



*E & N News to Use
for cancer patients, survivors and caregivers*

April 2009

EXERCISE & NUTRITION during/after **CANCER**

**CURRENT PEER-REVIEWED MEDICAL LITERATURE and EXPERT COMMENTARY
from RELIABLE SOURCES and DR. BLEYER**

The 12 months of 2008 *E&N News* are now available as a **year summary** for downloading, either for exercise or nutrition (with each including reports on the combination of exercise and nutrition) at www.defeatcancer.info. Both versions include executive summaries and are indexed and bookmarked.

E&N News is now listed as **one of 7 resources recommended by MD Anderson Cancer Center** in the *Complementary Therapies, General* category and endorsed by the Cancer Patient Education Network of the National Cancer Institute. The MD Anderson Cancer *Complementary/Integrative Medicine Educational Resources* (CIMER) website (www.mdanderson.org/departments/CIMER) is rated #1

Many of this month's studies were reported at the American Association of Cancer Research Annual Meeting which celebrated its 100th anniversary

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► **Exercise and Nutrition**

Oncologists should recommend exercise, but not supplements

[The 100th anniversary annual meeting of the American Association for Cancer Research devoted most of its program to E&N, for which an interview of experts cogently summarized the *exercise but not supplements* recommendation](#)

Medscape Medical News

By Zosia Chustecka

April 23, 2009 (Denver, Colorado) — Oncologists should recommend exercise to cancer patients; there is accumulating evidence to show that it can improve both prognosis and quality of life, according to **Melinda Irwin, PhD, MPH**, associate professor of epidemiology and public health at the **Yale School of Medicine**, in New Haven, Connecticut.

However, the evidence for supplements, such as vitamins, minerals, and antioxidants, is insufficient to make any science-based recommendations on their use in cancer patients, according to **Cornelia Ulrich, MS, PhD**, from the **Fred Hutchinson Cancer Center, University of Washington**, in Seattle.

Both were speaking at a symposium on cancer survivorship here at the American Association for Cancer Research 100th Annual Meeting.

The best evidence for the benefits of exercise comes from studies of breast cancer patients, where it has been shown to reduce the risk for relapse and mortality — both from cancer and all causes, Dr. Irwin said. There is also **some evidence of a similar benefit in prostate and colorectal cancer.** "But I would strongly hypothesize that the **benefits from exercise — particularly for improving quality of life — would extend to all cancers,**" she told Medscape Oncology.

In reviewing studies showing benefits from exercise, Dr. Irwin cited 1 that her own group published recently (*J Clin Oncol.* 2008;24;3958-3964). The Health, Eating, Activity and Lifestyle (HEAL) study of 933 breast cancer patients showed that moderate-intensity physical activity reduced the risk for death by 67% in women who remained active 2 years after diagnosis. This was both breast cancer mortality and deaths from other causes, mostly cardiovascular disease and diabetes, she added.

Other studies have suggested that exercise reduces the risk for breast cancer mortality by 40% to 55%, "which is as much as standard treatments," she said.

These studies have varied in their recommendations for exercise — some aimed for 90 minutes a week, others for 2 to 3 hours a week, but the HEAL study showed a benefit from any amount of exercise, she said. In some of the studies, exercise started at diagnosis and continued throughout and after the treatment.

"Any amount of exercise is better than none," Dr. Irwin said.

"Oncologists are uniquely placed to recommend exercise, and they have the perfect opportunity to intervene as treatment is ending, because patients are then eager to learn what else they can do to help themselves," she explained to Medscape Oncology.

"Of course, oncologists do not have the time to discuss exercise regimens in detail," Dr. Irwin acknowledged, but the fact that the recommendation is made by them, as cancer specialists, is "very valuable."

"Our study showed that oncologist recommendation is a strong predictor of uptake," she said, "but only half the patients in the study said that their oncologist had mentioned exercise."

A new development may make it possible soon for oncologists in the United States to refer their cancer patients to physical-fitness professionals that are specifically trained for this work. The American Cancer Society and the American College of Sports Medicine launched a Certified Cancer Exercise Training course in January 2009.

"This would make it much easier for oncologists," Dr. Irwin noted. "They could recommend exercise, and then refer the patient to a trained professional."

Insufficient Evidence on Supplements

In contrast to exercise, the use of supplements by cancer patients cannot be recommended at present; there is insufficient evidence to make science-based recommendations, Dr. Ulrich told the audience. Some studies have suggested a benefit, but there have also been some that suggested adverse effects, she said. For example, 1 study suggested that antioxidants interfere with radiation therapy in patients with head and neck cancer, whereas another showed that the popular herbal remedy St. John's wort significantly reduced the efficacy of irinotecan by interfering with its metabolism.

Despite the lack of evidence, supplements are used by the majority of cancer patients, Dr. Ulrich said. A recent review found that 64% to 81% of all adult cancer patients in the United States take supplements, and 14% to 32% of them started taking them after diagnosis. When asked why, patients said they took supplements "in order to feel better, to enhance their chance of a cure, to retain a sense of control, and to ensure adequate nutrition."

Another study found that 31% to 68% of cancer patients and long-term survivors take supplements but don't tell their doctors, she said.

