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No more hanging out on the fringe: Vegetarians enter the mainstream

Plant-based diet's health benefits pile up

At one time, vegetarians were on the fringes of society. Vegetarianism was considered the bailiwick of hippies, members of People for the Ethical Treatment of Animals, and fanatical little old ladies in tennis shoes. "Normal" people ate meat — lots of it, because it's good for you.

But in the past few years, vegetarianism has been taken out of the hands of those once considered the lunatic fringe. Perhaps it has even vindicated some of the abuse longtime vegetarians suffered at the hands of society, and even family and friends. More people are embracing a vegetarian lifestyle — as many as 4% of the population, according to a *Vegetarian Times* survey — although there are admittedly numerous slants on what it means to be a vegetarian.

An increasingly large body of scientific evidence shows that a diet heavily reliant on plant materials offers such gigantic health benefits that even the most avid beefeaters must grudgingly acknowledge it. And increasing evidence shows that diets high in animal protein and fat are major contributors to obesity, heart disease, diabetes, and perhaps even certain types of cancer.

In fact, the Dallas-based American Heart Association dietary recommendations to limit meat intake to 6 ounces daily makes the local steakhouse's 16-ounce cow-wrangler special seem almost obscene. At the least, most dietary experts agree, regular consumption of high

KEY POINTS

- A low-fat, plant-based diet can reduce the risk of heart disease, diabetes, and some forms of cancer.
- Approximately 4% of Americans are self-described vegetarians, although the term can be interpreted in many ways.
- Health care professionals can help people who want to be vegetarians or who wish to reduce their meat consumption to create balanced meal plans.

The Vegetarian Food Pyramid

- △ **Grains:** 6-11 servings. Serving sizes: whole grain bread, 1 slice; cooked rice, cereal or pasta, ½ cup; dry cereal, 1 cup.
- △ **Vegetables and fruits:** 5-9 servings. Serving sizes: raw vegetable salad, 1 cup; cooked vegetables or fruits, ½ cup; dark green and deep yellow vegetables, ½ cup; dried fruit, ¼ cup.
- △ **Dairy or alternatives:** 2-4 servings. Serving sizes: milk, yogurt, buttermilk, or cottage cheese, 1 cup. Dairy foods should be fortified with 25% or more of the recommended daily intakes of calcium, vitamin B₁₂, vitamin D, and vitamin A.
- △ **Legumes, nuts, and seeds:** 2-4 servings. Serving size: dried beans or peas, ½ cup; 1 whole egg or 2 egg whites; tofu, ½ cup; meat analogs, ½ cup; nuts or seeds, ¼ cup; nut butter, 2 T.
- △ **Fats, oils, and sugars:** 2 T daily of vegetable oils rich in linoleic acid, such as canola, olive, soy, sunflower, or corn.

Note: This pyramid is based on caloric need. Sedentary patients should choose the lower numbers of servings, very active patients choose the higher numbers.

Source: Seventh Day Adventist Dietetic Association, Angwin, CA.

amounts of animal protein is a recipe for a heart attack.

And — the '60s hippie vegetarians are shocked to hear — the American Heart Association stops just short of endorsing the vegetarian diet as health promoting. The association's web site (www.americanheart.org) quotes the Chicago-based American Dietetic Association's endorsement without comment: "It is the position of the American Dietetic Association that vegetarian diets are healthful and nutritionally adequate when appropriately planned."

According to the American Dietetic Association, "Vegetarian diets that are low in animal products are typically lower than nonvegetarian diets in total fat, saturated fat, and cholesterol. . . . These factors are associated with increased risk of obesity; coronary heart disease, which causes heart attack; high

blood pressure; diabetes mellitus; and some forms of cancer."

Vegetarianism has definitely come into the mainstream; you can get veggie burgers at your local burger joint, and steakhouses usually have a vegetarian option on the menu. "Everyone needs to know that vegetarianism is safe and healthy. There's now plenty of data that show it is preventive of chronic disease," says **Rose Stoia**, RD, president of the Seventh Day Adventist Dietetic Association in Angwin, CA, and grandmother of a fourth-generation lacto-ovo vegetarian.

Stoia recalls her pregnancy with her son a generation ago and the challenge from her obstetricians that she couldn't possibly be healthy or carry a healthy baby while she was practicing the vegetarianism prescribed by the Seventh Day Adventist Church. "I told him to take my blood, and I'd match it against his. I outshone him big time," says Stoia, who is nutrition director of the Miami Valley Hospital Dialysis Center in Dayton, OH.

Seventh Day Adventist vegetarian lifestyle and health have been the subject of more than 250 articles published in scientific journals since 1954. Data collected in the 1970s and 1980s by the National Cancer Institute and the National Institutes of Health show that Seventh Day Adventists in general have 50% less risk of heart disease, certain types of cancer, strokes, and diabetes than the general population.

Unfortunately, say Stoia and her colleagues, many health care professionals labor under misconceptions about vegetarianism and erroneously discourage their patients from pursuing increasing quantities of plant protein in their diets.

