

in the atmosphere breathed; second, large particles are more effectively removed by the protective mechanisms of the upper respiratory tract. In the case of fibrous materials these factors have less influence and fibers 100 and even 200 microns in length have been found in the terminal air spaces of human lungs. In small laboratory animals exposed to asbestos dust the maximum length of fiber found in the lung rarely exceeds 50 microns.

A large proportion of non-fibrous particulate dust inhaled into the lung is found in the terminal air spaces (alveolar duct, atria, alveoli) in all parts of the organ; in contrast, inhaled asbestos fibers are first discovered in the respiratory bronchioles. These small passages are immediately distal to bronchioles lined by ciliated epithelium⁽⁵⁾. Their own essential lining is a low cuboidal type of epithelium but, as their name implies, they actually function in respiration through lateral alveoli distributed along their walls. Either these alveoli or the abrupt change in the character of the lining epithelium or the small diameter of the respiratory bronchiole or the combination of all three factors is responsible for retention of the fiber at this site. Only after asbestosis is well established are appreciable numbers of fibers seen in the more peripheral air spaces. Further explanation is required to clarify this observation.

Rate of Tissue Reaction to Asbestos Fibers. The tissue reaction to asbestos develops much more rapidly than does the reaction to quartz dust.

5. Miller, William S.: The Lung. Charles C. Thomas, Publishers, 1937.