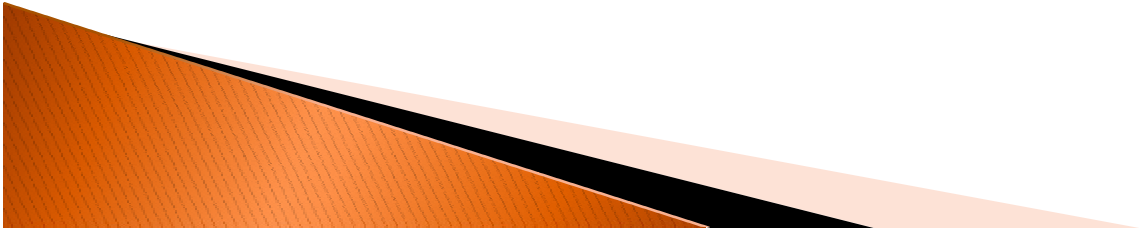
1 Temperature



A... Heat Stress

Load on a worker that aroused from the combined metabolic heat, environmental factors, and clothing worn which results in an increase in heat storage in the body

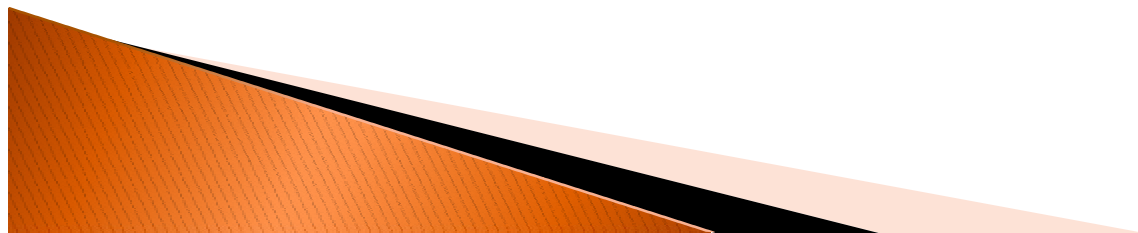




- Workers who are exposed to extreme heat or work in hot environments indoors or outdoors, or even those engaged in strenuous physical activities may be at risk for **heat stress**.
- Those at risk include outdoor workers as farmers, construction workers, traffic policeman and »»»»
workers in hot environments, such as fire fighters, bakery workers, boiler room workers, and factory workers.

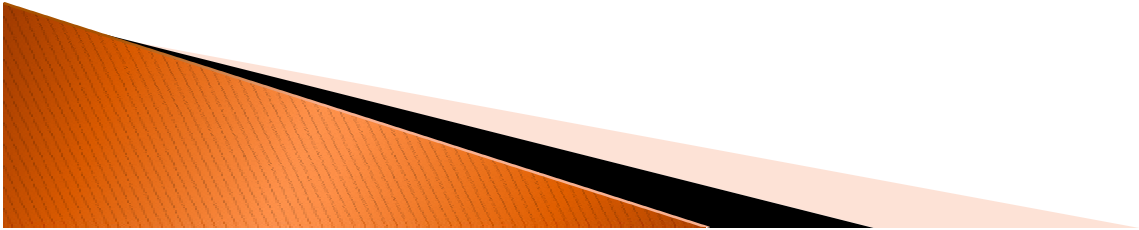
- } Exposure to extreme heat can result in occupational illnesses caused by heat stress, including heat rashes, heat cramps, heat exhaustion, heat stroke and sometimes death.

- } Heat can also increase workers' risk of injuries, as it may result in sweaty palms, fogged-up safety glasses, dizziness, and may reduce brain function responsible for reasoning ability, creating additional hazards.
- } Others such as burns, may occur as a result of contact with hot surfaces, steam, or fire.

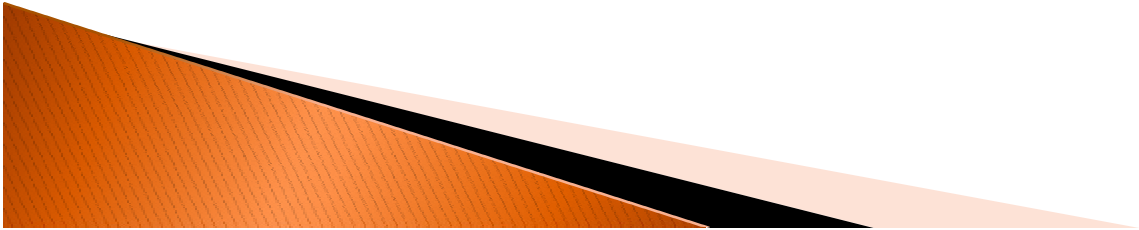


Heat Rash

- } most common problem in hot working environments.
- } caused by excessive sweating in hot humid environment mostly with wearing heavy protective clothing.
- } Looks like a red cluster of pimples or small blisters.
- } may appear on the neck, upper chest, groin, under the breasts and elbow creases.
- } The best treatment for heat rash is to provide a cooler, less humid work environment.

