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MARK PORTLAND

Former Army Sgt. Brian Doyne lost his hand in Iraq. Now an instructor, he prepares a tool used to dismantle explosives.

'I look down at my arm sometimes and wish my hand was still there'

By Jasmin Persch
DAILY BREEZE

Growing up in a military family, Sgt. Brian Doyne always knew he would join the armed forces.

His time came in 1996 when he joined the U.S. Army National Guard in Fayetteville, Ga. Two years later, he joined the U.S. Army full time. After working a desk job for a few years, he found his calling in 2001: disarming bombs.

"The people in the job, they are saving lives and making an immediate effect on people's lives," 27-year-old Doyne said. "It doesn't involve shuffling papers. It's making an area safe."

After receiving training for the job, he deployed to Afghanistan in 2003 and then to Iraq on Valentine's Day 2005.

Ten days later, Doyne and another soldier were sent out to investigate an improvised explosive device that had blown up a battle tank just north of Tikrit, more than 100 miles north of Baghdad. They combed the area for other explosives but found none. Doyne walked back to the truck for gloves and plastic bags to gather forensic evidence on the one that had detonated.

Suddenly, he was sent flying. He knew what was happening, but denied that they were the next to die in Iraq. The explosive, about

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SURVIVOR

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9 yards away from Doyne, had killed the other soldier, his best friend, on impact.

"I thought, 'This is going to hurt when I hit the ground,'" he said. Pain didn't fog his mind when he landed. He screamed for help because he knew without it, he would die. "I saw my left hand hanging off my left elbow," Doyne said. "I remember thinking 'Oh s---.'"

Medics arrived. As they treated him, another explosive went off more than 30 yards away. No one was injured. Doyne stayed in Iraq until he stabilized. Then he went to Landstuhl, Germany, and finally to Walter Reed Army Medical Center in Washington, D.C.

"My whole body was pretty much shattered," he said.

Doctors told him he would never walk or if so with a limp.

"I respect your opinion, but you've wasted eight years in medical school," said Doyne, recalling what he told the doctors.

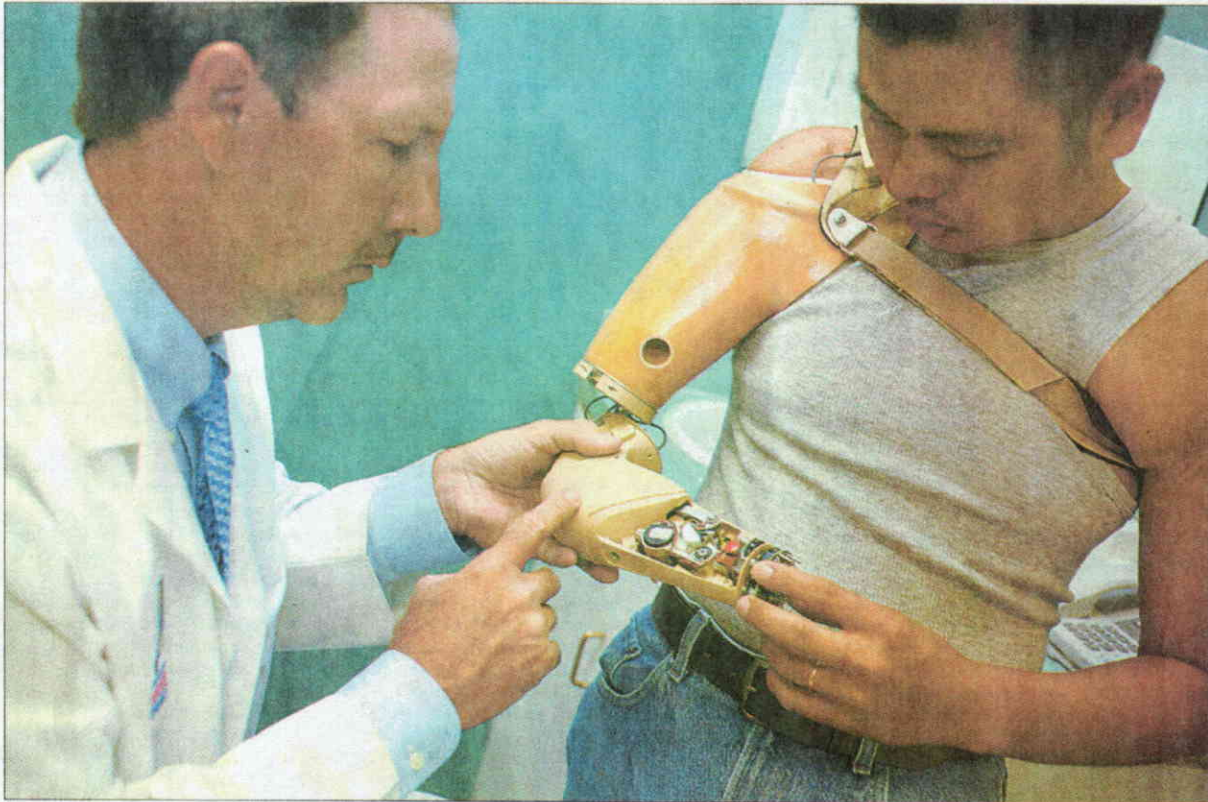
Doyne now walks without a limp and runs, too. The explosion left him with body scars and without an eye and arm.

