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

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Upbeat attitudes ease severity, complications of chronic diseases

Approach patients positively, and they'll have better outcomes

Does a positive mental attitude really equal good health? It may sound like some New Age psychobabble, but a growing body of research is solidifying the concept that attitude and mood play a crucial role in the development and progression of a wide variety of chronic diseases.

Consider the following studies:

- Recent research from the University of Texas Medical Branch in Galveston shows emotional well-being lowers risk of stroke by two-thirds,¹ and Scottish scientists have found that stroke survivors with fatalistic attitudes were 79% more likely to die than those with a more hopeful outlook.²
- A study from the University of South Carolina in Columbia shows patients with Type 1 diabetes with a positive attitude about their illnesses have better physical and mental health.³
- A study from the Albert Einstein College in Bronx, NY, shows depressed hypertensive patients have double the risk of heart attack compared to those with simple hypertension.⁴
- Women who are depressed and angry are more likely to have

KEY POINTS

- Numerous studies show that patients with positive attitudes have better outcomes.
- Recent research shows emotional well-being lowers risk of stroke by two-thirds and negative attitudes hasten deaths of stroke survivors.
- University of South Carolina study shows patients with Type 1 diabetes who have positive attitudes about their illnesses have better physical and mental health.
- Albert Einstein College study shows depressed hypertensive patients have double the risk of heart attack compared to those with simple hypertension.

cardiovascular disease than others, say University of Pittsburgh researchers.⁵

Here are some details of the studies:

Stroke

Feeling happy and hopeful appears to be a powerful protection against stroke, says **Glenn Ostir**, PhD, assistant professor of geriatrics at the Sealy Center on Aging at the University of Texas Medical Branch in Galveston.

Ostir's study shows patients with positive mental attitudes had a stroke incidence that was two-thirds less than those with fatalistic attitudes.

Ostir and his colleagues assessed signs of depression separately -- termed negative effect -- from signs of emotional well-being -- termed positive effect.

"Our results suggest that increasing levels of positive effect are strongly associated with reduced risk of stroke. This inverse relationship between positive effect and stroke held for the entire sample, by gender and by race, after controlling for known risk factors of stroke and for negative effect score," Ostir says.

The study followed 2,478 patients ages 65 years and older for six years.

Using the 20-item Center for Epidemiological Studies-Depression (CES-D) scale questionnaire, investigators found that subjects scoring high in terms of emotional well-being had significant reductions in their stroke risk while risk increased for those who showed depressive symptoms.

(See box, p. 100.)

The reductions in the risk of stroke associated with positive attitudes were more pronounced in men than in women and in whites than in African-Americans, although Ostir says the size of the sample could have skewed the results, particularly as they relate to women.

"Positive effect has a relationship to several lifestyle choices that are known to relate to improved health and to protect against chronic disease. People with strong positive attitudes may be more likely to exercise, eat properly, and maintain a healthy lifestyle than those with more

depressive symptoms," says Ostir.

The Scottish study on stroke and negative attitude bolsters Ostir's results -- and takes them a step further. The study published in the July issue of *Stroke* shows that stroke survivors with a fatalistic attitude are far more likely to die within three to five years than those with positive outlooks.

Researchers at the University of Edinburgh found that individuals in the top 10% of those with fatalistic attitudes were 79% more likely to die than those in the lowest 10%, even after adjustment for significant factors such as age, stroke severity, and comorbidities.

Similarly, stroke survivors in the top 10% for helplessness and hopelessness viewpoints were 58% more like to die than those in the lowest 10% of that category. Research psychologists visited 372 individuals six months after they had a stroke. Each was evaluated for disability and independence in daily activities and given self-rated tests of their depression, anxiety, and attitudes toward their strokes. Follow-up was done three to five years later; 22% died within three years.

"Patients' attitudes toward their illnesses seem to be associated with survival after a stroke. Patients who feel there is nothing they can do to help themselves six months after a stroke have a shorter survival," the study's authors wrote.

Heart disease and heart attack

Depression doubles the risk of heart attack in patients who already have hypertension, says **Hillel Cohen**, DrPh, associate professor of epidemiology and social medicine at Albert Einstein College of Medicine.