"You should answer, 'Terrific!' when a patient tells you he wants to become a vegetarian," says **Neal Barnard**, MD, president of Physicians for Responsible Medicine in Washington, DC. "Why? Because that patient is going to be the easiest patient for you to deal with. He'll need fewer medications, and he'll do better in the short and long term."

Barnard says health care professionals on all levels need to arm themselves with information about the health benefits of the plant-based diet

COMING IN FUTURE MONTHS

■ Get the kids off the couch: Exercise for America's increasingly plump children

■ Confront CFIDS and Fibro: Integrative approaches to complex disease process

■ Crisis of spirit: May increase risk of death among the elderly

■ Eat the rainbow: A cornucopia of colorful foods contain high nutritional value

and pass them on to patients, especially to those at risk for or already developing diabetes, heart disease, and other chronic disease.

"Meats and dairy products contain so many ingredients that accelerate free radical and chemical attacks, artery deterioration, hormone shifts, bone loss, and weight problems that there is no reason to include them," says Barnard.

Stoia and her colleague, **Linda Kilby**, RD, director of the federal Women, Infants, and Children's (WIC) program in Philadelphia, prefer a stealth attack. They advise patients to dramatically increase fruit and vegetable consumption (to seven to 10 servings a day), which leaves little room for meat.

"When I give workshops and seminars or in individual consultation, I don't talk about meat until they bring it up. Invariably, someone will say, 'Hey, you're telling us to eat all this stuff, and you're not saying anything about meat,' and I answer, 'right,'" says Kilby.

As WIC director, Kilby is highly concerned about nutrition and child health. She has worked as an advocate to urge the federal program to include vegetarian items on its list of foods that can be purchased with vouchers.

"We are actively courting the U.S. Department of Agriculture (USDA) to provide soy and tofu, as well as cheese and milk and peanuts, instead of peanut butter," she says.

Kilby, Stoia, and Barnard point out the essence of current research on vegetarianism: Vegetarians have reduced risks of certain diseases because of their increased consumption of whole grains, dried beans, nuts, fresh and dried fruits, and vegetables. Vegetarians are exposed to fewer carcinogens and mutagens because they do not eat meat.

Fruits, vegetables, grains, legumes, and nuts often are less expensive than meat. Plant foods use fewer natural resources from the environment.

A significant correlation exists between the frequent and long-term consumption of high-fat, high-cholesterol, animal-based foods and the incidence of fatal heart disease, certain types of cancer, strokes, and diabetes.

A vegetarian diet provides greater amounts of phytochemicals and fiber-rich foods, which help reduce the risk of heart disease, several types of cancer, diabetes, and hypertension.

Barnard has published several papers showing, among other things, that cardiac patients can accept, adhere to, and enjoy a low-fat vegetarian diet; a correlation between breast cancer and dairy product consumption; and the acceptability

Sample Vegetarian Menus

MENU #1

Breakfast:

- ♥ 1 cup oatmeal with cinnamon and raisins and ½ cup fortified soymilk
- ♥ 1 slice toast with 1 T almond butter
- ♥ ½ grapefruit

Lunch:

- ♥ whole wheat pita stuffed with hummus, sliced tomato, lettuce
- ♥ carrot sticks

Dinner:

- ♥ 1 cup baked beans with blackstrap molasses
- ♥ baked sweet potato
- ♥ 1 cup steamed collard greens drizzled with lemon juice
- ♥ baked apple

Snack:

- ♥ banana soymilk shake

MENU #2

Breakfast:

- ♥ 3 oatmeal pancakes with applesauce topping
- ♥ calcium-fortified orange juice
- ♥ fresh fruit

Lunch:

- ♥ Bean burrito: black beans in corn tortilla, topped with chopped lettuce, tomatoes, salsa
- ♥ Spinach salad with tahini-lemon dressing

Dinner:

- ♥ Chinese stir-fry over brown rice: tofu chunks, broccoli, pea pods, water chestnuts, bok choy
- ♥ cantaloupe chunks drizzled with fresh lime juice

Snack:

- ♥ dried figs

Source: Physicians Committee for Responsible Medicine, Washington, DC.

and desirability of low-fat vegetarian diets for treating dysmenorrhea and premenstrual and premenopausal symptoms.

He also estimates that the direct medical costs of meat consumption in the United States were as high as \$61.4 billion in 1992.¹

Dietary recommendations

In 1989, the National Academy of Sciences recommended that Americans eat five or more servings of fruits and vegetables every day and six or more servings of a combination of whole grains, cereals, and legumes.

In 1991, the World Health Organization recommended the consumption of at least 14 ounces of

Plant-Based Diets: Fact and Fiction

In our meat-and-potatoes or burger-and-fries American diet, some still are concerned about the health of those who eat mostly plant-based foods. The following will help separate the fiction from the facts.

Myth 1: All plant-based diets are about the same.

FACT: Vegetarians who eat dairy products or eggs are called "lacto-ovo vegetarians." Those who eat no animal products are called "vegans," or strict or total vegetarians. There are many variations of these two main types of plant-based diets. When someone declares himself/herself a "vegetarian," it is best to ask the person exactly which foods are eaten and which are avoided. Most likely, the person is a "lacto-ovo vegetarian."