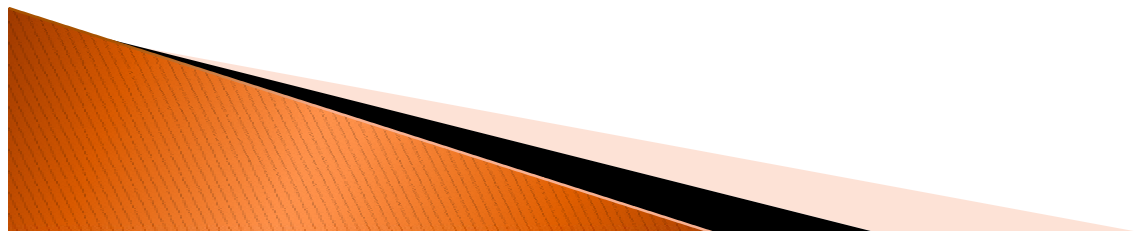






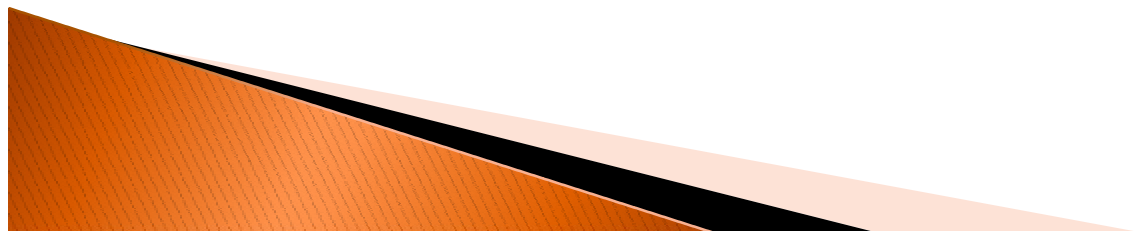
Heat Cramps

- } Painful muscle spasms that occur when a person drinks large amounts of water but fails to replace the body salt loss
- } Usually controlled by drinking fluids that contain electrolyte replacements (sport drinks)



Heat Exhaustion

- } fatigue and collapse resulting from prolonged exposure to excessive or unaccustomed heat.
- } Signs and symptoms are intense thirst, heavy sweating and body temperature greater than 38C.
- } Also headache, nausea, dizziness, weakness, irritability and confusion.
- } Typically treated by rest in a cool place and replacing fluids and minerals.



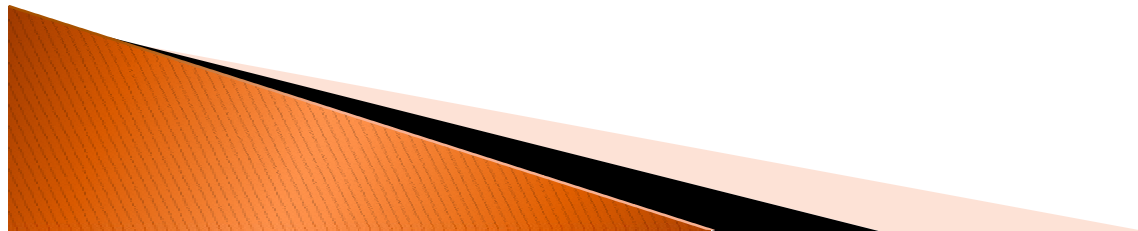
} Heat Stroke

- } Heat Stroke is the most serious heat-related health problem.
- } occurs when the body's temperature regulating system fails and body temperature rises to critical levels (greater than 40 C).
- } It is a medical emergency that may result in brain damage or death.
- } Signs are confusion, loss of consciousness, and seizures.

Heat stroke (continue):

Measures

- } move the worker to a shady, cool area and
- } remove as much clothing as possible.
- } Wet the worker with cool water and circulate the air to speed cooling.
- } Place cold wet cloths, wet towels or ice all over the body or soak the worker's clothing with cold water.



