

Complementary Therapies in CHRONIC CARE™

Practical Applications of Alternative Medicine for CHF, Diabetes, and Chronic Disease

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You can win the fight for insurance coverage for integrative therapies

The key: Patients do better at a lower cost

Your patient with chronic migraines is sitting in front of you, hunched in a chair, clutching her head in obvious pain. What are your options? Standard treatment calls for you to rule out mitigating factors and wade through the usual alphabet soup of CT scans, EEGs, and MRIs, which frequently yield no conclusive cause. Then you relegate her to any of a variety of meds that may or may not help.

Such a course is likely to leave you feeling helpless and your patient feeling depressed, angry, and perhaps desperate.

You tell her there is a complementary solution that involves acupuncture, massage, chiropractic treatment, and herbs. She undoubtedly will tell you her insurance won't cover those options. But with a little help from you and others concerned about presenting effective and cost-effective options to insurance companies, the door is opening for mainstream HMOs, preferred provider organizations (PPOs), and other forms of insurance to cover the therapies.

Insurers are beginning to respond to a few carefully presented strategies to persuade them to cover alternative therapies. After all, an estimated 83 million Americans choose complementary and alternative medicine (CAM) therapies every year and spend billions of

KEY POINTS

- Insurers slowly are beginning to provide limited benefits for complementary and alternative medicine (CAM) therapies.
- Most benefits are restricted to practitioners subject to state licensing regulations: chiropractors, acupuncturists, and massage therapists.
- The direct approach to insurers — presenting clinical evidence to medical directors, providing current procedural terminology codes for CAM therapies, and showing clear cost-cutting benefits — has been successful.

dollars doing so — most of those dollars right out of their own pockets.

Linda Bedell-Logan, president and CEO of Solutions in Integrative Medicine in Saco, ME, started the company 11 years ago following the deaths of her 25-year-old sister from cancer and her 33-year old brother from AIDS. She says insurance companies increasingly are becoming responsive to that popular demand and to the cost savings it can mean.

A case in point involves patients with lymphedema following lymph node biopsies usually related to breast cancer. The standard treatment is to place them on a pneumatic pump; the treatment is marginally effective and functions mainly to move lymphatic fluid from the extremity into the trunk. Lymphangiosarcoma and amputation are distressingly common outcomes of this type of therapy.

“There is no reason in the world for a patient to have to suffer through this when massage — called manual lymphatic drainage — can drain lymphatic fluid very effectively,” says Bedell-Logan.

Bedell-Logan’s company went to bat and hit a home run for lymphedema patients (and those with a host of other diseases) under the auspices of the physicians, whom she views as the ones with clout in such situations.

“We went to the medical directors of the major insurers and HCFA [the Health Care Financing Administration] and showed them all the peer-reviewed medical journal articles on the efficacy of the pumps and the literature showing that the treatment Medicare was reimbursing at a rate of \$13 million a year even though the procedure is actually banned in some countries,” she explains.

“We gave them CPT [current procedure terminology] codes,” says Bedell-Logan. “Then we showed them the data on CAM therapies that showed they work and they’re cost-effective. They went for it.”

When insurers are convinced through scientific data that a complementary therapy works, many of the barriers start to come down for patients with cancer, migraines, chronic fatigue syndrome, multiple sclerosis, and other debilitating and

chronic diseases, Bedell-Logan adds.

“Claims kept coming through, and insurers kept denying. Some we had to take through the appeals process. Then we sent up efficacy manuals to the heads of the insurance companies, and in every case, they agreed with us,” she says. The key to getting insurers to pay attention and pay for complementary therapies is sometimes no more complicated than finding an appropriate CPT code, Bedell-Logan explains.

It makes sense to insurers to consider CAM therapies when patients with chronic diseases are likely to be taking expensive pharmaceuticals and possibly facing multiple surgeries for the rest of their lives, she says. “We studied the cost of migraine therapy and found the efficacy and the cost effects were huge.”

Team approach saved thousands

The average migraine sufferer costs an insurance company between \$3,000 and \$6,000 a year. (See box, p. 27.) Bedell-Logan and her company went to one insurer and presented a plan to spend that much money per patient per year in an integrative setting in Boston that included a physician, acupuncturist, massage therapist, a chiropractor, and a mind-body therapist working together as a team.

“We told them, ‘Let us spend it in a model of individualized and natural caring for the patients.’ We were able to get many of them off pharmaceuticals and to stop the migraines completely for some. Why? Because they were being treated by a medical team that worked together and got them on a program that included herbs and pharmaceuticals interacting appropriately and a combination of other therapies that worked extremely well,” she adds.