Cohen's study showed that hypertensive patients with a history of depression were twice as likely to have a heart attack or other coronary event than nondepressed people with high blood pressure.

"My theory is that something in their compensating behavior for depression puts them at risk," says Cohen.

Cohen's study included 5,564 patients being

COMING IN FUTURE MONTHS

■ Vegetarianism: The pendulum swings toward healthier diets

■ Exercise: Make it easy and fun to prolong life

■ Religion: Lowering blood pressure in African-Americans

■ Feverfew: Active anti-inflammatory ingredient identified

treated for hypertension, but without a history of heart disease. Of 3,541 men in the study, 3.5% reported receiving treatment for depression, and 6.4% of the 2,023 women had been treated for depression.

After adjusting for heart attack risk factors, such as age, cholesterol, diabetes, and smoking, the depressed patients were still more than twice as likely to have a heart attack than those who were not depressed. That number rose to nearly 2.5 when cardiac procedures such as bypass surgery or angioplasty were taken into account. The incidence of hospitalizations or death from health problems not related to heart disease was similar in depressed and nondepressed patients, Cohen and his colleagues found.

Physiological and psychological changes that accompany depression may play a role in the increased heart attack risk, says Cohen.

Depressed people may take a wide variety of health risks, knowingly or not, says Cohen. Some examples include:

- **Behavioral risks** such as smoking, eating too much, or being physically inactive.

- **Hostility and anger** — “what was once known as Type A behavior.” Now we know that anger and hostility remain a risk factor. Depression, anger, and hostility are linked by anger at one’s self, Cohen says and have been shown to produce elevated catecholamines, increasing the risk for arrhythmia.

- **Physiological risks** associated with chronic elevation of serotonin levels that in turn are associated with stress, platelet aggregation, and coagulation. “Whatever is driving the depression may, with the serotonin receptors in parallel, be affecting the serotonin in the platelets,” says Cohen. For this reason, he hypothesizes, the use of selective serotonin reuptake inhibitors in depressed patients actually may reduce the risk of heart attack.

A complementary study from the University of Pittsburgh suggests that anger and depression predict atherosclerosis in women, in part through physical and behavioral risk factors such as high cholesterol, obesity, and smoking.

“Among women, there is evidence that psychosocial distress is prospectively associated with increased risk of disease and premature mortality from cardiovascular events,” wrote the study’s authors.

Researchers examined data on 688 women participating in the Women’s Ischemia Syndrome Evaluation (WISE) study, sponsored by the National Heart, Lung and Blood Institute in

CE questions

9. Outcomes of patients with stroke, heart disease, and diabetes are positively affected by:
A. hostility
B. severe mood swings
C. positive attitude
D. apathy
10. Which of the following may provide life-long protective benefits against Alzheimer's disease?
A. education
B. life-long mental stimulation
C. density of ideas early in life
D. all of the above
11. Some of the nuns who displayed the most intact mental faculties were found to have profound Alzheimer's-like brain damage upon post-mortem examination.
A. true
B. false
12. Daily rhythmic auditory stimulation therapy has been shown to increase:
A. walking speed
B. cadence
C. stride length
D. all of the above

Bethesda, MD. The study enrolled women ages 18 years and older who were referred for coronary angiography to evaluate suspected myocardial ischemia (MI).

Cynical hostility, defined as consistent lack of trust and bitterness toward others, also was associated with atherosclerosis risk factors such as smoking, poor physical fitness, and lower HDL levels.

The investigators initially detected an association between cynical hostility and high blood pressure, which was eliminated when they controlled for socioeconomic status. This suggests that low socioeconomic status may increase the risk for both cynical hostility and hypertension, investigators said.

This means psychological factors may serve as a red flag for the risk of heart disease, but they also may offer methods of reducing the risk of heart disease through behavioral interventions.

Center for Epidemiological Studies-Depression Scale

Patients should be asked whether they have experienced these 16 negative feelings and four positive feelings in the past week. Score 1 for "yes" on negative questions and 0 for "no." Positive questions are scored in reverse. A score of 9 or higher indicates depressive symptoms and warrants further examination.

