— University of Mosul —
College of Petroleum & Mining Engineering

Occupational Safety and Health

Lecture 2

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LECTURE CONTENTS

- **Hazardous Waste Standard**

Hazardous Waste Standard

This standard specifically addresses the safety of the estimated many million workers who deal with hazardous waste: hazardous waste workers in all situations, including treatment, storage, handling, and disposal; firefighters; police officers; ambulance personnel; and hazardous materials response team personnel.

The requirements of this standard are as follows:

• Each hazardous waste site employer must develop a safety and health program designed to identify, evaluate, and control safety and health hazards, and provide for emergency response.

• There must be preliminary evaluation of the site’s characteristics prior to entry by a trained person to identify potential site hazards and to aid in the selection of appropriate employee protection methods.

• The employer must implement a site control program to prevent contamination of employees. At a minimum, the program must identify a site map, site work zones, site communications, safe work practices, and the location of the nearest medical assistance. Also required in particularly hazardous situations is the use of the buddy system so that employees can keep watch on one another and provide quick aid if needed.

• Employees must be trained before they are allowed to engage in hazardous waste operations or emergency response that could expose them to safety and health hazards.

• The employer must provide medical surveillance at least annually and at the end of employment for all employees exposed to any particular hazardous substance at or above established exposure levels or those who wear approved respirators for 30 days or more on-site.

• Engineering controls, work practices, and personal protective equipment, or a combination of these methods, must be implemented to reduce exposure below established exposure levels for the hazardous substances involved.

• There must be periodic air monitoring to identify and quantify levels of hazardous substances and to ensure that proper protective equipment is being used.

• The employer must set up an informational program with the names of key personnel and their alternates responsible for site safety and health, and the requirements of the standard.

• The employer must implement a decontamination procedure before any employee or equipment leaves an area of potential hazardous exposure.

• There must be an emergency response plan to handle possible on-site emergencies prior to beginning hazardous waste operations. Such plans must address personnel roles; lines of authority, training, and communications; emergency recognition and prevention; safe places of refuge; site security; evacuation routes and procedures; emergency medical treatment; and emergency alerting.

• There must be an off-site emergency response plan to better coordinate emergency action by local services and to implement appropriate control actions.

One of the breakthroughs of the OSH Act was the centralization and systematization of **record keeping**. This has simplified the process of collecting health and safety statistics for the purpose of monitoring problems and taking the appropriate steps to solve them.

All occupational illnesses and injuries must be reported if they result in one or more of the following:

- Death of one or more workers.
- One or more days away from work.
- Restricted motion or restrictions to the work that an employee can do.
- Loss of consciousness of one or more workers.
- Transfer of an employee to another job.
- Medical treatment beyond in-house first aid (if it is not on the first-aid list, it is considered medical treatment).

First aid is defined as follows:

- Using nonprescription medication at nonprescription doses.
- Administering tetanus immunizations.
- Cleaning, flushing, or soaking wounds on the surface of the skin.
- Using wound coverings such as bandages, gauze pads, and so on.
- Using hot or cold therapy
- Using totally nonrigid means of support, such as elastic bandages, wraps, nonrigid backbelts, and so forth.

• Using temporary immobilization devices such as splints, slings, neck collars, or back boards while transporting an accident victim.

• Drilling a fingernail or toenail to relieve pressure, or draining fluids from blisters.

• Using eye patches.

• Using irrigation, tweezers, cotton swab, or other simple means to remove splinters or foreign material from areas other than the eye.

• Using finger guards.