The team approach rolled primary care into a kind of “one-stop shopping” that was consumer-friendly, focused on prevention of disease, and care-coordinated so there were no vacuums or gaps, Bedell-Logan says.

“Several studies have shown that if a patient has a choice in care, no matter what it is, he will

COMING IN FUTURE MONTHS

■ Asthma: Are CAM therapies effective?

■ Electrical current: Possible therapy for diabetic wound healing

■ Natural pain relief: Address arthritis and migraines naturally

■ Mind, body, spirit: Programs for cancer

Costs of Integration Strategies for Migraine Patients

Conventional approach (on yearly basis)

Primary care physician (10 visits)	\$650
Emergency room visits (10 visits)	2,400
Medication	600
Neurologist	400
CT scan	600
EEG	245
MRI	1,200

Total cost per year **\$6,095**

Over a six-year period **\$37,495**

Average per year **\$6,249**

Integrative approach

Chiropractor (5 visits)	\$400
Acupuncture (5 visits)	400
Massage therapy (5 visits)	350
Nutritionist (5 visits)	375
Mind-body therapy (5 visits)	840
Naturopath (3 visits)	300
Medication	600
Physician (2 visits)	300
Diagnostics	1,200

Total cost per year **\$4,765**

Over a six-year period **\$21,117**

Average per year **\$3,852**

Source: Linda Bedell-Logan, Solutions in Integrative Medicine, Saco, ME.

do better," she adds. "If that's because of a placebo effect, so be it."

Solutions for Integrative Medicine offers billing, collections, and patient advocacy services, as well as outcomes tracking, practice management, and consulting for hospital-based and free-standing CAM clinics.

Increasing numbers of insurers, including government insurers, are covering CAM therapies, but the vast majority of coverage (about 90%) is for chiropractic treatment, which is hardly considered a CAM therapy these days, says **John Weeks**, editor of *The Integrator for the Business of Alternative Medicine* in Seattle.

"Most HMOs and PPOs offer some coverage, usually through CAM practitioners who are subject to state licensing and, therefore, easy to credential," says Weeks. About half the providers who do offer CAM therapies contracted the coverage to other

providers, and about half provide a limited network of providers within their own system, he explains.

Weeks and Bedell-Logan say virtually no insurers cover complementary therapies outside the licensed realms of chiropractic, naturopathy, acupuncture, massage, and nutrition.

And the vast majority of the CAM coverage allowed is merely part of a discount program rather than coverage under the same terms as any other type of medical coverage, they add.

"It's a starting place," says Weeks. "It's a way to respond to consumer interest, but in no way is it really integrative medicine."

CAM therapies shouldn't be a "rich person's option," says Bedell-Logan. Her goal is to bring CAM therapies within the reach of everyone. "If an acupuncturist charges \$75 a visit, you can be sure he's not going to be seeing many poor people. Even if the price is lowered to \$30 through a discount program, that's still a far cry from most \$10 or \$25 co-pays," she says.

Some CAM therapies are within the reach of the poor, even if those treatments are limited, says **Terrence Steyer**, MD, former Robert Wood Johnson fellow at the University of Michigan in Ann Arbor and now assistant professor of family medicine at the Medical University of South Carolina in Charleston.

The majority of state Medicaid programs provide some reimbursement for CAM therapies, but the total outlay is miniscule in the big picture. Steyer reported in a paper presented at last year's Pediatric Academic Societies and the American Academy of Pediatrics meeting in Boston that of the 46 state Medicaid programs answering Steyer's query most spent less than \$500,000 per fiscal year and only five states spent more than that.

Many state Medicaid plans reimburse for chiropractic services, which have a long history of state and federal regulation, and which made up 74% of the CAM claims allowed by Medicaid agencies, says Steyer.

During the last two sessions of Congress, a bill has been introduced to mandate the availability of acupuncture for chronic pain. The bill never has been reported out of committee, says Steyer, so it is unlikely to become law anytime soon, but "at least people are talking about it."

"The way to approach the government and the insurers on CAM therapies is to promote more research," he says.

Many CAM therapies, particularly herbal preparations, have been used traditionally, but

do not have the backing of solid science, says Steyer, because it is not profitable for companies to spend the money on research on a product that cannot be patented.

