This soldier, who experienced the loss of both legs and a traumatic brain injury, has used the services of the VA Polytrauma Transitional Rehabilitation Program to improve his physical, cognitive, communicative, behavioral, psychological, and social functioning.

PHOTOGRAPH COURTESY OF THE U.S. DEPARTMENT OF VETERANS AFFAIRS

The New Wounds of War

Polytrauma Care and Occupational Therapy

STEPHANIE YAMKOVENKO

More service members are surviving complex injuries than ever before. Occupational therapy plays an important role in treating polytrauma.

More sophisticated body armor and helmets, advances in battlefield medicine, and quick evacuations mean more wounded service members survive severe and complicated injuries in the current fighting in Iraq and Afghanistan than ever before. Whereas only two soldiers survived wounds per every death in World War II, nearly seven or eight service members survive per each death in the Iraq and Afghanistan wars.[1]

The increased survival rate comes at a great price, though: high demand for treating *polytrauma*, defined by the Department of Veterans Affairs (VA) as two or more injuries to physical regions or organ systems that may or may not be life threatening and result in physical, cognitive, psychological, or psychosocial impairments and functional disability.[2] With occupational therapy as a critical part of the rehabilitation teams, both the Department of Defense (DoD) and VA have worked hard to apply the latest in medical and therapeutic expertise to treatment both on the battlefield and stateside, after service members have returned home.

POLYTRAUMA INCREASING AMONG SERVICE MEMBERS

First, of course, comes the cause of the polytrauma. Two out of three wounded service members are injured by explosions or blasts—such as those from improvised explosive devices placed roadside or hidden in buildings—that can result in what has become the signature injury of the wars in Iraq and Afghanistan, traumatic brain injury (TBI).[1] In addition to TBI—which more than 31,000 service members had in some form in 2010[3]—service members are returning from the battlefield with vision and hearing loss, nerve damage,

multiple bone fractures, unhealed body wounds, infections, and severed limbs or spinal cords.

Extremities are at greatest risk of complex injuries because they are least shielded by personal protective equipment and, in recent years, the number of amputations has increased dramatically—86 service members in 2009 had major limb loss in Afghanistan; in 2010 that number more than doubled to 187 with major limb loss and 72 with multiple amputations; and 9 months into 2011 there already had been more service members with multiple amputations than in all of 2010.[4]

"When a soldier is deployed, he or she is assigned to a unit, but when a soldier has a significant injury, he or she may be reassigned to a different unit because they are pulled out, getting medical and rehabilitative care, while the rest of their unit is continuing on their mission," says Mary Radomski, PhD, OTR/L, FAOTA, clinical scientist and a fellow at the Army Office of the Surgeon General's Division of Rehabilitation and Reintegration. "These army units, called Warrior Transition Units, are located stateside or in some areas overseas. The job of the soldier assigned to a Warrior Transition Unit is to heal as he or she transitions back to duty or continues serving the nation as a veteran in his or her community. OTs are assets to the Warrior Transition Units as they work to help the soldier develop realistic goals and transition back to a productive life."

[Montz] believes that **occupational therapy's unique contribution** to the rehabilitation process is to help service members make sense of the ideal and the reality.

Smoot notes that service members often set unrealistic goals for themselves, yet are flexible about modifying them. "You help them see what a more appropriate goal may be and help them have successes in building toward that."

SPEARHEADING POLYTRAUMA CARE

Major Robert Montz, MS, OTR/L, CHT, CSCS, occupational therapy chief at Guthrie Ambulatory Health Care Clinic at Fort Drum, New York, notes that wounded service members move from the point of injury through different combat hospitals in Iraq or Afghanistan.

"Usually if the injuries are pretty severe, we [occupational therapy practitioners] may only see them for a few days [in the combat hospital] until they are stabilized," Montz says.

The service members are then sent to Landstuhl Medical Center, in Germany, where medical teams ensure they are stable enough to be flown to a military treatment facility in the United States. From there, service members being treated for polytrauma are increasingly handled by a program the army calls Warrior Transition Units, which it created in 2004 to better care for severely wounded warriors by providing personalized support for those whose injuries, illnesses, or disabilities require more than 6 months of medical treatment.[5]

Colonel James Ficke, MD, chairman of the Department of Orthopaedic Surgery and Rehabilitation at Brooke Army Medical Center at Fort Sam Houston, Texas, recognizes the key role occupational therapy practitioners play in these units. "It is occupational therapy," says Ficke. "It is how to get those individuals back to being soldiers again."

