

VA Research Currents

RESEARCH NEWS FROM THE U.S. DEPT. OF VETERANS AFFAIRS



Photo by Tommy Leonard

Glenn Cuff served as a peer mentor in a diabetes study at the Philadelphia VA Medical Center.

Buddy system

African American Veterans with diabetes benefit from peer mentor program

In a study at the Philadelphia VA Medical Center, African American Veterans with hard-to-control diabetes who were matched with peer mentors made significant gains in keeping their blood sugar in check. The results appeared March 20 in the *Annals of Internal Medicine*.

The study included 118 African American Veterans, all of whom were having trouble controlling their diabetes.

One group received telephone counseling from peer mentors—other African American Veterans with diabetes who had overcome their own struggles to keep their blood sugar at healthy levels. After a brief training session, the mentors

earned a small reward—\$20 per month—if they contacted the person they were helping at least once a week throughout the six-month study.

A second group received standard medical care, with no additional supports.

A third group was assigned to the “financial incentive” arm of the study. They became eligible for up to \$200 at the end of the study if they were able to significantly lower their blood sugar.

Of the three arms, the peer group made the biggest gains. On average, their hemoglobin A1C—a measure of blood sugar over the past two to three months—

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Study: ‘Mantram’ meditation eases PTSD

VA researchers and colleagues have reported promising results from a study of a simple meditation technique in which Veterans silently repeated a word or phrase that was spiritually meaningful to them. The technique helped lessen posttraumatic stress in nearly a third of the participants, say researchers at the VA San Diego Healthcare System. The findings are online in the journal *Psychological Trauma: Theory, Research, Practice, and Policy*.

According to nurse researcher Jill Bormann, PhD, RN, the study’s lead author, the Veterans were first taught to silently repeat a “mantram” during non-stressful times throughout the day and before falling asleep. They then learned how to use the mantram when facing stressful situations, such as traffic jams, flashbacks, arguments, or physical pain.

The study also taught two related techniques: mentally slowing down, and doing only one thing at a time. Bormann said all three techniques work together to promote a sense of inner calm and wellness.

She defines a “mantram” as a “sacred, powerful word or phrase.” Veterans in the study chose mantrams that had personal meaning for them. Bormann points out there are distinctions between “mantram” and the more familiar “mantra,” which is often used as an affirmation or motto. The mantram method is based on the work of

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dropped about a point, from 9.8 to 8.7 percent. Good control for those with diabetes is considered around 7.5 to 8 percent.

The usual-care group saw only a slight drop in their hemoglobin A1C levels, from 9.9 to 9.8 percent. The financial incentive group showed a modest improvement—from 9.5 to 9.1 percent—but it was not statistically significant.

Because the study lasted only six months and the study population was relatively small, the authors say further research is needed. On the whole, though, the results jibe with those from past studies in which mentoring or reciprocal peer support helped patients with diabetes—particularly minorities—boost their medication adherence, diet, exercise, blood glucose monitoring, and glucose control.

“Peer mentoring appears to be an excellent way to enhance self-management for this group of patients,” says lead author Judith Long, MD, an internist with VA and the University of Pennsylvania. “Among other reasons for the intervention’s success,



Sweet talk—Peer mentor Glenn Cuff says he would share sugar-cutting strategies and other advice with the Veterans he helped as a diabetes peer mentor.

we believe there was a strong culture of camaraderie among the Veterans who took part in the study.” She says social support is a critical factor in helping patients manage chronic illness, but friends and family are often not able to fill the role.

The study was led by a team at VA’s Center for Health Equity Research and Promotion, based in Philadelphia and Pittsburgh. They collaborated with colleagues from the University of Pennsylvania and Carnegie Mellon University. Funding was provided by VA and the National Institute on Aging. ➔

National VA Research Week

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Flying high with diabetes: Story of a peer mentor

Today a member of the Civil Air Patrol who takes part in search and rescue missions, Glenn Cuff remembers when his military flying career was cut short because of his weight.