Yet some research is under way, the majority of it under the auspices of the National Institutes of Health. He contends that acceptance for CAM therapies and insurer enthusiasm will snowball as more research-based evidence becomes available. "If we can find that St. John's wort works just as well as Prozac and it's a lot cheaper, then it will become widely accepted," says Steyer, who says the contraindications of herbal preparations should become part of every physician's basic knowledge.

That already is happening as more medical schools now include CAM therapies as an elective, and a new generation of physicians is much more aware of the benefits of some of these therapies, he adds.

In the meantime, physicians and health care professionals can become advocates for their patients, says Steyer. A physician who is willing to go straight to the medical director of an insurance company can carry a lot of weight and benefit patients greatly.

Aetna-U.S. Healthcare is one PPO that is addressing the needs, or demands, of its patients and providers for CAM therapies, says **Terry Gordon**, MD, Michigan state director for the company.

Aetna's Natural Alternatives program offers all members in states where the program is available access to certain CAM practitioners as well as vitamins, supplements, and herbs at a reduced fee.

The vast majority of the practitioners included in the plan are chiropractors, says Gordon, but acupuncturists, massage therapists, and nutritional counselors also are in the program. The program is included without additional cost to employers and no referrals are necessary.

Aetna is a forerunner in CAM coverage. Since 1998, members in most states have had access to the program in which they pay \$30 for chiropractic and acupuncture services, and \$20 per half hour of massage therapy and nutrition counseling, a discount of approximately 50% over usual rates.

In addition, they get 20% discounts on vitamins, supplements, and herbs from Aetna's approved provider and discounts on some health books and magazines.

Gordon visited every one of the 22 providers in

Aetna's Michigan Natural Alternatives program. "I wanted to be sure. If you're not careful, you can get people of lower quality."

Aetna's plan credentials providers who are subject to statewide licensing, says Gordon. "That ensures at least some level of adequacy and abilities."

Such a program is a start, says Bedell-Logan. Yet critics say 22 providers in a state the size of Michigan is a tiny number. And more worrisome to Bedell-Logan, it is lacking the key ingredient of a holistic team approach to health. "A patient may be seeing a chiropractor or an acupuncturist and taking herbs all under the auspices of the insurer, but his primary care provider may know nothing about it."

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• **John Weeks**, Editor, The Integrator for the Business of Alternative Medicine, Seattle. Telephone: (206) 933-7983.] ■

Small CAM insurer begins to get a foothold in East

It's the tiniest drop in the bucket, but Alternative Healthcare Options (AHO) in Charlotte, NC, with its 5,000 members offers more than the average add-on rider for complementary and alternative medicine (CAM) therapies.

When AHO's president and CEO **Richard Dunn** started the company three years ago, he knew there was a demand for CAM services under the umbrella of more traditional health care plans.

The interest is there

AHO sells a CAM rider to medium- to large-sized companies with self-insurance plans.

"We know that two-thirds of members of health plans are very interested in CAM benefits, and we know that employers want to give their employees the best possible benefits — with an eye toward cost," says Dunn.

His big selling points: out-of-pocket cost and increased productivity.

“It’s not how much the benefit package costs; it’s how much it saves,” Dunn says.

For example, a patient with carpal tunnel syndrome, over the course of this repetitive-motion-related problem, will cost \$30,000 in medical expenses, including one or more surgeries at a cost of approximately \$7,000. “We can use acupuncture and keep the employee at work for a lot less than \$30,000. What’s \$75 for an acupuncture treatment every three or four months compared to \$30,000 — not to speak of lost time and disability benefits?” he asks.

AHO offers the services of licensed practitioners, including naturopathic physicians, as well as a mail-order herbal formulary and diagnostic laboratory work.

Dunn is a stickler for credentialing. The company sets criteria that are sometimes more stringent than state licensing regulations. For example, an acupuncturist must have completed 1,800 hours of education, have 1,000 hours of clinical practice, passed national exams, and use

clean-needle techniques, as well as carry what the company considers an acceptable level of mal-practice insurance.

Once a practitioner’s application is received, it is sent to a credentialing verification organization, fully accredited by the National Committee for Quality Assurance, where all information is verified. The site visits are conducted, and finally AHO repeats the process in-house to be sure of its accuracy.

No referrals are required for a member to access the CAM benefits provided by AHO, although there is frequent contact between physicians and CAM practitioners.

“We want them to freely access these therapies,” Dunn says. “We want them to use it extensively to get healthy and stay healthy.”

