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Chocolate cake-cheeseburger diet: Coping with conflicting information

Survey shows consumers are confused

Margarine is wonderful. No, wait. Margarine is bad for you. Butter is better. Red wine helps your heart. But wait, it might damage your liver.

Red meat? Eggs? Coffee? Tea? The Atkins diet? Good for you? Bad for you? Who knows?

Let's just give up and eat chocolate cake and triple cheeseburgers and be happy. Everybody knows stress shortens your life anyway. That's an attitude that confused Americans present in the face of new research, which may, or may not, be in conflict with earlier research.

At the heart of the problem is a sound-bite-addicted society that tosses out new research results like chocolate coins at Mardi Gras — with little context or background, say experts watching American attitudes toward nutrition advice.

"The more negative and confused people feel about dietary recommendations, the more likely they are to eat a fat-laden diet that skimps on fruits and vegetables," says **Ruth Patterson, PhD, RD,**

KEY POINTS

- Many Americans are suffering from "nutrition backlash" — an overload of simplistic nutrition advice that is leaving them confused and more likely to consume a high-fat diet.
- A survey shows a wide gulf between patients' perceptions of the reasons for being overweight and the perceptions of health care professionals.
- Health care professionals are advised to increase their awareness of current research and their knowledge of general nutrition.
- Understanding some of the emotional underpinnings of obesity may help health care professionals approach patients, and at the same time, arm themselves with scientific data, not opinions or judgments.

lead author of a study from the Fred Hutchinson Cancer Research Center in Seattle.¹

The study's results show patients who are attempting to lose weight are confused, frustrated, and sometimes angry at what they perceive as conflicting messages, leading Patterson to coin a term: nutrition backlash.

While Patterson's study did not show a strong backlash, it was enough to arouse interest, she says.

Coupled with Discovery Health Channel's recent national poll of consumers and health care professionals on obesity, the study shows Americans are increasingly in the dark about how to handle their weight problems.

"It is essential that we, as health care professionals, stop at this juncture, take a deep breath, and start all over to re-educate our patients and ourselves about nutrition," says **Andrea Pennington**, MD, medical director of Discovery Health Channel in Bethesda, MD.

Pennington is among the first to admit that the popular press is prone to taking a brief look at a new study and "running with it without putting it into context."

What's more, patients often will come to the physician's office clutching a handful of print-outs of studies they have found on the Internet — studies they believe prove a particular diet aid or diet plan works — not even realizing that the web sites they are searching often are almost purely advertising.

"Margarine was one of the biggest causes of confusion," says Patterson. "I have friends who tell me they felt betrayed by the medical community and the food industry when they were told butter was bad, so they ate margarine unhappily for 10 years only to find out that margarine raises cholesterol, too."

Help them put it in context

"Help your patients put these things in context," says **Wahida Karmally**, MS, RD, director of nutrition at the Irving Center for Clinical Research at Columbia Presbyterian Medical Center in New

York City. One study is not a final prescription, she says. "I think we need to help people understand that nutrition is an evolutionary science," says Karmally, who is also a spokeswoman for the Chicago-based American Dietetic Association. "It is a continuously changing body of information, and each new study we get adds to what we know."

Using the margarine-butter example — 10 years ago, health professionals did not know about the cholesterol-raising effect of the trans fatty acids found in margarine, she says. However, people shouldn't jump back to the Dark Ages by slathering butter half an inch thick on bread because what was known a decade ago about the cholesterol-raising effects of butter and animal fats still holds true.

"The idea that margarine may be bad doesn't mean butter is better," Karmally explains. "We should convey to our patients that this is exciting, not that it is confusing, because we are learning so much more."

Calories do count

Patterson's epidemiological study, based on a random telephone survey of 1,751 residents of Washington state, showed 70% of those who answered think Americans are obsessed with the fat in their diet, and the same percentage thought the government should not tell people what to eat.