“I went into the Air Force the first time for six years,” he says. “When I went to re-up they said I was too fat to fly. I had gained too much weight and had unhealthy habits.”

Cuff would go on to join the Army Reserve, then the Air Force Reserve. Later, he became an employee of US Airways and worked his way up through various jobs with the company, eventually going back to school and getting his wings as a commuter pilot.

Still, he struggled with health problems related to his weight. At his heaviest, Cuff, 5 feet 10 inches tall, weighed 365.

“Back when I got so sick because of my weight and the complications, I became homeless, even though I had a college degree and a pilot’s license, and I had owned houses and cars,” recalls Cuff.

Through hard work over several years, he turned his life around. He lost 125 pounds. Getting his diabetes under control was also part of the effort.

“When I was first diagnosed with diabetes I was in bad shape and my [hemoglobin] A1C was up near 10. ... Getting healthy was a team effort with my doctor, trial and error with exercise, diet and different medications.”

Among other community service, Cuff volunteers at a Vet Center, the Philadelphia VA Medical Center, and a Veterans of Foreign Wars post. He says he wants to “give back to my brother and sister Vets.” The peer-mentor research at the Philadelphia VA was a natural fit for him.

Read more on Cuff’s experiences as a diabetes peer mentor at www.research.va.gov/currents.

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Seeking the ‘optimal dose’ for seniors’ weightlifting

Marcas Bamman, PhD, was a competitive soccer and basketball player in his younger days. Running up and down a field or court demanded lots of stamina, and skillful handling of the ball required endless hours of practice. But it was another aspect of sports that caught his scientific curiosity: What exactly makes muscles bigger and stronger? And what is it that causes them to lose their mass and strength?

Today, Bamman is exploring these questions as a research scientist with VA and the University of Alabama at Birmingham. His work focuses on older adults.

The answers Bamman is seeking have more to do with than just using or not using muscles. That’s only the beginning. His research goes deeper:

- What is the ideal strength-training regimen for older people?
- What biological factors lead a person to respond better to one form of exercise over another?
- What molecular mechanisms can be targeted to turn atrophying muscle cells into growing ones? And can the work lead to new treatments for diseases that involve muscle atrophy or wasting?

Giving seniors a ‘fighting chance’

Regarding the first question, Bamman, who directs mobility research for the Geriatric Research, Education and Clinical Center at the Birmingham VA, recalls the specific episode that sparked his interest.

He and other researchers with VA and UAB conducted a clinical trial from 2001 to 2006 comparing exercise outcomes in young versus older volunteers. They used the standard strength-training regimen recommended by most professional societies: three times per week, high-intensity.

“What we found was that the older folks adapted, but not nearly as well as the young,” recounts Bamman. “You might say sure, young people are always going to adapt and perform better than older people, younger muscles are going to adapt more favorably than older ones. But we didn’t want to accept that as the end of the story. Maybe we don’t have the optimal dose for the old. Maybe we’re not giving them a fighting chance.”

Bamman and his colleagues have now been working to discover the right training recipe, one that might give seniors a



Study in strength—Researcher Dr. Marc Bamman (right), with VA and the University of Alabama at Birmingham, talks with study participant Barbara Wiggins and exercise physiologist Craig Tuggle.

better “fighting chance.” For the past five years or so, study volunteers aged 60 to 75 have been working out in a gym on the UAB campus under the watchful eyes of researchers and trainers with the VA and the university. A last wave of volunteers is expected to complete the study within a couple of months. The project is funded by the National Institute on Aging.

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Study participant Barbara Wiggins performs a strength-training exercise as exercise physiologist Craig Tuggle looks on.

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The volunteers, about 70 men and women, go through four weeks of pre-training and then 30 weeks of sweat- and grunt-inducing workouts. But the training is harder for some than others.

