

REHAB (from page 1)

While the findings suggest pluses to both methods, the cognitive approach resulted in better short-term gains in mental function and was more effective in helping younger patients return to work or school. The functional method led to higher rates of independent living among older patients. Both methods had been validated in prior research but had never been tested head-to-head.

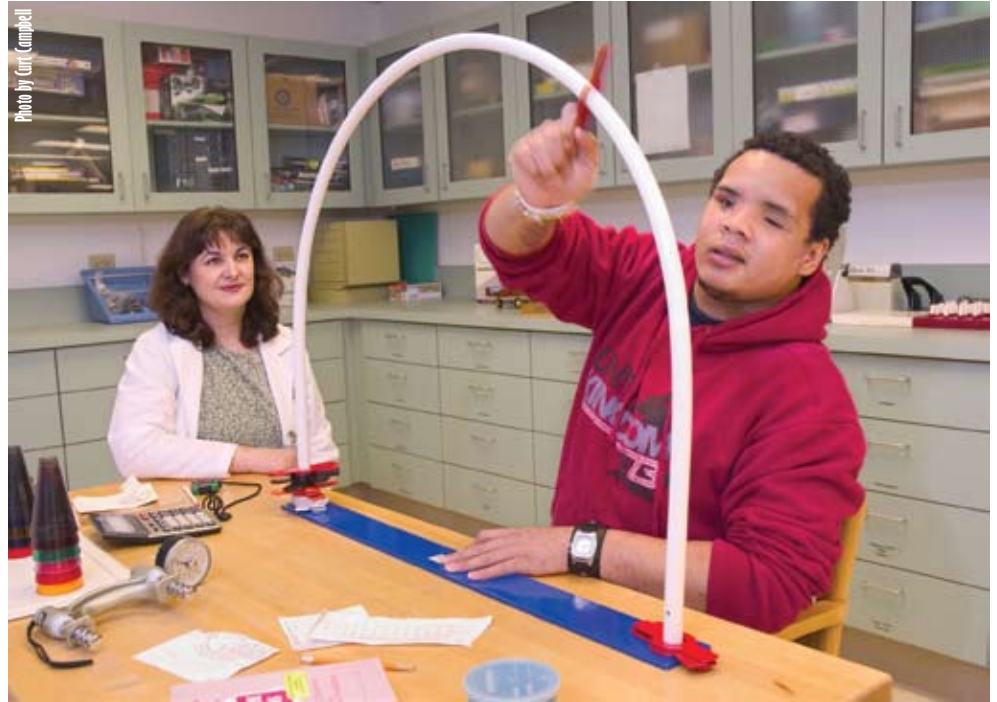
Long-term gains from both approaches

“Our results show long-term functional improvements in both groups,” said lead author Rodney Vanderploeg, PhD, a research psychologist at the Tampa VA Medical Center and University of South Florida. At one year after treatment, he said, about 6 in 10 study participants overall were employed and living independently. “This is remarkable,” wrote Vanderploeg and colleagues, “given that none were capable of work or independent living at baseline” and 90 percent had brain injuries that were considered severe.

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A long road back—Marine Cpl. Jason Poole, seen here with occupational therapist Daniela Lita, underwent intensive rehabilitation therapy at the VA Palo Alto Health Care System after suffering a brain injury and other severe wounds from an improvised explosive device (IED) in Iraq in 2004.

The study included 360 veterans or active-duty troops, mostly men, with moderate to severe TBI. Enrollment for the study ran from 1996 to May 2003, shortly after the onset of the war in Iraq. As such, most of the participants sustained their injuries not in combat but in vehicle crashes, falls or other incidents.

Meanwhile, though, TBI has come to be known as the “signature injury” of the wars in Iraq and Afghanistan, affecting some 20 percent of injured troops. So the results of the DVBIC study are highly relevant for Department of Defense and VA, although there may be ways in which TBI caused by blasts—the most common scenario in the current wars—differs from brain injuries sustained otherwise.

The trial was conducted at VA’s four main polytrauma centers, in Tampa, Richmond, Palo Alto and Minneapolis. Patients, all in the acute phase of

rehabilitation, were randomly assigned to one of two approaches:

- In the cognitive-didactic approach, the emphasis was on helping study participants relearn thinking skills.
- In the functional-experiential approach, the focus was on giving participants hands-on practice doing everyday tasks.

Younger patients fare better with ‘cognitive’ method

Over a month or two, each group received about two hours per day of therapy specific to their study arm. For example, the cognitive group worked on paper-and-pencil or computerized tests that became progressively more difficult, with the explicit goal of sharpening their mental skills. The functional group, on the other

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hand, received extra help going through the physical motions of everyday activities such as dining and grooming.