Furthermore, those who Patterson classified in the nutrition backlash category were more likely to consume more fat. Frustrated folks had a fat-related diet habit score of 2.11 vs. a score of 1.73 among those less frustrated with their dietary messages, reflecting approximately 4% more fat consumption in terms of total calories for those who say they "don't get it."

Individuals in the "high-backlash" category ate only 2.72 servings of fruits and vegetables per day, compared with 3.35 servings for those in the "low-backlash" category, she adds.

"Americans are looking for the magic bullet against fat," says Patterson. "I am convinced there

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is no single answer, but as long as we're looking in just one place, we'll always be disappointed."

No matter what the Atkins diet or any of the dozens of other pop diets promote, Patterson says that calorie counting is at the heart of weight loss.

"With 55% of Americans overweight, it is obvious we are eating too many calories and not moving enough," she says.

Pennington weighs in on the issue with some similar thoughts. Discovery's survey of 750 consumers as well as 78 doctors, 53 nurses, and 41 nutritionists and dietitians showed a vast gulf between the attitudes of health care professionals toward weight loss and the attitudes of their patients.

The Discovery Health Channel study, developed with assistance from the Atlanta-based Centers for Disease Control and Prevention's Division of Nutrition and Physical Activity, showed that 41% of all Americans believe excess weight is due to factors outside a person's control and 67% believe that those who are clinically obese have no control over their weight.

In direct conflict with public opinion, doctors, nurses, and dietary health professionals said in the survey that most adults can maintain a healthy weight if they are motivated and exercise self-control. Only 7% of doctors, 10% of nurses, and 15% of dietary health professionals think that weight is due to factors beyond a patient's control.

The conflict runs even more deeply than more health care professionals suspect, the study shows:

- Americans believe the kind of food a person eats is more important than the amount of food eaten. Health professionals agreed that the kind of food a person eats is important, but they also think the number of calories eaten plays a role in weight loss and weight maintenance.

- 37% of Americans cite reasons why people gain weight that are beyond a person's control:

- depression (11%);
- genetics (10%);
- metabolism (6%);
- personal life problems (6%);
- medical problems (4%).

- Doctors cite motivation (19%) as the most important barrier to treating overweight and obese patients.

- Other than "liking to eat," (18%), the No. 1 factor Americans cite for their difficulties in losing weight is self-control. Americans recognize how

hard it is to lose weight far more than the medical community.

- Few, if any, Americans cite weight-loss diets as effective in helping them manage their weight on a long-term basis, and many believe they do not work in helping them lose weight. Health care professionals offer an answer for this: Weight-loss diets are effective in helping patients lose weight but are not effective in helping them keep it off.

While science may be on the side of the health care professionals, in reality, patients remain unconvinced.

What can we do?

For starters, health care professionals need to change tactics, says Pennington. "When I am face to face with patients with weight issues, I show them scientific evidence of the health hazards of excess weight. I tell them this is science; it's not just my opinion."

"The 'should' word is a turnoff. People want the information so they can make choices themselves," Patterson adds.

Be calm, she advises. "They may not like hearing this, but there is no evil food, and there is no perfect food. There is no magic pill, and there is no single answer to their problem."

The basic message hasn't changed, says Patterson. "Look for different ways to say it: A diet high in fruits and vegetables, low in fat, and with a wide variety of foods will help you lose weight and keep you healthy."

She admits, "It's not a very sexy message to sell. The truth is that people need to put more priority on their food intake."

Walking down the street eating a hot dog, chowing down on a Big Mac while driving the car, or wolfing a pizza while watching the big game are sure signs that food is not a big priority in the lives of most Americans.

"Urge your patients to invest in themselves. Buy good, wholesome, high-quality food. Take the time to prepare it, and sit down and enjoy it," she says.

"The only way I get their attention is to compare their eating habits to their sex habits. I can be sure they are listening," Patterson laughs. "I ask them, would they have sex in the car? In front of the TV? Walking down the street? Food is probably even more important than sex, so I suggest they give it the attention it is due."

Most people can find the resources to buy

higher quality food, but they simply don't link food intake with long-term effects on health, say all three health care professionals.