That's because the workouts vary, depending on which of four groups the volunteer is in. One group does a high-intensity workout three times per week. Another does high intensity two days per week. A third does high intensity on Monday and low intensity on Friday. The fourth does high, low, high on Monday, Wednesday, and Friday, respectively.

High intensity means more weight is lifted; low intensity means less weight. The low-intensity regimen in this case involves lifting a load that's only 40 percent of the person's maximum, for only

one set of 12 repetitions. "We have them stop, even though they probably could go on and do 25 to 30 reps," notes Bamman.

What's more, his team, with the help of a machine shop, has fitted standard weight machines with hydraulic cylinders to support the weight stack on its way down. This setup is used for the light-intensity workouts. Bamman explains what this means for participants' muscles:

"When you do weight training, typically you push or pull a weight and then you lower it back down. We took out all that lowering work, which is known as eccentric contraction, or eccentric loading. That's when the muscles are lengthening, and that's where you get all your soreness. When you lift a weight, that's called concentric. That's when muscles are shortening. If all you do is concentric work, you really don't get much delayed-onset soreness or inflammation. Some of that delayed soreness and inflammation is good, but too much is bad."

Using the lighter loads and only muscle-shortening movements, the researchers also wanted to "develop as much explosive muscle power as we could" in the participants. "We have them move the load very fast," says Bamman.

Finding the 'optimal dose'

By tracking how older people respond to different versions of strength training, Bamman hopes to identify an "optimal dose"—at least for the majority of exercisers. This means getting to the desired body composition—namely, stronger and larger muscles—with the least effort.

"Frankly, not every older adult should be prescribed the exact same program," acknowledges Bamman. "But in the end, when we complete this project, we will have enough data to identify responders and non-responders in each of the four prescriptions. While it's true that no one size fits all, because of genetic predispositions and all the other factors that play into it, at least we can come away from the study and say with prescription A, only 65 percent respond well, whereas on prescription C, 85 percent respond well. We'll be able to say for most people, such-and-such prescription is optimal. I do think one program will rise to the top for most people."

Bamman expects the findings will yield insights to help not only the older population at large, but also those coping with chronic diseases.

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MANTRAM *(from page 1)*

Indian-born spiritual teacher Eknath Easwaran. Bormann has adapted it over the past decade to be relevant to Veterans' needs.

The study included 146 Veterans of various ages, mostly men, all with military-related PTSD. All received standard treatment—medication and case management. VA also offers psychotherapy for PTSD, including prolonged exposure therapy, but the Veterans in the study had not yet engaged in this form of treatment.

The volunteers were divided randomly into two groups. One group took part in weekly classes to learn the mantram method, known formally in VA as the Mantram Repetition Program. After six weeks, the researchers tested their mental health. They saw greater improvements among the mantram group than among the standard-care group. The areas that benefited most included core PTSD symptoms such as hyperarousal; depression; overall mental health-related quality of life; and spiritual well-being.

While all the Veterans improved somewhat across most measures, 30 percent of those in the mantram group no longer met the diagnostic criteria for PTSD, compared with only 14 percent in the standard-care group.

A 'portable, invisible' technique

Bormann says mantram repetition differs from most other relaxation or meditation techniques in that it can be used discreetly anywhere, anytime—even while sitting in traffic, for example, or in line at the supermarket. "It's personal, portable and invisible," she explains. "It's a non-drug

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A meditative Marine

Tim Bahr was an active duty Marine from 1972 to 1992, and as a reservist was called back to active duty in 2005, serving in Iraq. He says that throughout his military career, he has been to "most of the 'garden spots' Marines tend to be sent when the need arises."

Today, the fit 58-year-old remains in the Individual Ready Reserves, but he's got another important role: As a certified peer specialist at a VA clinic in rural Wisconsin, he leads support groups for Veterans and their spouses. He also teaches the mantram method, as a certified facilitator, and is an avid practitioner himself.

