

# Dietary Nutrients May Defend Against HPV

*High levels of carotenoids may enhance clearance of HPV infection and avoid persistent infection.*

BY SHERRY BOSCHERT  
San Francisco Bureau

VANCOUVER, B.C. — Women who eat their vegetables and take vitamins may have a better chance of avoiding or clearing human papillomavirus infection, Marc T. Goodman, Ph.D., said at the 22nd International Papillomavirus Conference.

Low serum levels of tocopherol (vitamin E) or retinol (vitamin A) may increase the risk for acquiring human papillomavirus (HPV) infection, according to preliminary data from a controlled study of micronutrients and HPV.

High serum levels of carotenoids may enhance clearance of HPV infection and avoid persistent infection, said Dr. Goodman of the University of Hawaii, Manoa.

The investigators analyzed data on 242 women who had complete records from at least four clinical visits, part of a larger

longitudinal study at three clinics and two university-based health services. They categorized serum micronutrient levels as either low or high.

Women with low serum levels of vitamins E or A were twice as likely to develop incident HPV infection, compared with women with high levels of these nutrients, he said at the meeting, sponsored by the University of California, San Francisco.

A new HPV infection was found in 18% of women with low serum levels of  $\beta$ -tocopherol and  $\alpha$ -tocopherol combined, compared with 9% of women with high levels of these nutrients. HPV test results went from negative to positive from one visit to the next in 19% of women with low levels of retinol and 10% of those with high serum levels.

Incident HPV infection at one visit persisted in a positive HPV test at the next clinical visit in 20% of women with high

serum levels of lutein or zeaxanthin, carotenoids that are abundant in green, leafy vegetables. HPV persisted in 31% of women with low levels of these carotenoids, a 60% increased risk with low serum levels.

HPV persisted in 22% of women with high levels of  $\beta$ -cryptoxanthin (a carotenoid found in a variety of tropical fruits and nectarines), compared with 38% of women with low levels of this nutrient, who had a 70% increased risk for persistence.

The risk for HPV persistence doubled with low levels of  $\alpha$ -carotene and was 60% higher with low levels of lycopene, compared with having high levels of these nutrients.

Dr. Goodman speculated that the differences might be related to the antioxidant functions of these nutrients, or to the



**Carotenoids—found in green, leafy vegetables, tropical fruits, and nectarines—may help clear HPV infection.**

interface between cytokine levels and local levels of antibodies. “We know that the micronutrient levels do enhance the immune response,” he said.

Intracellular signaling might play a role. A variety of nutrients affect the genes associated with transcription. It’s also possible that antioxidants could directly affect HPV viral load and cell proliferation. ■

## Certain Measures May Help Prevent Ovarian Cancer in High-Risk Women

BY ROBERT FINN  
San Francisco Bureau

SAN FRANCISCO — Physicians play an important role in identifying women at high risk for ovarian cancer because when such a woman is identified, much can be done to prevent the cancer, Karen H. Lu, M.D., said at the annual meeting of the American College of Obstetricians and Gynecologists.

The lifetime risk of ovarian cancer in the general population is about 1.7%, and most cases are found in a late stage. But among women who have certain mutations in the *BRCA1* or *BRCA2* genes, the lifetime risk rises to 40%-50%. These genes also are responsible for hereditary forms of breast cancer.

Only about 10% of ovarian cancers can be attributed to these mutations, with the remaining 90% regarded as “sporadic.” While one marker of ovarian cancer—the antigen CA-125—has been found, screening the public at large has not been recommended, since the poor specificity of the CA-125 test, combined with the cancer’s low prevalence, would result in a high rate of false positives.

But for women at high risk, screening, chemoprevention, and preventive surgery may make more sense, said Dr. Lu of the University of Texas M.D. Anderson Cancer Center, Houston. The trick is to determine which women are at high risk.

The strongest indication of risk is a family history of breast or ovarian cancer. Your index of suspicion should rise whenever a woman mentions several relatives who have died young from these cancers, Dr. Lu recommended.

