Secondhand Smoke: Effects on the Brain

A recent study sponsored by the National Institute on Drug Abuse (NIDA) presents evidence that exposure to secondhand smoke affects the brains of nonsmokers and smokers. Dr. Arthur Brody and colleagues studied moderate secondhand smoke exposure in a laboratory setting similar to real-world settings where secondhand smoke exposure takes place. Both smokers and nonsmokers were asked to participate in the study. Participants were asked to complete two study sessions. In one, they were asked to sit in the passenger seat of a nearly-enclosed car for one hour while another adult smoked an average of 3.7 cigarettes. In the other session, the participant was in the same car setting with no smoke exposure.

The researchers collected information on how the secondhand smoke affected specific areas of the brain using positron emission tomography (PET) scans. Participants completed ratings of symptoms (coughing, eye irritation, etc.) related to smoke exposure before and after the secondhand smoke session. Smokers also completed an “Urge to Smoke” scale to measure craving symptoms.

Results showed that nicotine exposure from secondhand smoke reached the same receptors that are normally affected by direct tobacco exposure. Both smokers and nonsmokers showed this pattern. Nonsmokers showed a significant increase in smoking-related symptoms during the secondhand smoke session. Smokers reported increased craving as a result of the secondhand smoke session. According to Dr. Brody and colleagues, “this study demonstrates that nicotine inhaled from SHS [secondhand smoke] crosses the blood-brain barrier . . . a factor that may contribute to a greater likelihood of an individual becoming a smoker as a teenager and the maintenance of cigarette smoking
in adult smokers (p. E7).” The study provides additional support for restrictions on smoking in public places, according to Dr. Brody.

References:


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