Health care professionals need more education on nutrition-related issues so they can better convey these messages to their patients, suggests Pennington.

"We also need to better appreciate the psychological dimensions of obesity and the poor self-image and depression that often result from it, not to speak of the physical health concerns," she says.

Help your patients bite off what they can chew, she suggests. "Five servings of fruits and vegetables a day can be overwhelming. It's got to be something simple they can do. Get them to add one more fruit or vegetable a day, and you've gotten somewhere."

Adding to that thought, Karmally suggests: "Choose the fruits and vegetables and other foods you like, and build on that. Learn to eat like an adult should eat. We know kids usually don't like things like spinach and green vegetables. Ask them to work to acquire those tastes slowly."

An approach to childhood obesity

The clean plate club is a prime example of poor parental attitudes about eating that can persist into adulthood, says Pennington. It is simply a way of encouraging overeating. Conversely, parents who condone finicky eating habits or even encourage kids to choose what they will eat are setting their children up for a lifetime of weight-control problems too, says Pennington. Fully three-quarters of all parents cook separate meals to suit their children's food preferences.

"Ninety percent of doctors blame childhood obesity on poor parenting," she says.

Parents need to start promoting healthy eating habits from day one, she says. That means all children, from newborns through teen-agers, should have limitations put on their food choices. "I was appalled one day to be in McDonald's and see a baby being fed French fries," she says. "Fat and salt taste good; they activate the neurons that stimulate the pleasure centers of the brain. That's why we eat so much of that stuff. And it's why we shouldn't cultivate those tastes in the very young."

Limit portions, limit snacks, don't use snacks as a reward, and encourage family play (translation: exercise) so that exercise is a normal part of life.

"I hear parents all the time telling me they have no time to prepare healthful meals, that their lives are so hectic that they wind up choosing fast food more often than they would like. I tell them to look for small steps to make big changes.

"When they're cooking on the weekend, make extra and freeze it for easy and quick meals. If there's a will, there's always a way," says Pennington.

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Are potatoes more like vegetables or grains?

By some recent counts, Americans are doing slightly better on the numbers of servings of fruits and vegetables they consume daily. But on a closer look, it appears the increase may be a result of piling on the potatoes.

That leads to the question: Nutritionally speaking, are potatoes grouped with vegetables or with grains such as pasta and rice?

The American Institute for Cancer Research (AICR) in Washington, DC, offers this answer: Since they are good sources of vitamin C and potassium, potatoes are more like vegetables than grain products, which is why the U.S. Department of Agriculture's Food Guide Pyramid groups potatoes with vegetables.

Higher calorie counts

But the potato's carbohydrate and calorie levels are much higher than those of most vegetables, which is why people with diabetes who need to control blood sugar are taught to group potatoes with bread, pasta, and other high-carbohydrate foods.

The AICR Dietary Guidelines to Lower Cancer Risk recommends five or more servings of fruits and vegetables a day, but potatoes are not counted toward that total.

For the best supply of nutrients and phytochemicals that promote good health, meals

should include a wide variety of fruits and vegetables, especially those that are dark green, deep orange, and red, such as leafy greens, sweet potatoes, and berries.

People trying to cut calories often find it helps if they avoid eating both potatoes and bread or rolls at a meal. ■

Fruits, vegetables won't prevent breast cancer

Eat them anyway, say nutritionists

A diet high in fruits and vegetables appears to be unrelated to the risk of breast cancer, according to a Harvard study based on the data from more than 350,000 women in the Pooling Project of Prospective Studies of Diet and Cancer.¹

Although this finding contradicts some earlier findings, researchers and nutritionists are quick to point out that patients and health care professionals should not see this study as an indicator that fruit and vegetable consumption is not important.

Earlier studies have attributed high fruit and vegetable consumption to an approximately 25% reduction in the risk for breast cancer.

"It is still very important for health care professionals to recommend the inclusion of lots of fruits and vegetable as part of a generally healthy diet," says **Stephanie Smith-Warner**, PhD, research scientist at the Harvard School of Public Health in Boston.

