



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

March 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

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▶ **Exercise & Nutrition**

Obesity tied to poor pancreatic cancer surgery outcomes

Study finds risk of disease recurrence, death nearly twice that of normal-weight patients

[Obese patients with pancreatic cancer had half the average survival time of non-obese patients](#)

HealthDay News - March 18, 2009

Obese pancreatic cancer patients are more likely than non-obese patients to have worse outcomes after surgery to treat their cancer, say U.S. researchers.

"We identified a subset of obese patients (BMI greater than 35) who were at 12-fold increased risk of lymph node metastasis compared with non-obese patients (BMI of 35 or less)," wrote

Dr. Jason B. Fleming, of the **University of Texas M.D. Anderson Cancer Center** in Houston, and colleagues.

The researchers studied data from 285 pancreatic cancer patients who had surgery to remove some or all of the organ.

After about 16 months, 152 patients (53 percent) died. Patients with a body mass index (BMI) higher than 35 survived a median of 13.2 months, compared with 27.4 months for those with a BMI of less than 23.

After about 32 months, 15 of 20 patients (75 percent) with a BMI of more than 35 had died, compared with 137 of 265 patients (52 percent) with a BMI of 35 or less.

"The estimated disease-free and overall survival rates were decreased in the obese patients, and the risk of cancer recurrence and death after pancreatectomy (removal of the pancreas) was nearly twice that in non-obese patients," the researchers wrote. "Cancer recurrence was observed in 95 percent (19 of 20) of patients in the group with a BMI of more than 35 vs. 61 percent (161 of 264) of all other patients."

The study is published in the March issue of the journal **Archives of Surgery**.

Previous studies have noted a link between a BMI higher than 35 and increased risk of death from pancreatic cancer.

"Our findings extend these observations to those patients who undergo surgery to treat pancreatic cancer and suggest that obesity is a host factor affecting tumor biology," Fleming and colleagues concluded.

Dr. Bleyer:

☑ As more and more cancers are individually studied for the effect of obesity on the ability to detect, diagnose and treat the cancer, the number of cancers that have a worse outcome in obese patients continues to increase; to those previously reviewed by **DEFEAT Cancer** (E&N News-to-Use 2008 – Nutrition; Executive Summary, p. 14) pancreas cancer should now be added to cancer of the breast, prostate, and liver

☑ Obese persons have a 'double whammy' with respect to cancer of the pancreas in that they not only have a higher risk of getting one the worst cancers, pancreas cancer, they have a significantly shorter survival after diagnosis; given that pancreas cancer is one of the most lethal cancers, it's more like a *triple whammy* for obese persons

▶ **Exercise**

Even starting at age 50, increasing exercise reduces mortality risk

[This report from Sweden indicates that men who become physically active at age 50 reduce their mortality risk within 10 years to the level it is in men who been always been physically active](#)

MD Consult - March 6, 2009

ST LOUIS (MD Consult) - For men who adopt a physically active lifestyle at age 50, the beneficial effect on mortality risk eventually becomes the same as in men who have always been physically active, according to a study published online by the British Medical Journal.

The population-based cohort study included 35-year follow-up data on **2,205 men**, aged 50 years at baseline in 1970-1973, living in **Uppsala, Sweden**. The men were re-evaluated at ages 60, 70, 77, and 82. On the basis of responses to standard questions, the men's physical activity level was classified as low, medium, or high at each evaluation. Associations between physical activity, and changes in physical

activity level, and all-cause mortality were assessed. The lead author was **Liisa Byberg of Uppsala University**.

All-cause mortality decreased from 27.1 per 1,000 person-years in the low physical activity group, to 23.6 per 1,000 in the medium physical activity group, to 18.4 per 1,000 in the high physical activity group. For men with high physical activity, relative rate reductions in mortality were 32% compared with the low physical activity group and 22% compared with the medium physical activity group.

Eleven percent of men increased their physical activity level between age 50 and 60. Through the first 5 years of follow-up, their mortality risk was unchanged, compared with those of men with continued high physical activity. However, by 10 years, risk was significantly reduced among men who increased their physical activity level. At this time, their all-cause mortality was not significantly different from that of men with unchanged high physical activity.