Each group also received additional physical, occupational and speech therapy in which the therapists used either a cognitive or functional approach. In the cognitive group, therapists offered more verbal instruction and encouraged learning through trial and error. They asked questions such as “How do you think you did?” or “What do you need to do now?” to promote thinking and self awareness. In the functional group, therapists did less verbal teaching and emphasized “learning by doing.” They offered more hands-on, step-by-step support to help patients successfully complete tasks. The aim was to ingrain the physical movements and thereby promote implicit learning.

The researchers tested participants’ cognitive abilities and everyday functioning before and after treatment and one year later. Among the findings:

- **Overall function was similar between the two groups after one year.** For example, in the cognitive study arm, 65 out of 167 participants (38.9 percent) were working or in school. In the functional group, the rate was 68 out of 164 (35.4 percent). The difference was not statistically significant. (Follow-up data were not available on all 360 study participants.)

Recap of TBI conference

Creating a registry of veterans who have suffered a TBI and tracking long-term effects of the condition were among the priorities outlined at an international conference of TBI clinicians and researchers hosted by VA in Washington, DC, on Nov. 17 – 18, 2008. A full summary of the conference appears on the VA research website at www.research.va.gov.

- **Immediate posttreatment cognitive function was better in the cognitive group.** This was measured with tests in areas such as comprehension, expression, social interaction, problem solving and memory. Cognitive-arm participants also reported fewer memory problems after one year.

- **Younger patients (those age 30 or under) in the cognitive arm had a higher rate of return to work or school than their age peers in the functional arm.** On the other hand, older patients and those with more years of education in the functional arm were more likely to be living independently at one year than similar participants in the cognitive group.

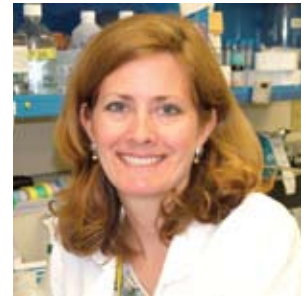
The study authors offered a tentative analysis of why younger and older patients may have benefited differently from the two approaches:

“...These findings suggest that the cognitive treatment not only better enhances cognitive recovery but also lays a stronger foundation for the development of work-related cognitive skills. This effect appears to be most prominent in younger patients, who may benefit more from the higher level of structure and teaching provided in the cognitive approach to treatment. The functional approach generally provided less structure and did not offer problem-solving strategies and approaches. Older or more educated persons, who may already have internalized structure and independence, seemed to benefit more from the direct living skills emphasized in the functional interventions.”

The DVBIC (www.dvbic.org) is a multi-site center for medical care, clinical research and education on TBI. Funded by the Department of Defense, the program involves clinicians and investigators from DoD, VA, and academic and private medical centers. Since 2007, the center has been part of the newly established Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury. —

Presidential award to VA bone researcher

VA rheumatologist and bone researcher Mary Beth Humphrey, MD, PhD, was among a group of scientists from 11 federal agencies who



Dr. Mary Beth Humphrey

received Presidential Early Career Awards for Scientists and Engineers at the White House on Dec. 19.

The annual awards, established in 1996 by the National Science and Technology Council, recognize top young scientists and engineers for their “innovative research at the frontiers of science and technology” and for their scientific leadership and community outreach.

Humphrey sees patients and conducts lab research at the Oklahoma City VA Medical Center and University of Oklahoma Health Sciences Center. She specializes in “osteimmunology”—a relatively new field that merges bone biology with immunology. She studies osteoclasts, cells that chew away old bone so new bone can be formed. In diseases such as osteoporosis, too many of these cells are active, resulting in bone loss.

Says Humphrey, “Our understanding of the normal signals that can activate osteoclasts will lead to novel therapeutic targets that can be designed to block these signals, thus inhibiting osteoclasts and preventing bone destruction in osteoporosis or inflammatory bone diseases such as rheumatoid arthritis.” She notes that many of the diseases she studies and treats are increasingly common in the VA population.

As part of the award, Humphrey will receive \$125,000 over five years from VA’s Office of Research and Development in support of her research. —

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VTC are about the same as those with in-person therapy. Researchers have seen reductions in PTSD symptoms—usually the main study outcome—but they’ve also seen ample evidence that the technology doesn’t crimp relationships among veterans who are in group therapy together, or between veterans and providers.

Morland’s group recently concluded a study with 127 veterans who had PTSD and needed help with anger management. About half received in-person therapy, while the others participated in video sessions at VA outpatient clinics on Hawaii’s Big Island, Maui or other outlying sites.

“We found both approaches to be clinically effective,” says Morland, “and we found no difference in process variables like trust, satisfaction, cohesion. We had very low attrition.” The psychologist says that “a

‘Improving access to care for rural populations is a huge priority for VA, and it’s going to put a lot of emphasis on the role of telemental health.’

—Dr. Leslie Morland, Honolulu division, VA’s National Center for PTSD



big issue with PTSD care is making sure people continue to come to therapy.”

The anger study was a particularly good test of VTC, notes Morland. “One of the research questions we had was whether we could work with a lot of ‘affect’ in the room—a lot of emotion, people getting

angry before they even come into the group. We found it wasn’t a problem.”

