



Health effects of smoke

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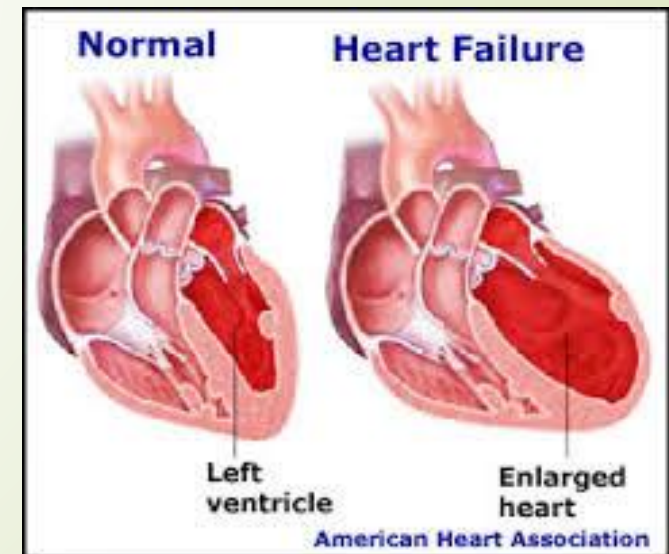
What's in the smoke? Sources say...

- ▶ *Smoke is a complex mixture of carbon dioxide, water vapor, carbon monoxide, particulate matter, hydrocarbons and other organic chemicals, nitrogen oxides, and trace minerals. The individual compounds present in smoke number in the thousands.*
- ▶ *Carcinogenic components with polycyclic aromatic hydrocarbons (PAHs) comprising the largest percent, and to a lesser extent benzene and formaldehyde.*
 - ▶ *Wildfire Smoke A Guide for Public Health Officials May 2016*

Potential concerns from smoke

- Eye and respiratory tract irritation
- Reduced lung function
- Bronchitis
- Pulmonary inflammation
- Exacerbation of asthma
- Heart failure
- Premature death

Particulate matter can also affect the body's natural defense mechanisms that help to remove foreign materials from the lungs, such as pollen and bacteria.



Short-term exposures

- ▶ Are linked with an increase in premature mortality,
- ▶ and intensification of pre-existing respiratory problems,
- ▶ and cardiovascular disease.

Long-term exposures

- ▶ Reduced lung capacity and lung function
- ▶ Chronic bronchitis
- ▶ Premature death
- ▶ Possibly cancer
- ▶ Potential for low birth weight and infant mortality





Contributing factors

- ▶ Level and duration of exposure
- ▶ Age
- ▶ Individual susceptibility-
 - ▶ Including the presence of asthma, COPD, etc.
 - ▶ Heart disease
- ▶ Sensitive groups-
 - ▶ Pregnant Women
 - ▶ Children
 - ▶ Elderly



Of related interest...

- ▶ A study also suggests that smoldering fires may produce more toxins (alkaloids) than wildfires
 - ▶ A reason to keep human exposures to a minimum during controlled burns.
 - ▶ Smoke-related alkaloids can change aquatic and terrestrial ecosystems, as well as where and when clouds form – Pacific Northwest National Laboratory
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