For men who moved from low to high physical activity, mortality was reduced by half (adjusted hazard ratio, 0.51). This was comparable to the reduction achieved by men who quit smoking (hazard ratio, 0.64).

Compared with sedentary people, those who are physically active have a one-half reduction in mortality risk. **About half of middle-aged men in western countries are not physically active.** Although the risks of physical inactivity in young adults are well recognized, the benefits of becoming physically active later in life have been unclear.

This study shows a significant reduction in mortality risk among 50-year-old men who increase their level of physical activity. Although the benefit takes some time to appear, by 10 years mortality risk is similar to that of men who have always been physically active.

In terms of reducing one's risk of death, the **benefits of increasing physical activity are comparable to those achieved by quitting smoking.** "Thus, **efforts for promotion of physical activity, even among middle aged and older men, are important,**" the investigators conclude.

Source: BMJ. 2009;338:b688.

Dr. Bleyer:

- ☑ We all know the benefits of quitting smoking on reducing death rates; that starting to exercise after age 50 has the same magnitude of benefit as quitting smoking is quite extraordinary
- ☑ The it is never too late, or one too old, to start exercising is the single most important message of this study
- ☑ The fact that the amount of mortality reduction was proportional to the amount of physical activity also deserves emphasis, but as with so many prior studies, even light exercise is beneficial and certainly better than none
- ☑ **DEFEAT Cancer** is quick to point out that if improved nutrition were combined with exercise, the reduction would likely have not taken 10 years but considerably less time and the improved quality of life may have allowed more men to increase their physical activity into a more active level

New cancer exercise trainer certification from American College of Sports Medicine and ACS

[A new cancer specialty certification is not available to train health and fitness professionals to be able to provide cancer patients and survivors exercise programs designed especially for them](#)

Oncology Times:Volume 31(4)25 February 2009, p 20

The American College of Sports Medicine (ACSM), in collaboration with the American Cancer Society, has launched a new cancer specialty certification to train health and fitness professionals earn additional qualifications to work with people with a history of cancer, including those currently undergoing treatment.

As of January, professionals who have already achieved the gold standard in certification through ACSM or another accredited organization can now receive ACSM/ACS Certified Cancer Exercise Trainer (CET) designation by successfully completing an exam focused on exercise and cancer. ACSM estimates that it will take several months before the CETs are widely available throughout the country, at which point they will begin to be made available to the public in a searchable database on the group's Web site.

Until now, there has been no certification offered for professionals working in fitness clubs that focuses on the special needs of cancer survivors, ACSM's National Director of Certification Programs, Richard Cotton, said in a news release. Exercise can lead to faster recovery from some effects of cancer

treatment, as well as increased quality of life during treatment, and thus underscores the importance of this new certification.

More information on the ACSM/ACS Certified Cancer Exercise Trainer specialty can be found online at www.acsm.org/certification. The certification exam will be available at some 4,300 testing centers worldwide.

Dr. Bleyer:

- ☑ When sports medicine professionals recognized the special needs for cancer patients and survivors, the evidence of benefit is reaching a high level of attention
- ☑ Please encourage your fitness centers to partake of this opportunity

Worst-case scenario: Diagnosed with cancer

You can't always stay on the job, but when it's possible it can be a very positive experience.

Cancer patients who continue to work during their treatment improve their better quality of life by virtue of continuing to be psychologically supported, and physically and mentally active

Forbes.com

Tara Weiss – March 17, 2009

When Patrick Swayze was diagnosed with pancreatic cancer in January 2008, he resolved to keep working. The actor signed on to star in the A&E cop drama *The Beast*, taking on 12-hour workdays while undergoing chemotherapy sessions on the weekends. He even declined to take pain medication, saying it would cloud his mind and hinder his ability to work.

Many cancer patients decide to maintain their jobs while undergoing treatment. Various studies estimate that between 1985 and 1999, roughly 60% of people diagnosed with cancer returned to work at some time either during or after treatment.

Some do it to focus on something other than the disease, some to maintain a sense of normality--and many because they feel they have no choice. For all of them, working while battling cancer is a difficult weight to bear, even if it is the best option.

"A big thing people tell us is that they don't want to sit at home by themselves in cancer-land," says **Kate Sweeney**, executive director of **Cancer and Careers**, a mostly Web-based resource for women who are working with cancer. She adds that working is also a good way to stay among some of your biggest supporters--your co-workers.