[For more information, contact:

• Alternative Healthcare Options, Charlotte, NC. Telephone: (704) 905-5244. World Wide Web: www.aho-network.com/.] ■

Vitamin E: Find it in food

Alpha-, gamma-tocopherols may prevent disease

By **Ralph Hall, MD**
Consulting Editor
Emeritus Professor of Medicine
University of Missouri-
Kansas City School of Medicine

What do you really know about the vitamin E you have been prescribing or perhaps taking? Many cardiologists take vitamin E for its antioxidant properties to prevent cardiovascular disease.

What kinds of vitamin E are they taking? Are they taking natural vitamin E? But what is natural vitamin E?

All of this now becomes important since increased amounts of alpha-tocopherol in plasma are associated with a decreased incidence and mortality from prostate cancer.

But consider this: In a recent study published in the *Journal of The National Cancer Institute*, by Kathy Helzlsouer, MD, MHS, and associates from Johns Hopkins University School of Hygiene and Public Health in Baltimore, alpha-tocopherol was shown to be only protective if it is associated with greater than average amounts of gamma-tocopherol in the plasma.

Alpha- and gamma-tocopherols are two of the most active of the eight molecular forms of vitamin E that occur naturally in food.¹

The study was done “because a protective effect of selenium and alpha-tocopherol, the major form of vitamin E in supplements, against prostate cancer had been observed in clinical trials. The trials had been designed to test the efficacy of these nutrients against skin and lung cancer.”

They observed that “little attention had been paid to the possibility that gamma-tocopherol, a major component in the U.S. diet and the second most common tocopherol in human serum, might also be important in the development of prostate cancer,” wrote the researchers.

The study involved 10,556 male residents of Washington County, MD, who donated blood for a specimen bank. The relationships between alpha- and gamma-tocopherol and selenium were studied.

The most significant finding was that for gamma-tocopherol, men in the highest fifth of the distribution had a fivefold reduction in the risk of developing prostate cancer than men in the lowest fifth. ($P = 0.002$). Since this was the first study to examine this relationship, the researchers concluded that future investigations should be designed to study the combined effects of alpha- and gamma-tocopherol.

If you have been taking only alpha-tocopherol,

as most people have, what does this do to your plasma levels of gamma-tocopherol? This means that we need to know a bit more about vitamin E. Many patients have been told only to take natural vitamin E. Is that the best advice?

Maret Traber, PhD, principal investigator at the Linus Pauling Institute at Oregon State University in Corvallis, is the author of a chapter on vitamin E, in the textbook *Modern Nutrition in Health and Disease*.² In the chapter, she notes that “vitamin E is the collective name for molecules that exhibit the biological activity of alpha-tocopherol.” Vitamin E occurs naturally in eight different forms: four tocopherols and four tocotrienols. Tocotrienols differ from tocopherols in that the former have unsaturated side chains.

Each group of four is labeled:

- alpha;
- beta;
- gamma;
- delta.

Unlike other vitamins, chemically synthesized alpha-tocopherol is not identical to the natural form. The naturally occurring and most biologically active form, formerly called d-alpha-tocopherol, still is labeled in that manner on many supplements. As noted, it is only one of eight stereoisomers of tocopherol.

Vegetable oils are good sources

According to Traber, the richest dietary sources of vitamin E are vegetable oils. The alpha-tocopherols are especially high in wheat germ and safflower and sunflower oils. Soybean and corn oils contain predominately gamma-tocopherol. Cottonseed oil and palm oil contain both the alpha- and gamma-tocopherols in equal proportion. Meats, vegetables, and nuts also contain vitamin E.

Interestingly, the DASH (Dietary Approaches to Stop Hypertension) diet, which so effectively lowers blood pressure, and the Mediterranean diet, which is associated with a lower incidence of both cancer and heart disease, both contain large amounts of vitamin E.³

Vitamin E is sold as supplement pills: The natural form is labeled d-alpha-tocopherol, and the synthetic form is labeled dl alpha-tocopherol.

Vitamin E functions in vivo as an antioxidant, which prevents propagation of free-radical damage in biological membranes.

Anemia and neuropathies can occur with vitamin E deficiency, which is rare except in genetic

disease and malabsorption syndromes.

In an accompanying editorial, **Edward Giovannucci**, MD, ScD, a researcher at Channing Laboratory, Brigham and Women’s Hospital, and Harvard Medical School, all in Boston, lists a host of studies done with selenium and alpha-tocopherol.⁴ These studies, although promising, have yielded conflicting results. On balance, the results have shown some benefits, especially in smokers. However, the relationship between gamma- and alpha-tocopherol has not been studied previously.