Dr. Bleyer:

- ☑ Drs. Irwin and Ulrich provide a wonderful summary of the benefit of exercise and lack of benefit of supplements and practical, balanced recommendations
- ☑ The statement that *any amount of exercise is better than none* is worth repeating ... a point that **DEFEAT Cancer** has been asserting from the 'get go'. Just go. Just do it. Move.

Association of body mass index with risk, age of onset and survival of pancreatic cancer

[Patient with pancreatic cancer who are obese and overweight have a shorter survival than those who are not overweight](#)

Donghui Li, Jeffrey Morris, Jun Liu, Manal M. Hassan, Rena S. Day, Melissa L. Bondy, Douglas B. Evans, James L. Abbruzzese
Proc Amer Assoc Cancer Res, April, 2009

The influence of excess body weight at different age periods on the risk, age of onset, and overall survival of pancreatic cancer is unknown. In a case-control study conducted at **The University of Texas M.D. Anderson Cancer Center during 2000-2008**, information on body weight and height from age 14-19 to the year before enrollment in the study in a 10-year interval was collected by personal interview in 841 patients with pancreatic adenocarcinoma and 755 healthy individuals frequency-matched by age, race and sex. The associations of body mass index (BMI, kg/m²) with risk of pancreatic cancer, age of disease onset, and overall survival were examined by unconditional logistic regression and Cox proportional hazard regression models.

There is a linear increase in the prevalence of overweight (BMI 25-29.9 kg/m²) and obesity (BMI >30 kg/m²) by age. The slope of weight gain by age was comparable between cases and controls. The average BMI (kg/m²) over lifetime was significantly associated with increased risk of pancreatic cancer, OR=1.077, 95% confidence interval=1.043-1.113 (P<0.001) after adjusting for other risk factors.

Overweight at age 14 to 39 or obesity at age 24 to 49 was significantly associated with increased risk of pancreatic cancer independent diabetes status in men but not in women. The risk leveled off after age 50 and became non-significant after age 60. Very few individuals had BMI>25 kg/m² before age 30 returned to normal body weight, i.e. BMI<25 kg/m². BMI increased >5 kg/m² at age 34 to 39 compared to that of age 14-19 was significantly associated with 2-fold increased risk of pancreatic cancer. No significant association of BMI change at other age periods with risk of pancreatic cancer was observed. Overweight and obesity was significantly associated with an average 2 to 6 years earlier pancreatic cancer onset.

Obesity at age 34-79 or prior to the recruitment was significantly associated with reduced overall survival time of patients with pancreatic cancer regardless disease stage and tumor resection status. The median survival time was 18.2, 13.7, and 13.5 months, respectively, for patients with normal body weight, overweight and obesity with the past year of cancer diagnosis (P=0.042 and <0.001, log rank test).

Overweight or obesity increases the risk of pancreatic cancer, confers a younger age of disease onset and obesity reduces the overall survival of patients with pancreatic cancer. Weight control at younger age is more important than that in later life in the prevention of pancreatic cancer

Dr. Bleyer:

☑ This study adds another cancer in which survival is inversely proportional to weight: the more overweight the shorter the survival

Body size, recreational physical activity and B-cell non-Hodgkin lymphoma risk among women in the California Teachers Study [Prevention]

The incidence of non-Hodgkin lymphoma in also increased in overweight persons

Yani Lu, Jennifer Prescott, Jane A. Sullivan-Halley, Wendy Cozen, Katherine D. Henderson, Huiyan Ma, Christina A. Clarke, Pamela L. Horn-Ross, Giske Ursin, Leslie Bernstein

Proc Amer Assoc Cancer Res, April, 2009

Background. Few risk factors have been identified for non-Hodgkin lymphoma (NHL), an etiologically and clinically heterogeneous group of lymphoid malignancies. Nutritional status and physical activity are known to alter immune function, suspected as relevant to lymphomagenesis.

Methods. We explored the relations of a number of measures of body size and recreational physical activity within subsequent development of NHL in the prospective California Teachers Study cohort of female teachers and administrators. Between 1995 and 2005, 478 women were diagnosed with first incident B-cell NHL among 121,216 eligible cohort members aged 22 to 84 years old with no prior history of hematopoietic malignancy. Multivariate adjusted relative risks (RR) and 95% confidence intervals (CI) were estimated by fitting Cox proportional hazards models for all B-cell NHL combined as well as the 3 most common NHL subtypes: diffuse, large B-cell lymphomas (DLBCL); follicular lymphomas (FL); and B-cell chronic lymphocytic leukemias/small lymphocytic lymphomas (CLL/SLL).

Results. Height was positively associated with all B-cell NHL combined (p for trend=0.001, RR=1.48 for >=68 versus 64-65 inches; 95% CI=1.11-1.99) and the CLL/SLL subtype (p for trend=0.02); it was weakly associated with DLBCL, and not associated with FL or CLL/SLL. No associations were observed for weight, body mass index (BMI, kg/m²), waist circumference, hip circumference, waist/hip ratio, lifetime recreational physical activity or activity in the last 3 years. However, obese women (BMI>=30 kg/m²) had an increased risk of B-cell NHL that was of borderline statistical significance (RR=1.28, 95%=0.99-1.67) relative to women with a normal BMI (BMI of 20-24.9 kg/m²).