Every wounded service member receives individualized care based on his or her circumstances. Some service members with polytrauma never make it back to active duty, but instead they retire from the military and move into the care of the VA.

"To retire from the military is a long process," says Colonel Jonathan Jaffin, chief of staff, Complex Battle Injury Work Group, Office of the Surgeon General. "The more injuries you have—the more complex your injuries—the longer the process. We don't want to just throw them out."

Jaffin says the DoD works closely with the VA to determine the best type of care for each service member. Some service members will remain on active duty but get treatment at the VA polytrauma centers. Others will choose to receive care at a civilian rehabilitation center to be closer to their families.

"We try to really individualize it for what is best with that individual and their family," says Jaffin. "We really look at not just certain physical characteristics, but we look at what is best for their family, what's best for their emotional state."

The VA created a polytrauma network that has dedicated team members focusing solely on polytrauma and consists of five polytrauma rehabilitation centers, 18 polytrauma network sites, and 85 polytrauma support clinics around the country.

"The VA has an assigned team to care for the polytrauma veterans. It's a specialty service; just as if you were to go to the hospital for audiology, we're a specialty clinic that they are referred to," says Mandyleigh Smoot, MOT, OTR/L, occupational therapy chief at the Veteran Health Administration's Minneapolis Polytrauma Network Site. "They get an evaluation by a physician or a physiatrist and then they move to the desired team members. We have a strong team focus."

Whether a service member with polytrauma is in a Warrior Transition Unit, a polytrauma network site, a VA hospital, or any other military medical treatment facility, Smoot says that rehabilitation services provided by a team of clinicians, including occupational therapy practitioners, can vary widely, just as the exact nature of polytrauma varies according to the individual.

POLYTRAUMA GOALS

In discussing occupational therapy treatment with service members, the operative term is often *long term.* When an occupational therapy practitioner begins working with a service member with polytrauma, they discuss the desired goals and outcomes.

Above, left: An airman who received TBI and other injuries as the result of an accident while serving in Germany works on arm and hand function; the activity simulates shopping for produce. Right: Polytrauma care has helped him return to his family and valued occupations.

Occupational therapy practitioners have to **help service members get a clear picture of the rehabilitation process** and the types of smaller milestones they have to achieve before, and if, they return to active duty.

"When you see them early on, and they have been injured in the theater, their whole goal is to typically get back with their unit," says Lisa Smurr, MS, OTR/L, CHT, supervisor of occupational therapy at the Center for Intrepid, Department of Orthopedics and Rehabilitation, Brooke Army Medical Center. "Some of them haven't come off that combat high, and oftentimes their goals are, 'I want to get up and be able to run, I want to go back and fight, I want to get back with my unit.'"

Occupational therapy practitioners have to help service members get a clear picture of the rehabilitation process and the types of smaller milestones they have to achieve before, and if, they return to active duty. Montz says that every service member with an injury has the same goal—to be as independent as possible. He has found that the majority of soldiers want to get back to their military tasks and jobs.

"There are some common skills that all soldiers must be able to do," says Montz. "We're really focusing on some of those skills as a foundation, and then working up to the more complex tasks of their military jobs."

He believes that occupational therapy's unique contribution to the rehabilitation process is to help service members make sense of the ideal and the reality.

Smoot notes that service members often set unrealistic goals for themselves, yet are flexible about modifying them. "You help them see what a more appropriate goal may be and help them have successes in building toward that," she says. "We've had a lot of success in having their goals match our goals with a little bit of work."

SETTING GOALS

Deborah Voydetich, OTR/L, central office occupational therapy discipline lead at the VA, says that brain injuries frequently can affect a service member's insight and awareness.

"It's really working on that insight factor and helping them in any way possible to gain awareness of how their strengths and weaknesses have changed since their injury and to strengthen their weak areas," she says.

Regardless of the goals or the severity of injuries, the fundamentals of occupational therapy do not change.

"We address their functional impairments regardless of the cause," says Voydetich. "We really want them to maximize their level of participation and their independence, but the complexity can vary the approach. We have found that the team approach and the collaborative team effort are so essential in these complex cases."

No matter how unrealistic a goal may seem, occupational therapy practitioners working with polytrauma do not want to assume that any goal is unattainable.

"I don't want to take away that sense of hope and their desires," says Voydetich. "That's so important to have that investment and involvement, and a lot of times we don't really know what's realistic based on how they're going to recover, because some of these service members really have surprised us with their outcomes."

