

Heavy smokers who cut back still take in more toxins than light smokers

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U of MN study shows heavy smokers compensate for less cigarettes

University of Minnesota tobacco researchers have found that heavy smokers who reduce their number of daily cigarettes still take in two to three times more total toxins per cigarette than light smokers.

The study, published in the December issue of *Cancer Epidemiology, Biomarkers & Prevention*, cites compensatory smoking as the chief reason for the increased exposure despite decreased cigarette use.

"We found that the more that heavy smokers reduced their smoking, the more likely they were to increase their intake of toxicants per cigarette, presumably because they took more frequent puffs or inhaled deeper or longer on each cigarette to compensate for fewer cigarettes smoked," said Dorothy Hatsukami, Ph.D., lead researcher on the

study. "This indicates that they are trying to maintain a specific level of nicotine in their bodies."

Hatsukami is a professor and researcher with the University of Minnesota Medical School and Cancer Center. She also directs the University's Transdisciplinary Tobacco Use Research Center. "Our results are consistent with other studies that show that people who decrease their smoking by 50 percent or more do not experience a comparable reduction in risk for lung cancer because they tend to smoke their fewer cigarettes more intensely," Hatsukami said. "The best way to lower the risk for tobacco-caused premature death is to stop smoking altogether."

The study participants included a group of 64 heavy smokers who had reduced their smoking to levels similar with a group of 62 light smokers. The heavy smokers had smoked on average 26 cigarettes per day before their cigarette reduction. All of the heavy smokers had reduced their smoking by at least 40 percent and smoked five cigarettes per day within six months of enrolling in their study. The light smokers used on average 5.6 cigarettes per day.

Hatsukami and her colleagues created a mathematical formula to calculate the degree of smoking compensation in the heavy smokers compared with the light smokers. They measured a biological marker, total NNAL, which indicates the amount of exposure to the tobacco-specific lung cancer-causing agent NNK.

Their findings showed that the average level of NNAL in the reduced heavy smokers was more than twice that of the light smokers. This was true even when the two groups smoked about the same number of cigarettes per day. The amount of smoking reduction was shown to be a strong predictor of compensatory smoking, with greater cigarette reduction associated with more compensation.

Based on these findings, Hatsukami said, "Heavy smokers would fare better health-wise by quitting smoking rather than decreasing their cigarette use. Although light smokers have lower levels of disease risk than heavy smokers, a low rate of smoking still means increased risk of disease and death compared to non-smokers and quitters."

A previous study by Hatsukami substantiates that fact. The study focused on smoking reduction using nicotine replacement therapies such as gum or patches. It showed that smokers who reduced their cigarette intake by 73 percent only received a 30 percent reduce in carcinogens because of compensatory smoking. Another study indicated that a reduction of 62 percent in tobacco consumption was associated with only a 27 percent reduction in lung cancer risk.

Source: University of Minnesota

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