Conclusions. These findings indicate that greater adult height, which may reflect early life immune function, infectious exposures, nutrition, or growth hormone levels, may serve as an important clue to B-cell NHL etiology

Dr. Bleyer:

☑ Yet another cancer, this time non-Hodgkin lymphoma, has been shown to occur more frequently in females who are overweight than in females with a normal BMI

► **Exercise**

Long-term physical activity and survival after breast cancer: The California teacher's study

A prospective population-based study of female teachers with breast cancer finds that survival after a diagnosis of breast cancer is directly proportional to the amount of physical activity undertaken

Carmen N. West-Wright, Jane Sullivan-Halley, Katherine D. Henderson, Giske Ursin, Dennis Deapen, Pamela L. Horn-Ross, Leslie Bernstein

Proc Amer Assoc Cancer Res, April, 2009

Introduction: Physical activity is a modifiable risk factor for breast cancer. The relationship between physical activity and breast cancer survival is not as clearly defined as the association with risk.

Methods: We assessed whether long-term recreational physical activity is associated with breast cancer survival in the California Teachers Study, a prospective cohort. Between cohort entry (1995-1996) and

December 31, 2004, **3541 women with complete data on physical activity were diagnosed with a first primary invasive breast cancer**. By December 31, 2005, 462 of these women had died (221 from their breast cancer). At cohort entry, women provided detailed information on long-term and recent moderate and strenuous recreational physical activity. Average level of long-term activity (from high school through age 54 year) was defined as low (no more than 0.50 hr/wk/yr of moderate and strenuous activity), intermediate (0.51-3.0 hr/wk/yr of either moderate or strenuous activity but neither moderate nor strenuous >3.0 hr/wk/yr) or high (>3.0 hr/wk/yr of either moderate or strenuous activity). Relative risks (RR) and 95% confidence intervals (CI) were estimated using Cox proportional hazards methods with age as the time metric and adjusting for race/ethnicity, estrogen receptor status, disease stage, and baseline information on number of comorbid conditions, body mass index, and total caloric intake.

Results: Women with an intermediate level of long-term activity had a 36% reduction in risk of breast cancer death (RR=0.64, 95% CI=0.45-0.92) compared to women with low activity. Women with high activity had a 47% reduction in risk of dying from breast cancer (RR=0.53; 95% CI=0.35-0.79). Based on stratified models, long-term activity was strongly predictive of the risk of breast cancer death among patients irrespective of their estrogen receptor (ER) status and disease stage. Recent physical activity (within 3 years of joining the cohort), but not long-term activity, was associated with death from causes other than cancer (primarily cardiovascular and cerebrovascular deaths) in this group of patients (n=179; p-trend=0.008).

Conclusions: These results suggest that patterns of long-term recreational physical activity prior to breast cancer diagnosis decrease the risk of breast cancer death overall and that recent activity lowers the risk of dying from causes other than cancer.

Dr. Bleyer:

☑ This is a descriptive study (no intervention) that showed a halving of deaths due to cancer with aggressive physical activity

Distress and physical activity in colorectal cancer survivors

Physical activity, which has been shown to prolong survival of colorectal cancer patients, is harder for anxious, fatigued, or obese patients to do but not for those who are depressed or distressed

Suzanne K. Chambers, Brigid M. Lynch, Joanne Aitken, Peter Baade

Journal of Clinical Oncology, Vol 27, No 10 (April 1), 2009: pp. 1600-6

From the Viertel Centre for Research in Cancer Control, Cancer Council Queensland, Spring Hill; School of Psychology, Griffith University; School of Population Health, University of Queensland; and School of Public Health, Queensland University of Technology, Brisbane, Queensland, Australia.

Purpose Increased physical activity in patients with colorectal cancer is related to improved recurrence-free and overall survival. Psychological distress after cancer may place patients at risk of reduced physical activity, but paradoxically may also act as a motivator for lifestyle change. The relationship between psychological distress and physical activity after cancer over time has not been described.

Methods A prospective survey of 1,966 (57% response) colorectal cancer survivors assessed the psychological distress variables of anxiety, depression, somatization, and cancer threat appraisal as predictors of physical activity at 5, 12, 24, and 36 months postdiagnosis; 978 respondents had valid data for all time points.

Results Higher somatization was associated with greater physical inactivity (relative risk ratio [RRR] = 1.12; 95% CI, 1.1 to 1.2) and insufficient physical activity (RRR = 1.05; 95% CI, 0.90 to 1.0).

Respondents with a more positive appraisal of their cancer were significantly (P = .031) less likely to be inactive (RRR = 0.95; 95% CI, 0.90 to 1.0) or insufficiently active (RRR = 0.96). Fatigued and obese respondents and current smokers were more inactive. Respondents whose somatization increased between two time periods were less likely to increase their physical activity over the same period (P < .001).

Respondents with higher anxiety at one time period were less likely to have increased their activity at the next assessment (P = .004). There was no association between depression and physical activity.

Conclusion Cancer survivors who experience somatization and anxiety are at greater risk of physical inactivity. The lack of a clear relationship between higher psychological distress and increasing physical activity argues against distress as a motivator to exercise in these patients.