"As a Veteran with many years of service to this great country of ours, as well as a Veteran with posttraumatic stress, I've learned to use my mantram to help me manage the adverse effects of my many years of military service—including my time down range," he shares.

Bahr works at the Rhinelander Community-Based Outpatient Clinic, near the Iron Mountain (Wisc.) VA Medical Center. He first learned about mantrams from the clinic's psychologist, Rod Linder, PsyD. At the time, Bahr was a volunteer looking to help fellow Veterans.

"I must say I was very leery of entering the classroom the first time for the mantram class because I'm not much of a TM [transcendental meditation] kind of guy," recalls Bahr. "It didn't take me long to learn that this was not TM, but rather a way to initiate a pausing action in my cyclic thinking." He learned to make choices about how to respond in the moment to stressful situations, rather than have the "same reaction each and every time."

At first, he tracked how many times a day he would repeat his mantram. The average was 12. Now, it's become automatic, instinctual. "Because I've been able to internalize my mantram as yet another tool to help me



Photo courtesy of Tim Bahr
Tim Bahr (left) during his tour in Iraq.

manage my daily life, it sometimes surprises me when I happen to notice I'm using it," he says.

Faced with a distressing sight, sound, smell, or event—something that triggers memories of war—Bahr finds that the technique cuts his stress significantly. "Having my mantram pop into my mind without me having to actually initiate it on my own—this lessens the adverse reaction." He says that as a result, he has a "much better quality of life."

One thing the Marine emphasizes to the Veterans he works with is that the mantram method—like any other treatment approach—is not a silver bullet. "Learning how to use a mantram will not take away all your challenges, nor will your use of a mantram work each and every time," says Bahr. He also points out the technique must be practiced regularly. "It's a tool, and it must be used and sharpened if you want it to be sharp when the need arises."



What makes Navy SEALs tick? Study suggests key to stress control

A study by VA researchers and colleagues in San Diego sheds light on how special operations forces are able to keep their cool and perform well under extreme stress.

The study used MRI scans to compare brain activity in 10 Navy SEALs with brain activity in 11 healthy male subjects of the same age. The scans were done as the volunteers switched back and forth between viewing positive images and negative ones, showing troops in combat. The positive pictures were preceded by a green shape and an audio tone. The negative ones were preceded by a red shape and a higher-pitched tone.

During the task, the SEALs showed more activity in parts of the brain linked to emotional control—the middle insula and bilateral frontal lobes. According to the researchers, this means they were “less reactive to anticipatory stressors.” They had less anticipatory anxiety over what would happen in the next moment.

“The problem with anxiety isn’t when you are anxious in a stressful situation,” lead researcher Alan Simmons, PhD, told the *San Diego Union*

Tribune. “It’s when you are anxious before that situation ever happens. That’s when it really starts to wear on you.”

The authors say the study “suggests that optimal performance is achieved through discrete focus of attention.” The SEALs were more focused in the moment: less anxious about what would happen in the next few seconds, and less affected by what happened a few seconds ago.

The study couldn’t determine whether this ability of the elite warriors was innate or the result of their super-intense training. Either way, the researchers say further research could lead to insights to benefit military training in general.

Simmons is with VA’s Center of Excellence for Stress and Mental Health and the University of California, San Diego. Coauthors on the study were from the Naval Health Research Center, the University of Texas, and other institutions. (*NeuroReport*, March 7, 2012)

Men, women equally likely to use VA homeless services

Investigators with VA and Yale University found that male and female Veterans who use VA care are equally likely to access a VA homelessness program.

They studied a national population of 445,319 Veterans of the wars in Iraq and Afghanistan who had at least one VA clinic visit between October 2001 and September 2009. About 12 percent were women.

Of this total patient sample, more than 7,000 had used a VA homeless program, such as HUD-VA supported housing.

