Welding can make you feel sick

Exposure to welding fumes has been associated with metal fume fever, asthma, lung cancer, welder's pneumoconiosis, melanoma of the eye [due to exposure to UV light] manganism and changes in the kidney due to cadmium.

The most common injuries linked with welding work are muscle sprains and strains (from awkard or difficult postures or heavy manual handling), eye injuries such as fine metal pieces or dusts and flash burns.

The very small particles formed when the vaporised metal condenses in air can cause short and long term illness --- just what those effects are is dependant upon the metals and fluxes used.

[see Hazards of Welding Fumes http://www.amwu.org.au/info_and_fact_sheets]

Some metal fumes produced by welding:

- Ferric oxide the long-term exposure of operators to iron oxide fumes is reported as a contributor to Metal Fume Fever.
- Manganese oxides are known to be chronic toxins with central nervous system effects --- a slow deterioration of muscle control including walking and facial expression problems. Manganese oxide toxicity typically becomes apparent after long-term exposure to the fumes.
- Nickel oxide is a known skin irritant and is classified as a potential lung and nasal carcinogen.
- Long-term exposure to iron oxide fumes is reported to contribute to Metal Fume Fever.

Gases generated from welding include:

- Carbon monoxide: a colours gas, overexposure can inhibit the red blood cells ability to carry oxygen in the blood.
- Ozone, nitrogen oxide and nitric oxide are produced by the interaction of the ultaviolet light
- and air. These are irritating to the eyes, nose and throat.
- Degreasing with chlorinated solvents can produce phosgene, hydrgoen chloride etc. These also cause eye, nose and lung irritations. The symptoms may be delayed.
- Cleaning the metal with pickling paste can produce toxic hydrogen flouride and nitric acid.

The type and amount of fume depends upon the composition of the metal being welded, the welding process (stick welding, MIG, fluxed core arc welding, TIG or submerged arc welding). TIG welding produces less metal fume than say MIG, but higher levels pf ozone and nitric oxide.

How much of these fumes and gases are breathed in by the welder depends on the ventilation --- general dilution ventilation is not enough.

Effective and efficient local exhaust ventilation is required. If the work also involves grinding or carbon arc gouging, the welder is much more likely to be exposed to hazardous levels of fume and gases.

Metal Fume Fever

Zinc oxide fumes, typically produced when welding gal (galvanised steel), can cause an immediate flu like illness called metal fume fever.

Metal Fume Fever is also known as "monday morning fever" as the symptoms occur after the weekend away from the daily exposures to metal oxide fumes. The body develops a tolerance to the fumes with every day exposure but this is lost during the non welding days.

This is important, as damage can still be occurring to the lungs, without the welder expriencing any immediate symptoms.

The common symptoms are fever, chills, muscle aches,chest pain, nonproductive cough, metallic taste in the mouth, headache and fatigue. As these symptoms are very similar to those caused by the flu or a cold, the diagnosis can sometimes be missed. Metal fume feversymptoms develop within 48 hours of exposure and resolve within 1–2 days; some treatment maybe necessary to relieve symptoms.

Chronic lung conditions

The chronic lung conditions linked with welding are also linked with other exposures, for example cigarette smoke. For these reasons doctors often miss the link to work.

Chronic obstructive pulmonary disease

Chronic obstructive lung disease (COPD) is a lung disease characterised by wide spread damage to the airways and gas exchange parts of the lung that cannot be reversed by treatment. Chronic bronchitis is a related disease characterised by bronchial mucous hypersecretion.

There is a significant overlap between the two diseases. COPD is caused by many combined exposures but has been found to be common in welders.

Smoking is a significant cause of COPD.

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Welding can make you feel sick

Continued

Lung cancer

Welders are 44 per cent more likely to get lung cancer than the general population – this is linked to exposures to fumes containing Chromium VI, Nickel, Manganese and Iron.

[see Cancer and Work http://www.amwu.org.au/info_and_fact_sheets]

Notes:

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