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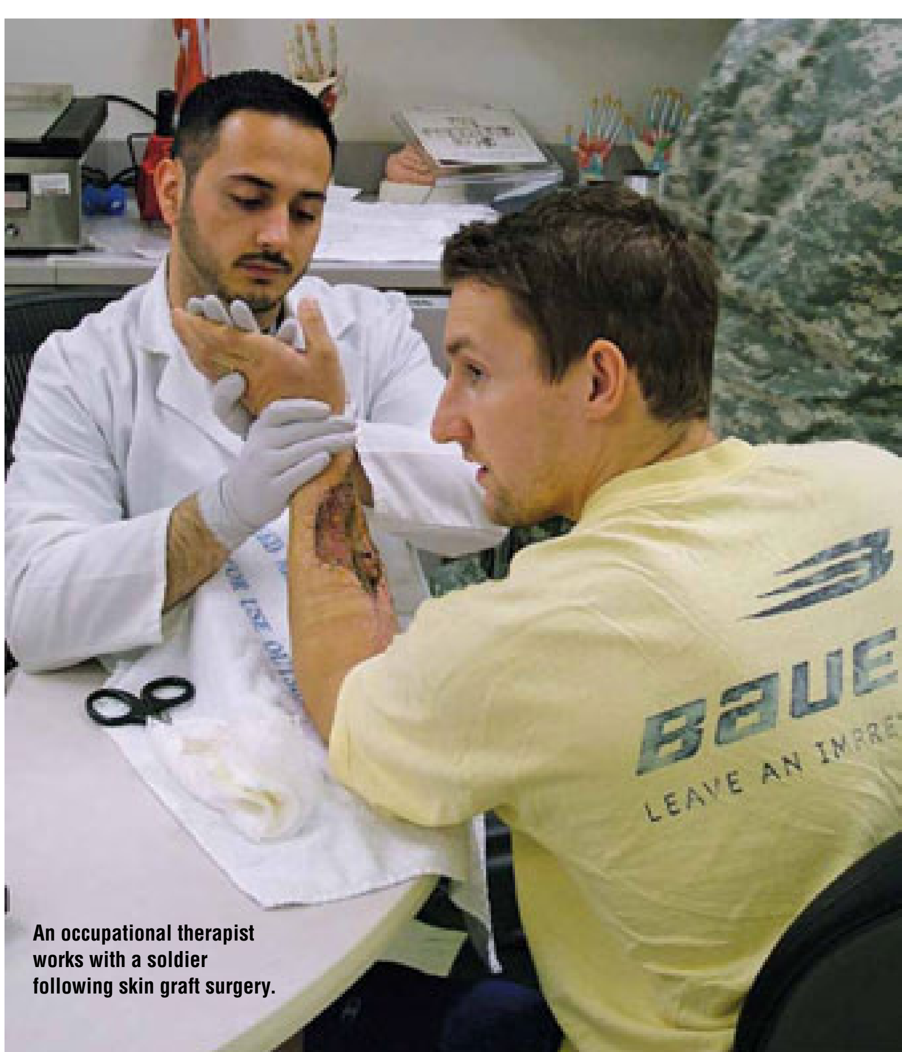
Occupational therapy practitioners develop treatment plans and therapeutic activities that will give service members not only independence, but also hope.

"It is critical to take care of the absolute rudimentary self-care skills like toileting, oral hygiene, and feeding then build from there," says Smurr. "You've got to try to get that person independent and give him or her those skills back as soon as possible so they don't sit and ruminate and become depressed."

Montz tries to develop leisure interests and tasks with his clients with polytrauma to give them other activities that make them not just soldiers, but also human beings who interact with their families, spouses, and children. Practitioners also teach service members with polytrauma the life skills they might not have learned before joining the military.

"For some of these individuals, they are learning new [instrumental activities of daily living] skills such as budgeting and meal preparation for the first time," says Radomski. "OTs are involved in re-teaching those skills. There may be service members who joined the military at a very young age—they were living with their parents, they graduated high school, and then they joined the army. Now these are young adults who are coming back from war and who are trying to learn some basic management skills."



An occupational therapist works with a soldier following skin graft surgery.

PHOTOGRAPH COURTESY OF THE U.S. ARMY

"There isn't a recipe book for this population— it really is about each individual patient and their family's goals."

