

SUMMARY

Background: *Aspergillus fumigatus* is a species of fungus that is present in soil and dust and releases spores that can be inhaled. It is found seemingly everywhere and is a possible hazard, especially to those working around industrial compost piles. NTP studied the effects of inhaled *A. fumigatus* in male and female mice to identify potential toxicity that could be relevant to humans.

Methods: Groups of 10 male and 10 female mice were exposed to two types of *A. fumigatus* spores—living spores (i.e., “viable spores”) and spores that had been killed by heat (i.e., “heat-inactivated particle control spores”)—twice weekly for 3 months. Control animals were exposed to air alone, with no chemical added. Body weight measurements and clinical observations were taken during the study. Tissues from more than 40 sites from every animal were examined for signs of disease. Blood samples were collected to determine whether *A. fumigatus* has the ability to cause DNA damage.

Results: No mice died or were removed early from the study due to test article exposure, and there was no effect of exposure on body weight. Half of the female mice exposed to the viable spores had enlarged, gray bronchial lymph nodes and inflammation. Inflammation was also found in the bronchial lymph nodes of the heat-inactivated particle control groups. Male and female mice exposed to the viable spores had increased lung weights and lung inflammation. Noncancerous tissue abnormalities were found in the larynx, lungs, and bronchial lymph nodes of mice exposed to the viable spores. Tests evaluating the potential for *A. fumigatus* to damage DNA were negative.

Conclusions: *Under the conditions of this 3-month study, exposure to living A. fumigatus spores through inhalation caused effects in the larynx, lung, and bronchial lymph nodes. These effects included enlargement and inflammation in these organs.*