"These days, your work team is so much a part of your support team, if you cut yourself off from that, it can be really difficult," Sweeney says.

It may also be a way to stay grounded by keeping to a familiar schedule. Margaret Coughlin, president of Intelligent Marketing Solutions, a Massachusetts firm, was diagnosed with breast cancer in 2001 and decided to work through her treatment. "I decided to do everything I could to have as much semblance of normalcy as possible. It was very important to keep the daily routines."

It's not always possible to stay on the job. Sometimes the illness and treatment is so debilitating that patients can't even get out of bed. But many of those who can keep working find it to be a very positive experience--even if they are only able to get into the office for a few hours a day.

Ted Brooks, a partner in the Pittsburgh law firm Tucker and Arensberg, learned he had a tumor in his pancreas in April 2005. As he underwent various treatments, including medication, surgery, radiation and chemotherapy, he kept his coworkers updated with semi-regular e-mail bulletins about his health status and the stages of his treatment. The e-mails, titled "Faith and Humor," went to everyone in the firm, from mail room employees to senior partners.

Their reactions varied. "Some people would e-mail right back and say, 'Go for it, we're with you,'" Brooks says. "Other people wouldn't feel comfortable approaching me." Either way, he felt it kept everyone from being in the dark and making judgments about his changing work habits.

Brooks sent his closest clients the bulletins too. After all, he says, they were one of the driving forces that kept him working. "When people rely on you, it keeps you going," he says. "I had to get up. When a client calls, you have to force yourself."

It wasn't always easy. There were days he wanted to roll over and shut off the alarm clock--and some days, he did. He scheduled his treatments at 3:30 each afternoon to optimize his work day. Treatments were exhausting, so he went directly home afterward and got into bed.

The key to continuing to work, according to Brooks: "Be visible and attempt to retain methods of operation, such as turnaround time on projects. The people with whom and for whom you work need to see you being effective in what you do."

Coughlin told her staff about her illness and treatment, but she didn't tell her clients, fearing it would jeopardize business. Besides, she says, she knew she was capable of delivering the same quality work as before her diagnosis.

She found time management to be essential. When she had to have two surgeries, she scheduled both of them for Fridays, so she'd be able to recuperate over the weekend. She scheduled radiation at 7:30 a.m. daily and went to see clients afterward. If she felt exhausted, she'd take the day off. The nature of her work as a consultant helped: If she couldn't make a meeting, her client figured she was with another client.

Some people view not working as akin to losing a part of themselves--like Ruth Fax, an electrical engineer who was diagnosed with breast cancer in 1997 while employed at Bay Networks, now Nortel Networks. "We were a leading Internet company, and it was a hell of a lot of fun," she recalled years later. "Being an engineer was part of my identity."

Fax said that working through her cancer treatment gave her a sense of control when she didn't have control over much else in her life. And sometimes it even resulted in wry moments of humor. Engineers aren't the type of people who notice one's hair, she said, and when she stopped wearing her wig because it was so hot, one of her co-workers commented on her haircut.

Her conclusion: "Engineers are awfully dense."

Dr. Bleyer:

☑ Not stated is the distinct possibility that the benefit on quality of life of continuing to work after a diagnosis of cancer and during treatment, or returning to work as soon as possible, may be due, at least in part, to the physical activity of employment ... of having to maintain a physically structured schedule, travel to and from work, and physical activity on the job

► Nutrition

Daily red meat raises chances of dying early

Study is first large analysis of link with overall health

[Eating red meat increase the chance of dying prematurely of cancer by 20% in both men and women within 10 years, according to the first large study to examine whether regularly eating meat increases mortality.](#)

By Rob Stein

Washington Post Staff Writer

Washington Post, Page A01 - March 24, 2009

The study of more than **500,000 middle-aged and elderly Americans** found that those who consumed about four ounces of red meat a day (the equivalent of about a small hamburger) were more than **30 percent more likely to die during the 10 years** they were followed, **mostly from heart disease and cancer**. Sausage, cold cuts and other processed meats also increased the risk.

Previous research had found a link between red meat and an increased risk of heart disease and cancer, particularly colorectal cancer, but the new study is the first large examination of the relationship between eating meat and overall risk of death, and is by far the most detailed.

