

# Drinking and smoking don't boost HPV-related cancer risk

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Heavy smoking and drinking are known to cause head and neck cancer. Infection with human papillomavirus type 16 (HPV16), a common strain of the sexually-transmitted HPV virus, is another known risk factor for head and neck cancer, which affects about 500,000 people each year worldwide.

New Brown University research, however, shows that alcohol and tobacco use doesn't further increase the risk of contracting head and neck cancers for people infected with HPV16. This finding, published in the *Journal of the National Cancer Institute*, is the strongest evidence to date that these major cancers have two distinct causes — and may represent two distinct classes of cancer — and would require different prevention and treatment strategies.

Karl Kelsey, M.D., a Brown professor of community health and pathology and laboratory medicine and the director of the Center for Environmental Health and Technology, said the research has public health policy implications.

While the Centers for Disease Control and Prevention recommends that girls and young women receive the HPV vaccine to prevent cervical cancer — HPV16 causes about half of all cervical cancer cases — boys and men cannot get the vaccine. An estimated 20 million Americans are currently infected with genital HPV and 50 to 75 percent of sexually active men and women are infected with HPV at some point in their lives, according to the National Institutes of Health.

“Our current HPV vaccine recommendations should change,” Kelsey said. “Head and neck cancers, regardless of their cause, are predominantly male diseases. If boys and men received the HPV vaccine, a lot of these cancers could be prevented.”

Kelsey and his team took on the research to test the concept of multiplicative risk. If HPV infection increases the risk of head and neck cancer, and alcohol and tobacco use also increases the risk, would a combination increase that risk exponentially?"

To find out, the team studied 485 head and neck cancer patients who were diagnosed at nine Boston-area hospitals between December 1999 and December 2003. The team also studied 549 cancer-free comparison subjects who were closely matched with the study group based on age, sex and town of residence.

All the test subjects were asked about lifetime smoking and alcohol consumption and also gave a blood sample, which was screened for HPV16 antibodies, a sign that they were exposed to this strain of the virus. The team then conducted a statistical analysis to estimate the effects of the different risk factors.

The results: Smoking and drinking didn't add to the risk of head and neck cancer for subjects exposed to HPV16. The strongest risk factors, by tumor site, were smoking for cancer of the larynx, alcohol with mouth cancer, and HPV infection with throat cancer.

“We have a profound bit of evidence that HPV16-associated head and neck cancer is a very different disease,” Kelsey said. “Under a microscope, it looks like the same cancer you get from smoking and drinking. But how you get this form of the disease — and how you would prevent and treat it — is quite different.”

Head and neck squamous cell carcinoma, which includes nearly all head and neck cancer, afflicts about 45,000 people each year in the U.S., according to the American Cancer Society, and costs an estimated \$3.2 billion to treat.

“There is a huge prevention message here, which is that we could protect a lot of people from cancer if men and boys could get the HPV vaccine,” Kelsey said. “We should start testing this vaccine on men.”

Source: Brown University

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