1. I was bothered by things that usually don't bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt I could not shake off the blues even with help from my family and friends.
4. I felt I was just as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt that everything I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.
13. It seemed I talked less than usual.
14. I felt lonely.
15. People were unfriendly.
16. I enjoyed life.
17. I had crying spells.
18. I felt sad.
19. I felt that people disliked me.
20. I could not get going.

Source: Ostir GV, Markides KS, Peek MK, et al. The association between emotional well-being and the incidence of stroke in older adults. *Psychosom Med* 2001; 63:210-215.

The study showed that subjects with the highest scores on a depression scale were 2.5 times more likely to smoke than those with the lowest depression scores.

Those who scored highest for outward displays of anger were most likely to have high LDL cholesterol levels and low HDL levels. They also were more likely to be overweight or obese.

Finally, Ostir's MI study validates the other two recent reports, finding that every unit increase in the positive effect score resulted in a 10% decreased risk of MI.⁶ However, he did not find an increased risk for those with negative scores. The study looked at a three-year incidence of MI in a sample of 2,411 people ages 65 years and older.

Ostir suggests that decreased serotonin levels in platelets linked to depression increase coagulation and that increased release of norepinephrine and epinephrine, triggered by anger or hostility, decreases left ventricular ejection, causing coronary artery vasoconstriction. "Interventions targeted at improving an older person's emotional well-being may reduce the risk of MI and aid in the recovery process," he concludes.

Diabetes

Stress, attitude, and ability to cope are all factors in the seriousness of a patient's Type 1 diabetes and possibly in the progression of comorbidities of the disease, according to a review study from the University of South Carolina.

Reviewing data from three evaluations of 49 patients ages 40 and older with Type 1 diabetes, lead researcher **Kay McFarland**, MD, FACE, professor of medicine, found that the more positive meaning patients attribute to their illness, the better their mental and physical health.

Investigators used the Meaning of Illness questionnaire, which is divided into five subsets, to determine the impact of illness; the stress and negative attitudes of harm, loss, threat, and function; the degree of stress and coping resources; positive attitudes of hope; motivation and control; and the expectancy of a recurrence or worsening of the illness. It explores questions such as, "Do you think your health is going to get worse?" and "How anxious do you feel about your health?"

McFarland calls it a "bidirectional relationship" between the meaning attributed to an illness and the health outcomes. "What is clearly established is a connection between the two; the meaning of illness influences health outcomes and health outcomes affect the meaning attributed to the illness," she wrote.

"Nearly every patient understands the complications that can occur with diabetes, so I discuss that with them on the first visit and then drop it," says McFarland.

"I want to help empower people to take care of themselves. I don't think guilt or fear or a physician taking a parental approach to the issue are

effective motivators,” she says.

Her recommendation? “Explain HbA_{1c} levels to them and ask where they would like to be. Enlist their support. Make it a joint effort, a team approach. Once they have an agenda, they’ll buy into it,” she explains.

Healthy aging

“These are diseases commonly associated with the aging process, but I think they can convey a positive note, too. This can mean an active and healthy aging process for the vast majority of the population,” Ostir says.

Approximately 15% to 20% of older adults display some signs of clinical depression. But he sees the cup as half full.

“That means 80% have a healthy outlook on life and may be actively reducing their risk of strokes, heart attacks, and other diseases due to a healthy attitude — and the healthier lifestyle is so often associated with an upbeat attitude,” Ostir points out.

Clinicians should screen patients for depression or fatalistic attitudes, he says, and take action whenever it is necessary.

“An easy screen is just to ask,” Ostir explains. Asking goes beyond the ritualistic exchange of social niceties of “How are you?”/“I’m fine.”

“When you’re taking the blood pressure, just ask, ‘Now tell me how you really are.’ If a patient seems depressed, ask the question directly, Ostir recommends, and then probe a little more and see if there is a direct cause.

“If a spouse or close family member has recently died, depression might be expected. But if there is no obvious cause for depression, you’ll want to follow up and explore the subject more deeply,” he says.