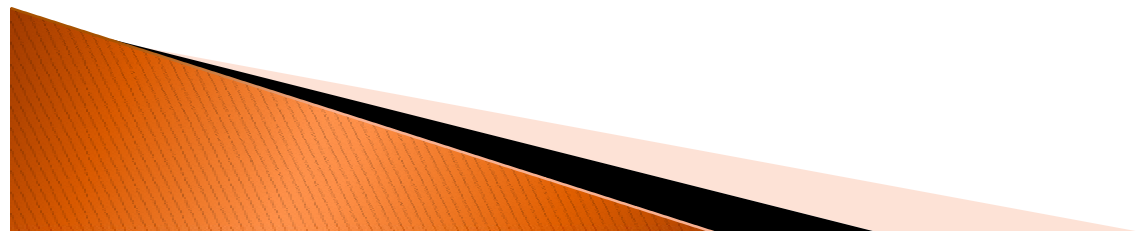
Occupational Factors that may contribute to Heat Illness

- } High temperature and humidity
- } Low fluid consumption
- } Direct sun exposure (with no shade) or extreme heat
- } Limited air movement (no breeze or wind)
- } Strenuous physical exertion
- } Use of bulky protective clothing and equipment.
- } Personal factors as Age, health status.

Heat Illness Prevention Program

key elements include:

- Hazard Identification
- Water. Rest. Shade Message
- Acclimatization
- Modified Work Schedules.
- Training



Cold Stress – Cold Related Illnesses

- } Hypothermia
- } A body temperature that is too low affects the brain, making the victim unable to think clearly or move well.
- } hypothermia particularly dangerous because a person may not know it is happening and will not be able to do anything about it.

- } Chilblains
- } Chilblains are caused by the repeated exposure of skin to temperatures just above freezing to as high as 15 C
- } Symptoms: Redness, Itching, Possible blistering, Inflammation, Possible ulceration in severe cases
- } The redness and itching typically occurs on cheeks, ears, fingers, and toes.

- } Frostbite
- } Ice crystal formation in skin and other tissues of the body.
- } Result in permanent damage and destruction to blood vessels and other structures which can result in amputation.
- } Most often affects the nose, ears, cheeks, chin, fingers, or toes



} Trench Foot

Or (immersion foot), is an injury of the feet resulting from prolonged exposure to wet and cold conditions.



} Treatment

- } RAPID re-warming in warm water until color of skin return to normal
- } NO dry heat as oven or others



WATER
TEMP

104°-108°F

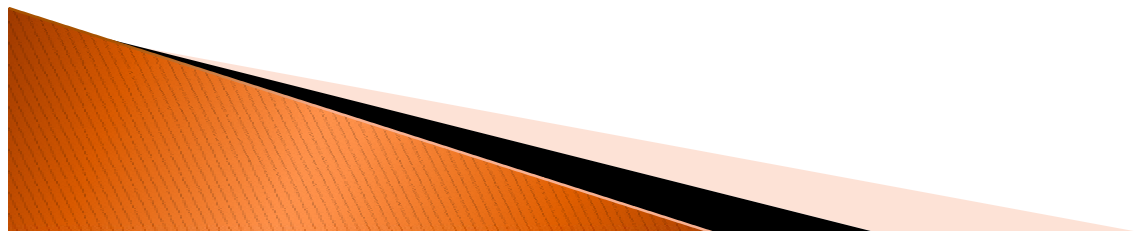
SOAK INJURED
AREA UNTIL IT
FLUSHES PINK

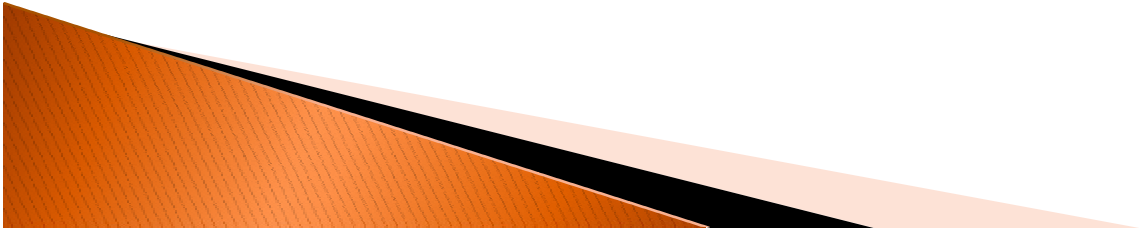


KEEP
WATER
FRESH
& WARM

KEEP INJURED AREA
AWAY FROM SIDES
OF TUB

2. Vibration





Vibration Two Types



Hand-Arm Vibration



Whole-Body Vibration

Vibration

What is vibration?

Hand Arm Vibration

Hand Arm Vibration is the most common form of vibration, often produced when holding or using power tools, where the energy is passed directly to the operator's hand.



