Lecture 5 Occupational Safety and Health Dr. Muna Merza

**Chemical Hazards**

**Route of Entry of Chemical substances:**

1. Respiratory route, it is the most dangerous route. Chemical substances in work environment such as dust, gases or vapor enter through respiratory passages. The size of these particles plays a very important role in the site of precipitation. The **lead** particles precipitate in **bone**, **manganese** in the CNS and **silica** particles in lung.
2. Digestive system, chemicals substances enter through polluted food or drinks.
3. Skin contact, chemicals substances are dissolved in the sweat then to skin and lastly to blood.
4. eye contact.

**Elimination of Chemical Hazards:**

1. One way this is done is through the **liver**, which uses enzymes to metabolize and break down these substances so that they can be eliminated from the body through the kidneys and urinary system.
2. The skin and respiratory system also play a role in eliminating chemical substances by releasing them through sweat, urine, and exhaled air.
3. The gastrointestinal system helps to eliminate chemicals through the feces.

**The absorbed toxic substances can be eliminated through various ways:**

* Urine.
* Feces.
* Expired air.
* Saliva.
* Sweat.

**There are several types of chemical toxicity:**

1. Acute toxicity: defined as the toxic effects that occur rapidly after exposure to a chemical.
2. Chronic toxicity: defined as the toxic effects that occur after repeated or long-term exposure to a chemical.
3. Dermal toxicity
4. Ocular toxicity: defined as the toxic effects that occur when a chemical comes into contact with the eyes.
5. Inhalation toxicity
6. Carcinogenicity: This refers to the ability of a chemical to cause cancer.
7. Reproductive toxicity: This refers to toxic effects that affect fertility or the development of the fetus

**The toxic chemical substance types include:**

1. Toxic dust.

2. Vapors released by the metal such as arsenic, lead, manganese or mercury.

3. Toxic or asphyxiate gases.

4. Fumes produced during firing.

5. The action of acid on skin.

**Chronic toxicity**: refers to the harmful effects of chemical substances on the body when they are present at low levels over an extended period of time.

Chronic toxicity can lead to a variety of health problems, including **cancer, organ damage, and reproductive issues.** It is important to be aware of the potential chronic toxicity of chemical substances and to take steps to minimize exposure to them to protect overall health and well-being. This may involve **avoiding certain products or substances, using protective equipment, or following proper safety guidelines when handling chemicals.**