Those simple questions may be enough, or clinicians can administer one of the many depression tests such as the CES-D to determine if pharmaceutical or behavioral interventions are necessary.

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A group of nuns offers knowledge about aging

Nun Study results expected to unfold for decades

For 15 years, David Snowdon, PhD, has deeply involved himself in the lives and deaths of 678 nuns, all members of the Roman Catholic School Sisters of Notre Dame.

Snowdon’s quest to unravel the mysteries of the human brain and the process of aging and dying has begun to reveal the intertwining relationships between longevity, Alzheimer’s disease, education, and the thought process. His work has rocked the scientific, medical, and psychological communities — and promises to continue to do so for another 20 years or more.

Snowdon, an epidemiologist and professor of neurology at the Sanders-Brown Center on Aging at the University of Kentucky in Lexington, has discovered truisms about human aging that have quickly become assimilated into our psyches.

Some examples include:

- If you’re happy, you’re likely to live longer.
- Education and a life-long use of mental

KEY POINTS

- Nun Study relates positive outlook on life to longevity and cognitive function late in life.
- Education, life-long mental stimulation, and density of ideas early in life may provide life-long protective benefits against Alzheimer’s disease.
- Symptomology often confounds pathology. Some of the nuns who displayed the most intact mental faculties were found to have profound brain damage upon post-mortem, and vice versa.

faculties reduces the symptoms of Alzheimer's disease.

- Alzheimer's appears to have its roots early in life, and there are many lifestyle factors, including education, nutrition, exercise, depression, and cardiovascular health that seem to play a role in its development.

- Complex thought patterns early in life may provide a life-long protection against loss of cognitive function.

- Ordinary foods in the diet can protect the brain.

- Intangibles like positive spirit, the support of community, and faith contribute to health and longevity.

"I think the most important thing we are learning from the Nun Study is how essential it is to stimulate our children's minds early in life," says **Rosa Li**, PhD, director of public policy at the National Institute on Aging in Bethesda, MD.

What we can learn from these remarkable nuns, many of whom have lived long beyond the century mark, is that by doing something as simple as reading to our children, we can offer them a boost toward a long and healthy life, says Li.

Treating study subjects with dignity

Before Snowdon began the Nun Study, he researched the lives of tens of thousands of participants, largely Lutherans and members of the Seventh Day Adventist Church.

When he first sought permission to study the School Sisters of Notre Dame, the congregation's leader, Sister Carmen Burg, agreed on one condition — that Snowdon treat the sisters as human beings and not as research subjects.

"She told me to go to the convents and get to know them as individuals," says Snowdon. "This of course flies in the face of the way scientists are trained in the name of 'objectivity.' But what a gift. I now have honorary great-nephew status with a group of remarkable women."

The nuns provided a treasure house of information for Snowdon and data unlikely to be replicated in any other setting since the women, ages 75 to 106 years, were available for the long-term needs of the study. They live in a communal setting with similar dietary intakes. They do not smoke, and they have no children. Each woman has agreed to donate her brain to the research process when she dies.

"Nuns are an ideal group to study because they live such similar lives -- that makes it easier

The Tragedy of Alzheimer's

Four million Americans have Alzheimer's disease, including one in 10 of people older than age 65 and nearly half of those older than age 85, according to the Alzheimer's Association in Chicago. The group said that without a cure or prevention, the number will jump to 14 million by 2050.

Alzheimer's is a progressive, degenerative brain disease. Victims experience confusion, personality and behavior changes, and impaired judgment. Most people with Alzheimer's disease become unable to care for themselves.

Source: Alzheimer's Association, Chicago.

to home in on the differences that really count," says Snowdon.

One of the greatest treasures Snowdon discovered in the congregation's archives, were one- and two-page autobiographies written by the nuns when they were in their early 20s, just before they took their religious vows.

"When we first discovered them, it was like we opened a fascinating time capsule," he says. "We have since discovered they have amazing predictive power."

For example, a linguistic measure called idea density was applied to the autobiographies, and it predicted who would get Alzheimer's 60 years later with 80% accuracy.

"The sisters who packed the most ideas into their sentences at age 22 were somehow protected at age 85," Snowdon marvels.