Dr. Bleyer:

- ☑ That distressed, anxious patients were not likely to engage in physical activity is disappointing since it is unlikely that their stress can be used as a motivator to exercise
- ☑ On the other hand, depressed patients apparently can be motivated to engage in physical activity, a somewhat surprising finding and reassuring to programs like **DEFEAT Cancer**
- ☑ Most importantly, the authors recognize the importance of physical activity in prolonging survival after a diagnosis of colorectal cancer and are studying ways to impact patients with an exercise program

► **Nutrition**

Grapefruit juice boosts anti-cancer drug's effects

[Grapefruit juice boosts anti-cancer drug's effects](#)

Small study finds 8-ounce glass enhances absorption of rapamycin 3 to 4 times

MONDAY, April 20 (HealthDay News) -- Grapefruit juice boosts the anti-cancer effects of the drug rapamycin, according to a small study that included 25 patients with advanced solid tumors, for which there is no effective treatment.

The patients took 15- to 35-milligram doses of the drug, as a liquid, once a week. After the first week of the study, they also drank a glass (eight ounces) of grapefruit juice immediately after taking the drug and once a day for the rest of the week.

On this regimen, 7 (28 percent) of the patients had stable disease, with little or no tumor growth. One patient who had a partial response, with tumor shrinkage of about 30 percent, was still doing well more than a year after starting the study.

More than half of the patients experienced side effects such as elevated blood sugar levels, diarrhea, low white blood cell counts, and fatigue.

The findings were to be presented Monday at the annual meeting of the American Association for Cancer Research, in Denver.

For many years, doctors and pharmacists have warned patients that grapefruit juice can interfere with enzymes in the body that break down and eliminate certain kinds of drugs.

"Grapefruit juice can increase blood levels of certain drugs three to five times. This has always been considered a hazard. We wanted to see if, and how much, it could amplify the availability, and perhaps the efficacy of rapamycin, a drug with promise for cancer treatment," stud director Dr. Ezra Cohen, a cancer specialist at the University of Chicago Medical Center, said in a center news release.

Rapamycin, also called sirolimus, was originally developed to suppress the immune system and prevent rejection in kidney transplant patients. It's being studied as a cancer drug, because it disrupts a biochemical pathway involved in the growth of new blood vessels needed by tumors to grow. However, less than 15 percent of rapamycin is absorbed by the body when the drug is taken by mouth.

Grapefruit juice contains compounds called furanocoumarins that decrease the breakdown of rapamycin and increase blood levels of the drug three- to fourfold, which means more of the drug can reach its cancer target, according to the researchers.

Dr. Bleyer:

- ☑ Although this adverse interaction between a beverage and the intestinal absorption of a anti-cancer drug applies specifically to grapefruit and rapamycin, and the drug is thus far now widely used for cancer therapy, the evidence is strong and the principle can and undoubtedly applies to other food substances and cancer drugs
- ☑ It's one reason why oncologists prefer intravenous chemotherapy
- ☑ On the other hand the many advantages of oral chemotherapy are so favorable that finding out what inhibits or promotes the oral bioavailability of cancer drugs is important to learn so that oral drugs be used more frequently

Green tea blocks activity of cancer drug

[Bortezomib \(Velcade\), a drug used to treat myeloma and related cancers, does not work well when the patient drinks green tea; green tea also reduces the side of the drug, leading patients to drink more green tea and having less therapeutic benefit](#)

By Michael Smith, North American Correspondent, MedPage Today

Published: April 20, 2009

DENVER, April 20 -- Some cancer patients who take green tea to fight the disease may have it backward: the popular dietary supplement actually blocks the effect of bortezomib (Velcade) and similar anticancer drugs, a researcher said here.

Green tea supplements are being widely investigated for possible anticancer effects and many patients already self-medicate with them, according to **Axel Schönthal, Ph.D.**, of the **University of Southern California**.

But if they're also taking bortezomib -- a proteasome inhibitor used in multiple myeloma -- green tea supplements can ensure that the drug is ineffective, Dr. Schönthal said at the annual meeting of the American Association for Cancer Research here.

"We expected the opposite -- that it would enhance the therapeutic effect of bortezomib," Dr. Schönthal said.

The implication of the findings, he said, is that physicians should tell patients taking the drug that green tea supplements are completely contraindicated, although "one cup probably would not be harmful." Bortezomib, approved in 2003, blocks the activity of proteasomes, cellular complexes that break down proteins when they are no longer needed. Over time, the blockage leads to apoptosis by preventing the breakdown of pro-apoptotic factors.

In the green tea-bortezomib drama, the main villain of the piece, Dr. Schönthal said, is a polyphenol compound called epigallocatechin gallate (EGCG).

Using nuclear magnetic resonance, he and colleagues showed that this polyphenol -- and others in green tea having so-called 1,2-benzene-diol moieties -- chemically interacted with bortezomib, which is based on boronic acid.

The two compounds formed stable cyclic boronate adducts that were unable to act as a proteasome inhibitor, he said.

Because of that missing first step, in multiple myeloma cells treated with both green tea and bortezomib, the drug did not cause endoplasmic reticulum stress or caspase activation, and did not induce tumor cell death, he said.

The researchers found the same effect when they treated mice -- which had been given human tumors -- with both substances, he said. With just bortezomib, the tumors underwent necrosis and shrank.

But when both compounds were present, the tumors continued to grow.