MENTAL HEALTH NEEDS

One key area of focus is mental health. After military deployment, about 15% of service members have mental health problems such as depression, anxiety, and posttraumatic stress disorder.[4] However, the number is much higher for service members who have had a combat-related amputation, with reports suggesting that two of every three service members with an amputation has at least one behavioral health condition.[4] Addressing the mental health needs of wounded warriors with polytrauma is crucial.

Montz says he looks at physical injuries and mental health issues as one, because he believes you cannot have one without the other.

"If an occupational therapist just looks at the physical injury, then I think we're missing more than half of the picture," he says. "The mental component of what a soldier is going through with his injury, how he's interacting with his family because of his injury, what are the perceptions of his injury—I think all of those play a valuable and integral role in the whole therapeutic process."

Depression, mood disorders, and adjustment disorders could have been present in service members before their injury but might have been overlooked, according to Voydetich. These issues might also affect how the service member is coping with the current injury, so occupational therapy practitioners have to look at the service member holistically to be sure to address both physical and mental health issues.

"We've really learned the benefit of breathing strategies, relaxation, and mindfulness-based training," says Smoot. "That's a core place of where we start on a lot of our patients because to be able to participate, they are really having to learn how to self-manage to have better cognition

or to be able to not have the anxiety surrounding their disorder, whether it's new or old."

JOB REQUIREMENTS

Occupational therapy practitioners working with polytrauma must frequently exercise their clinical thinking and reasoning skills, says Smurr. The more injuries service members face, the more difficult their recovery can be, and occupational therapy practitioners need to look at each client holistically to develop a creative treatment plan.

"You have to understand how each of the processes of the person's injuries can influence one another. [Polytrauma] does require you to think creatively and to come up with rehab plans that are going to be meaningful and purposeful. "

Montz says that the work he is doing with polytrauma is not trial and error, per se, but occupational therapy practitioners have to willing to try lots of different things.

"There are no textbooks; we are literally writing the doctrine on how these types of injuries need to be treated," he says. "In my experience, the trial and error tends to be more because you are trying to individualize that treatment plan and the therapeutic activities to the soldier. The soldiers have different military specialties, different interests, and different aspirations, and a lot of times that leads to you trying one thing [that worked with a different client] and finding that it may not work and trying the next thing to get them independent."

"There isn't a recipe book for this population—it really is about each individual patient and their family's goals," says Smoot. "We don't have a checklist, and I think sometimes that's frustrating for people when they are seeing polytrauma patients."

Occupational therapy practitioners work with a team to help service members with polytrauma, but the profession's holistic focus makes it especially useful in polytrauma care. "Occupational therapy is one of the professions that looks the most at the whole picture," says Smoot. "One of the things that we've learned over the years with working with people with complex systems is the importance of being very holistic."

Montz notes that the occupational therapist comes up with the treatment plan of the activities for that soldier to interact with their environment, whether that environment is back on active duty, in a civilian job, or at home.

"I think that is the unique role that we bring to the rehabilitation process, coming up with those activities to allow these soldiers to engage in life," he says.

One example provided by Voydetich of a wounded service member who has continually beaten the odds to accomplish what many may have thought were unrealistic goals is Marine Corporal Todd Nicely, who was only the second American to survive after losing both arms and legs. The quadruple amputee wanted to get back in the driver's seat. With the help of occupational therapist Pat Niewoehner, OTR/L, CDRS, Nicely uses specialized driving equipment to operate a vehicle safely.

ADVANTAGES OF WORKING WITH DOD AND VA

Practitioners working for the army and the VA are quick to point out the advantages they have over traditional civilian settings. Occupational therapy practice on the civilian side usually has to align with payment systems and the structures of rehabilitation, according to Radomski. Those structures do not influence military medical practice to the same extent.

"For our active duty service members, we're not limited by insurance. We will see our patients for the amount of time that they need to be seen until they can really maximize their function to the absolute fullest," says Smurr.

FOR MORE INFORMATION

Emerging Niche: Veteran and Wounded Warrior Care
http://aota.org/Practitioners/PracticeAreas/EmergingAreas/RDP/Veteran.aspx

OT Connections Forum
http://otconnections.aota.org/forums/7364.aspx

Fact Sheet on OT's Role With PTSD
www.aota.org/Practitioners/PracticeAreas/MentalHealth/Fact-Sheets/PTSD.aspx?FT=.pdf

Fact Sheet on Community Reintegration
www.aota.org/Consumers/Professionals/WhatIsOT/RDP/Facts/Reintegration.aspx?FT=.pdf

Societal Statement on Combat-Related Posttraumatic Stress
www.aota.org/Practitioners/PracticeAreas/MentalHealth/Highlights/PTS.aspx