"The bottom line is we found an association between red meat and processed meat and an increased risk of mortality," said **Rashmi Sinha**



of the **National Cancer Institute**, who led the study published yesterday in the **Archives of Internal Medicine**.

In contrast, routine consumption of fish, chicken, turkey and other poultry decreased the risk of death by a small amount.

"The uniqueness of this study is its size and length of follow-up," said Barry M. Popkin, a professor of global nutrition at the University of North Carolina, who wrote an editorial accompanying the study.

"This is a slam-dunk to say that, 'Yes, indeed, if people want to be healthy and live longer, consume less red and processed meat.' "

There are many explanations for how red meat might be unhealthy: **Cooking red meat generates cancer-causing compounds; red meat is also high in saturated fat, which has been associated with breast and colorectal cancer; and meat is high in iron, also believed to promote cancer.** People who eat red meat are more likely to have high blood pressure and cholesterol, which increases the risk of heart disease. **Processed meats contain substances known as nitrosamines, which have been linked to cancer.**

Although pork is often promoted as "white meat," it is believed to increase the risk of cancer because of its iron content, Sinha said.

Regardless of the mechanism, the research provides new evidence that people should follow long-standing recommendations to minimize consumption of red meat, several experts said.

"The take-home message is pretty clear," said **Walter Willett**, a nutrition expert at the **Harvard School of Public Health**. "It would be better to shift from red meat to white meat such as chicken and fish, which if anything is associated with lower mortality."

The American Meat Institute, a trade group, dismissed the findings, however, saying they were based on unreliable self-reporting by the study participants.

"Meat products are part of a healthy, balanced diet, and studies show they actually provide a sense of satisfaction and fullness that can help with weight control. Proper body weight contributes to good health overall," James H. Hodges, the group's executive vice president, said in a written statement.

For the study, researchers analyzed data from **545,653 predominantly white volunteers, ages 50 to 71**, participating in the **National Institutes of Health-AARP Diet and Health Study**. In 1995, the subjects filled out detailed questionnaires about their diets, including meat consumption. Over the next 10 years, 47,976 men and 23,276 women died.

After accounting for other variables that might confound the findings, such as smoking and physical activity, the researchers found that those who ate the most red meat -- about a quarter-pound a day -- were more likely to die of any reason, and from heart disease and cancer in particular, than those who ate the least -- the equivalent of a couple of slices of ham a day.

Among women, those who ate the most red meat were 36 percent more likely to die for any reason, 20 percent more likely to die of cancer and 50 percent more likely to die of heart disease. Men who ate the most meat were 31 percent more likely to die for any reason, 22 percent more likely to die of cancer and 27 percent more likely to die of heart disease.

In contrast, those who consumed the most white meat were about 8 percent less likely to die during the study period than those who ate the least, the researchers found. Poultry contains more unsaturated fat, which improves cholesterol levels, and fish contains omega-3 fatty acids, which are believed to help reduce the risk of heart disease.

The risk also rose among those who consumed the most processed meat, which included any kind of sausage, cold cuts or hot dogs. Women who consumed the most processed meat (about an ounce a day) were about 25 percent more likely to die overall, about 11 percent more likely to die of cancer and about 38 percent more likely to die from heart disease, compared to those who ate the least. The men who ate the most processed meat were 16 percent more likely to die for any reason, about 12 percent more likely to die of cancer and about 9 percent more likely to die of heart disease.

Experts stressed that the findings do not mean that people need to eliminate red meat from their diet, but instead should avoid eating it every day.

"You can be very healthy being a vegetarian, but you can be very healthy being a non-vegetarian if you keep your red-meat intake low," Willett said. "If you are eating meat twice a day and can cut back to once a day there's a big benefit. If you cut back to two or three times a week there's even more benefit. If you eliminate it entirely, there's a little more benefit, but the big benefit is getting away from everyday red-meat consumption."

In addition to the health benefits, a major reduction in the eating of red meat would probably have a host of other benefits to society, Popkin said: reducing water shortages and pollution, cutting energy consumption, and tamping down greenhouse gas emissions -- all of which are associated with large-scale livestock production.