Confusing findings

Smith-Warner acknowledges that the findings are somewhat confusing since "fruits and vegetables are rich sources of potential cancer-preventing chemicals.

"We were surprised how consistent the findings were for total fruit and vegetable intake across all eight of the studies we looked at," she says.

Smith-Warner's study comes on the heels of two others studies, also done at Harvard, concluding that a low-fat diet does not reduce the risk of breast cancer and that a diet rich in fruits and vegetable doesn't ward off colorectal cancer.^{2,3}

KEY POINTS

- Epidemiological study shows diet high in fruits and vegetables is unrelated to risk for breast cancer.
- Harvard study contradicts earlier studies suggesting chemoprotection from diet high in plant nutrients.
- Nutrition experts say health benefits of eating fruits and vegetables are still important, even if they don't relate to breast cancer.

According to her study, "These results suggest that fruit and vegetable consumption is not associated with breast cancer risk when analyzed as total fruits and vegetables, fruits, fruit juice, total fruits, total vegetables, green leafy vegetables, eight botanically defined fruit and vegetable sub-groups, or 17 specific fruits and vegetables."

Smith-Warner says she is concerned that results of her study will be misinterpreted. "Individual studies keep getting reported, but we must look at the total body of evidence, and that's often lost when individual results are reported."

Wahida Karmally, MS, RD, director of nutrition at the Irving Center for Clinical Research at Columbia Presbyterian Medical Center in New York City, says epidemiological studies such as Smith-Warner's are important, but often are misinterpreted because of the large numbers of patients tracked.

"It's like saying everybody wearing a blue jacket will get heart disease," she says. "When we get a result like this, it is a signal that this is an area we need to investigate more deeply."

Karmally suggests a deeper look at fruit and vegetable consumption at various stages of life.

"It is the responsibility of researchers and the media to see that these kinds of results are translated into lay terminology so that the public will get perspective on the findings," she concludes.

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A solution: Stevia, the NutraSweet alternative

South American herb may offer health benefits

How sweet it is! The leaves of the stevia plant, native to South America and widely used in Latin America and Asia, are so intensely sweet that merely taking the cap off the bottle of powdered extract will send enough powder into the air to give you an immediate sweet taste in your mouth.

What's not to like about a plant that is 200 to 300 times sweeter than refined sugar, has no calories, is heat stable so it can be used in cooking and baking, and does not cause cavities? In short, many consider it a great alternative to synthetic sweeteners.

"I think there should be little packets of stevia on every restaurant table in the country," says **Ray Sahelian**, MD, a Los Angeles physician and medical writer and author of *The Stevia Cookbook* (New York City: Avery; 1999). And, Sahelian asks, why isn't stevia added to all kinds of foods and soft drinks sweetened by artificial sweeteners?

Stevia is a household word in Japan, where, by 1988, the super-sweet extract represented 41% of the market share of potentially sweet substances consumed in the country after being subjected to rigorous Japanese testing standards. In addition to its widespread use as a table sweetener, stevia is used to sweeten ice cream, bread, candies, pickles, seafood, vegetables, and soft drinks.

Native tribes in South America have used the leaves of the *Stevia rebaudiana bertonii* plant for centuries, commonly as a treatment for diabetes.

But it is far from a household word in the United States. Here, stevia was briefly used as a sweetener in herbal teas, but by 1988, the U.S. Food and Drug Administration (FDA) issued a

"I found it odd that the FDA refused to add stevia to the list, considering animal studies have indicated saccharin to be potentially cancer causing, yet it was being widely sold. In fact, the Sweet 'N Low package clearly mentions this concern."

KEY POINTS

- Stevia, derived from the leaves of a daisy-like plant grown in South America and Asia, traditionally has been used as a noncaloric natural sweetener.
- While it is not generally recognized as safe by the U.S. Food and Drug Administration, stevia has been widely used as a sweetener and food additive in Japan for more than 20 years and by indigenous people of South America for centuries.
- Some studies suggest stevia may be helpful in controlling blood sugars and hypertension.

warning that it is not approved as a food additive, nor has it ever been added to the GRAS (generally recognized as safe) list. In fact, in 1991, the FDA listed stevia as an "unsafe food additive" based on Brazilian research, the results of which the author says were taken out of context.