"We still don't know exactly what brain mechanism is involved, but other research has shown that Alzheimer's may be a life-long process," he adds.

A positive frame of mind

Another study, recently published, shows that the nuns who expressed the most positive emotions in their autobiographies lived longer on the average than those who expressed the least emotions. "Maintaining a positive attitude appears to be very important to living a long and healthy life," says Snowdon.

Snowdon also has been perplexed by apparent contradictions in the post-mortem examinations of some of the nuns' brains and their cognitive function in life.

“We have discovered sisters with the most extensive form of Alzheimer’s damage in their brains who performed brilliantly on our mental tests. We have discovered that a sister may be severely demented without having significant brain damage. In other words, the symptoms don’t always match the pathology,” he says.

Snowdon’s team also found that the cumulative brain damage caused by small strokes may tip the balance toward dementia. “Ultimately, that is good news, because we do know how to prevent strokes.”

Discounting myths about Alzheimer’s

The Nun Study also has discounted two popular myths about the cause of Alzheimer’s — the use of aluminum in soda cans and cookware and mercury in dental fillings. “They’re not factors,” says Snowdon.

Another piece of good news, says Snowdon: “Some of the healthiest brains we have found are in centenarians. So, even if we become extremely old, decline is not inevitable.”

The School Sisters of Notre Dame are extraordinarily long-lived, with a risk of death at any given year beyond age 65 at about 25% less than that of the general population of women in the United States.

Prescription for a long life?

What can medical professionals give to patients and families that might duplicate this longevity?

“Certainly education and a prudent healthy lifestyle play important roles — for example, none of the sisters smoke. But I believe that intangibles such as positive life purpose, spirituality, and a supportive community also are important,” Snowdon says.

(For more information:

• *Latest results can be found at the Nun Study web site: www.mc.uky.edu/nunnet/ or www.nunstudy.org.*

• *See: Snowdon D. Aging with Grace. New York City: Bantam Books; 2001.) ■*

FDA, FTC take action against comfrey products

Herbalist says action is politically motivated

The U.S. Food and Drug Administration (FDA) has advised manufacturers of dietary supplements containing comfrey to immediately remove their products from the market and urged consumers to stop using the products.

The government contends that the pyrrolizidine alkaloids in comfrey cause liver damage and are possible carcinogens.

At the same time, the Federal Trade Commission (FTC) filed charges against two supplement manufacturers marketing comfrey products on the Internet for making “unfounded claims that the products were beneficial in the treatment of a wide variety of serious diseases and health conditions and that they were safe.”

Christopher Enterprises Inc. of Springville, UT, and Western Botanicals Inc. of Fair Oaks, CA, agreed to stop marketing the products intended for internal use and on open wounds, the FTC said.

Comfrey falls into a gray area in terms of safety and efficacy, says **Christopher Hobbs**,

KEY POINTS

- The Food and Drug Administration (FDA) has notified dietary supplement manufacturers that it considers comfrey unsafe for internal use and for external use on broken skin.
- The Federal Trade Commission has filed charges against two supplement manufacturers for making “unfounded claims about the efficacy and safety of comfrey.”
- The government contends pyrrolizidine alkaloids in comfrey cause liver damage and are possible carcinogens.
- A noted herbalist argues that there is no evidence supporting the FDA’s action. Reports of adverse reactions are several years old and the individual cases cited are questionable.

LAc, AHG, a fourth-generation herbalist and botanist who practices in Williams, OR.

Both companies have agreed to include a warning on any comfrey products intended for topical use:

“Warning: External Use Only. Consuming this product can cause serious liver damage. This product contains comfrey. Comfrey contains pyrrolizidine alkaloids, which may cause serious illness or death. This product should not be taken

Highlights of the FDA Letter

- Comfrey is a source of pyrrolizidine alkaloids that present a serious health hazard to consumers when they are ingested.
- Comfrey contains pyrrolizidine alkaloids, substances that are firmly established to be hepatotoxins in animals.
- Reports in the scientific literature clearly associate oral exposure of comfrey and pyrrolizidine alkaloids with the occurrence of veno-occlusive disease (VOD) in animals. Moreover, outbreaks of hepatic VOD have been reported in other countries over the years and the toxicity of these substances in humans is generally accepted.
- Although information is generally lacking to establish a cause-effect relationship between comfrey ingestion and observed adverse effects humans, the adverse effects that have been seen are entirely consistent with the known effects of comfrey ingestion that have been described in the scientific literature.
- The pyrrolizidine alkaloids that are present in comfrey, in addition to being potent hepatotoxins, have been shown to be toxic to other tissues as well.

