

Community

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Effect of air pollution on health

Air Pollution

Air Pollution means the presence in the ambient atmosphere of substances generated by the activities of human in concentrations that interfere with the health of human, safety or comfort, or injurious to vegetation and animals and other environmental media which result in chemicals entering the food chain or being present in drinking water and thereby constituting additional source of human exposure.

Sources of Air Pollution

1. Automobiles
2. Industries
3. Domestic sources
4. Tobacco smoke
5. Miscellaneous: burning refuse, incinerators, etc.

Effect of Air Pollution on Health

The quality of air significantly affects the lives of people, so living in a pollution-free environment signifies a better quality of life, but the questions are how air pollution affects health

and which parts of body are damaged by each kind of polluting particles ?

Growth and concentration of the population in cities, in addition to the way in which we consume energy in urban areas through transport or heating and air conditioning systems, among others, result in the emission of huge quantities of gases that are harmful to health.

Organs of Body are Damaged by Polluting Particles

Many organs and bodily functions that can be harmed, the consequences including:

Respiratory diseases

Cardiovascular damage

Fatigue, headaches and anxiety

Irritation of the eyes, nose and throat

Damage to reproductive organs

Harm to the liver, spleen and blood

Nervous system damage.

Urban populations are more exposed to suffer from the effects of air pollution and, also, people who are already ill are particularly vulnerable, especially children and the elderly

Prevention of Air Pollution:

1. Assessment: is the first step to solve air pollution.
2. Reduce exposure: These can be accomplished by regulation of manmade pollution through legislation.
3. Adequate ventilation is also a key to control exposure to air pollution. Home and work environments should be monitored for adequate air flow and proper exhaust systems installed.

4. Restricting smoking is an important key to a healthier environment. Cigarette smoke is one of the most dangerous air pollutants.

NOISE

Definition: “wrong sound, in the wrong place, at the wrong time”.

Sources: Automobiles, factories, industries, air crafts, loudspeakers, radios, T.V sets etc

Effects of noise exposure:

1. Auditory effect:

- a. Auditory fatigue: It may be associated with side effects such as whistling and buzzing in the ears.
- b. Deafness: Temporary or permanent.

2. Non-auditory effect:

- a. Interference with speech.
- b. Annoyance: This is primarily a psychological response.
- c. Efficiency: Reduction in noise has been found to increase work output.
- d. Physiological changes: A rise in blood pressure, intracranial pressure, heart rate, increase in breathing and sweating.

Control of noise:

1. Control of vehicles.
2. By improving acoustic insulation of building.
3. Industries and railways should be outside the residential areas.
4. Protection of exposed persons: Workers must be regularly rotated from noisy areas to comparatively quiet posts in factories.
5. Legislation: Workers have the right to claim compensation if they suffered a loss of ability to understand speech.
 6. Education about noise pollution should be given.

Radiation

Sources of Radiation Exposure

Natural Sources

Natural sources are those of natural origin that are unperturbed by human activities and those affected by human activities (enhanced natural sources). Examples include the sun (UV and cosmic x-rays) and the soil (radon).

Man-made Sources

Man-made sources are those specifically produced by man. Examples include medical devices, and consumer products

- a. Medical and dental X-rays, radioisotopes.
- b. Occupational exposure.
- c. Nuclear radioactive fallout.
- d. Miscellaneous: television sets, radioactive dial watches, isotope tagged products, luminous marker.

Biological Effects of Radiation

1. Somatic effects:

- a. Immediate effects are: Acute radiation syndrome, central nervous system syndrome etc
- b. Delayed effects are: leukemia, malignant tumors, shortening of life, and abnormality of fetal development.

Effect of radiation on oral tissues:

- a. Mucositis: secondary infection by *Candida albicans*.
- b. Test buds damage.
- c. Salivary gland disorder, like xerostomia.
- d. Tooth growth retardation.
- e. Rampant caries may occur.

2. **Genetic effects**: Chromosome mutations (affect sterility) and Point mutations (affect genes).

Radiation protection:

1. Use of lead shields and lead aprons.
2. Periodic medical examinations, regular working hours, recreation and holidays must be ensured to workers to maintain their state of health.
3. Unnecessary x – ray exposures should be avoided especially in children and pregnant women
4. Film badges should be used by all the workers.
5. Safe distance from x-ray machine and using lead- lined collimators.