Sahelian's co-author on *The Stevia Cookbook*, **Donna Gates**, MEd, nutritional consultant, decided to take a personal stand in 1992 when the FDA refused to consider petitions to put stevia on the GRAS list.

"I found it odd that the FDA refused to add stevia to the list, considering animal studies have indicated saccharin to be potentially cancer causing, yet it was being widely sold," says Gates. "In fact, the Sweet 'N Low package clearly mentions this concern. Why was saccharin readily available, yet stevia — a natural sweetener used for centuries in South America — was not?"

Sahelian, Gates, and numerous fellow stevia proponents theorize that the powerful companies that produce artificial sweeteners have applied unrelenting pressure on the FDA to keep stevia out of the additive market. However, NutraSweet, the company that has now become a subsidiary of Monsanto, has issued a statement denying any role in keeping stevia off the market.

Interestingly, the sweetener industry may be considering jumping onto the stevia bandwagon, according to **Mindy Green**, MS, AHG, director of education for the Herb Research Foundation in Boulder, CO.

"I have heard rumors that Monsanto is looking into growing stevia. If and when that happens, it will be interesting to see if the rulings change," says Green.

In 1994, the passage of the Dietary Supplement

Lemon Custard Pie

4 egg yolks
¼ cup cornstarch
2 cups buttermilk
¾ cup lemon juice
scant ¼ teaspoon stevia powder
9-inch pre-baked pie crust

Whisk the egg yolks and cornstarch together in a medium bowl until smooth. Add the buttermilk, lemon juice, and stevia and mix well. Transfer the mixture to a 2-quart pot and cook over medium-high heat, whisking constantly. Once the mixture thickens, reduce the heat to medium-low and continue to cook for another two minutes. The custard should be bubbling lightly at this point.

Pour the filling mixture into the crust and refrigerate for one to two hours before serving.

Source: *The Stevia Cookbook*. New York City: Avery; 1999.

Health and Education Act allowed stevia to be imported and sold as a dietary supplement despite FDA opposition; however, it still cannot be used as a food additive.

Although the FDA had the power to challenge its use as a dietary supplement (and still does) by claiming there is inadequate safety information on stevia, the government would have had to bear the burden in proving this claim. At this time, the FDA has not chosen to challenge stevia.

However, stevia still cannot legally be labeled as a sweetener, which some say is unfortunate given reports that it does not harm teeth, may actually help to prevent cavities, and may have antimicrobial activity.^{1,2}

Gates and Sahelian question the FDA's motives in the issues. "Was its ban on the import of stevia into this country and the subsequent rigid enforcement of existing rules justified by published scientific studies or are nonscientific reasons involved?"

For its part, the FDA continues to consider stevia an "unsafe food additive."

In response to a 1997 Freedom of Information Act request from a journalist, the FDA cited 19 studies it considers indicative of stevia's questionable safety. One recognized 1968 animal study that suggests stevia has possible contraceptive effects at extremely high dosages has never been duplicated, and its author, Joseph Kuc of Purdue University, has reportedly acknowledged that his results are not necessarily applicable to human consumption. A 1999 Brazilian study showed that male rats fed high dosages of stevia had decreased plasma testosterone levels.^{3,4}

Despite these early reports and other studies indicating nephrotoxicity and mutagenicity in animal and in vitro studies, no recent research has indicated any adverse effects from human use of stevia products.

In addition, a handful of studies indicate stevia may be helpful in lowering blood sugar and others suggest its possible effectiveness as an antihypertensive.^{5,6} However, long-term safety data from randomized controlled trials are needed before recommendations can be made regarding use of stevia, particularly in these two patient populations.