"There's a big interplay between the global increase in animal food intake and the effects on climate change," he said. "If we cut by a few ounces a day our red-meat intake, we would have big impact on emissions and environmental degradation."

Dr. Bleyer:

- ☑ Previous research had found a link between red meat and an increased risk of cancer, particularly colorectal cancer, but this study is the first large examination of the relationship between eating meat and overall risk of death, and is by far the most detailed.
- ☑ The meat industry lobby is getting desperate when they dismiss the results as due to poor memory of the participant; the sheer number of subjects (more than a half million) totally and completely refutes this argument
- ☑ **DEFEAT Cancer** has previously reported on the increase in risk of cancer and cancer recurrence; this definitive study, published in one of the most prestigious journals, is the most conclusive to date

Wine may lower the risk of a rare esophageal cancer [Prevention]

[Two studies suggest that people who drink wine, white or red, in moderation are less likely to develop conditions that may lead to cancer of the esophagus](#)

New York Times - March 5, 2009

By Roni Caryn Rabin

While millions of Americans suffer from heartburn and gastric reflux, only a small number develop more severe ailments that can lead to esophageal cancer. Scientists trying to understand what may protect against these conditions have identified an unlikely agent: wine.

Two studies published this month in the journal *Gastroenterology* suggest that people who drink wine, white or red, in moderation are less likely to develop conditions that may lead to esophageal adenocarcinoma, an uncommon cancer that has increased sharply in the United States over the past 30 years.

The reports are particularly surprising because alcohol intake is a well-established risk factor for the other main form of esophageal cancer, squamous cell carcinoma. Researchers noted the studies were preliminary.

In one study, researchers at **Kaiser Permanente** in Oakland, Calif., found that drinking a glass of wine a day was associated with a more than 50 percent reduction in the risk of developing Barrett's esophagus, though there was no reduction in risk among adults who drank liquor or beer. Barrett's esophagus, an erosion of the esophageal lining that can be caused by chronic heartburn or acid reflux, increases the odds of developing esophageal adenocarcinoma 30-fold to 40-fold.

In the second study, researchers at **Queen's University Belfast**, in Northern Ireland, reported that compared with patients who drank no wine, those drinking one glass of wine or more a month saw a drop of more than 50 percent in the risk of reflux esophagitis, an irritation often caused by chronic heartburn.

The two studies' findings are consistent with those from an **Australian report** in *Gastroenterology* in December. That study found that drinking wine in moderation was linked to lower risks for both forms of the cancer.

"There is a lot of warranted skepticism about nutritional studies — one shows one thing, and one shows something else," said Dr. Douglas Corley, a gastroenterologist and senior author of the Kaiser Permanente study. "But these are the first few studies that have looked at this, and **they all find the same thing in three different populations in three different countries.**"

But people who drink wine tend to come from higher income brackets and to be more educated than those who drink beer and liquor, experts said, and it is hard to know whether it is the wine or some other aspect of their lifestyle that protects their health.

“This is an exploratory study,” said Dr. Liam J. Murray, a senior author of the Irish study and a professor of cancer epidemiology at Queen’s University Belfast, “and my view is that further work needs to be done before we put too much weight on it.”

Dr. Bleyer:

- ☑ The caveats about the results being preliminary need emphasis, notwithstanding the simultaneity of three studies in different countries with similar conclusions
- ☑ More importantly, the authors and reporter do not mention that the incidence of other cancers increase with wine drinking; the evidence for breast cancer not invokes as little as one glass a day (February, 2009 E&N News)

Extra vitamin E: No benefit, maybe harm

[A superb, comprehensive review of vitamin E's lack of health benefits and, in high doses, a potential increased risk of cancer](#)

New York Times – March 24, 2009

By JANE E. BRODY

About three decades ago at a scientific conference on aging, just about every presenter was taking vitamin E, a nutrient with antioxidant properties that, it was thought, would slow the cellular ravages of age.

In subsequent years, many reports from observational and case studies suggested that vitamin E in daily doses far greater than recommended could help to stave off heart disease and stroke, various common cancers, dementia and Alzheimer’s disease, cataracts and macular degeneration, respiratory tract infections and a host of other serious and sometimes fatal health problems.

The logic was that an antioxidant like vitamin E protects cells from the damaging effects of free radicals, which are byproducts of metabolism and exposure to cell-damaging agents like sunlight, radiation and chemotherapy.