Myth 2: There are very few vegetarians.

FACT: Recently, it has been estimated that about 4% of the United States is vegetarian. Restaurants report that about 27% of the customers want a vegetarian option when they order.

Myth 3: A diet without meat is nutritionally deficient.

FACT: A lacto-ovo-vegetarian diet (one that includes dairy products) can easily provide all the essential nutrients to a person choosing from an abundant food supply. However, as a diet becomes more restrictive, it may be more difficult to get all the necessary nutrients. Following the guidelines outlined in the Vegetarian Food Pyramid provides most nutrients in adequate supply. (**See box, p. 110.**) The adequacy of any diet depends on the variety and the amount of foods that are included. A registered dietitian can provide accurate diet instruction. The nutrients of greatest concern in the vegan or macrobiotic-type diets are vitamin B₁₂, vitamin D, calcium, iron, zinc, and possibly calories. Nutrient needs are greatest during periods of growth. So, a more restricted vegetarian diet does not meet the needs of children, infants, pregnant women, and those in poor health.

Myth 4: One can't possibly get enough protein without meat and/or milk and eggs.

FACT: It is difficult not to get enough protein if one eats a sufficient amount and variety of food to maintain a healthful body weight. All foods, except sugar and oil, contain some protein. Plant-based diets get protein from legumes (dried peas and beans), seeds, nuts, whole grains, and for the lacto-ovo vegetarian, also from dairy products and eggs.

Myth 5: Certain combinations of foods have to be eaten at the same meal to get the right amino acids (the building blocks of protein).

FACT: Following the amounts and number of servings recommended in the Vegetarian Food Pyramid, provides adequate amounts of the right amino acids. The amino acids in different foods can complement one another even when eaten at different meals. So, beans at lunch and brown rice for dinner are just fine.

Myth 6: All vegetarian diets are low in fat.

FACT: Vegetarian diets may or may not be low in fat. It all depends upon food choices. Some high-fat foods commonly used by vegetarians are avocados, olives and olive oil, nuts, soy-based beverages, and seeds. These fats are moderate to low in saturated fats. Lacto-ovo vegetarians also can choose cheese, egg yolks, and cream, which are foods high in saturated fat.

Myth 7: Vegetarian diets are dull and boring.

FACT: Any diet can become boring when one eats the same foods every day. With the abundance of foods available to choose from and the variety of ways to prepare them, a diet without meat need not be dull or boring.

Myth 8: Vegetarian diets can cure cancer and heart disease.

FACT: Because most lacto-ovo-vegetarian diets are nutritionally sound, higher in fiber, lower in cholesterol, and contain more fruits and vegetables, this diet pattern can reduce a person's risk of many cancers and certain types of heart disease. However, even vegetarians must follow all the precautions physicians prescribe for decreasing the risk of these diseases.

Source: Seventh Day Adventist Dietetic Association, Angwin, CA.

fruits and vegetables daily, and in 1992, the USDA implemented its food guide pyramid in which the bulk of the diet was plant-based. The pyramid suggests a daily intake of 11-20 servings of breads, cereals, pasta, rice, fruits, and vegetables and only four to eight servings from the meat and dairy groups.

A year later, the General Conference Nutrition Council adapted USDA's pyramid for a vegetarian dietary approach. In 1995, the USDA and the U.S. Department of Health and Human Services (HHS) stated for the first time ever that "vegetarian diets are consistent with the dietary guidelines for Americans and can meet the recommended

daily intakes for nutrients" while noting that lacto-ovo vegetarians should give special attention to the intake of protein, iron, and zinc."

Further, the 1995 USDA-HHS recommendations specify that vegans (those who choose diets of plant origin only) should supplement their diets with vitamin B₁₂ and be sure they have adequate intakes of vitamin D and calcium.

True vegetarians, and particularly vegans, historically have had difficulties getting enough vitamin B₁₂ and calcium, but Kilby says that is no longer an issue with the wide availability of fortified products, including soy milk and orange juice. And Barnard recommends a daily multivitamin.

In addition, Stoia notes, a wide variety of taste-tempting meat analogs now is available.

While some nutrition experts recommend advising patients to taper off their meat consumption by adding meatless days each week, Barnard advocates a "Zero-a-Day" program to help patients eliminate meat and dairy consumption entirely. Barnard tells patients to go cold turkey (pun intended) eliminating all meat and dairy products for three weeks, based on his theory that meat and dairy consumption creates cravings for more high-fat foods. "I ask for a short-term commitment, not for the rest of their lives. You can do anything for three weeks. In that time, it will re-educate the taste buds; they'll feel the difference; and you'll begin to see the difference in their cholesterol and blood pressure," he says.

"It is a challenge," Barnard admits. "There are things they'll miss — most noticeably cheese — and the food preparation is slightly more complex, but it helps to get the entire family involved." He offers a few tips to make the transition easier:

- Look for vegetarian convenience items at the supermarket, such as instant and canned soup — minestrone, black bean, and vegetarian vegetable — and flavored rice mixes, such as Rice-A-Roni that can be stretched into a meal with beans added. Plus there are increasing numbers of veggie meat analogs in cans and in the freezer section. Look for Morningstar Farms and Boca brands.