- There also is evidence that implicates these substances as carcinogens.
- Manufacturers bear the primary responsibility for ensuring that their dietary supplement products are safe. The agency strongly recommends that firms marketing a product contains comfrey or another source of pyrrolizidine alkaloids remove the product from their market and alert their customers to immediately stop using the product.
- The FDA also believes that manufacturers need to take adequate steps to identify and report adverse events, especially adverse events that may include liver disorders, associated with any product that contains an ingredient known to contain pyrrolizidine alkaloids.

** The letter was sent to: American Botanical Council, American Herbal Products Association, Council for Responsible Nutrition, Consumer Healthcare Products Association, National Nutritional Foods Association, Utah Natural Products Alliance, American Association of Oriental Medicine, and the American College of Acupuncturists and Traditional Medicine.*

Source: U.S. Food and Drug Administration, Rockville, MD.

orally, used as a suppository, or applied to broken skin.”

The FDA and FTC actions are overreactions, contends Hobbs.

“Millions of people have used comfrey and there have only been a few reports of adverse events -- of the three or four that were reported in the *Journal of the American Medical Association* seven or eight years ago, all are questionable. If the safety issue is all that serious, why didn't they take this action sooner?” asks Hobbs.

“It's the same old thing of throw everything out because of one toxic compound. It's a double standard, since numerous foods have toxic compounds, too,” says Hobbs.

Yet, some herbalists are willing to make comfrey a “sacrificial lamb,” says Hobbs, because there is little scientific evidence of its efficacy, and although it may be effective for numerous ailments, it is not irreplaceable in the herbal pharmacopeia.

“So there wasn't much of a fight, and that's of concern to me, because it seems like there's a

concerted campaign in the news media to discredit herbs,” Hobbs says. “Herbs are a multi-billion dollar industry that is taking away income from pharmaceutical companies.”

Dangerous substance?

The FDA declined to provide an official to be interviewed for this article, instead referring the writer to the published letter and news release.

Several people have become ill from taking comfrey as a dietary supplement or as a tea in the past four years, **Christine Lewis**, PhD, director of the FDA's office responsible for dietary supplements, wrote in a news release. There have been no reported deaths, Lewis said.

“It is a dangerous substance and we don't think it should be marketed,” she added.

No specific evidence of comfrey's toxicity was attached to the letter sent to major herb and supplement associations. **(For highlights from the FDA's letter, see box, above.)**

Comfrey is widely available and is commonly used topically as a salve or cream for sprains, bruises, wounds, and broken bones. It is used internally in the form of pills or teas for cough, stomach ulcers, and as an overall tonic.

In fact, as *Complementary Therapies in Chronic Care* goes to press, the popular Internet vitamin retailer VitaminShoppe.com, offered two capsule supplements containing comfrey and two creams.

Standing on principle

Hobbs' opposition to the FDA and FTC actions is more a matter of principle than one of great affection for comfrey.

"I don't recommend using the root of comfrey, and the leaves are most often used externally for bites and stings," says Hobbs. "It's not something you would use continually for a long period of time."

While roots and fresh young leaves may have high concentrations of pyrrolizidine alkaloids, mature leaves contain very few pyrrolizidine alkaloids, according to British research.¹

(For more information, go to the Food and Drug Administration's web site: <http://vm.cfsan.fda.gov>.)

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Take a little Yanni, and call me Bach

Music therapy is in wide use for chronic disease

The rehab room is anything but quiet. In one corner, a Parkinson's patient is engaged in a lively drum duet with a therapist.