Neurorehabilitation SPCC Series: Core Concepts, Traumatic Brain Injury, & Stroke
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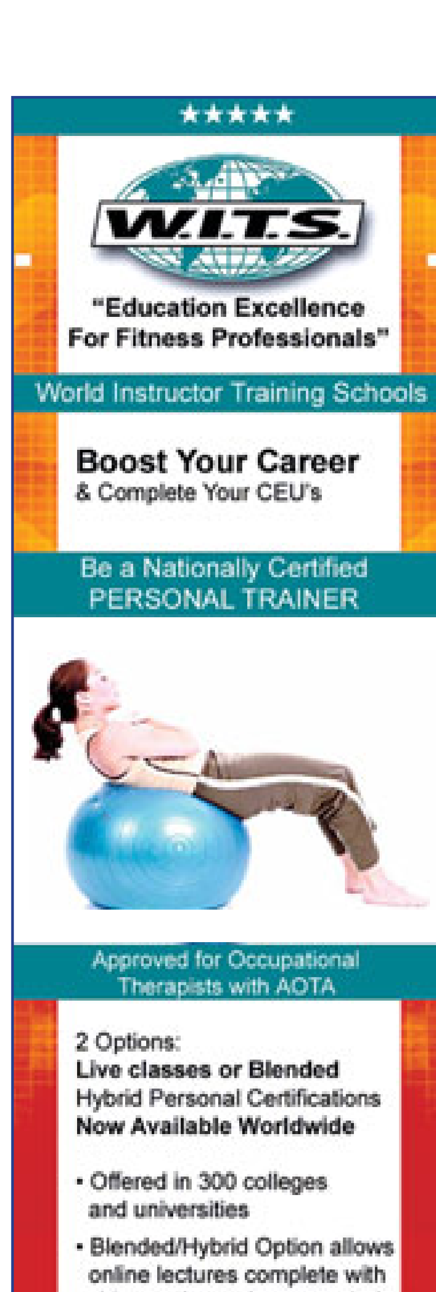

"We take them from getting their clothes on to being involved in sports and recreational activities like biking, wheelchair basketball, or kayaking."

Working with the VA and the DoD has its advantages—the best equipment, good resources, and support. Voydetich says that if a veteran needs a device that will help increase independence, practitioners have access to just about anything if, in their clinical judgment, they believe it will help achieve his or her goals. "I'm always trying to sell people into working for the VA system," she says. "I can't say enough about what we have to offer here."

DEVELOPING EVIDENCE ON POLYTRAUMA

The integrated and holistic occupational therapy provided to wounded warriors in World War I and II inspired and advanced the development of the profession. Indeed, rehabilitation in the army will celebrate its 100th year in 2017, the same year as occupational therapy's centennial. Prior to 1917, there was little possibility of medical rehabilitation for soldiers.[6] For nearly 100 years, occupational therapy practitioners have played an important role in rehabilitating wounded service members by working with the DoD or the VA. Today, the work of occupational therapy practitioners with service members with polytrauma returning from the wars in Iraq and Afghanistan can similarly establish new best practice protocols and shape the future of the profession.[7]

"History has shown that the advances that medicine and rehabilitation have made in wars past has spurred new ideas, new inventions, and new ways to use resources that are all aimed at giving soldiers a more independent, promising outlook," says Montz.

As part of her fellowship with the U.S. Army Office of the Surgeon General's Rehabilitation and Reintegration Division, Radomski is piloting a project she believes will help develop evidence and close knowledge gaps by being ready to respond to funding opportunities.

"Within the military there are opportunities for funding, but oftentimes there's relatively short notice as to when the pre-proposal or the letter of intent is due," says Radomski. "Historically there have been military rehabilitation research funding opportunities, and occupational therapists have not even applied."

Radomski is creating teams of civilian researchers and military and VA clinicians to ensure that occupational therapy is now poised to respond quickly. Her group, Research Development to Address Rehabilitation, Reintegration, and Resilience, has already submitted two proposals for military funding. "It's definitely my view that if we don't have a formal strategy around [receiving military funding for occupational therapy research], the problem will not cure itself," she says.

Developing evidence for working with polytrauma requires a team approach.

"I think that the VA and the DoD do have a responsibility to advance research," says Voydetich. "We are the leaders of the field in this area of care, and I think we really need to work together to provide best practices and guidance, as well as involvement in research to make sure that what we are doing is, indeed, successful." ■

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