This has raised other questions about vitamin E. In the past, most of the benefits have been attributed to the antioxidant properties of alpha-tocopherol. Now more is known about the function of the other tocopherols, which have specific actions that inhibit nitrogen oxide and other agents that are important in setting the stage for many types of cancer.⁵

Giovannucci’s editorial concludes: “There are a number of compounds, known to trap highly reactive compounds [which may promote cancer] for which there are varying degrees of evidence for protection against prostate cancer. Some of their benefits may be synergistic or complementary, and potential displacement effects, which have been shown to occur, such as the displacement of gamma-tocopherol by large doses of alpha-tocopherol, may be important.”

The American Heart Association (AHA) in Dallas does not recommend vitamin E supplementation along with its dietary recommendations.⁶ It is the AHA’s opinion that the evidence for vitamin E’s protective effects against atherosclerotic cardiovascular disease are not strong enough to support such a recommendation.

Concentrate on food choices

How then should we use this information? If the AHA expert committee contends that the evidence is not strong enough to recommend using vitamin E supplements to prevent heart disease, how can we recommend using it for cancer prevention, for which there is even less, often conflicting evidence? Our best option seems to be making wise choices in the food we eat and recommend to our patients.

How do we proceed from here? It seems prudent not to take vitamin E supplements. There currently is no convincing evidence that it prevents cardiovascular disease or that it reduces the incidence of cancer.

There is evidence that the DASH diet lowers blood pressure substantially, and therefore it is likely that the diet will reduce the incidence of stroke and heart disease. The Mediterranean diet, which is high in fruits and vegetables, olive oil, and fish, also is likely to reduce both the incidence of vascular disease and stroke.

Those two diets are very similar and contain adequate amounts of foods with high levels of both alpha- and gamma-vitamin E.

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Broccoli and cousins are powerful cancer fighters

Protective effects against prostate, lung cancers

The elder George Bush went public about hating broccoli and proclaimed that since he was president, he didn't have to eat it.

Whatever you think of the elder Bush's politics, his anti-broccoli pronouncements were far from sound health policy.

In fact, there is growing evidence that broccoli and other cruciferous vegetables offer a wealth of health benefits not found anywhere else in the plant kingdom.

All health care providers know that vegetables are essential to good health, and researchers say

KEY POINTS

- Cruciferous vegetables contain compounds that appear to protect against cancer.
- Population-based study shows particularly significant effects in protecting against prostate cancer — with those eating three serving of cruciferous vegetables a week having a 48% reduced risk of prostate cancer.
- One small human study and an animal study indicate isothiocyanates found in cruciferous vegetables protect against lung cancer and may even neutralize the effects of smoking.

the more veggies consumed, the greater the protection against cancer and heart disease.

But recent research shows that broccoli and its fellow members of the nutrient-packed cruciferous vegetable family — including cabbage, cauliflower, brussels sprouts, watercress, and bok choy — go several steps further in disease prevention with their high concentrations of the powerful disease-fighting compounds isothiocyanates and indole-3-carbinol.

Getting five servings a day of fruits and vegetables makes a tremendous difference in disease prevention, but population-based research shows getting just three servings a week from the cruciferous vegetable family seems to provide powerful anticarcinogenic effects.

Yet only 3% of Americans regularly eat cruciferous vegetables, say researchers at Arizona State University in Mesa.¹

Here is the recent evidence in favor of broccoli and its cousins:

PROSTATE CANCER PROTECTION

Researchers at the Fred Hutchinson Cancer Research Center in Seattle found that men who included three servings of cruciferous veggies, such as cabbage, in their weekly vegetable consumption lowered their prostate cancer risk by 41%.²

The study included 1,230 men ages 40 to 64 living in King County, Washington (Seattle area), 628 of them newly diagnosed with prostate cancer and 602 of them cancer-free. Self-administered food frequency questionnaires were used to assess diet over a three- to five-year period before diagnosis or recruitment to the study.

Results contradicted most other literature in the same field by showing significant protective effects of vegetables and even greater protective

effects of cruciferous vegetables, but no protective effects associated with fruit intake. Participants who ate 28 servings or more of vegetables every week had a 35% improvement in the odds ratio compared to those who ate 14 servings or less a week.

Those who included just three servings of cruciferous vegetables a week in their vegetable intake were 41% less likely to develop prostate cancer. Incidentally, a less significant prostate cancer protective effect of 27% was associated with eating three or more servings of lycopene-rich cooked tomatoes a week, although other studies have suggested strong protective effects against other types of cancers.