- Texturized vegetable protein (TVP) is fat-free, has a texture like ground beef, and tastes good used anywhere you might ordinarily use ground beef. Look for it in health food stores.

- When eating in restaurants, the best bets are ethnic foods. Italian, Chinese, Mexican, and Indian restaurants all offer a wide variety of vegetarian dishes. More steakhouses are even offering vegetarian entrees that far surpass the old fallback to a baked potato and a salad.

What's the beef?

Animal protein may leech calcium from bones

Acid released in the metabolism of meat and animal products may indirectly contribute to osteoporosis, say researchers at the University of California at San Francisco (UCSC).

Deborah Sellmeyer, MD, UCSC lead researcher and a endocrinologist, who followed 1,035 community-dwelling white women older than age 65 for an average of seven years, says she was surprised to find that women who ingested the largest amount of animal protein, and released the most acid in the process, suffered 3.7 times more hip fractures than women in the least acidic group.¹

Sellmeyer thinks the connection between bone loss and meat consumption is related to the kidneys' ability to excrete the acid buildup, which decreases with age. In its efforts to neutralize the acid, the body begins to loot the bones for acid-neutralizing calcium phosphate and calcium carbonate.

Although calcium-rich foods can help the body make up for some of the loss, some nutritionists think additional fruits and vegetables produce acid-neutralizing bases as well.

For example, 5 ounces of broccoli and 5 ounces of tomatoes could balance the acid load from a 5-ounce serving of lean beef. "We definitely need protein, there's no doubt about it, but we just need to look more closely at the sources of that protein and obtain them more often from vegetable sources," says Sellmeyer. "All of us need to eat even more vegetables than we think."

Reference

1. Sellmeyer DE, et al. A high ratio of dietary animal protein increases the rate of bone loss and the risk of fracture in postmenopausal women. Study of the Osteoporotic Fractures Research Group. *Am J Clin Nutr* 2001; 73: 118-122. ■

- Even restaurants that don't offer vegetarian entrees usually can whip up a meatless pasta or vegetable plate, if you ask. Airlines offer vegetarian meals if you order in advance.

[For more information, contact:

- **Physicians Committee for Responsible Medicine**, Washington, DC. Telephone: (202) 686-2210. Web site: www.pcrm.org.
- **Seventh Day Adventist Dietetic Association**, One Angwin Road, Angwin, CA 94508. The association has a CD-ROM with detailed information on the

vegetarian diet available through its web site at www.scada.org.]

Reference

1. Barnard ND, Nicholson A, Howard JL. The medical costs attributable to meat consumption. *Prev Med* 1995; 24:646-655. ■

Make it easy, and they'll stick to it

Exercise adherence increases with convenience

Get into the car. Battle traffic for an hour. Find a parking place. Schlep your stuff into the gym. Work out for an hour. Shower and dress. Schlep your stuff back to the car. Drive another hour to get home at the end of a long workday.

Does it make you feel tired just thinking about it? Doesn't sound like much fun? Your patients probably would agree.

That's why adherence to exercise programs often is low, contend researchers at the State University of New York (SUNY) at Buffalo.

Exercise is a tough habit to develop, and when life gets in the way, it's easy to drop it off the agenda, even when extenuating circumstances, like a heart attack, make it an urgent priority, says SUNY Buffalo lead researcher **Joan Dorn**, PhD, associate professor of social and preventive medicine.¹ "People who have had a heart attack are pretty good about exercise at the beginning of their programs, but it's hard to stick with

KEY POINTS

- Patients participating in an exercise plan that is convenient are more likely to stick with it in the long run. Conversely, the more difficult it is to get to a gym or exercise facility, the more likely patients are to drop out.
- Staff encouragement and continuous follow-up may be time-consuming, but pays off in benefits to the patient.
- Tailor exercise programs to the individual; learn the patient's habits, likes, and dislikes; and design a program he or she can enjoy.
- Be flexible. Some patients do better in a less-structured setting than in a traditional gym.

behavioral interventions. People are looking for a drug and an easy way," she says.

Making exercise easy and fun is the key to developing that long-term health habit, says Dorn, whose study showed that 80% of the men assigned to the exercise program adhered to the program at the beginning of the study, but only 13% were still in the thrice weekly exercise program three years after their heart attacks.

In addition, there was little improvement in the dropout rates with reports of self-directed exercise programs away from the approved sites, which included clinics, gyms, and swimming pools.

Smokers had the greatest difficulty sticking to the program, Dorn says. Eighteen percent of former smokers were still exercising at the end of three years, but only 10% of current smokers were. Overweight people also were less likely to stick with the regimen, she says, possibly because exercise may be more difficult for them. "People with the highest risk factors were coming less."

This is a chicken-and-egg situation, says Dorn, who says the data don't show if people with the highest risk factors had a distaste for exercise or found exercise more difficult, so were less likely to adhere to a program.