Ethnic heritage can be another indicator. Among Ashkenazi Jewish women with ovarian cancer, 40%-50% have *BRCA1* or *BRCA2* mutations. The general population of Ashkenazi Jewish women has a 2%-3% chance of carrying one of the mutations, compared with 1 in 500 for the full U.S. population.

When a woman reports a strong family history of cancer, genetic testing is worthwhile, Dr. Lu said. If possible, the testing should start with a family member with a confirmed case of ovarian cancer. The test is a simple blood draw with no fasting required. But the testing, which involves full sequencing of both *BRCA1* and *BRCA2*, costs about \$3,000. Many insurance carriers are willing to pick up the tab.

If a mutation is identified in the patient with cancer, other family members need not have the full sequencing done. Instead, they need a simpler test that would confirm or refute the presence of that specific mutation. This test costs about \$350. If the mutation is not present, a physician can be confident that the woman’s risk of ovarian cancer is 1.7%, no higher than the general population.

Women at high risk may benefit from CA-125 screening, al-

though a definitive recommendation won’t be available until the large Risk of Ovarian Cancer Algorithm (ROCA) study is completed. It is known that absolute CA-125 levels are not as important as whether a woman’s level remains constant or increases. In the ROCA study, blood levels of CA-125 are being measured every 3 months. An increasing CA-125 level appears to carry a high risk of ovarian cancer.

Dr. Lu recommended women at high risk consider chemoprevention. Oral contraceptives are known to reduce the risk of ovarian cancer by about 50%. There’s a detectable effect after 1 year of use, and the protection increases for each additional year of use.

The definitive preventive technique is risk-reducing salpingo-oophorectomy (RRSO). Dr. Lu recommended that women past childbearing who are known mutation carriers and over age 35 years should undergo the surgery. “As a secondary benefit, removing their ovaries reduces their breast-cancer risk by 50%.”

When performing an RRSO, it’s important to enlist the aid of the pathologist. About 8%-17% of patients will have occult, microscopic cancers at the time of prophylactic surgery, a relatively high rate. Unless serial sectioning (every 2 mm) is specifically requested, the pathologist is likely to take only a single “representative” sample of the ovary and the fallopian tube. ■

## Number of Pregnancies, Receptor Status Linked?

BY KATHLEEN LOUDEN  
Contributing Writer

CHICAGO — In premenopausal women with breast cancer, a higher number of pregnancies may predict estrogen-receptor status, a small preliminary study suggests.

Presented at a poster session during the combined annual meeting of the Central Society for Clinical Research and the Midwestern section of the American Federation for Medical Research, the study is one of the few to analyze hormonal risk factors in premenopausal women, according to Jacqueline Ogutha, the study’s lead investigator and a second-year medical student at the University of Chicago. She and her associates reported results from 100 women with breast cancer diagnosed before age 50 years (64 African Americans and 36 whites) and 67 healthy, age-matched controls (39 African Americans and 28 whites).

A logistical regression analysis of this hospital-based cohort detected a near-significant predictive effect of the number of pregnancies for estrogen-receptor status. African American women were significantly more likely than were white women to have estrogen-receptor-negative tumors and a higher

mean number of pregnancies.

By omitting postmenopausal women from their study, the researchers found surprising information, said coinvestigator Olufunmilayo Olopade, M.D., professor of medicine at the university. “What we thought was protective may not be protective at young ages,” she said in an interview. “Our preliminary finding suggests that it is not the case that the more pregnancies you have, the higher the protective effect.”

The small size of the patient population may have affected the results, Dr. Olopade said. Although racial differences in breast cancer incidence and mortality are well recognized, the differences remain largely unexplained, Ms. Ogutha said.

The researchers found striking differences in hormonal risk factors between races in their young population, she said. African American women were significantly more likely than whites to have a higher body mass index and younger age at first live birth and were less likely to breast feed.

Other hormonal factors, including age at first menstrual period and oral contraceptive use, as well as tumor size and grade, appeared to have no statistically significant effect across racial groups. ■