

# Occupational Health

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## **Definition of occupational health:**

Occupational health is the promotion and maintenance of the highest degree of physical, mental and social well-being of the workers in all occupations; the prevention among workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological equipment and to summarize, the adaptation of work to man anode each man to his job.

**OR**

Occupational health is the prevention of disease and maintenance of the highest degree of physical, mental and social well-being of the workers in all occupations and also health promotion, specific protection, early diagnosis and treatment disability limitation and rehabilitation of the workers.

## **What is occupational environment?**

Occupational environment is the sum of external conditions which influences at the place of work and which have bearing on the health of the workers.

## **There are three types of interaction in a working environment:**

1. Man and physical, chemical and biological agents.
2. Man and machine.
3. Man and man

### ***1.Man and physical, chemical and biological agents:***

- i. Physical agents: Physical agents such as heat, cold heat radiation, light, noise, the amount of working and breathing space, toilet, washing and bating facilities are important factors in an occupational environment which may be adverse to the health.
- ii. Chemical agents: Some chemical agents cause disabling respiratory illness, some causes injury to skin and some may have a deleterious effect on the blood and other organs of the body.
- iii. Biological agents: Some biological agents such as viral, bacterial and parasitic agents who may result from close contact with animals or products contaminated water, soil or food.

2. **Man and machine:** An industry or factor implies the use of man and machine for production where the lack of safety measures is the causes of accidents which is a major problem in industries.

3. **Man and man:** Psychological factors such as type and rhythmic work, work stability, service condition, job satisfaction, security, workers participation, communication, payment system etc affects the workers health.

## **Occupational Hazards**

*An industrial worker may be exposed to five types of hazards, depending upon his occupation:*

1. Physical hazards
2. Chemical hazards
3. Biological hazards
4. Mechanical hazards
5. Psychological hazards

### **1. Physical hazards:**

*a. Heat and cold:*

The common physical hazard in most industries is heat. The direct effect of heat exposure is burns; heat exhaustion etc and the indirect effects are decreased efficiency, increased fatigue etc. Physical work under such condition is very stressful and impairs the efficiency of the workers.

*b. Light:*

The workers may be exposed to the risk of poor or excessive brightness. Poor brightness can effects such as eye pain, headache, eye fatigue etc and excessive brightness can cause discomfort, visual fatigue etc.

*c. Noise:* Noise is health hazards in many industries. The effects of noise are two types;

- Auditory effects which may cause permanent hearing loss.
- Non-auditory effects which may cause nervousness fatigue etc.

*d. Vibration:*

Vibration usually affects the hands and arms. After some month or years of exposure of vibration, find the blood vessels of the finger become increasingly sensitive to spasm and also may produce injuries of the joints of the hands, elbows and shoulders.

*e. Ultraviolet radiation:* Occupational exposure to ultraviolet radiation such as welding which may occur conjunctivitis, keratitis etc

*f. Ionizing radiation:* Ionizing radiation such as X-ray, and radio-active isotopes which may occur genetic changes, cancer, leukemia, sterility and in extreme cases death.

### **2. Chemical hazards:** Chemical agents act in the three ways:

- i. Location
- ii. Inhalation
- iii. Indigestion

Which produce health hazards depend upon the duration, quantum and individual susceptibility of exposure?

- i. **Location:** Some chemicals such as machine oil, rubber, X- ray, caustic, alkalis and lime cause dermatitis, eczema, ulcers and even cancer.
- ii. **Inhalation:**
  - Dusts four types – inorganic, organic, insoluble and soluble dust. The organic dust as cotton, jute etc. the inorganic dust such as silica, coal, asbestos etc. the soluble dusts dissolve slowly enter the systemic circulation and eventually eliminated by body metabolism. The insoluble dusts remain more or less permanently in the lungs which produce pneumoconiosis.
  - Gases: exposure to gases is common hazards in the industries such oxygen, hydrogen, carbon-monoxide, sulphur dioxide etc.
  - Metal and their compounds: A large number of metals and their compound are used throughout the industries. The chief mode of entry of some of them by inhalation as dust or fumes which may causes health hazards as like as pneumoconiosis.
- iii. **Ingestion:** occupational diseases may result from ingestion of chemical substance such as mercury, arsenic, zinc, phosphorus etc which substance entry in human body by contaminated hands food or cigarettes.

3. **Biological hazards:** Workers may be exposed to infective and parasitic agents at the place of work and suffer some infected disease such as anthrax, fungal infection etc.

4. **Mechanical hazards:** Mechanical hazards in the industry such as needle pick in the finger, cutting down finger etc.

5. **Psychological hazards:** The psychological hazards arise from the workers failure to adapt psychological environment such as lack of job satisfaction, insecurity and poor human relationship

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## Occupational diseases

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### 1. Disease due to physical agents:

- Heat caused by heat hyperpyrexia, heat exhaustion, burns, prickly heat etc.
- Cold causes trench foot, frost bite, chilblains etc.
- Light causes occupational cataract.
- Pressure causes caisson disease, blast etc.
- Noise causes occupational deafness
- Radiation causes cancer, leukemia etc.
- Mechanical injuries, accident etc.
- Electrical burns.

### 2. Disease due to chemical agents:

- Gases such as oxygen, carbon-dioxide, sulphur dioxide causes gas poisoning.
- Dusts cause lung cancer.

### 3. Disease due to biological agents: Tetanus, anthrax, fungal infection etc.

### 4. Occupational dermatosis such as dermatitis, eczema etc

### 5. Disease of the psychological origin such as industrial neurosis, hypertension peptic ulcer etc

### Preventive measure:

1. *Dust control:* Measure for the prevention and suppression of dust well ventilation, wet process, enclosed apparatus etc.
2. *Personal protection:* personal protective equipment such as masks, oxygen or air supply etc.
3. *Medical control:* Initial medical examination and periodical medical checkup of the workers.
4. Insects control by spraying and used fungicide.
5. *Nutrition:* In many developing countries, malnutrition is an important factor among workers and low work output. So facilities should provide for balanced diet at reasonable cost in a canteen by maintain the industry.
6. *Communicable disease control:* the industry should provide excellent opportunity for early diagnosis, treatment, prevention and rehabilitation.
7. *Environmental sanitation:* For the prevention of the spread of communicable disease some prevention measure should be taken by –
  - a. *Water supply:* A sufficient wholesome drinking water should supply for thr prevention of communicable disease.

- b. *Food:* Food should be well prepared, storage and handled for the prevention of food born disease.
- c. *Toilet:* sufficient number of latrines and urinals of the sanitary types separate for male and female should be provided. Garbage and waste disposal should be avoiding the breeding of files and vermin.
- d. *General plant cleanliness:* The walls, calling and passages should be painted with water washable paint at least once in 3 years.
- e. *Sufficient space:* Sufficient floor space is essential to prevent infections and also comfortable working environment.
- f. *Lighting:* Poor light in the industry can increase accidents and decreased production and more rejection of the finished products. So sufficient lighting is important.
- g. *Ventilation, temperature:* Poor ventilation can increase infection and also affects the mental and physical efficiency of the workers. So reasonable condition should be provided for comfort and prevent injury to health.
- h. *Protection from hazards:* adequate environmental control should be provided to protect the workers against exposure to dusts and other toxic hazards.
- i. *Housing:* The housing of the workers should provide near the plants and to social and sanitary facilities.