Dorn, who formerly directed a cardiac rehabilitation program, contends that the more convenient it is for a patient to exercise, the more likely that person will continue a program. University of Toronto researchers designed a program that got 80% compliance by letting people exercise where they want. "That may mean home exercise or some other option for patients who are self-starters," she says.

Carl Foster, PhD, University of Wisconsin at LaCrosse physiology professor, says that solo exercise can be a stress-relieving option to the stress-inducing trek through traffic to the gym.

"For some people, the peace and quiet of a brisk walk in the woods or even a run or bike ride can be perfect," he says. "For others, an hour on the treadmill while watching the news or even a home gym may be the perfect answer."

Foster advocates individualizing exercise programs. "Find a structure that will work for the patient. It doesn't matter what it is, if the patient feels comfortable with it," he says.

Talking with the patient can give you a good handle on personality type and interests, says Foster. "There are some people who thrive on the social interaction that takes place in a more organized exercise setting, and there are those who are just fine on their own."

Dorn also advocates lots of contact between staff and patients to encourage adherence to the program. "We usually can identify those who will have trouble sticking with the program, so we make frequent phone calls and give them lots of encouragement and help them develop a sense of camaraderie among fellow participants," says Dorn. "It's time-consuming for staff members, but it does pay off."

What's the bottom line? "The most common reason people give for dropping out of an exercise program is time," says Dorn.

Foster likes to give patients a calendar and work with them to develop an exercise schedule. Those who are self-monitoring can be encouraged to mark off the dates on a calendar or keep a diary. You can even help them set up a reward system when they've reached a goal, such as 30 days without missing a scheduled exercise session.

Dorn agrees this can be helpful; if patients are more likely to stick to a home exercise program, encourage it — and then set up a weekly staff call to encourage them to continue. "We don't diminish our contact at all with a home exercise program; it's just done on a different basis."

A home gym is a great idea, if the patient will use it, says Foster. He recommends setting up the gym in a well-ventilated room of its own, if possible and equipping the room with a radio, TV, fan, and maybe an air freshener to assuage the objections of housemates who may object to living in a place that smells like a gym.

Dorn suggests that people likely will quit exercise programs if they are challenged beyond their comfort zones. "Yes, they need to be challenged, but overchallenge is almost a guarantee of a dropout. Sometimes we need to help them start more slowly," she says.

Foster also recommends determining if a person is most alert in the morning or evening and tailoring a program to biorhythms. "Morning people are more compliant with exercise programs because they really will pop out of bed and get their exercise in first thing in the morning," says Foster. "Obviously, this is optimal, but some people simply are not made that way, and they will resist and finally abandon a program that forces them into an early morning routine. So try helping them find a time they can feel more comfortable with."

For night owls, Foster recommends scheduling the exercise on a calendar and working with the patient to help him or her see the exercise time as an unbreakable appointment. "So many times

Tips for Screening Gyms

Many gyms are designed for the Spandex set — and aging baby boomers and other patients in need of therapeutic exercise may not be well served at these facilities. Here's what to ask gym staff when you're considering sending patients there:

- Y Do they screen people with health problems?
- Y Do they have an adequate emergency plan?
- Y Ask about the education of staff members who will have direct contact with patients. Do they have degrees in physical education, degrees in exercise science, or professional certifications?
- Y Are their trainers certified by the American College of Sports Medicine, the National Strength and Conditioning Association, or the American Council on Exercise?
- Y If the answer to any of these questions is "No," walk out.

Source: Carl Foster, PhD, Professor of Physiology, University of Wisconsin at LaCrosse.

other things get in the way, and the exercise time gets pushed back and pushed back until it disappears," he says.

Another personality profiling that may be helpful, says Foster, is to determine if a patient is a game player or a nature lover or a bookworm. There's something for everyone, he contends.

A game player may not be interested in walking a treadmill and riding an exercise bike at the gym, but would get really excited about joining a soccer league or even participating in pick-up softball three times a week at the local park. A nature lover will almost always opt to walk, run, bicycle, or maybe even skate rather than be stuck in a scheduled activity dependent on other people. And bookworms may be very happy riding the exercise bike or hand bike with their noses in a book.

"The bottom line is whatever works, works," says Foster. "Make it fun, and they'll do it. Make it a drag, and they won't."

References

1. Dorn J, et al. Correlates of compliance in a randomized exercise trial in myocardial infarction patients. *Med Sci Sports Exerc* 2001; 33:1,081-1,089. ■

Simple, effective migraine remedies

Try these effective natural pain relievers

Twenty-five million Americans are crippled by nausea, intolerance to light and sound, sweating, double vision, numbness and tingling in the face and hands, confused thinking, slurred speech, weakness of the limbs, diarrhea, chills, and excruciating pain that lasts for hours, days, and sometimes even weeks.

Recognize the symptoms? Migraine sufferers have been plagued with this kind of pain, many of them throughout their lifetimes. The personal cost is too high to calculate, but they're willing to spend \$20 billion a year in their desperate search for relief. Most of the pain is borne by women, who comprise 70% of migraine sufferers, at least in part due to hormonal cycling.