Even if the FDA does not have all the scientific data it would like in favor of stevia, **Allen Kratz**, PharmD, co-editor of the *Journal of the American Nutraceutical Association*, based in Naples, FL, suggests that stevia had "time behind it, and time is a good teacher."

Conversion Chart: Sugar to Stevia

Sugar	Stevia Powdered Extract	Stevia Liquid Concentrate
1 cup	1 tsp	1 tsp
1 T	¼ tsp	6 to 9 drops
1 tsp	pinch to 1/16 tsp	2 to 4 drops

T = tablespoon; tsp = teaspoon.

Source: *The Stevia Cookbook*. New York City: Avery; 1999.

Almost Flourless Chocolate Cake

¼ cup all purpose flour
1/8 tsp sea salt
6 T unsalted butter
4 ounces unsweetened chocolate
1/3 cup milk
1/3 cup apricot or raspberry 100% spreadable fruit
2 T Dacopa or other instant grain coffee substitute
1 tsp coffee flavoring (optional)
1 egg yolk lightly beaten
1 T vanilla flavoring
1 tsp white stevia powder or 1/8 tsp liquid concentrate
3 egg whites
1/8 tsp cream of tartar

Preheat oven to 350 F. Lightly grease the sides of a 9-inch round cake pan and line the bottom with parchment paper.

Combine the flour and sea salt in a small bowl and set aside.

Place the butter, chocolate, milk, fruit preserves, coffee substitute, and coffee flavoring in a small saucepan over medium-low heat. Stir constantly until the chocolate is almost melted. Remove pan from heat and continue to stir until the chocolate is completely melted and the mixture is smooth.

Whisk the egg yolk and vanilla into the chocolate. Add the stevia and continue whisking until smooth. Set aside.

Using an electric hand-held mixer, beat the egg whites and cream of tartar until stiff peaks form. First fold the chocolate mixture into the egg whites to form a smooth batter, then fold the flour into the batter.

Pour the batter into the prepared pan and bake for 18 to 20 minutes or until a toothpick inserted in the center comes out clean. Do not overbake.

Carefully loosen the cake from sides of the pan with a small, sharp knife. This will prevent the cake from cracking as it cools.

Allow the cake to cool completely in the pan, cover with wax paper and place in the refrigerator for one to two hours to chill.

Remove the cake from the pan and cut into wedges.

T = tablespoon; tsp = teaspoon.

Source: The Stevia Cookbook. New York City: Avery; 1999.

Kratz is unsure why stevia has been so slow to find acceptance in the United States. "If the FDA is still unsure about it, some more investigation should be taking place. It deserves a good evaluation," he says.

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New research underscores need of folate intake

New data strengthen case of chemoprotection

Folates have long been recognized as essential to fetal health, but a new body of research suggests the importance of folates may be chemoprotective as well.

Several recent studies offer the following food for thought:

□ High folate intake from food sources may reduce the risk of pancreatic cancer among smokers.¹

□ Increased folate intake may reduce the risk of breast cancer in alcohol drinkers.²

□ DNA damage from low folate intake may pose an increased risk of all types of cancers.³

The National Cancer Institute (NCI) in Bethesda, MD, reports 80% of American children and 68% of American adults do not eat five portions of fruits and vegetables a day, which means there is a shortfall of micronutrients — and especially folate — in the vast majority of the American population.

The National Health and Nutrition Examination Study (NHANES II) showed folate deficiency is present in 10% of the American population and in 25% of the country's poor; however, recent regulations requiring folate enrichment of packaged grain products may have changed those figures.

A study from the University of California at Berkeley showed that micronutrient deficiencies, including the low intake of folates, break DNA strands, mimicking the effects of radiation.

"Micronutrient deficiency may explain, in good part, why the quarter of the population that eats the fewest fruits and vegetables [five portions a day is advised] has about double the cancer rate for all types of cancer compared to the quarter with the highest intake," says **Bruce Ames**, PhD, professor of biochemistry and molecular biology

KEY POINTS

- Increasing evidence points toward diets deficient in folates as a cause of several forms of cancer.
- Male smokers with low folate intake were at double the risk of those who obtained adequate dietary folate.
- Low folate intake also is associated with much greater risk of breast cancer among women who consume even moderate amounts of alcohol.

at the University of California at Berkeley. Ames is the author of the study on DNA damage and micronutrient deficiency.