The report **illustrates the potential for drug interactions in patients who turn to alternative medicine**, said **Peter Shields, M.D.**, a clinical oncologist at Washington's **Lombardi Comprehensive Cancer Center**.

"Americans love alternative therapies," he said, and in many cases physicians don't have enough data to counsel patients on which are safe and which should be avoided.

Green tea, he said, is a "challenging thing -- the human studies are all not supportive of each other."

That said, in this narrow situation -- a single a single drug indicated for only a few diseases -- Dr. Shields said he now has some data that might allow him to give patients some guidance.

Dr. Schönthal said various studies have shown that humans taking green tea supplements can very easily reach the doses that he and colleagues used in their research.

Another issue, he said, is that patients drinking green tea may find themselves feeling better, because the supplement blocks the side effects of bortezomib, too.

"So then they consume more [supplements]," he said, progressively blunting the benefits of the anticancer drug.

Researchers did not see the effect in proteasome inhibitors that aren't based on boronic acid, such as nelfinavir (Viracept), Dr. Schönthal said. (Nelfinavir is best known as a protease inhibitor used to treat HIV, but recent studies have shown it also blocks proteasome activity.)

A peer-reviewed version of the study appeared in February in the journal *Blood*.

Dr. Bleyer:

- ☑ For patients taking bortezomib (mainly those with myeloma), green tea consumption may interfere with both the antitumor effect and toxicities of the drug
- ☑ The biological basis for the interaction is fairly well established, and thereby supports the finding reduced effectiveness

New anti-cancer foods added to patients' plates

[Wine may help patients with non-Hodgkin lymphoma survive longer; grapefruit juice improves the absorption of oral rapamycin; walnuts help protect mice from getting cancer](#)

Agence France-Presse

April 21, 2009

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Would-be cancer survivors had their diet expanded by three menu items this week, with new studies extolling the disease-fighting properties of **grapefruit juice, walnuts and wine**.

The research hailing the apparent cancer-fighting powers of the three foods was presented Monday at the 100th annual meeting in Denver of the American Association for Cancer Research (AACR.)

In one small clinical trial, researchers at the University of Chicago Medical Center found that combining eight ounces (230 milliliters) of grapefruit juice with the promising anti-cancer medicine rapamycin could increase the amount of that drug in the blood.

Rapamycin has shown some promise in stopping the growth of new blood vessels -- which cancer tumors need to grow -- but it is expensive and poorly absorbed.

Doctors have long argued that grapefruit juice should not be taken with medications because it can interfere with enzymes that break down certain drugs.

In the case of rapamycin however, this interference appears to make the drugs more potent.

"Grapefruit juice can increase blood levels of certain drugs three to five times," said study director Ezra Cohen, MD, a cancer specialist at the University of Chicago Medical Center.

"This has always been considered a hazard. We wanted to see if, and how much, it could amplify the availability, and perhaps the efficacy of rapamycin, a drug with promise for cancer treatment."

The trial showed that the juice appears to ramp up the drug's potency," he said.

Many patients in the study reported side effects, however.

More than half experienced elevated blood sugar levels, diarrhea, low white blood cell counts or fatigue.

A second study presented at the conference found that walnut consumption could provide the body with essential Omega-3 fatty acids, antioxidants and phytosterols that reduce the risk of breast cancer.

"Walnuts are better than cookies, French fries or potato chips when you need a snack," said Elaine Hardman, associate professor of medicine at Marshall University School of Medicine, who conducted her research on laboratory mice.

Hardman and her fellow researchers studied mice fed a diet that they estimated was the human equivalent of two ounces of walnuts per day. A separate group of mice were fed a control diet.

Tests showed that walnut consumption significantly decreased breast tumor incidence, the number of glands with a tumor and tumor size.

"These laboratory mice typically have 100 percent tumor incidence at five months; walnut consumption delayed those tumors by at least three weeks," she said.

The third study found that **drinking wine may increase survival among patients suffering from non-Hodgkin's lymphoma**.

Researcher Xuesong Han, a doctoral candidate at the **Yale School of Public Health**, analyzed data about 546 women with lymph node cancer and found that those who drank wine had a 76 percent five-year survival rate compared with 68 percent for non-wine drinkers.

Additional research found that the five-year, disease-free survival rate was 70 percent among those who drank wine, compared with 65 percent among non-wine drinkers.

"This conclusion is controversial, because excessive drinking has a negative social and health impact, and it is difficult to define what is moderate and what is excessive," said Han.

Still, she said, "we are continually seeing a link between wine and positive outcomes in many cancers."

Dr. Bleyer:

- ☑ All three of the studies reported are very preliminary, albeit the benefit of grapefruit juice on increase the intestinal absorption of rapamycin taken my mouth (for those patients on this anti-cancer agent) will likely be beneficial
- ☑ With all the bad press that wine has been getting with respect to increasing risk, that it may help prevent recurrence of non-Hodgkin lymphoma in patients with this cancer is somewhat hopeful in potentially improving both quantity of life as well as the known effect on quality of life

New anti-cancer foods added to patients' plates

[Wine may help patients with non-Hodgkin lymphoma survive longer; grapefruit juice improves the absorption of oral rapamycin; walnuts help protect mice from getting cancer](#)

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Dr. Bleyer:

