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Smoking Any Substance Raises Risk of Lung Infections

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Smoking any substance- tobacco, marijuana, or "crack," a smokable form of cocaine-increases a smoker's risk of developing bacterial pneumonia and other infections of the lungs, according to the findings of drug abuse researchers, health, and AIDS researchers.

Although some drugs seem to have specific damaging effects when smoked, smoking anything appears to paralyze the cilia, the hair-like projections in the lungs that sweep out microbes and other matter that can cause infection, according to NIDA-funded studies. Damaging the lung's cilia, the respiratory system's first line of defense, can have severe consequences for people with weak immune systems, the studies note.

A NIDA workshop held in August 1995 examined current research at that time on the cardio-pulmonary effects of crack cocaine use. In a report summarizing the major findings presented at the workshop, Dr. Pushpa M. Khanna, a pharmacologist in NIDA's Division of Basic Research, notes that smoking cocaine appears to weaken the lungs' natural resistance to infection in the lungs.

"Pulmonary alveolar macrophages-cells that protect the lungs from infectious agents-are exposed to the high concentrations of cocaine," says Dr. Thadani. NIDA-funded studies show that alveolar macrophages from smokers are less active than are alveolar macrophages from nonsmokers in destroying Staphylococcus aureus, a cause of bacterial lung infection. Preliminary findings also indicate that alveolar macrophages of cocaine smokers are more susceptible to HIV-related infections than are alveolar macrophages of people who do not smoke cocaine.

"Much remains unknown about the effects of crack smoking on the alveolar macrophages and other cells in the lungs," says Dr. Thadani. "However, it appears that there are profound effects, and this needs to be further studied," she says.

Smoking anything appears to damage or paralyze the cilia, the hair-like projections in the lining of the lung's air passages that sweep out microbes and other matter that can cause disease.

Dr. Donald P. Tashkin, a professor of medicine at the University of California at Los Angeles School of Medicine, and his colleagues recently examined the effects that habitual smoking of tobacco, marijuana, and/or cocaine has on the lining of the lung's air passages. The NIDA-funded study included 53 nonsmokers, 14 smokers of crack cocaine, 14 smokers of marijuana only, and 31 regular tobacco smokers. In addition, there were 16 smokers of both marijuana and tobacco, 12 smokers of cocaine and tobacco, and 44 smokers of both marijuana and tobacco. Thirty-one percent of the study group smoked all three substances.

The researchers found that smoking either marijuana or tobacco produces significant damage to the cilia in the lining of the airways. Among smokers of both marijuana and tobacco, it appears that the effects of marijuana add to those of tobacco, and vice versa. "The damage to the ciliated cells in the lining of the airways caused by smoking marijuana weakens the ability of the lungs to remove inhaled particles, making the lungs more vulnerable to infection," says Dr. Tashkin.

Cocaine smokers had fewer significant abnormalities than marijuana or tobacco smokers did- but more abnormalities than were detected among nonsmokers, Dr. Tashkin says. Among people who smoke both tobacco and cocaine, the damage from smoking appears to produce injury to the mucosal lining of the airways beyond that caused by smoking either substance alone.

A NIDA-supported study by Dr. Waleska T. Caiaffa and her colleagues at Johns Hopkins University in Baltimore compared the medical records of 40 HIV-positive injecting drug users (IDUs) who had suffered from bacterial pneumonia with those of 197 HIV-positive IDUs with no history of bacterial pneumonia. The study found that HIV-positive IDUs who smoked illicit drugs were almost twice as likely to develop bacterial pneumonia as their counterparts who did not smoke illicit drugs. This association was independent of age, degree to which the immune system had been suppressed, and cigarette smoking. Among the 77 HIV-positive IDUs who reported using illicit drugs, 87.9 percent indicated that they had smoked marijuana, 25.9 percent said that they had used cocaine, and 14.3 percent admitted smoking crack.

Smoking is a serious issue among AIDS patients, according to several NIDA-supported studies. The health consequences of smoking illicit drugs are above and beyond those caused by smoking cigarettes, the studies note. People with AIDS die of pneumonia and other lung problems, and smoking tobacco and/or illicit drugs increases the risks for these diseases.

"The effect that smoking has on the lungs is more serious than most people realize. Smoking anything is bad for your health, especially if your immune system has been weakened," says Dr. Tashkin.

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