Across the room, a woman who has had a stroke sways, waving her arms rhythmically to the beat of a Bach concerto her therapist is playing on an electronic keyboard. In an adjoining room, a young man with asthma plays a gentle air on a recorder.

And in a hospital half a dozen states away, a child with sickle cell anemia smiles at the guitarist by her side during a painful procedure.

On another floor, in the intensive care unit, a cancer patient recovering from a painful surgery is lulled into a peaceful, healing slumber by the muted strains of "Amazing Grace," played by her therapist on the keyboard.

Music is a universal language to calm fears and to soothe pains. Increasingly, music therapy has found its way into the clinical setting as a way of addressing a host of illnesses and disease process — directly and through pain relief.

Music therapists, board-certified graduates of one of 70 approved college and university music therapy programs, are found in hospitals, nursing homes, outpatient treatment centers, and a host of other medical and nonmedical settings throughout the country.

When was the last time you wrote "Bach" or "Beatles" on a prescription pad? Probably never. But proponents of music therapy want to remind you that music is powerful medicine.

Neurological disorders

"Music is of essential importance in understanding the brain and behavior," says **Michael Thaut**, PhD, professor of music and neuroscience at Colorado State University in Fort Collins.

Thaut's work with stroke and Alzheimer's patients has produced maps of the cortical and subcortical areas of the brain that perceive rhythm and synchronize movement with rhythm. It has resulted in rhythmic entrainment to improve the gait of patients with stroke, Parkinson's disease, cerebral palsy, and traumatic brain injury.

"We discovered about 10 years ago that the strong synchronization effect of rhythm on gait movements has a profound effect on the ability to walk," says Thaut.

"In fact, rhythmic training has produced sustainable improvements for people with all of

KEY POINTS

- Music therapy is being widely used to help rehabilitate patients with Parkinson's disease, stroke, and cerebral palsy by helping them move to a specific rhythm.
- Music therapy also is helpful in pain relief for a variety of chronic diseases.
- Music therapy has even been demonstrated to lower blood pressure and stimulate the production of natural killer cells.

these types of neurological disorders,” he adds.

In simple terms, Thaut says, rhythm helps retrain the nervous system. “It may begin with something as simple as moving arms to the music during some simple exercise. Then it can progress to walking, sitting down, and standing up.”

Think of a brass band playing marching music or a rock band thundering the bass at a steady pace. “It’s almost impossible not to stay in rhythm with the music. What we’re doing is taking a measured beat and using that same principal for neurological therapy,” says Thaut.

Thaut has published several studies, including one on patients with traumatic brain injury.¹ None had responded to traditional physical therapy, and all had passed the initial, three-month phase for spontaneous neurological recovery during which the most significant benefits usually occur.

A key, he says, is that each patient’s velocity and rhythm was analyzed at the beginning of the process and specific metronome beats were inserted into music that was played while they walked every day for five weeks. Patients increased their walking speed by 50%, their cadence by 16%, and their stride length by 29% with the daily rhythmic auditory stimulation therapy.

In practice, he says, similar results are obtained for patients with other neurological disorders.

It’s important to coordinate the structure of the music and the movement, so Thaut and most of his colleagues favor live music. Some patients will be slower and others faster, or their ability to keep to the rhythm may diminish as they become fatigued.

“We compose most of our own music because we have found that very specific rhythms work with very specific parts of the brain to help a patient execute movement in a coordinated way,” Thaut adds.

Treating chronic pain

Pain is a factor in almost every chronic disease process, and music has a role in relieving that pain, says **Joanne Loewy**, DA, a music therapist at Beth Israel Hospital in New York City.

Loewy has seen dramatic pain relief in adults and children with such painful conditions as sickle cell anemia, cancer, asthma, spinal pain, and pelvic inflammatory disease.

“In some cases, music can be a distractor from the pain, but I think that music, especially live

Why Music Therapy?

