

Health Effects of Asbestos

**Sacramento County Division of
Public Health Promotion and
Education**

How Does Asbestos Cause Disease?

- Asbestos fibers are inhaled deep into the lungs.
- Size, length and shape of fibers is different from one kind of asbestos to another, but all types of asbestos cause disease.
- Inhaled fibers can stay in the lung, go to other parts of the body, or be cleared.

How Does Asbestos Cause Disease?

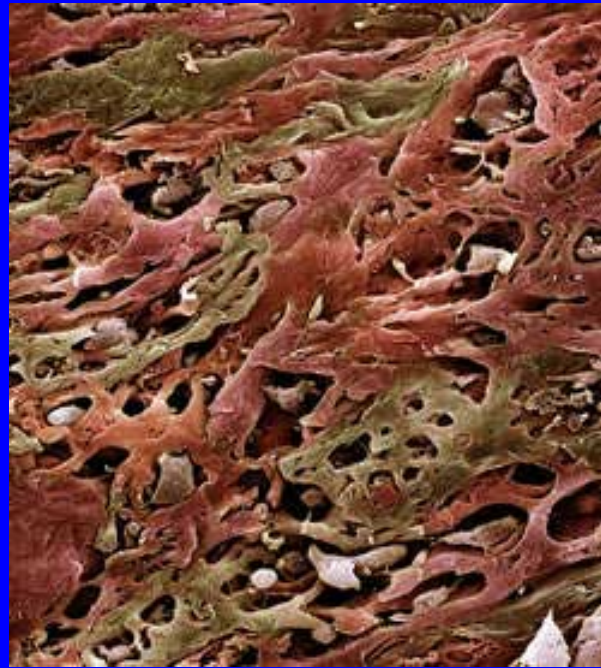
- **In the lungs:**
 - **Fibers cause local inflammation**
 - **Fibers disrupt orderly cell division**
 - **Cigarette smoking and asbestos exposure together are worse than either one alone**
- **When swallowed:**
 - **Can be cleared**
 - **May migrate to lining**

Lung Diseases from Asbestos Exposure

- **Lung Cancer**
- **Mesothelioma**
- **Asbestosis**
- **Pleural plaques**
- **Pleural thickening**
- **Pleural effusions**

Lung Cancer

- **Malignant tumor that invades the lung**
- **Cigarette smoking adds to risk**



Mesothelioma

- **Cancer of the lining of the lungs or the abdomen**
- **Very rare**
- **Almost always related to asbestos exposure**

Asbestosis

- Scarring of the lung due to inhalation of asbestos fibers
- Usually appears 10 to 20 years after first exposure
- Slowly progressive
- Hard to transfer oxygen in and carbon dioxide out

Other Pleural Abnormalities

- **Plaques**
- **Thickening**
- **Calcification**



Symptoms of Lung Disease

- **Shortness of breath with exercise**
- **Cough**
- **Pain**
- **Shortness of breath at rest**

Diagnosis of Asbestos Related Disease

- **History and Physical Exam**
- **Chest X-Ray**
- **Pulmonary function tests**
- **CT scan**
- **Biopsy/bronchoscopy**



Treatment of Asbestos Related Disease

- **Asbestosis or other nonmalignant disease**
 - **Symptom relief**
 - **Oxygen**
 - **Tobacco cessation**
- **Mesothelioma or lung cancer**
 - **Resection**
 - **Chemotherapy**
 - **Radiation**

Presence of Disease

- **Related to number and type of fibers inhaled**
- **Duration of exposure**
- **Intensity of exposure**
- **Length of time since first exposure**

Occupational Exposures

- **Building industry**
- **Ship yards**
- **Household products**
- **Quarries**
- **Pipe insulation, automotive brakes, shingles, wallboard, and blown-in insulation with asbestos produced through 1970s, installed through 1980s**



Non-industrial Exposures

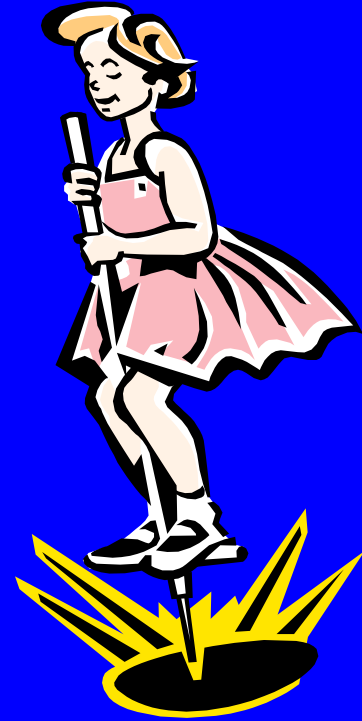
- **Living with a person who works with asbestos**
- **Living in communities with asbestos mines or factories**
- **Using tremolite asbestos to whitewash homes.**

Naturally Occurring Asbestos

- **Exposure anytime dust containing asbestos is inhaled.**
- **Unpaved roads, on shoes in house, playing in the dust, new construction, mowing, grading, gardening**
- **Intensity, duration and time since first exposure are important**

Children

- Higher metabolism
- Growing lungs
- Lower to the ground
- More likely to engage in dust-producing activities
- Intense but short duration episodes
- Longer life expectancy



What we know

- **Industrial exposure to asbestos inhalation causes serious lung disease.**
- **Living with asbestos workers, in the vicinity of asbestos mines and factories, or whitewash with asbestos in homes, increases rates of asbestos-related disease.**
- **The consequences of exposure can be seen as long as 30 years after exposure began.**

What we don't know

- **Effects of short or variable length exposures of variable intensity**
- **Effects on children**
- **Dose/effect relationship for different types of asbestos**