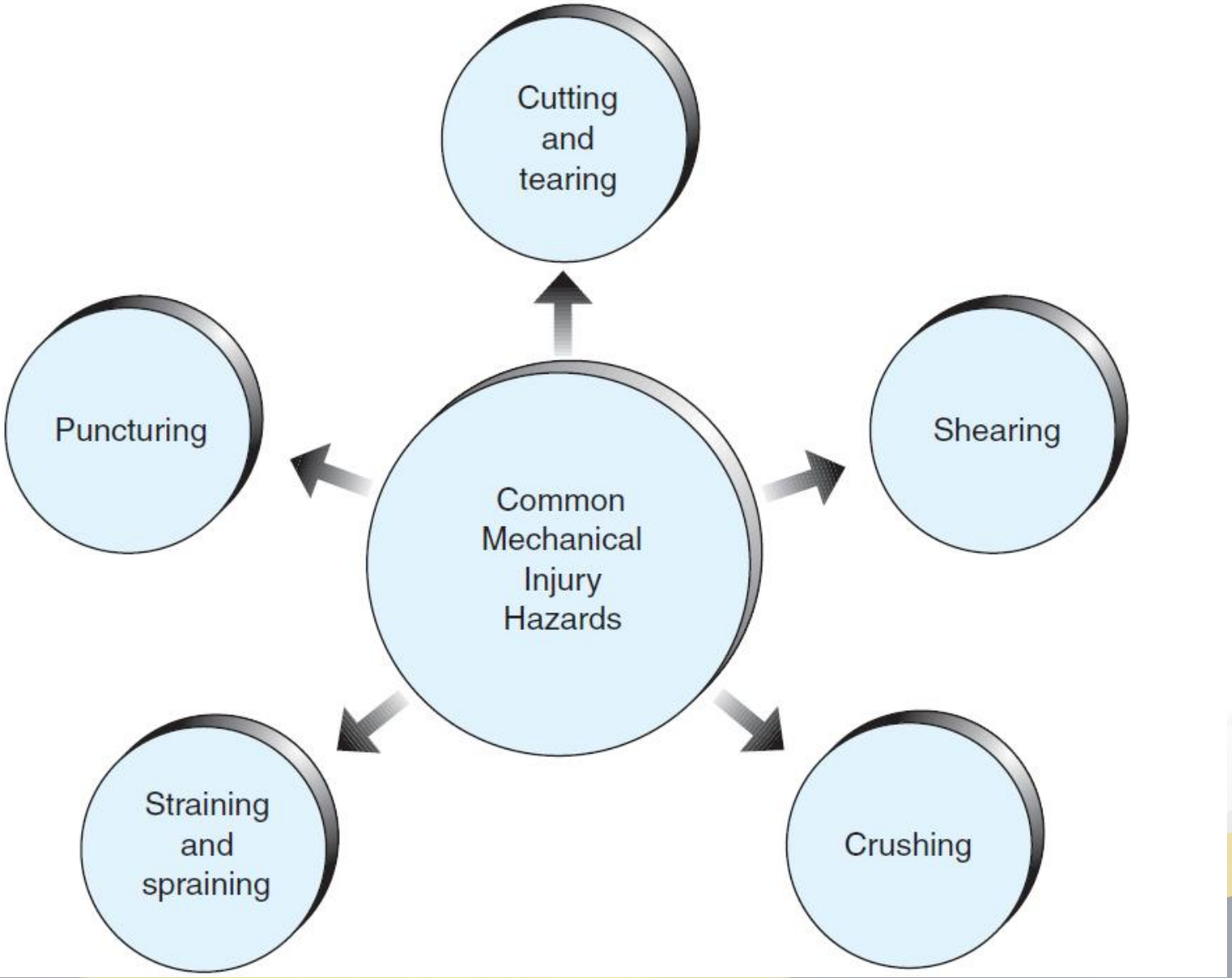
• Using massages.

• Drinking fluids to relieve heat stress.

Mechanical hazards are those associated with power-driven machines, whether automated or manually operated. Concerns about mechanical hazards date back to the Industrial Revolution and the earliest days of mechanization. Machines driven by steam, hydraulic, or electric power introduced new hazards into the workplace. In spite of advances in safeguarding technologies and techniques, mechanical hazards are still a major concern today. In addition, automated machines have introduced new concerns.

Common Mechanical Injuries

In an industrial setting, people interact with machines that are designed to drill, cut, shear, punch, chip, staple, stitch, abrade, shape, stamp, and slit such materials as metals, composites, plastics, and elastomers. If appropriate safeguards are not in place or if workers fail to follow safety precautions, these machines can apply the same procedures to humans. When this happens, the types of **mechanical injuries** that result are typically the result of cutting, tearing, shearing, crushing, **breaking**, straining, or puncturing (see below Figure).


Cutting and tearing
Puncturing
Shearing
Common Mechanical Injury Hazards
Straining and spraining
Crushing