"I look down at my arm sometimes and wish my hand was still there," he said. "I don't dwell on it. I don't try to wish myself back."

Doyne originally wanted to continue dismantling IEDs for the Army, which turned him down. He refused to take a desk job, so he left the Army. But Doyne lives out his calling by training others to do what he did. He contracts as an anti-terrorist instructor with A-T Solutions Inc. in Fredericksburg, Va.

With his prosthetic hands, he manipulates electronics, swims, does push-ups and lifts weights.

Redondo Beach-based Advanced Arm Dynamics is working on getting him an artificial arm for rock climbing.



COURTESY OF ADVANCED ARM DYNAMICS

John Miguelez, owner of Advanced Arm Dynamics, evaluates a prosthesis for Phong Tran, who lost his arm working as a machinist. He now works at Nike.

A FITTING MISSION

RB firm matches active young amputees with latest tools

By Jasmin Persch
DAILY BREEZE

About three and a half years ago, the U.S. Department of Defense rang John Miguelez in Redondo Beach to ask if he'd evaluate five upper-limb amputees at Walter Reed Army Medical Center in Washington, D.C.

A plane awaited him at LAX.

Miguelez was used to traveling worldwide to see amputees. "There are not a lot of them; we have to go to patients," he said.

The call to help five amputees eventually led

to a clientele of more than 125 as the Department of Defense placed Miguelez's Redondo Beach-based company, Advanced Arm Dynamics, on the front line of upper-limb prosthetic care for soldiers returning from the wars in Iraq and Afghanistan.

Miguelez works as an upper-extremity prosthetist who helps amputees choose, wear and use artificial arms that allow them to carry out their desired activities. Options include cosmetic ones that look good, resembling



ROBERT CASILLAS/DAILY BREEZE

Replacing arms and hands with a variety of tools using advanced technology has become the focus of Advanced Arm Dynamics firm in Redondo Beach.

PROGRESS

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amputees' real arms, but don't provide much functionality. Others such as a hook will allow them to grip but will stand out. Amputees usually have two or more for different occasions.

Since that first call, a team of artificial-arm specialists from the company have traveled regularly to Walter Reed to replace amputees' lost arms with advanced prosthetics and train them to use the technology.

The Department of Defense has awarded Advanced Arm Dynamics numerous contracts, most recently a three-year contract for about \$36 million.

The wars in Iraq and Afghanistan accelerated artificial-arm progress previously slowed down by its limited number of patients. Now soldiers, shielded by fortified armor, are returning home alive but some without a hand or arm. This new type of amputee — young and active — is prodding progress.

Preparing for an active life

"We're introducing new technology and getting incredible feedback (from soldiers)," Miguelez said. "They're 18 to 23, grew up with computers, want hand-eye coordination. Their focus is to get back to being 'with my group of guys' in Iraq."

Army Sgt. Brian Doyne is one of them. He lost his left hand during an explosion in Iraq last year. Doyne, who worked as a bomb disarmer, originally wanted to continue his job in Iraq, but the Army advised against it. So he left the military and now is an anti-terrorism instructor.

After receiving medical treatment in Iraq and Germany, Doyne came to Walter Reed. At first, the idea of an artificial arm turned him off.

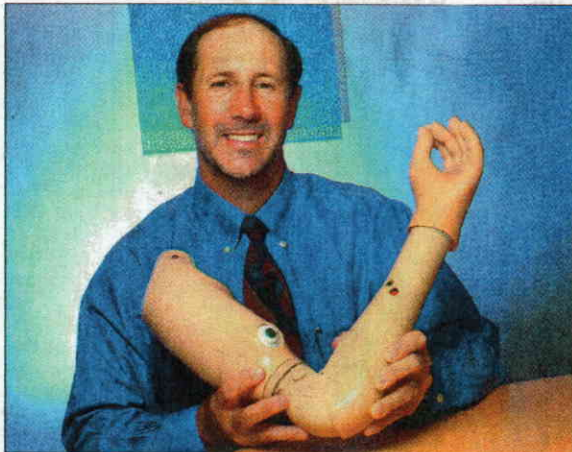
"The only one I'd ever seen was the old-fashioned hook and cable," Doyne said. Another soldier, also an amputee, encouraged him at his hospital bed, showing him his prosthesis.

"Your life isn't over," Doyne recalls him saying. "You're still going to be able to function." After meeting with Advanced Arm Dynamics, he was surprised by what the world of prosthesis offered.

He was fitted with a hand prosthesis that he could move by flexing certain muscles. "The hardest part was getting muscle memory down, flex this to open and that to close, to get it to become second nature," the 27-year-old Doyne said.

Like many upper-limb amputees at Walter Reed, he was determined to learn to use his prosthesis.

"He kept on coming to us and telling us what wasn't working," said Kristi Wolfram, a liaison between patients and channels that provide them prosthetics including manufacturers, physicians and insurance companies.