Whole Body Vibration

Whole Body Vibration occurs when the operator's body is in direct contact with a machine or the seat of a machine. Typically when driving over rough ground or uneven surfaces.

a. Whole body vibration

uneven road

Fork lift

Quarrying

Effects :

risk of damage to lumbar spine , neck ,
shoulder , prevalence of herniated disc ,
degeneration of spine in excessive exposed
workers







Prevention:

i _ Education of workers about vibration transmission and to take breaks , posture changes , reduce exposure time

ii_ preference for buying machines and vehicles designed to reduce transmission of vibration

iii_ suspension seats



2– Local body vibration

****hand–arm vibration****

occurs in the **arms , hands and fingers** when working with a vibration tool or machinery as in drill hammering



Vibration can cause changes in tendons, muscles, bones and joints, and can affect the nervous system

the most common condition among the operators of hand-held vibrating tools.

Vibration-induced white finger (VWF)



Prevention

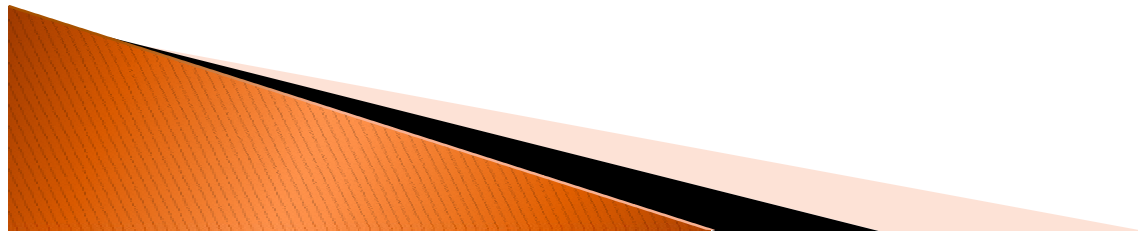
1 - Use of anti vibration gloves

Reduce the vibration from handheld machines

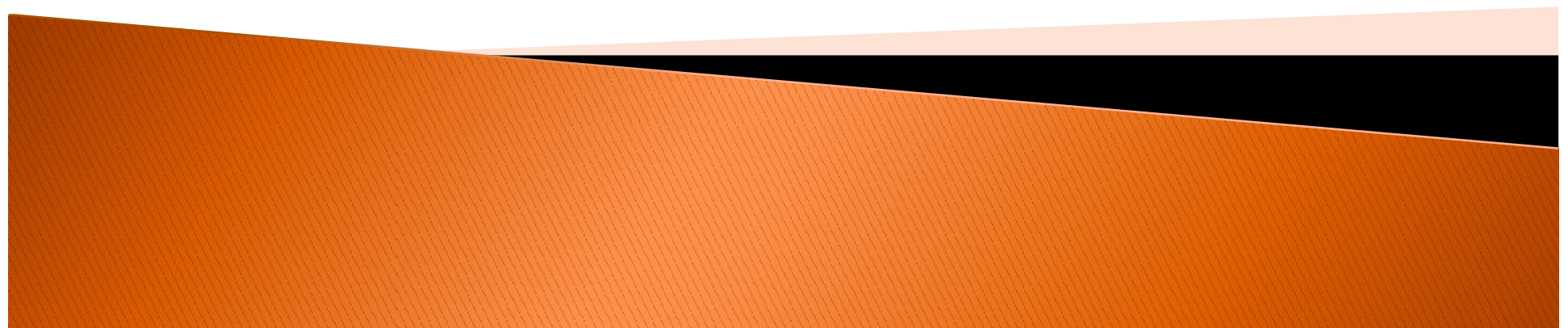


2. Take regular breaks of at least 10 minutes away from the tool

3. Use tools correctly and use the right tool for the job. Don't use excessive grip, nor to use a tool for longer than necessary.



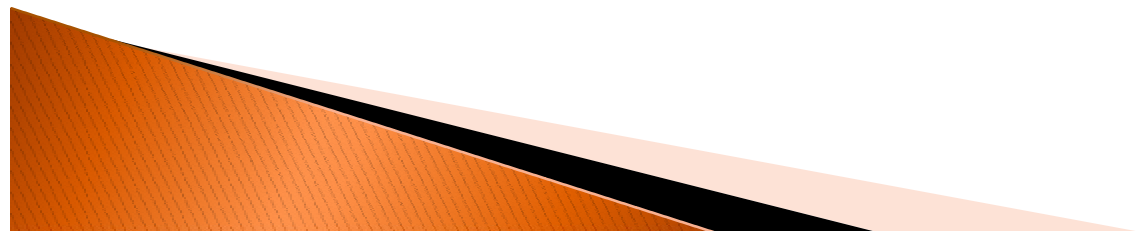
3. pressure



Bends, decompression sickness (DCS) or Caisson disease occurs in scuba divers or high altitude or aerospace events when dissolved gases (mainly nitrogen) come out of solution in bubbles.

affect any body area including joints, lung, heart, skin and brain.

Symptoms could be just musculoskeletal pain and mild cutaneous symptoms up to neurological, inner ear and cardiopulmonary symptoms and the last could be life threatening.



Thanks