Despite the appearance on the market of numerous migraine medications that can be effective, many patients prefer to use a natural approach. Unfortunately, the new pharmaceuticals have overshadowed some old standbys that can be very effective, says neurologist **Alexander Mauskop**, MD, director of the New York (City) Headache Center.

At less than \$1 a dose, natural migraine remedies such as old-fashioned magnesium, riboflavin, and feverfew are far less expensive than Imitrex (currently about \$13 a pill) or other migraine pharmaceuticals. "[In addition], natural methods may actually prevent the onset of a migraine attack if taken on a regular basis," he says.

Mauskop is the first to point the finger at health care professionals for not knowing enough about migraines. Defining headaches is a complicated diagnosis, he concedes, but offers 17 symptoms of a migraine, any two or three indicative the headache may indeed be a migraine. He also adds the possibility that a headache may still be migraine even if none of these symptoms occur:

- ✓ pain gripping one side of the head;
- ✓ moderate to severe pain;
- ✓ throbbing or penetrating pain;
- ✓ pain lasting anywhere from a couple of hours to days;
- ✓ flashing lights or other visual disturbances before the headache appears;
- ✓ light and sound sensitivity;
- ✓ nausea and/or vomiting;

KEY POINTS

- Older remedies may be highly effective against migraines.
- Magnesium, riboflavin, and feverfew have been shown in clinical trials to be at least somewhat effective for the prevention of migraine attacks.
- Magnesium, given intravenously, may be helpful during an acute migraine attack.

- ✓ dizziness;
- ✓ sweating;
- ✓ chills;
- ✓ double vision;
- ✓ fuzzy thinking;
- ✓ slurred speech;
- ✓ weakness in arms and legs;
- ✓ diarrhea;
- ✓ tingling or numbness in face or arms;
- ✓ onset at "down" times — weekend or on vacation — when not feeling stressed.

Sometimes headaches that begin as tension, sinus, or cluster headaches may "cross the line," and become migraines, says Mauskop. And there is a relatively new classification of migraines called menstrual migraine, which appear to be hormonally induced, often just prior to menstruation.

"Migraine is not a problem of hysterical women as some old-timers would have it. It's a real disease, and it's very treatable," he adds.

Yet it's a complex disease that carries individual characteristics in each sufferer, so blanket therapies are rarely effective. And although Imitrex, Zomig, and Maxalt are "very specific and very efficient, they just don't work for everybody," he says.

Mauskop and many colleagues, remembering the wide, prophylactic use of magnesium and riboflavin and the traditional use of feverfew, advocate a return to the old therapy with a new twist.¹⁻³

"There's good solid scientific evidence that each of these three substances is effective for some people with migraines," he says.

In addition, Mauskop has published several papers on the use of intravenous magnesium to successfully treat acute migraine attacks.⁴

Estimates from Third National Health and Nutrition Examination Survey (NHANES III) (1988-91) indicate that magnesium intake was lower than the recommended daily allowance of 400 mg per day in members of both sexes in all

racial and ethnic groups of adults (except non-Hispanic white males) ages 12-60 years. The most common dietary sources of magnesium are nuts, oats, and legumes.

There have been estimates that 15-20% of the population is chronically deficient, and Mauskop's research shows that many migraine sufferers are magnesium-deficient.

In his own studies, Mauskop found that 42% of women with migraines have low magnesium levels. He speculates that magnesium deficiencies are triggered by stress and alcohol use, both known to deplete magnesium stores.

In another study, he found that 87.5% of patients reduced their pain by 50% with 1 g of intravenous magnesium sulfate, while patients receiving placebo received no relief.

Other studies have shown that patients receiving 600 mg of magnesium daily for 12 weeks had significant reductions in the numbers and severity of migraine attacks.

Riboflavin (vitamin B₂) given at a dosage of 400 mg a day for 12 weeks has been shown to reduce the number of migraine attacks by 67% and their severity by 68% in three months.⁵ A double-blind, placebo-controlled study validated those results in 1998.⁶

Riboflavin works well as a prophylactic because of its antispasmodic effects, says **Danette Taylor**, DO, staff neurologist at the Michigan Head Pain and Neurology Institute in Ann Arbor. "Riboflavin helps keep blood vessels at their proper dilation, since some headaches are caused by too little blood flow and others are caused by too much," says Taylor. She recommends a riboflavin dosage of 400 mg daily and says it works well when combined with an equal dosage of magnesium.

Taylor also advocates the use of caffeine as an accelerant when combined with other medications during an acute migraine attack. "As little as a cup of coffee can help relieve the pain."

And finally, feverfew (*Tanacetum parthenium*), has been used as a folk remedy against migraines and "women's maladies" for centuries. The Murphy study shows a 24% drop in the frequency of attacks and diminishing symptoms.³

Paul Schulick, a master herbalist in Brattleboro, VT, says chewing on two or three fresh feverfew leaves a day can result in a 50-60% reduction in the occurrence of migraines.