Ever hopeful for a magic elixir, millions of health-conscious Americans began self-dosing with amounts of vitamin E dozens of times greater than the recommended daily intake for this fat-soluble nutrient. If only all those hopeful forecasts had turned out to be true. Just as a well-designed clinical trial disproved the notion that postmenopausal hormones could keep women heart-healthy, controlled clinical trials of vitamin E have found this supplement wanting, as well. The same is true of vitamin C.

Too Much of a Good Thing

Recent studies have even suggested that at the high doses many people consume, vitamin E could be hazardous. In November 2004, the American Heart Association warned that while the small amounts of vitamin E found in multivitamins and foods were not harmful, taking 400 International Units a day or more could increase the risk of death. The highest recommended dietary allowance for vitamin E is 28.5 IU, for women who are breast-feeding.

No one knows whether other antioxidants, taken as supplements or as concentrates in gourmet beverages, will meet a similar fate, because they have not been rigorously studied. And given the length, cost and difficulty of conducting the needed studies, chances are that these other antioxidants will never be properly investigated. So you may never know whether spending a fortune on pomegranate juice or the like is worth it.

Some vitamin E enthusiasts object that the clinical studies used what they consider the wrong form of the vitamin, saying that each of the vitamin’s eight forms has its own biological activity. But the kind of vitamin E used in most studies, alpha-tocopherol, is the most active form in humans, according to the National Institutes of Health’s Office of Dietary Supplements.

Here, then, is what we now know about vitamin E from recent randomized, controlled clinical trials, the gold standard of research if the right questions were investigated.

Cardiovascular disease

An early hint of no benefit to the heart came from a 2001 University of Pennsylvania study of 30 healthy men, which found that at doses of 200 to 2,000 I.U.'s, vitamin E did not prevent oxidation of blood fats that can damage arteries. Four years later, the Heart Outcomes Prevention Evaluation trials, which looked at nearly 10,000 patients 55 and older with vascular disease or diabetes, found no heart benefit from taking 400 I.U.'s of vitamin E daily for an average of seven years. In fact, those taking the vitamin were more likely to develop heart failure, which prompted the heart association warning.

A few months later came a report on healthy women. The Women's Health Study, of nearly 40,000 women 45 and older who were followed for an average of 10 years, found no overall benefit in taking 600 I.U.'s of vitamin E every other day for major cardiovascular events (heart attacks and stroke) or total mortality. There was, however, a 24 percent reduction in cardiovascular deaths.

A fresh report on men was released last November. In it, the Physicians' Health Study, 14,641 men 50 and older were followed for up to eight years, it was found that 400 I.U.'s of vitamin E every other day had no effect on the incidence of major cardiovascular events, including cardiovascular deaths.

The bottom line of all these reports was that supplements of vitamin E could not be relied upon to protect against heart disease and stroke.

Cancer

The **Heart Outcomes** trials also looked at cancer and found no differences in cancer incidence or deaths during the seven-year follow-up that could be attributed to vitamin E.

Likewise, the **Women's Health Study** found no significant effect of the vitamin on total cancer incidence or cancers of the breast, lung or colon, nor any effect on cancer deaths.

Still, hope lingered that vitamin E alone or in combination with the mineral selenium or vitamin C would protect men against prostate cancer. No such luck. In the Jan. 7 issue of The Journal of the American Medical Association, two major reports seemed to have offered the final word on this question.

The **SELECT** trial (an acronym for the Selenium and Vitamin E Cancer Prevention Trial) followed 35,533 men from 427 locations in the United States, Canada and Puerto Rico for more than five years. It found no benefit, but did find a "**statistically nonsignificant increased risk of prostate cancer**" in the group taking 400 I.U.'s a day of vitamin E. Selenium alone offered no benefit, and neither did selenium combined with vitamin E.

The second study, a continuation of the **Physicians' Health Study**, found that among male doctors who took 400 I.U.'s of vitamin E every other day and 500 milligrams of vitamin C every day, there was no decreased risk of developing prostate cancer or cancer in general.

For lung cancer, a 2007 study financed by the **National Cancer Institute** found that smokers who took vitamin E supplements had a somewhat **higher risk of developing the disease** [lung cancer].