According to the American Music Therapy Association in Silver Spring, MD, music therapy intervention provides opportunities to:

- ♪ Explore personal feelings and therapeutic issues such as self-esteem or personal insight.
- ♪ Make positive changes in mood and emotional status.
- ♪ Have a sense of control over life through successful experiences.
- ♪ Enhance awareness of self and environment.
- ♪ Express one’s self verbally and nonverbally.
- ♪ Develop coping and relaxing skills.
- ♪ Support healthy feelings and thoughts.
- ♪ Improve reality testing and problem-solving skills.
- ♪ Interact socially with others.
- ♪ Develop independence and decision-making skills.
- ♪ Improve concentration and attention span.
- ♪ Adopt positive forms of behavior.
- ♪ Resolve conflicts leading to strong family and peer relationships.

music, acts as an integrator,” she says.

Loewy explains that live music helps a patient integrate the breath with the heart rate and the mind in the process of entraining.

Music, coupled with an art exercise, also helps young patients communicate to health care professionals where the pain is and its intensity.

“Let the music carry you on a journey away to a place where there is no pain. See where the pain is. Then draw where the pain is using these colors,” Loewy says to the young patient with sickle cell anemia.

“Often we get new clues about the pain from this exercise,” says Loewy. “The pain may be

directly due to a physiological condition, but they may be holding emotional pain as well — pain of trauma or sexual abuse — and this helps us identify it.”

Music may, in its simplest form, help a patient relax the muscles and relieve pain through that simple release.

Anxiety is always a component in chronic disease, but the benefits of music therapy may go beyond that.

Listen to the music of the individual

Loewy, who devotes a large portion of her work to children, says observing the child is an important way of understanding what he or she is feeling and thinking.

“Observation is central to the act of understanding and feeling another being’s music of the body. By music, I am referring to a person’s rhythm of breath, patterns of speech, and pitch of sentences expressed, as well as the dance of his or her every movement. Each of us is a musical being, even without musical instruments,” she says.

“If we listen carefully, we can feel the music of a person’s being,” Loewy adds.

For example, Loewy says, music can help a patient’s ability to void: “Drumming in particular has enhanced the flow and release of energy, beginning from the outside of the body and affecting movement and eventual release from inside the body.

“As patients actively structure and control their own body’s ability to create rhythms for sustained periods, the body responds and rids itself of waste,” she explains.

Specific instruments have specific effects on pain, keeping in mind that each person experiences pain differently and that some people hold their pain in and others want to release it, Loewy says.

“For a person who wants to be nurtured, violin music is soothing and releasing. For a person who is angry about the pain, drumming might work better,” she explains.

“Music is also a wonderful way to help people transition from life to death,” Loewy says.

Depending on patients’ ages, a favorite prayer or hymn might be used to calm anxieties and give them comfort, creating an atmosphere of safety.

“I can watch the breath and the heart rate and the mood, and adjust the music as it is needed,” she says.

“We know at death, the last sense to go is the sense of hearing, so we can relieve the pain and anxiety with a song of comfort,” Loewy adds.

Music’s effect on cardiovascular system

Several studies show music therapy is a tool that can address anxiety and discomfort associated with a variety of chronic diseases and hospitalization due to those illnesses.

One Japanese study showed significant changes in natural killer (NK) cell activity in

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patients with Alzheimer's disease, Parkinson's disease, and cerebrovessel disease after a single music therapy session.² The researchers wrote: "The results indicate that music therapy can significantly increase NK cell count and activity. The change in NK cell and function were independent of neurodegenerative diseases."

Patients with heart disease and hypertension have benefited from music therapy as well.

Reducing blood pressure

An Israeli study shows that hypertensive patients given a home treatment device that combines slow, regular breathing using musical sound patterns for two months reduced systolic blood pressure by 15.2 mm Hg, diastolic pressure by 10.07 mm Hg, and mean arterial pressure (MAP) by 11.7 mm Hg. A control group that listened to quiet music with no particular beat inserted had smaller reductions: systolic 11.3, diastolic 5.6, and MAP 7.5.³

And finally, a study at Massachusetts General Hospital in Boston showed cardiac patients on bed rest because of invasive cardiac procedures responded to a single 30-minute music therapy session with reduced blood pressure, respiratory rate, and psychological distress.⁴

"Some people may think we just play music and people relax and that's the end of it," says Thaut. "Our research is not anecdotal. It's conducted in a scientific manner and the results are verifiable."

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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. ■