The active ingredients in feverfew, known as parthenolides, have been shown in many studies to contain anti-inflammatory properties. This member of the chrysanthemum family also has

CE questions

13. A low-fat, plant-based diet can reduce the risk of:
 - A. heart disease
 - B. diabetes
 - C. some forms of cancer
 - D. all of the above
14. Adherence to an exercise program increases if the program is tailored to the individual patient's lifestyle.
 - A. true
 - B. false
15. All of the following show promise as natural means of preventing migraines except:
 - A. magnesium
 - B. manganese
 - C. riboflavin
 - D. feverfew
16. Sleep deprivation in healthy volunteers can increase insulin resistance by as much as:
 - A. 20%
 - B. 40%
 - C. 60%
 - D. 80%

long been used as an antispasmodic to address menstrual cramps and other types of headaches, he says.

A recent study from Yale University suggests that the parthenolides in feverfew target IkappaB kinase protein molecules and stop the protein's role in the inflammatory process.⁷ In addition, animal studies suggest the parthenolides in feverfew inhibit prostaglandin, thromboxane, and leukotriene synthesis and also inhibit platelet aggregation and histamine release.

Three therapies at once saves time

Now Mauskop is making a leap — as yet not based on scientific evidence — that the three substances, when taken together, may have synergistic effects.

"At the least, it will save time, so if one of the three therapies is not effective for a patient, she will not spend three months trying it out with no results and then go on to another. It gives them all three at once, and we know in fairly short order if there are good results," says Mauskop.

He recommends 300-400 mg of magnesium, 400 mg of riboflavin, and 100 mg of feverfew for a triple whammy against migraines. The ingredients are inexpensive and readily available in vitamin and health food stores and even in some supermarkets for as little as \$20 for a month's supply of each. He recommends breaking the total dosage in half and taking it twice a day with meals.

Mauskop also recommends assisting patients in identifying triggers and helping them avoid the following: cheese, bacon, nuts, avocados, chocolate, red wine, yeast, spices, hot dogs, corn, fermented products, and caffeinated beverages. Among the most common environmental triggers are: missing a meal, stress, fatigue, bright lights, certain medications, odors, air pollution, changes in the weather, and hormonal changes.

Mauskop recommends exercises to strengthen overall health and help relieve stress that can contribute to migraines.

Adrian Fugh-Berman, MD, a women's natural health specialist at George Washington University in Washington, DC, reviewed literature supporting the use of riboflavin and magnesium in the February 1999 issue of *Alternative Therapies in Women's Health* and concluded, "Magnesium may be effective in preventing both menstrual and nonmenstrual migraine. High doses of riboflavin also may be helpful in migraine prophylaxis. Although clinical trial evidence is limited, both nutrients have low toxicity profiles and may be worth trying in patients with migraine."

The use of feverfew was reviewed in *Alternative Medicine Alert* in April 1999 by **Harley Goldberg**, DO, coordinator of complementary medicine at The Permanente Medical Group on Oakland, CA. "Evidence from two limited clinical trials suggests that feverfew, taken daily for three to eight months, can be effectively and safely used in migraine prophylaxis."

He notes that feverfew is contraindicated in pregnancy and for patients on antithrombotic and antiplatelet agents. There are no data for its use in children.

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Lack of sleep increases insulin resistance

Add another item to your list of reasons patients (and you) should get adequate sleep: Sleep deprivation escalates insulin resistance.

University of Chicago sleep researchers presented a paper to delegates to the Alexandria, VA-based American Diabetes Association's annual scientific sessions in June showing results of an as yet unpublished study showing inadequate sleep may prompt the development of insulin resistance and increase the risk of developing diabetes.

"We have shown that failure to get slightly more than eight hours of sleep per night may contribute to the rising incidence of diabetes," says **Bryce Mander**, a research assistant in the endocrinology section of the University of Chicago Medical School.

"What this shows is that when you chronically get inadequate sleep, you are not merely developing a sleep debt but also disrupting other body

KEY POINTS

- Sleep deprivation in healthy volunteers can increase insulin resistance by as much as 40%.
- Sleep deprivation can be added to the list of risk factors for diabetes.
- Health care professionals with patients who are having difficulty with glycemic control through diet and exercise should try adding extra sleep to their regimen.

functions. That is roughly equivalent to the disruption caused by the process of aging," explains Mander, who is chief assistant to renowned sleep researcher Eve Van Cauter, PhD, professor of medicine at the University of Chicago.

The study included 27 healthy, nonobese adults ages 23-42 years, 14 of whom were considered "normal sleepers" (with an average sleep duration of 7.5-8.5 hours) and compared them with 13 who were chronic "short sleepers" (with an average weekday sleep duration of less than 6.5 hours). Their sleep patterns had been stable for at least six months. The two groups were matched for gender and ethnic distributions, exercise habits, and diabetic family history.

Participants wore a wrist activity monitor for eight consecutive nights, and on the last two, recorded their sleep at home using an ambulatory recording system.

Over the course of the study, the short sleepers averaged five hours and 16 minutes per night, while the long sleepers averaged seven hours and 57 minutes per night.