Other diseases

An independent review of studies by the Cochrane Collaboration published last year found no reliable evidence for the ability of vitamin E to prevent or treat Alzheimer's disease or mild cognitive impairment, not even at doses of 2,000 I.U.'s a day.

And while vitamin E is part of complex formulations that have been found to slow the progression of macular degeneration, no one can say if the vitamin has played any role in the benefits seen with these products.

There are possible risks as well, since vitamin E diminishes the clotting tendency of blood and may result in ugly bruises from small bumps.

Simply put, there is no quick fix. The best chance for leading a long and healthy life comes not from any pill or potion but from pursuing a wholesome lifestyle. That means following a nutrient-filled but calorically moderate diet rich in vegetables, fruits and whole grains (many are good sources of vitamin E); not smoking; exercising regularly; maintaining a normal body weight; and driving and riding safely.

Dr. Bleyer:

☑ While at M.D. Anderson, I was involved with the study that showed an increased incidence of lung cancer in smokers randomized to receive a vitamin E analogue in comparison to placebo

- ☑ As previously reported in *E&N News*, several **DEFEAT Cancer** participants were on the SELECT trial that showed no benefit of vitamin E in comparison to placebo in preventing cancer and some evidence that vitamin may have increased the risk of prostate cancer
- ☑ The overwhelming evidence, from four separate studies is that vitamin E does not decrease the risk of cancer and may increase the risk of prostate and lung cancer, the latter in smokers

High-fat diet dramatically increases cancer metastasis [Laboratory Study]

[Mice fed a high fat diet and implanted with a tumor that has spreads easily to other locations in the body were much more likely to spread on a high fat diet than on a lean diet](#)

Medscape Hematology-Oncology

March 5, 2009 — Although the link between obesity and cancer is well established, exactly why there is a link remains unclear. Now, an animal study shows that a high-fat diet dramatically increases cancer metastasis, and offers a mechanistic explanation for what has been, up to now, anecdotal evidence.

The study was published online January 30 in *BMC Cancer*.

"These findings demonstrate that an increase in lipids leads directly to a rise in cancer metastasis", said senior author **Ji-Xin Cheng, PhD**, assistant professor at the **Weldon School of Biomedical Engineering, Purdue University**, in West Lafayette, Indiana.

The study was conducted in mice implanted with a tumor that metastasized, but there was a 300% increase in metastases in mice fed a high-fat diet, compared with those fed a lean diet. In addition, the researchers showed that the high-fat diet had a direct effect on cancer-cell membranes, which increased their aggressiveness.

The implication from this study is that patients who already have cancer could be increasing the risk of it spreading if they eat a high-fat diet, comments lead author Thuc Le, PhD, also from Weldon School of Biomedical Engineering.

However, when asked whether physicians should advise their patients about this, Dr. Le told Medscape Oncology that there are "many caveats."

"Firstly, our study was performed in laboratory animals," he noted. "It's unclear whether our observations hold true in humans."

"But, when our study is viewed in the context of many other clinical studies of human patients and the strong correlation between lipid-rich breast cancer and aggressive clinical behavior, including early death, then a link (albeit indirect) between high-fat diet and cancer aggressiveness should emerge," he added.

Dramatic Increase in Metastasis

The study was carried out in 32 mice implanted with a lung cancer cell line, injected subcutaneously into a hind leg. One group of animals was fed a lean diet (4.2% fat and 3.82 kcal/g) and the other was fed a high-fat diet (34.9% fat and 5.24 kcal/g).

The mice on the high-fat diet became "very sick" after 4 weeks, Dr. Le explained; this was "clearly due to a very high number of tumor colonies and very large tumor colonies in the lungs." These animals also "lost tremendous body weight and mobility. To minimize their suffering, they were euthanized on week 4."

In contrast, the mice fed a lean diet survived with normal weight and mobility until week 6, he added.

At 4 weeks after tumor implantation, there was a 3-fold increase in lung metastasis in mice on the high-fat diet, compared with mice on the lean diet.

There was a strong correlation between the high-fat diet and increased cancer metastasis, Dr. Le noted.