In today’s era of Webcams and iPhones, the technology of VTC may seem ho-hum. But there’s a lot of coordination required

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Arkansas-based study will use interactive video for PTSD therapy

A number of VA research groups besides Morland’s are doing work in the area of PTSD and telehealth, based in locations from San Diego to Boston.

The research is increasingly important because PTSD accounts for half of the mental health disorders VA treats among veterans of operations Enduring Freedom and Iraqi Freedom—and more than 40 percent of these veterans live in rural areas.

A prime example of the work is a new study led by John Fortney, PhD, with VA’s Center for Mental Health and Outcomes Research in Little Rock. The project will involve 400 veterans from nine community-based outpatient clinics (CBOCs) in Arkansas, Louisiana and California. Telehealth teams including a nurse care manager, pharmacist, psychologist and psychiatrist will use videoteleconferencing to provide cognitive processing therapy and deliver other care and support via telephone.

The group has successfully tested a similar model of depression care. Says Fortney, “It will be more challenging, but

we believe PTSD outcomes can also be improved using telemedicine interventions.”

Nearly a third of VA’s 738 CBOCs already offer mental health care through interactive video. Fortney says these clinical sites are likely to play an even greater role in the future in connecting veterans in rural areas with VA specialists at larger centers—especially for PTSD care.

Fortney points out that cognitive processing therapy (CPT) is one of the evidence-based treatments for PTSD that is particularly well-suited to video sessions. “CPT lends itself well to telemedicine applications because it’s a highly structured therapy and much of the benefit derives from patients completing homework assignments and practicing new skills outside the therapy session,” says the researcher. “These activities occur between interactive video sessions with the therapist and are not likely to be affected by the mode of delivery.” ➔

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before and during each session, says Morland. Her group's anger study proceeded with hardly any glitches. They held 120 video sessions and never had to cancel or reschedule due to technical problems.

She acknowledges that because they were doing a funded study, enough resources were in place to prevent any mishaps, both in terms of staff and equipment. Still, she asserts that with good coordination, VTC can be used smoothly in routine clinical settings.

Coordination is key

One of the keys, she says, is having an information-technology person on call to troubleshoot technical snags. Another is making sure there is adequate bandwidth. It also helps to make calls between only two points, rather than involving multiple sites. Above all, staff at both ends have to call and email ahead of time to make sure everything is in place.

“When things aren't planned, that's when things can go wrong,” warns Morland. “That's when veterans and providers say, ‘I don't want to do this.’”

It's especially important that the first few sessions go well, she says. “You have only a couple of opportunities to show it will work; otherwise, veterans may start to get frustrated.”

The Honolulu group just launched a new study of VTC for cognitive processing therapy, one of the evidence-based PTSD treatments used most commonly by VA clinicians.

Morland stresses that the research focuses not on validating the treatment itself—it's already been shown effective in many studies—but on showing whether VTC can produce the same results as in-person therapy.

VA is telehealth leader

The term “telehealth” means providing care, education and support to patients in remote locations through technologies such as videoteleconferencing, telephone, email or the Internet. The term “telemedicine” is usually used more narrowly, encompassing the curative aspect of health care but not educational or preventive programs.

VA has been cited by the Institute of Medicine for its pacesetter work in telehealth, and the agency's researchers have contributed numerous papers to the medical literature documenting that telehealth can be as effective as in-person care.

A complete overview of VA telehealth can be found at www.carecoordination.va.gov, but here are some examples of how the program works:

- Visiting nurses take digital photos of homebound patients' skin wounds and email the images from their laptops to a secure website, where they are viewed online or downloaded by dermatologists.
- Psychiatrists talk via video with veterans in rural areas who have depression, PTSD or other conditions and make recommendations to the patients' primary care doctors.

She points out that not everyone is an instant believer. “Anytime there's something novel, there's going to be a segment of the population that's resistant.” That's the case with patients and perhaps even more so with the providers who have to deliver the service, she says. Getting their buy-in is crucial to spreading the use of VTC and other telehealth methods in VA. But with VA's increasing needs to serve



Telehealth systems such as this one allow veterans to take their vital statistics at home and transmit the readings via phone lines to VA clinics for monitoring.

- Veterans with diabetes get eye exams at local clinics that have specialized imaging equipment. The images are sent electronically to experts who check for signs of retinal disease.
- VA patients log onto a secure website where they can access key parts of their health record and refill prescriptions.
- Speech pathologists located at VA medical centers use video to provide therapy to post-stroke veterans in rural areas.

veterans in rural areas—and a strong evidence base for psychotherapy for PTSD—even skeptics are finding it hard to deny the promise of telehealth. Further research may win them over for good.

“We need to look at whether we're going to achieve the same clinical effectiveness,” says Morland. “If we are, then we can say this isn't a second-rate service. We know this works.” —