- ☑ All three of the studies reported are very preliminary, albeit the benefit of grapefruit juice on increase the intestinal absorption of rapamycin taken my mouth (for those patients on this anti-cancer agent) will likely be beneficial
- ☑ With all the bad press that wine has been getting with respect to increasing risk, that it may help prevent recurrence of non-Hodgkin lymphoma in patients with this cancer is somewhat hopeful in potentially improving both quantity of life as well as the known effect on quality of life; the problem is that only this lymphoma has been reported to have a favorable outcome with wine consumption and other factors that were not controlled in the study may explain the association such as more physical fitness or less obesity in the wine drinkers

Diet, nutrition, and cancer — Don't trust any single study [Prevention]

[A Harvard expert critiques reports on cancer and nutrition at the 100th anniversary of the American Association for Cancer Research and recommends caution on over-interpretation what really are preliminary results](#)

April 22, 2009 (Denver, Colorado) — Numerous studies on diet and cancer were presented here at the American Association for Cancer Research (AACR) 100th Annual Meeting, but several of the findings that were highlighted in AACR press releases — and thus are likely to be picked up by the lay media — run counter to the accumulated body of evidence, and some of the comments based on these studies are untrue or premature. So said **Walter Willet, MD, DrPH**, from the department of nutrition at **Harvard School of Public Health**, in Boston, Massachusetts, in an exclusive interview with Medscape Oncology. "No conclusions should be made on the basis of a single study," he said.

Dr. Willett presented an overview entitled "Diet, Nutrition, and Cancer: The Search for Truth," in which he reviewed many of the associations that have been suggested by epidemiologic studies. These include consumption of red meat, meat cooked at a high temperature, a high-fat diet, and alcohol all increasing the risk, and fruit and vegetables decreasing the risk. However, much of the evidence for these links is rather weak, he said; the **most robust evidence supports a link between obesity and an increased risk for cancer.**

"The estimate that diet contributes to around 30% to 35% of cancers is still reasonable," Dr. Willett said, "but much of this is related to being overweight and inactive."

"At this point in time, being overweight is second only to smoking as a clear and avoidable cause of cancer," he said. "People should stay as lean as they can, recognizing that it is more difficult for some than for others."

What we are looking at are little slices of life.

Beyond this clear message about obesity, there are only hints from the rest of the data. One of the main limitations of all of the studies so far is that they have looked at a specific time of life — for example, women after menopause — and they have had fairly short follow-ups, often less than 10 years. "So what we are looking at are little slices of life," Dr. Willett said, whereas the effect of diet is lifelong, and **might be particularly important in the years before adulthood (e.g., during adolescence).**

Barbequing and Other High-Temperature Cooking

One suspect that has been extensively studied as potentially increasing the risk for cancer is the high-temperature cooking of meat, such as barbecuing, grilling, frying, and roasting, during which the meat is charred and can form carcinogens.

If there was a strong association, we would have seen it by now.

"But after more than 30 years of study, this link has not been refuted or confirmed in any clear way," Dr. Willet commented. "If there was a strong association we would have seen it by now, but we cannot exclude a mild or moderate effect."

One of the studies highlighted in an ACCR press release suggests that charred meat increases the risk for pancreatic cancer. The finding comes from a prospective analysis of 62,581 participants of the Prostate, Lung, Colorectal, and Ovarian multicenter screening trial, and was presented by Kristin Anderson, PhD, associate professor at the University of Minnesota School of Public Health, in Minneapolis. Her team looked at 208 cases of pancreatic cancer, and found that individuals who preferred very well done steak were almost 60% more likely to develop pancreatic cancer than those who ate their steak less well done or who did not eat steak at all. When the researchers considered overall consumption and doneness preferences, this rose to a 70% higher risk for pancreatic cancer.

"We cannot say with absolute certainty that the risk is increased due to carcinogens formed in burned meat," Dr. Andersen said in the AACR press release. "However, those who enjoy either fried or barbecued meat should consider turning down the heat or cutting off the burned portions when it's finished."

Dr. Anderson also advised "cooking meat sufficiently to kill bacteria without charring," and microwaving meat for a few minutes and pouring off the juices before cooking it on the grill to reduce the precursors of cancer-causing compounds.

But Dr. Willet said that these are very specific recommendations, and "I just don't think that this is appropriate on the basis of a single study."

Alcohol — Even 1 Glass Might Increase Risk

For alcohol, there have now been **dozens of studies showing an increase in the risk for breast cancer, even with very low levels of consumption**, "so this is **now an established relationship**," Dr. Willet said in his talk.

It's been known for a long time that alcohol increases the risk for cancers of the upper aerodigestive organs, but this is at high levels of consumption (around 3 or 4 glasses a day), he told Medscape Oncology. "What's unique about breast cancer is that the risk is increased at very modest levels of consumption," he said.

"There is strong evidence that even 1 glass a day can cause a small but significant increase in the risk of breast cancer," he said. A recent study from the United Kingdom suggests that the risk for many different cancers is increased with even 1 drink a day, and that the risk increases in a dose-dependent fashion, as reported by Medscape Oncology.

So the finding from another study highlighted by the AACR, that "drinking wine may increase survival among non-Hodgkin's lymphoma patients," is somewhat surprising. "This conclusion is controversial," admits first author Xuesong Han, a doctoral candidate at the Yale School of Public Health, in New Haven, Connecticut. "**However, we are continually seeing a link between wine and positive outcomes in many cancers**," she noted in the AACR press release.