"The evidence is very clear. Adequate folate intake keeps chromosome breakage from occurring and cell mutations from taking place," he explains. "Tell your patients this: If you don't eat enough fruits and vegetables, you might as well be irradiating yourself. You'll get the same kind of chromosome damage."

Some background on folates

Folate and folic acid are forms of a water-soluble B vitamin. Folate occurs naturally in food and folic acid is the synthetic form of this nutrient that is found in supplements and fortified foods as required under U.S. law since 1998.

Folate is necessary for the production and maintenance of new cells, and it is therefore especially important during periods of rapid cell division and growth such as infancy and pregnancy. It is also needed to produce DNA and RNA, and helps prevent changes to DNA that may lead to cancer.

NHANES III (1988-91) and the Continuing Survey of Food Intakes by Individuals (1994-96) indicated that most adults did not consume adequate folate. However, the folic acid fortification program has increased folic acid content of commonly eaten foods such as cereals and grains, and as a result, the diets of most adults now provide recommended amounts of folate equivalents.

Folates and cancer

A NCI study of older male smokers shows that taking in more folates in food rather than as supplements appears to reduce the risk of pancreatic cancer. Past studies indicate that cigarette smoke

Folates: Recommended Intake

Ages 19 and older: (men and women)	400 mcg
Pregnant women:	600 mcg
Lactating women:	500 mcg

Source: National Institutes of Health, Bethesda, MD.

Food High in Folates

% DV *	Food Item	mcg
100	Ready-to-eat cereal, fortified with 100% of the DV, 3/4 cup	400
45	Beef liver, cooked, braised, 3 ounces	185
25	Cowpeas (blackeyes), immature, cooked, boiled, 1/2 cup	105
25	Breakfast cereals, fortified with 25% of the DV, 3/4 cup	100
25	Spinach, frozen, cooked, boiled, 1/2 cup	100
25	Great Northern beans, boiled, 1/2 cup	90
20	Asparagus, boiled, 4 spears	85
20	Wheat germ, toasted, 1/4 cup	80
20	Orange juice, chilled, includes concentrate, 3/4 cup	70
20	Turnip greens, frozen, cooked, boiled, 1/2 cup	65
15	Vegetarian baked beans, canned, 1 cup	60
15	Spinach, raw, 1 cup	60
15	Green peas, boiled, 1/2 cup	50
15	Broccoli, chopped, frozen, cooked, 1/2 cup	50
15	Egg noodles, cooked, enriched, 1/2 cup	50
15	Rice, white, long-grain, parboiled, cooked, enriched, 1/2 cup	45

* *DV = Daily Value.* DVs are reference numbers based on the Daily Reference Intake. They were developed to help consumers determine if a food contains a lot or a little of a specific nutrient. The DV for folic acid is 400 mcg. The percent DV (% DV) listed on the nutrition facts panel of food labels tells adults what percentage of the DV is provided by one serving. Percent DVs are based on a 2,000-calorie diet. DVs may be higher or lower depending on calorie needs. Foods that provide lower percentages of the DV also contribute to a healthful diet.

Source: National Institutes of Health, Bethesda, MD.

may reduce folate and vitamin B₆ status and interfere with B₁₂ metabolism.

“Baseline energy-adjusted dietary folate was significantly inversely associated with pancreatic cancer with those in the highest quintile having approximately half the risk compared to those in the lowest quintile,” wrote lead author **Rachael Stolzenberg-Solomon**, a cancer prevention fellow at NCI. “So we decided to take a look at pancreatic cancer because, outside of lung cancer, it is one type of cancer that has been associated with smoking.

Stolzenberg-Solomon hypothesizes that the mechanism at hand is increased gene mutation or less efficient DNA production due to low folate intake. Folate deficiency also has been observed in alcoholics.