“Our interpretation is that substitution of cruciferous vegetables for other vegetables, while keeping total vegetable intake constant, significantly reduces prostate cancer risk,” the researchers wrote in the *Journal of the National Cancer Institute*.

Immune-enhancing effects

Alan Kristal, DrPh, associate director of the Fred Hutchinson cancer prevention research program, says the best causative guess lies in the elevation of glutathione S-transferase (GST) isoenzymes caused by indole-3-carbinols (indoles) and isothiocyanates (ISTs) present in cruciferous vegetables.

GSTs are phase II detoxification enzymes that inactivate carcinogenic electrophiles and organic hydroperoxides and protect cells from DNA-damaging agents. In lay terminology, ISTs and indoles found in cruciferous vegetables appear to prevent normal cells from mutating into cancerous cells by upregulating the immune system, he explains.

“Foods that protect against cancer appear to have an immune-enhancing effect, and it appears to be the indoles and ISTs, which have the strongest protective effect,” says Kristal.

He notes the results of the study may be particularly important because the participants were men in an age group at low risk for prostate cancer. The incidence of prostate cancer in men under 65 is about 250 per 100,000 compared with 1,000 per 100,000 in men over 65.

A GUARD AGAINST LUNG CANCER

Research from the University of Minnesota Cancer Center in Minneapolis shows the compounds in cruciferous vegetables not only appear to provide protection against lung cancer; in lab studies and human studies, cruciferous vegetables

also have been shown to neutralize the effects of cigarette smoking.³

ISTs to the rescue, again, says **Stephen S. Hecht**, PhD, professor of cancer prevention at the University of Minnesota Cancer Center.

Hecht notes that lung cancer is the leading cause of cancer death in the United States, claiming approximately 160,000 lives a year, 87% of them attributable to cigarette smoking.

“While smoking cessation is the best way to prevent lung cancer, it has not been uniformly successful in the United States, where there are still 48 million smokers, many of whom may be addicted to nicotine,” he says.

Eating broccoli won’t neutralize the effects of smoking, Hecht concedes, “[but] for the addicted smoker who cannot quit even after having tried smoking cessation programs using nicotine replacement therapy, chemoprevention may be a feasible way to lengthen life and avoid lung cancer.” ISTs are released upon maceration or chewing of cruciferous vegetables.

“The remarkable ability of some ISTs to prevent cancer in laboratory animals treated with carcinogens stems from their favorable effects on carcinogen metabolism,” says Hecht.

The power of ISTs

Since virtually all dietary or environmental carcinogens to which humans are exposed require enzymatic transformation to exert their carcinogenic effects, Hecht argues that ISTs also enhance carcinogen detoxification, and he speculates that ISTs have an effect on both processes.

The specific effect of ISTs on lung cancer comes from the constituent phenethyl isothiocyanate (PEITC), which Hecht’s research shows inhibits one of the major carcinogens in cigarette smoke, NNK-[4-methylnitrosamino-1-(3-pyridyl)-1-butanone]. In a small human study, Hecht measured PEITC and NNK levels in a group of smokers who abstained from consuming any cruciferous vegetables during the three-day study and then crossed over to consuming two ounces of watercress each day for three days.

The results showed the PEITC inhibits the oxidative metabolism of NNK in humans, suggesting its usefulness as a chemopreventive agent against lung cancer.

Hecht suggests that a logical extension of his research would be to find a construction of cancer-inhibitory compounds that could be used for preventing lung cancer in smokers who have

failed in attempts to quit — and to decrease risk in ex-smokers.

“Eating some cole slaw or adding it to a salad a few times a week is a pretty painless tool for your patients to minimize their risk of lung cancer, whether they smoke or not,” he says.

Other early studies have shown chemoprotective and anti-metastasizing effects of cruciferous vegetables against other types of cancer, including breast, ovarian, colon, and esophageal, which are attributed to indoles, sulforaphane, and ISTs.

HEART STRENGTH

Members of the cabbage family are loaded with vitamins C and E and beta-carotene, which help reduce the risk of degenerative diseases by mopping up the free radicals that naturally accumulate in the body and damage healthy cells, causing changes that can lead to heart disease and other serious problems.

Some research has suggested that people with the highest intakes of beta-carotene have a dramatically lower risk of heart disease. A half-cup serving of cooked broccoli or a half-cup serving of raw cabbage each provides 0.7 mg of beta-carotene. The National Academy Press recommends five or more servings per day of fruits and vegetables, which would provide a total intake of 3 mg to 6 mg per day.⁴

Broccoli almost can be classified as a power food with 58 g of vitamin C, 2 g of fiber, 35 mg of calcium, 18 mg of magnesium, and 227 mg of potassium — all for only 22 calories in a half-cup cooked serving.

