

Bladder cancer risks increase over time for smokers

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Risk of bladder cancer for smokers has increased since the mid-1990s, with a risk progressively increasing to a level five times higher among current smokers in New Hampshire than that among nonsmokers in 2001-2004, according to a new study published online November 16 in the *Journal of the National Cancer Institute*. Furthermore, researchers found that among individuals who smoked the same total number of cigarettes over their lifetime, smoking fewer cigarettes per day for more years may be more harmful than smoking more cigarettes per day for fewer years.

It is well known that cigarette smoking causes [bladder cancer](#), but the influence of various parameters of smoking history, including trends in risk over time, is unclear.

Dalsu Baris, M.D., Ph.D., of the Division of [Cancer Epidemiology](#) and Genetics, National Cancer Institute, in Bethesda, Md., and her colleagues from NCI, Dartmouth Medical School, and the departments of health for the states of Maine, New Hampshire and Vermont, examined bladder cancer risk in relation to smoking practices based on data from a large, population-based case-control study conducted in Maine, New Hampshire, and Vermont from 2001 to 2004. To examine changes in smoking-induced bladder cancer risk over time, the researchers compared odds ratios for New Hampshire residents in this study with those from two, case-control studies conducted in New Hampshire by Margaret Karagas, Ph.D., of Dartmouth Medical School in 1994 and in 1998.

Among New Hampshire residents, there was a statistically significant, progressive increase in bladder cancer risk among both former and current smokers compared with nonsmokers over each time period. According to the authors, this may be partly attributable to changes over time in the concentration of bladder carcinogens in [cigarette smoke](#), as well as the introduction and increased popularity of low-tar/low-nicotine cigarettes. Smokers who switch to low-tar/low-nicotine cigarettes are thought to increase the depth and frequency of inhalation to satisfy the need for nicotine.

"The observed relationship between smoking and bladder [cancer risk](#) was stronger than reported in earlier studies, with statistically significant trends in risk with increasing duration, intensity, and pack-years for both men and women," the authors write. "Additional modeling of the rate of delivery of cigarette smoke supports previous observations, suggesting a greater risk of bladder cancer for total exposure delivered at a lower intensity for longer duration than for an equivalent exposure delivered at a higher intensity for shorter duration."

In an accompanying editorial, Anthony J. Alberg, Ph.D., MPH, of the Hollings Cancer Center and Division of Biostatistics and Epidemiology, Medical University of South Carolina in Charleston, and James R. Hebert, ScD, of the Cancer Prevention and Control Program and Department of Epidemiology and Biostatistics at the University of South Carolina in Columbia, note that given the substantial body of evidence linking bladder cancer and [smoking](#), the most important aspect of this finding was that the association has substantially increased from 1994 to 2004. The editorialists agree that the data suggest that an increase in the carcinogenic content of cigarettes over time could be partly responsible.

"The findings of Baris et al. are provocative and... offer a testable hypothesis that warrants thorough investigation," the editorialists write. "More precisely, pinpointing the specific role of cigarette additives will

be an important element of this research. This study highlights the need for continued vigilance in monitoring the impact of the changing cigarette on disease risk."

Source: [Journal of the National Cancer Institute](#) ([news](#) : [web](#))

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