A 1997 review of the nutritional status of chronic alcoholics found low folate status in more than 50% of those surveyed. Alcohol interferes with the absorption of folate and increases excretion of folate by the kidney.

In addition, many alcohol abusers have poor-quality diets that do not provide the recommended intake of folate. Increasing folate intake

through diet, or folic acid intake through fortified foods or supplements, may be beneficial to the health of alcoholics.

Folates and breast cancer

Low intakes of folate also may increase breast cancer risk, especially among women who drink alcohol, according to a Mayo Clinic study to be published next month in the journal *Epidemiology*. Biochemical data suggest that low vitamin B intake may increase the risk of breast cancer through decreased DNA repair capacity, in much the same manner low folate intake was associated with higher risk of pancreatic cancer in the NCI study.

Harvard researchers reported three years ago, based on data from the Nurses Health Study, that women who were relatively heavy drinkers, consuming two to five alcoholic drinks each day, were 41% more likely to develop breast cancer than nondrinkers. But for moderate drinkers who consumed three-fourths to one drink, or 10 g of alcohol, a day, the risk was only 9% higher than among nondrinkers.⁴

In an effort to add to this growing body of data, the Mayo researchers reviewed findings from the Iowa Women's Health Study, a prospective cohort study of cancer occurrence among 41,836 postmenopausal women.

In 1986, participants completed questionnaires that assessed breast cancer risk (such as body measurements and history of pregnancy) and food and nutrient intake (including vitamin supplements). After 12 years of follow-up, the researchers found that 1,586 women had developed breast cancer.

Low intake of B vitamins did not influence the risk of breast cancer. However, low folate intake — below 173 mcg a day — among women who regularly consumed alcohol (more than 4 g, or less than half of one drink a day) significantly increased the risk of breast cancer.

A 59% increased risk was noted among women

with low folate intakes and alcohol intakes above 4 g per day, compared to nondrinkers and participants who consumed higher amounts of folate.

The researchers suggest that "folate supplementation may attenuate the risks of breast cancer associated with alcohol-containing beverages." They also note that "the fact that our food supply is now being supplemented with folate as a means to reduce birth defects may have unintended additional benefits on breast cancer."

The bottom line: "Everyone should take a multi-vitamin," says Ames. "They're cheap and available

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AMERICAN HEALTH
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Medications that Can Interfere with Folate Utilization

- ✓ Anticonvulsant medications (such as dilantin, phenytoin, and primidone)
- ✓ Metformin
- ✓ Sulfasalazine
- ✓ Triamterene
- ✓ Methotrexate

Source: National Institutes of Health, Bethesda, MD.

everywhere. It doesn't matter what you get. I just bought a year's supply of multivitamins at Costco for \$8. Think of it as a cheap insurance policy against cancer."

Beware of the interaction between vitamin B₁₂ and folic acid, says the NCI. Folic acid supplements can correct the anemia associated with vitamin B₁₂ deficiency. Unfortunately, folic acid will not correct changes in the nervous system that result from vitamin B₁₂ deficiency. Permanent nerve damage can occur if vitamin B₁₂ deficiency is not treated. Intake of supplemental folic acid should not exceed 1,000 mcg per day to prevent folic acid from masking symptoms of vitamin B₁₂ deficiency.

Clinicians should be aware of the relationship between folic acid and vitamin B₁₂, especially in older adults, because they are at greater risk of having a vitamin B₁₂ deficiency. If a patient is 50 or older, determine B₁₂ status before prescribing a supplement that contains folic acid.

Clinicians also should check for prescription medications commonly used by people with diabetes and heart disease that might effect folate utilization as noted in the table. (See box, above.)

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1. Identify management, clinical, educational, and financial advantages of complementary therapies for chronic care.
2. Describe how those therapies affect chronic patients and the providers who care for them.
3. Describe practical ways to incorporate complementary therapies into chronic disease management based on independent recommendations from clinicians at individual institutions. ■