Of these Veterans, 961 were women—1.8 percent of the total group of 53,650 female VA users during the study period—and 6,470 were men, about 1.7 percent of the total population of 391,669 male VA users during the study period. In other terms, roughly the same percentage of men and women used a VA homeless program.



Photo by Frank Corrao

Veteran Gladys Colon (right) is seen at a VA clinic geared to Veterans coping with homelessness.

The researchers concluded that “overall, there was no substantial difference in the sex-specific risk of using a VA homeless program. In light of this finding, VHA homeless programs must be prepared to recognize the unique needs of female OEF/OIF Veterans.” (*Medical Care*, April 2012)

For complete information on
Veterans and homelessness:
[www.va.gov/
homeless](http://www.va.gov/homeless)

WEIGHTLIFTING *(from page 4)*

“This dosing idea is something we want to carry into multiple diseases, not just aging,” says Bamman. “As a consequence of living many years with congestive heart failure, or chronic kidney disease, or osteoarthritis, or COPD, one of the side effects that often goes ignored is muscle atrophy. People will have a physical and functional decline due to the loss of muscle tissue. That’s on top of the normal aging atrophy.”

Bamman’s pursuit—learning how to get the most bang for the buck out of weightlifting—may yield important knowledge to help Veterans and others in failing health.

One study now under way by the VA-UAB group is enrolling people with Parkinson’s disease. “We think we can impact their symptoms, their quality of life,” says Bamman. “One of their primary complaints is fatigability, and we think we can have a big impact on that through strength training.”

In the optimal-prescription study, in addition to tracking participants’ outcomes, the researchers are analyzing tissue samples in the lab. So far, they’ve noted that genetic expression profiles seen in muscle tissue affect how people respond to training, although the study isn’t large enough to pinpoint the role of specific genes.

Another key factor, says Bamman, may be the amount of muscle stem cells in muscle tissue. These cells mature into new muscle cells to replace old or damaged ones.

Bamman hopes his group’s findings and insights—from the gym and the lab—will eventually impact how trainers, physiologists, and physical therapists work with older people. —

Read an expanded version of this story online at www.research.va.gov/currents.

Inside: The finer points of strength-training for seniors

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approach that is safe, immediately available, and inexpensive.”

Her past studies have found positive effects from the technique among Veterans, family caregivers, and VA employees. VA recently funded Bormann for a new study of 324 Veterans with PTSD that will compare the Mantram Repetition Program over eight weeks to a treatment called Present-Centered Group Therapy.

While the new study will evaluate mantrams as a stand-alone therapy, Bormann points out that the technique could also play a role in helping Veterans engage in prolonged exposure therapy. In this treatment, patients are guided by therapists as they gradually re-experience the painful emotions surrounding their trauma. Some Veterans are reluctant to try the therapy, but Bormann believes the mantram technique could make it more tolerable for them.

VA also recently funded two new studies of a meditation technique known as Mindfulness-Based Stress Reduction (MBSR) to see if the method can help Veterans with PTSD. Those studies are based in Minneapolis and Tuscaloosa. MBSR was developed at the University of Massachusetts in the late 1970s.



Thought leader—Dr. Jill Bormann of the San Diego VA has led efforts to develop, teach, and evaluate a VA meditation program called the Mantram Repetition Program.

Bormann’s recently completed study was supported by the Nursing Research Initiative of VA’s Health Services Research and Development Service.

Bormann and study coauthors Steven Thorp, PhD, and Ariel Lang, PhD, are with the Center of Excellence for Stress and Mental Health at the VA San Diego Healthcare System. Other coauthors were Julie Wetherell, PhD, and Shahrokh Golshan, PhD, both with VA and the University of California, San Diego. ➔

Suicide prevention: What works?

A team with VA’s Evidence-Based Synthesis Program systematically reviewed scores of past studies to identify the most effective interventions and practices in suicide prevention in Veteran and military populations. Their March 2012 report appears on the Web at www.hsrd.research.va.gov/publications/esp/suicide-interventions.cfm.