Final analysis of glucose tolerance tests taken at the end of the eight days showed that insulin sensitivity diminished by nearly 40% in the short sleepers, indicating that "chronic sleep curtailment in otherwise healthy young adults impairs the ability of insulin to do its job properly."

So the list of risk factors for insulin resistance gets longer: poor diet, sedentary lifestyle, chronic stress, aging — and now sleep deprivation.

The National Sleep Foundation in Washington, DC, says the average American gets 6.5 hours of sleep a night — about 20% less than they need. Those who get less than 6 hours of sleep a night lose judgment and coordination roughly on a par with those who have a blood alcohol content of 0.05%, which approaches the legal limit for drunk driving in many places.

The organization also documents a steady decline in the number of hours Americans sleep each night. In 1975, the average American slept 7.5 hours, down from 9 hours in 1910.

Cutting back on sleep is a common response to the time pressures of modern industrial societies, Mander noted, and in our increasingly hectic modern lifestyle, sleep often is sacrificed in favor of work, family life, and social activities.

"All of this makes sense to me, and it certainly merits more research," says **Bruce Bower**, MD, FACE, an endocrinologist in Hartford, CT.

Bowers notes the diurnal rise in cortisol from the adrenals and growth hormone from the pituitary

are counter-regulatory hormones that oppose the action of insulin, resulting in rising blood sugar. "Relative insulin resistance occurs at the time when these hormones are at their peaks, which could explain increased insulin resistance in people who are sleep-deprived," says Bower.

Mander agrees that production of the stress hormone cortisol is "probably related," but his team did not specifically study this aspect of insulin resistance.

"Short sleep is a general stressor on all related body functions," Mander adds.

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An earlier study from the University of Chicago demonstrated that chronic sleep loss can reduce the capacity of even young adults to perform basic metabolic functions such as processing and storing carbohydrates or regulating hormone secretion.¹ In 1999, Van Cauter's research showed that subjects who received only four hours of sleep a night quickly produced striking changes that resembled the effects of aging or early diabetes.

"We found that metabolic and endocrine changes resulting from significant sleep debt mimic many of the hallmarks of aging," said Van Cauter at the time the study was published. "We suspect that chronic sleep loss may not only hasten the onset, but could also increase the severity of age-related ailments such as diabetes, hypertension, obesity, and memory loss."

A year ago, Van Cauter published a paper reporting two stages of age-related deterioration of sleep quality, the first in young adulthood between the ages of 16 and 25 and the other at midlife between the ages of 35 and 50. Those changes in sleep patterns were mirrored by changes in hormone secretion.

Although total sleep remained constant as young adults moved into midlife, the proportion of slow-wave or deep sleep decreased from nearly 20% of a normal night's sleep for those younger than 25 years to less than 5% for those older than 35 years. Growth hormone secretion, which occurs primarily during deep sleep, also declined by 75%.

Among the findings of that paper, by the age of 45 years, most men have almost entirely lost the ability to generate significant amounts of deep sleep, suggesting that most middle-aged men have very low levels of growth hormone.

The "take home" for health care professionals?

"Tell your patients that sleep is necessary for health and for the healing process," says Mander.

As an additional recommendation, Mander says health care professionals working with insulin-resistant patients and patients diagnosed with diabetes might consider adding increased sleep for patients for whom diet and exercise are not effectively lowering blood sugars. "That one small behavioral difference might help them improve blood sugar control," he says.

"While this most recent study is hardly a lynchpin to demonstrate the connection (between sleep and insulin resistance), it's hard to argue with a recommendation to get a good night's sleep — and longer sleep periods are desirable for most people," concludes Bower.

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CE objectives

After reading *Complementary Therapies in Chronic Care*, the health care professional will be able to:

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. ■

Documentation

FAX-BACK SURVEY

Supplement to: *Case Management Advisor, Complementary Therapies in Chronic Care, Contraceptive Technology Update, ED Management, ED Nursing, Hospital Access Management, Healthcare Benchmarks, Hospital Case Management, Hospital Employee Health, Hospital Home Health, Hospital Infection Control, Hospital Payment & Information Management, Hospital Peer Review, Healthcare Risk Management, Medical Ethics Advisor, Occupational Health Management, Patient Education Management, QI/TQM, Rehab Continuum Report, Same-Day Surgery*

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Nearly every profession involves paperwork, but in health care, the need for thorough and accurate documentation is especially great. After all, poorly documented care can result in claims denials, lawsuits, and even criminal investigations. We'd like to hear your thoughts on why appropriate documentation is important in your work.

Do you think of documentation primarily as an issue of (**please circle only one item**):

- A. Coding
- B. Outcomes measurement
- C. JCAHO or other accreditation
- D. Federal or state regulatory requirements
- E. Other (please list) _____

On a scale of 1 to 5, please rate the following considerations by their relevance to you professionally:

(1 = extremely relevant to me; 5 = not relevant to me at all.)

- Poor documentation could lead to legal or regulatory consequences.
- Poor documentation could be an obstacle to accreditation for my department/facility.
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