"**This is not true**," said Dr. Willet. There have been benefits shown consistently for cardiovascular disease, but not for cancer, he told Medscape Oncology.

The study conducted by Han and colleagues involved 546 women with non-Hodgkin's lymphoma. Those who drank wine had a 5-year survival rate of 76%, and those who did not had a 5-year survival rate of 65%. In a subanalysis, the researchers found that the strongest link was seen in patients with diffuse large B-cell lymphoma. These patients had a 40% to 50% reduced risk for death, relapse, or secondary cancer. The researchers also asked the patients about their wine-drinking habits in the 25 years before their diagnosis. In the overall group, patients who had been drinking wine at least this long had a 25% to 35%

reduced risk for death, relapse, or cancer, whereas in the subgroup of patients with large B-cell lymphoma, this reduction was 60%.

"We cannot look at this one study in isolation," said Dr. Willet.

Specific Foods and Anticancer Effects

So far, there have been no specific foodstuffs that have been identified as having proven anticancer effects, Dr. Willet told Medscape Oncology.

Even the case for eating more fruit and vegetables, a message widely promulgated by many authorities, including the World Cancer Research Fund, is fairly weak when it comes to cancer. There have been studies showing a decrease in the risk for colon and breast cancer, but other studies have shown insignificant or no appreciable effects, Dr. Willet told the meeting. **A 2004 meta-analysis by Hsin-Chia Hung and colleagues concluded that eating more fruits and vegetables decreases the risk for cardiovascular disease, but not the risk for cancer** (J Natl Cancer Inst. 2004;96:1577-1584).

"So the message to eat fruits and vegetables is still a good message, but there appears to be more benefit for cardiovascular disease than for cancer," he said.

In that context, the claim made in another AACR press release, that "walnuts may prevent breast cancer" is premature, especially because it is based on an animal study, Dr. Willet said. The study was conducted in a mouse model of breast cancer, and mice fed a diet estimated to contain the human equivalent of 2 ounces of walnuts per day showed a significant decrease in the incidence of tumors, a significant decrease in tumor size, and a delay in the development of these tumors by about 3 weeks.

Lead researcher Elaine Hardman, PhD, associate professor of medicine at Marshall University School of Medicine, in Huntington, West Virginia, said: "It is clear that walnuts contribute to a healthy diet that can reduce breast cancer."

"That's a premature leap, that's for sure," said Dr. Willet.

Maybe the only foodstuff that does have some evidence suggesting a preventive anticancer effect is soy products. Its antiestrogen properties might protect against **prostate cancer** in men and against **breast cancer** in women, especially in premenstrual women, Dr. Willet noted. **"But this is not yet in the category of convincing — it's possible,"** he said.

Source: American Association for Cancer Research (AACR) 100th Annual Meeting: Abstracts LB-224, LB-243, and LB-247. Presented April 21, 2009

Dr. Bleyer:

- ☑ The caution Dr. Willett exerts is gratifying and in accordance with interpretations and recommendations opined by **DEFEAT Cancer**
- ☑ Dr. Willett correctly corrects the principal investigator of the wine and lymphoma study, who asserted that wine helps prevent many cancers; only her study (in non-Hodgkin lymphoma) has a favorable correlation
- ☑ He is also correct to belittle the walnut trial in mice and caution the senior investigator who concluded favorable effect on breast cancer prevention in women

Carotenoid supplements tied to lung cancer risk [Prevention]

[Vitamin A and lutein are associated with an increased risk of lung cancer, especially in but not limited to former and current smokers](#)

Thu Mar 26, 2009 1:03pm EDT

NEW YORK (Reuters Health) - Based on the findings from a new study, it appears that people who take higher than recommended doses of carotenoid supplements hoping to keep from getting sick, may actually be doing themselves harm. The long-term use of beta-carotene, retinol, and lutein supplements at doses higher than in multivitamins, increases lung cancer risk, especially in smokers and former smokers, according to investigators from the **Vitamins and Lifestyle (VITAL)** study.

High-dose beta-carotene supplements increase the lung cancer rates in high-risk individuals, even though carotenoids from dietary sources tend to lower risk, Dr. **Jessie A. Satia** and co-researchers note in the American Journal of Epidemiology. "Whether effects are similar in the general population is unclear." Satia's team analyzed data from **77,126 subjects** ages 50 to 76 who filled out questionnaires in 2000-2002 regarding supplement use over the previous decade. The group was predominantly white and generally

healthy, the authors note, and while there were few who never smoked among the lung cancer cases, there were fewer current smokers in the overall group than in the general population.

By linking the data to the national cancer registry, Satia, at the University of North Carolina at Chapel Hill, and her colleagues identified 521 cases of lung cancer. They then estimated the risk associated with the individual supplements after considering the possible effects of age, gender and smoking history. Each supplement raised the risk of non-small-cell lung cancer, the most common type of lung cancer, with retinol and lutein also having a modest association with lung cancer overall.

When beta-carotene was used for at least 4 years, the overall risk of lung cancer was not significantly increased, but the risk of small-cell lung cancer rose by more than 3-fold.