ROBERT CASILLAS/DAILY BREEZE
John Miguelez of Advanced Arm Dynamics in Redondo Beach travels often to Walter Reed Army Medical Center to equip soldiers with advanced tools.

Doyne said Advanced Arm Dynamics helped him find prostheses that allow him to swim, do push ups, and lift weights.

"They were always willing to work with me, what I wanted to accomplish and my lifestyle," he said. The company is working on getting him an artificial arm for rock climbing.

Doyne said being at Walter Reed with other amputees with similar experiences made his recovery easier. But self-pity was not tolerated.

"We're a tough crowd," he said. "The morbid jokes we tell would shock a lot of people. I'd rather poke fun of myself rather than be pitted."

Civilians also benefit

Advanced Arm Dynamics' close relationship with prosthesis manufacturers allows it to test out new technology and point out glitches. The novel prosthetics are introduced at Walter Reed first but eventually trickle down to civilians.

Phong Tran has worn his prosthesis for three years. He's eager for an upgrade.

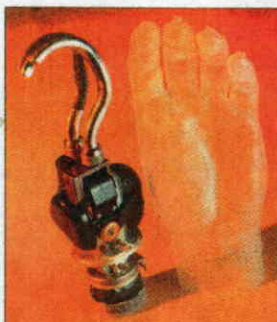
"It's time for a change," he said. Tran lost his arm about three and a half years ago while working as a machinist in Oregon. He connected with Advanced Arm Dynamics almost immediately. Although he regained an arm, he struggled to land a machinist job. "You need two arms to qualify," Tran, 35, said.

Kristin Gulick, an occupational therapist from Advanced Arm Dynamics, said as a savvy machinist, he quickly learned to grip with his prosthetic.

"When people see a person with one arm, they say no way," she said. "Most people have no idea how capable a person with one arm is."

Almost three months ago, Nike Inc. in Beaverton, Ore., hired Tran. He inserts Air-Soles into its sneakers with his real arm and throws scraps in the trash with his artificial one.

Gulick, who works primarily in Oregon with occasional trips to Walter Reed, said some amputees seek her help after seeing a



A traditional hook and a synthetic cast hand are among the prosthetic options amputees have.

general practitioner.

"They show up with a prosthesis in a bag and say, 'What do I do with this?'" she said. Amputees' attitudes affect how fast they pick up the new technology, she said.

"They're tools, not a replacement for an arm," she said. They must leave their first therapy session with some functionality so they see the value in wearing it. Miguelez said amputees won't use this tool "if there's not a functional advantage."

He founded Advanced Arm Dynamics in 1998 because of the need for artificial-arm consultants. Few clinicians specialize in it due to the limited number

Company profile

- **Name:** Advanced Arm Dynamics
- **Location:** Redondo Beach
- **Type:** Upper-limb prosthetic care
- **Founded:** 1998
- **Owner:** John Miguelez
- **Key clients:** Insurance companies and Department of Defense
- **Information:** www.amdynamics.com, 310-372-3050 or 800-323-6422

of amputees.

The company that started with Miguelez filling in where general physicians lacked expertise grew into a full service for upper-extremity amputees. They were not only fitted with prosthetics and trained to use them but also received insurance assistance, physical therapy, psychological counseling and rehabilitation.

Offices overlook RB pier

Advanced Arm Dynamics began offering its services under one roof when it opened facilities in areas with higher numbers of upper-limb amputees, including Texas and Iowa. The headquarters overlooking the Redondo Beach pier is the administrative office that takes care of paperwork for patients, the government and research studies.

Advanced Arm Dynamics always has been on the forefront of artificial-arm innovation by researching and working closely with prosthesis manufacturers. Miguelez said it aims to fit and train patients with prosthetics almost immediately after their amputation because the faster they incorporate the technology in their lives, the more likely they are to use it.

Miguelez said his company has had a 94 percent success rate, based on patients who use their artificial arms a year later.

Miguelez, who travels three-quarters of the year, spends about half his time away from his Palos Verdes Estates home at Walter Reed. No matter how familiar the hospital becomes,

he's still occasionally reminded that he's among military folk. He recalls accidentally stepping on Bubble Wrap that had fallen on the floor from a package holding a prosthetic. A patient in the room hit the floor.

"Kids right out of a combat environment, the first thing they do is get on the ground," Miguelez said.

His interest in patching up people emerged in childhood. When his friend got a splinter, 8-year-old Miguelez retrieved tweezers and removed it.

Driven by 2 passions

"Even then, I thought it was cool," he said. "I knew I wanted to help people." Another interest, technology, also stuck with Miguelez, who built robots as a boy. His passion for medicine and technology led to his career as an upper-extremity prosthetist.

"I married two loves," 44-year-old Miguelez said.

Traveling is getting harder as he gets older. "The human body is like a car, you can only put so many miles on it," he said. On the job, he's pumped to accelerate advances in the field.

But after consecutive 14-hour workdays at Walter Reed, Miguelez sleeps on the plane ride home.

His wife, who also works at the company, stays in the South Bay with their 13-year-old daughter year around.

"The greatest thing is to wake up my daughter for school," Miguelez said.