

## Condoms Found to Block a Virus Harmful to Women

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The consistent use of condoms protects against human papillomavirus, a cause of warts and cervical and other female cancers, researchers are reporting today.

In the study, which independent experts said was the most conclusive to examine the role of condoms in preventing infection with the virus, women whose male partners used condoms every time they had sexual intercourse had less than half the rate of infection as did women whose partners used condoms less than 5 percent of the time. The study was conducted among students at the University of Washington in Seattle.

Although the Food and Drug Administration recently licensed a human papillomavirus vaccine that is widely expected to prevent many warts and female cancers, the findings of the study are important because the vaccination protects against just four strains of human papillomavirus. So, the authors said, consistent condom use may protect women against other dangerous strains of the virus.

"The findings are definitive," said Dr. James R. Allen, president of the American Social Health Association, an organization in Research Triangle Park, N.C., dedicated to the prevention of sexually transmitted infections. Dr. Allen said he was not involved in the study, which appears today in The New England Journal of Medicine. Experts on infectious diseases say they believe that condoms, when properly used, are effective in preventing papillomavirus and virtually all other sexually transmitted infections. The issue has been controversial because a number of earlier studies of condoms and human papillomavirus produced conflicting findings about the degree of protection that condoms offered women.

In 2000, four government agencies convened a panel of condom experts to determine the medical accuracy of condom labels in describing their effectiveness in preventing papillomavirus and other sexually transmitted diseases. The panel concluded that there was inadequate information about condom use in reducing the risk of all sexually transmitted infections except for the AIDS virus and, among men, gonorrhea, an editorial accompanying the journal article said. Although the panel emphasized that the lack of information did not mean that condoms were ineffective for those purposes, the Food and Drug Administration was urged to add warnings to condom labels about the lack of protection against papillomavirus.

The Seattle study also illustrates how difficult it is to construct and carry out studies to determine the effectiveness of condoms. Condom use cannot eliminate all papillomavirus infections, because some can be transmitted by other than vaginal or anal intercourse. Practical considerations are also important. Experience has shown that it is extremely difficult to persuade both the male and female partners who are just starting a sexual relationship to participate in a research study, said Dr. Rachel L. Winer, a co-author of the new report.

Dr. Winer's team and other experts attributed the failure of earlier studies to document the protective role of condoms against papillomavirus to flaws in their methodologies. To remedy this, her team created a study to determine explicitly the relationship between condom use and human papilloma virus infection. The National Institute of Allergy and Infectious Diseases, a federal agency, paid \$685,000 for the study, carried out by Dr. Winer's team from December 2000 to June 2005.

In the study, the researchers followed 82 female students at the University of Washington ages 18 through 22 from the time they said they had their first sexual intercourse with a male partner. Every two weeks, the women electronically filed information about their daily sexual behavior and condom use to a protected Web site. Every four months, the researchers tested the women for papillomavirus and early indications of cancer. A researcher also conducted a personal interview.

The researchers used certain statistical measures to determine the findings in the study. For example, no malignant or precancerous cervical lesions were detected in 32 patient years at risk among women reporting 100 percent condom use by their partners. That compared with 14 such lesions in 97 patient years at risk among women whose partners did not use condoms or who used them less consistently.

The study "provided a very clear answer" to the question of the protective benefits of condoms and papillomavirus infection, said Dr. Allen of the American Social Health Association.

Although similar condom studies should have been conducted earlier, he added, newer laboratory methods have allowed researchers to "arrive at conclusions they could not have 10 to 15 years ago."