However, there may also be a more general conclusion. The mice on the high-fat diet had elevated visceral adipose tissue weight (belly-fat weight) and elevated levels of free fatty acids, and "these conditions are normally observed in obesity," Dr. Le pointed out. This suggests that obesity or a high-fat diet might accelerate cancer spread, he commented.

Increase in Circulating Tumor Cells

In addition, mice on the high-fat diet also showed an early increase in circulating tumor cells, with levels 3-fold higher than those seen in the lean-diet mice 2 weeks after tumor implantation. However, this difference gradually declined and became indistinguishable by week 4, the researchers note.

"We don't know the exact reason because we don't have direct evidence showing the whereabouts of the circulating cancer cells at all times," Dr. Le explained. However, one speculative explanation is that, in the mice fed the high-fat diet, the cancer cells escaped from the primary tumor and into the bloodstream (intravasation) at a faster rate than in mice fed the lean diet.

A more detailed study of the cancer cells themselves revealed a **direct effect of the diet on the cancer-cell membrane**. The researchers studied this using an imaging method known as coherent anti-Stokes Raman scattering, and they found "physical perturbations" in the cancer-cell membrane, which contributed to increased cancer aggressiveness.

In mice fed a high-fat diet, the increased lipid levels resulted in **increased membrane phase separation and membrane rounding in cancer cells**, which enhanced their ability to separate and spread through the body. The more rounded shape leads to reduced cell-cell adhesion and increased tissue invasion, the authors explain.

"If the cancer cells don't have excess lipids, they stick together and form very tight junctions in tumors, but increasing lipids causes them to take on a rounded shape and separate from each other," Dr. Le explained.

The team further demonstrated that **linoleic acid, which is predominant in polyunsaturated fats, causes increasing membrane phase separation, whereas oleic acid, found in monounsaturated fats, does not**.

Source: BMC Cancer. 2009;9:42. Abstract

Dr. Bleyer:

- ☑ This report, from a bio-engineering laboratory, is of more than passing interest (as so many laboratory studies are) since the mechanism observed by the investigators to help explain the increased rate of metastasis is one based in physics
- ☑ The cancer cells 'rounded up' when there was more lipids (fat) in their environment and forming a sphere, the investigators, contend allows them to separate more and move more easily to other locations

Protective effect of caffeine against UV damage clarified [Laboratory Study]

Mice treated with caffeine on areas of skin damaged by UV irradiation (the part of a sunlight that is known to cause cancer) or given caffeine by mouth developed changes in the damaged skin that suggest less likelihood to become cancerous

Reuters Health, New York – February 26, 2009

New research suggests that caffeine protects human keratinocytes from UV damage and does this, at least in part, by inhibiting the ATR-Chk1 pathway.

In murine studies, both oral and topical caffeine have been found to induce apoptosis of UV-damaged keratinocytes and reduce the subsequent development of skin cancer, senior author **Dr. Paul Nghiem**, from the **University of Washington**, Seattle, and colleagues note. Whether this also occurs in human cells and the mechanisms involved were unclear.

According to the report published online February 26th by the Journal of Investigative Dermatology, caffeine did, in fact, more than double apoptosis of UVB-exposed human keratinocytes.

Further analysis suggested that **caffeine targeted ataxia-telangiectasia and Rad3-related kinase (ATR) and checkpoint kinase 1 (Chk1)** in inducing apoptosis of damaged keratinocytes. The researchers base that conclusion on the finding that silencing of these genes increased apoptosis of UV-damaged cells and that caffeine did not further enhance apoptosis when ATR had been depleted.

"These data suggest that a relevant target of caffeine is the ATR-Chk1 pathway and that inhibiting ATR or Chk1 might have promise in preventing or reversing UV damage," the authors conclude.

Source: J Invest Dermatol 2009

Dr. Bleyer:

- ☑ Here's a potential benefit of caffeine, at least for skin cancer and melanoma protection
- ☑ Having already been demonstrated in multiple studies not to increase the risk of cancer, this may actually give caffeine a role in reducing the risk of skin cancer or melanoma development or recurrence

- ☑ Whether people can take enough caffeine containing beverages (coffee, coke beverages, etc) to ever take advantages of this in their diet is clearly uncertain from this study; topical therapy may be feasible
 - ☑ **DEFEAT Cancer** is not aware of caffeine having previously been shown to reduce skin cancer or melanoma risk
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