“All vegetables are good for your general health, but cruciferous vegetables are so nutritious that eating them at least three times a week, or even more, is probably one of the best choices anyone can make to promote good health,” says Kristal.

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Drumming enhances immune function

Feel the beat

Pa-BAM, pa-BAM, pa-BAM. This could be the new sound of protection against cancer, AIDS, and influenza and other viral diseases.

In the first study of physiological effects of drumming on human biology, researchers at the Meadville (PA) Medical Center have associated simple drumming with an increase in natural killer (NK) cell activity, dehydroepiandrosterone (DHEA)-to-cortisol ratios, and lymphokine-activated killer (LAK) cell activity, which are among the mechanisms by which the human body combats cancer and viral illnesses.¹

The circle of healing

Drum circles have been part of the healing rituals in many cultures since before history was recorded. Although drum circles are gaining increasing popularity as complementary therapeutic strategies, the biological effects of drumming have not been documented.

One day five years ago, **Barry Bittman, MD**, CEO and medical director of the Meadville Medical Center’s Mind-Body Wellness Center, walked in on a roomful of 600 health care professionals sitting in a huge circle and drumming away their cares.

One woman held a drum to his throat area and hit a beat. “I could feel the sound waves. It was like an ancient ultrasound,” Bittman recalls.

Bittman, who had been studying the immune-enhancing effects of laughter, immediately saw the possibilities for drumming as a group activity

KEY POINTS

- Group drumming experiences enhance immune function in several important ways.
- In a first study of human biological functions connected with drumming, researchers found increased activity of natural killer cell activity, dehydroepiandrosterone-to-cortisol ratios, and lymphokine-activated killer cell activity.
- These elevated functions are known to enhance immune system response against cancer and viral illnesses.

The Principles of Group Drumming

- ♥ Response to rhythm is basic to human functioning, making these percussion activities and techniques highly motivating to people of all ages and backgrounds.
- ♥ Pure percussion activities are interesting and enjoyable to all people regardless of ethnic and cultural background, musical preferences, or age range, making these activities useful in creating groups that are fun and positive for a wide variety of people.
- ♥ Participation in active group percussion experiences has physical benefits including sustained physical activity, relaxation, and the use of fine motor skills.
- ♥ Active group participation creates an identity, and a sense of belonging is created because participants are actively making music together and the sustained repetition of a steady beat draws people together physically, emotionally, and mentally (rhythmic entrainment).
- ♥ Percussion activities can be done with little or no previous musical background or training, making these experiences accessible to everyone.

Source: Barbara Crowe, PhD, director of music therapy, Arizona State University, Phoenix.

that could be useful for stress relief and general well-being.

But he didn't imagine his simple study would lead him into a realm where sound and movement actually may prompt the body's natural defenses against immune-related disorders.

Eventually, Bittman selected for his study 111 age- and sex-matched volunteers (mean age 30.4) with no prior interest in drumming and screened against smoking, alcoholism, and chronic disease.

He randomized them to six groups ranging from one group that sat quietly and read magazines for an hour and another that listened to drumming to four groups that experimented with different methods of simple drumming rhythms.

Venous blood was drawn before the session began and again after the hour-long session

concluded; each participant completed the Beck Anxiety and Depression inventories twice.

The following measures were taken before and after the drumming session: plasma cortisol, plasma DHEA, plasma DHEA-to-cortisol ratio, NK cell activity, LAK cell activity, plasma interleukin-2, and plasma interferon-gamma.

"The finding of DHEA-to-cortisol ratios in experimental subjects suggests a shift in adrenal steroids in an immunoenhancing direction, while the LAK and NK cell activity confirms immune system enhancement," says Bittman.

Past research has shown the NK cell activity is an important component in maintaining health in women with breast cancer, and increased DHEA-to-cortisol ratios improve immune response to AIDS, influenza, and West Nile virus.

Bittman found the most profound effects were measured in a group that drummed under the instruction of a music therapist where elevations of all plasma measures were significant except interleukin-2 and interferon-gamma. The Beck inventory scores did not change.

Bittman thinks the effects on that group were the strongest because participants were given some instruction, they were given time to relax, and the instructor told them to express themselves though the drumming without worry about whether they were doing it "right" or "wrong."