For retinol, the overall risk of lung cancer increased by more than 50 percent and for non-small-cell lung cancer, it increased by 80 percent.

For lutein, the overall risk increased by 2-fold, while the corresponding risk for non-small-cell lung cancer increased by 2.5-fold.

The researchers speculate that "these nutrients from supplements may be more bioavailable than those from dietary sources" and large amounts of these supplements might interfere with the absorption, transport and or metabolism of micronutrients or other carotenoids that may be protective against lung cancer.

"Too high a dose of an antioxidant vitamin may interfere with generation of reactive oxygen species needed for beneficial processes, such as normal immune response and apoptosis," Satia's team adds.

Whatever the reason, they conclude that the "long-term use of individual beta-carotene, retinol, and lutein supplements should not be recommended for lung cancer prevention, particularly among smokers."

SOURCE: American Journal of Epidemiology, April 1, 2009.

Dr. Bleyer:

- ☑ Vitamin A have been known for many years now to increase the risk of lung cancer in persons of high risk of lung cancer, most notably smokers and former smokers
- ☑ Previously however non-smokers were not found to have a higher risk [the original hope in the randomized trials was that vitamin A or its analogues would actually help prevent lung cancer]
- ☑ The significance of this article is that non-smokers also appear to be at increased risk if they consume higher the routine amounts of vitamin A
- ☑ With all the bad news about vitamins and supplements last year, this study puts another nail in the coffin (bad metaphor in discussing cancer, especially lung cancer?) in the use of supplements that exceed the recommended daily dosage
- ☑ For cancer survivors who are at increased risk of having it again, the advice against supplements, especially without consulting one's oncologist, is particularly important; as reported several times before in *E&N News*, supplement may also interfere with the effect of radiation therapy and chemotherapy in eliminating cancer

Tea and cancer? Depends how hot [Prevention]

[Researchers who studied an Iranian province with the highest rate of esophageal cancer in the world believe they've found a link between the disease and the drinking of scalding liquid.](#)

Los Angeles Times - March 28, 2009

By Karen Kaplan

Is there anything left in life that isn't linked in some way to cancer?

Not hot tea apparently. An international group of scientists has now connected it with esophageal cancer. The problem doesn't appear to be the tea itself, but the temperature at which it is consumed, their study found.

Residents of Golestan province in northern Iran have one of the highest rates of esophageal squamous cell carcinoma in the world. They don't drink alcohol or smoke -- the two primary risk factors for the disease in the West -- but they do consume tea. Lots of it. Nearly 1.2 liters per day, on average. So local researchers set out looking for a connection.



They recruited 300 esophageal cancer patients who were diagnosed at the only gastrointestinal specialty clinic in the eastern part of Golestan and matched them up with 571 healthy controls who shared their age, gender and place of residence. All but one of them drank tea, and they gave interviewers information about their tea consumption and brewing habits.

Teaming up with investigators from the U.S., England, France and Sweden, the researchers calculated that people who said they drank "hot" tea (149 to 156 degrees Fahrenheit) were more than twice as likely to develop esophageal cancer as people who said they drank the beverage "warm" or "lukewarm" (less than 140 degrees). Those who said they took their tea "very hot" (at least 158 degrees) were more than eight times as likely to get esophageal cancer, according to the study, published online Thursday in *BMJ*, formerly the *British Medical Journal*.

The researchers also asked people how long they waited to drink their tea after pouring it. Those who said they waited two to three minutes were nearly 2.5 times more likely to develop the cancer compared with people who said they waited at least four minutes. Impatient tea drinkers who waited less than two minutes were 5.4 times as likely to be diagnosed with esophageal cancer, the study found.

The study didn't assess the mechanism linking hot tea to esophageal cancer, but the researchers said the temperature of the liquid was almost certainly to blame rather than the compounds in the tea itself.

In an editorial accompanying the study, **David Whiteman** of the **Queensland Institute of Medical Research** in Brisbane, Australia, advised tea drinkers to simply exercise some patience before enjoying their favorite beverage.

"It is difficult to imagine any adverse consequences of waiting at least four minutes before drinking a cup of freshly boiled tea, or more generally allowing foods and beverages to cool from 'scalding' to 'tolerable' before swallowing," he wrote.

Dr. Bleyer:

- ☑ Although this investigation was done by a crackerjack research team and it's likely they uncovered one cause or precipitating factor of esophageal cancer in the people of a province in northern Iran, the finding does not mean that in other peoples, in other places, and with different genetic background, the same is true
 - ☑ Since alcohol and smoking are known causes in people around the world, the unifying theme may be that whatever damages the lining of the esophagus can cause cancer
 - ☑ Another form of damage occurs when gastric acid can reflux into the esophagus (in persons with hiatal hernia, for example) and Barrett's esophagus results; these patients are also at high risk of esophageal cancer
 - ☑ So, it makes sense that burning the esophagus with heat, substances in tobacco, gastric acid, or alcohol can all result in cancer
 - ☑ Because patients who have already had cancer and are at higher risk of having it again, the advice of the consultant expert (*wait a few minutes to let the beverage cool down*) may be even more important for cancer survivors
 - ☑ **DEFEAT Cancer** wonders if the Iranians who drank hot tea and were least physically active had the highest rates of esophagus cancer --- a point again not studied in the investigation by some of the world's experts on cancer causation
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