

# Lung diseases caused by welding

It is a **lung disease** caused by **inhalation of welding fumes** (especially oxides of Zn, Cu, Mg, or Teflon - polytetrafluoroethylene). These are formed during welding (joining of metal materials) most often in mechanical engineering or repair. Therefore, it is typically an occupational disease.

## Clinical picture

We distinguish the disease according to its onset between **acute** and **chronic**.

### Acute

Among the most common in terms of prognosis are **benign fever of metals** (also fever of welders, or fever of welding fumes). **Inhalation of highly toxic gases** (eg cadmium) causes serious lung and respiratory diseases, which acutely manifest themselves as life-threatening inhalation trauma at high doses.

### So called "Fever of metals"

It is an inhalation syndrome due to inhalation of **respirable oxidized particles and fumes** (the most common problem for welders). The origin of the disease has not yet been clarified, the use of mainly TNF and other cytokines has been proven.

### Diagnosis

a) According to symptoms:

- fever and chills;
- metal taste;
- fatigue with muscle and joint pain.

b) According to the dynamics of the disease:

The onset of symptoms appears at the end or after the exposure and the adjustment occurs within 1 day and without consequences. Symptoms tend to be dose proportional and repeated exposures will cause "desensitization" or **tachyphylaxis** - further exposures in the following days will not cause symptoms. However, the tolerance induced this way disappears and therefore the welders' fever typically occurs after the weekend (**Monday fever**).

### Treatment

Because it is a "self-limiting" disease, **symptomatic therapy** such as antipyretics is sufficient. Prevention is more important, especially the use of alternative work procedures (if possible), ensuring better ventilation of the area and the use of protective work aids (respirators).

### Chronic

Chronic exposure to iron oxides develops **non-fibrogenic pneumoconiosis** from welding. This benign disease manifests as exogenous lung siderosis (therefore sometimes referred to as the welding lung). It is visible as local opacity on the X-ray, which is reversible and the image normalizes after the end of the exposure.

**Bronchial asthma** can also develop due to sensitization to some parts of the welding fumes. In manifestations and therapy, they do not differ from asthma of other etiologies.

## Differential diagnosis

- Fever of metals can primarily mimic **infectious diseases** or acute attacks of **exogenous allergic alveolitis**.
- It is important to distinguish pneumoconiosis from welding from **fibrogenic pneumoconiosis** (eg by gradual regression of the X-ray finding after the end of exposure).

## Links

### Related articles

- Pneumokoniosis
- Coal mine pneumokoniosis

- Professional asthma

## References

- PELCLOVÁ, Daniela a Zdenka FENCLOVÁ. *Occupational diseases and intoxications*. - edition. Karolinum, 2014. 316 s. ISBN 9788024626079.
- SMEDLEY, Julia, Finlay DICK a Steven SADHRA. *Oxford Handbook of Occupational Health*. - edition. OUP Oxford, 2013. 915 s. ISBN 9780199651627.