Reducing stress while having fun

"Group drumming music therapy — carried out according to this protocol and using a specific approach for facilitating sessions that emphasizes camaraderie, group acceptance, light-hearted participation, and nonjudgmental performance — appears to attenuate and/or reverse specific neuroendocrine and neuroimmune patterns of modulation associated with the classic stress response," Bittman wrote in conclusion.

In a much less esoteric sense, he says, drumming probably works because it is fun and easy and stress-relieving rather than stress-producing.

Bittman's clinic has several drumming groups, including those for patients with heart and lung diseases, cancer, diabetes, and asthma.

He says he has several future studies in mind, including one to determine if the immune-enhancing effects of single hour-long sessions can be extended with regular drumming.

"Now that we have established the baseline, in future studies, we want to look at people with

chronic diseases to see what effect drumming might have on them," says Bittman. "I think this will someday be shown to be valuable and probably even more effective with older people."

It definitely works with older people, according to **Barbara Crowe**, PhD, director of music therapy at Arizona State University in Phoenix. Crowe has used drumming as well as a number of musical modalities to treat patients with a various diseases and conditions.

Waking up Alzheimer's patients

She says the results were the most impressive, and stunning, when she drummed with a group of Alzheimer's patients in a nursing home.

"We put can drums in their hands and start playing with them. In minutes, they start playing along, singing, and even talking. They literally wake up and become something like their former selves for a brief time during and after the drumming session. It's absolutely amazing to watch," says Crowe.

The drumming therapy has been so successful that she invited family members to the sessions so they can interact with their loved ones in a way resembling the communication that once took place.

In Alzheimer's disease, plaque formations cause patients to lose their ability to organize thoughts and initiate behavior. "The rhythm externally provides organization that allows them to think and act, however briefly," theorizes Crowe.

She recalls one woman who came to her after a drumming session, tears of gratitude streaming down her cheeks, to express thanks that her husband was able to hold her in his arms for the first time in five years.

Enhancing quality of life

"This kind of therapy provides quality of life that is so important in the face of such a devastating disease that effects everything, simply everything in a person's life and that of his family," Crowe says.

The power of drumming is being carried even further, says Crowe. Researchers at Colorado State University now are conducting research on assisting stroke patients to regain their ability to walk through the rhythmic intervention of the drum. She recommends programs conducted by trained professional music therapists for the best results.

[For more information, contact:

• The American Music Therapy Association, Silver Springs, MD. World Wide Web: musictherapy.org. Telephone: (301) 589-3300.]

Reference

1. Bittman B, Berk L, Felten D, et al. Composite effects of group drumming music therapy on modulation of neuroendocrine-immune parameters in normal subjects. *Alternative Therapy* 2001; 7:38-47. ■

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This drummer has seen the beat take hold

Russell Buddy Helm watched drumming revolve in himself and in the lives of the people who have drummed with him over the past 30 years. From his days with such rock greats as Chuck Berry, Bo Diddley, and Frank Zappa, Helm knows that drumming carries far more with it than just a good beat and a good time.

“People who come to my drumming workshops and regular classes are starving for rhythm in their lives. They’re crawling across the desert, dying of thirst, dying for a sense of rhythm in their lives,” says Helm, author of *Drumming the Spirit to Life* (Llewellyn Publications, St. Paul, MN; 2000).

Helm isn’t a medical professional and has no pretenses about it, but he knows what he has seen. From Seasons, his shop in Santa Monica, CA, Helm has a finger on the pulse of the healing power of the drum. “I’ve seen people with various types of nerve and muscle damage make dramatic improvements. I’ve seen spinal conditions work themselves out.”

He theorizes gentle impact and the small natural fluid movements that occur during drumming allow for a release of spinal and muscular trauma. “I don’t believe in banging on drums.” There’s also an element of stress release, relaxation, and even a light trance that comes with drumming, he says.

Helm first works to set every drummer at ease. “Too many people have been told they have no natural rhythm or that drumming is complicated, so they tend to tense up. I let them know there’s nothing difficult here and that they don’t have to be afraid of making a mistake.”

He always begins with a soft simple beat and acting as the leader, encourages his students to follow along and embellish within the relaxed rhythmic structure as they wish.

Sitting in a comfortable position, usually using the African djembe as a starter instrument, and holding the drum at a 30-degree angle, which relieves the stress of trying to hold it between their knees, even the newest students “move to the groove” of a subtle, gentle, quiet rhythm very quickly, says Helm.

“I teach them to play from their bodies, not their brains. As long as their bodies are moving, they’ll get the healing,” he adds. ■

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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. ■