

Saving Life and Limb





The toll of US soldiers wounded in Iraq and Afghanistan now exceeds 41,000, and the trademark of these battles is the vet who has lost a limb. Many of these wounded warriors are battling long-term to recover from instantaneous carnage. **Eimear Vize** speaks to the Irish surgeon in Manhattan who is helping soldiers to walk away from war

US army captain Brian Jantzen was only days away from surgery to remove his lower right leg. Military doctors had told the young captain, whose legs, feet and ankle bones were shattered when his vehicle was hit by an improvised explosive device (IED) while on patrol in Ramadi, Iraq, that amputation was necessary. Then a chance conversation led him to Dubliner Dr John Kennedy, a top Manhattan orthopaedic surgeon, for a second opinion. That was three years ago and Jantzen was the Irish doctor's first referral from the Wounded Warrior project, which aids severely injured service members. With the help of a groundbreaking bone regeneration technique, the young soldier kept his leg. And John has gone on to perform a growing number of limb-saving surgeries, free of charge, for gravely wounded veterans of the Iraq and Afghanistan wars.

An RCSI graduate, John Kennedy is an Associate Professor of Orthopaedics and the Director of Research in the Foot and Ankle Department at the Hospital for Special Surgery (HSS) in New York – ranked as the number one orthopaedic hospital in the United States. During an awards dinner in 2007, at which he was named one of the “Top 100 Irish Americans”, John found himself sitting with Flip Mullen, another of the honourees. John was receiving the coveted award for his work in Santo Domingo, where he performs 15 to 20 orthopaedic surgeries every year for those patients in the greatest need. Flip, a retired New York fire fighter, was being honoured for tireless work with the Wounded Warrior project. The two men started talking and within minutes a relation-

ship was formed that has since offered fresh hope to severely wounded soldiers, helping them to take back their lives.

“The work that Flip and his team were doing to help wounded veterans was simply inspiring and humbling. Flip has dedicated his life's mission to helping the men and women who become severely injured in the fight to keep us all safe,” John told *Scope* from his office in New York.

“All the branches of the armed service have an outstanding medical operation and they were doing exceptional work at the front line, in Germany, and ultimately in Walter Reed here in the US and other institutions. However, there are a certain number of soldiers who I thought might benefit from some of the procedures that we were doing at the Hospital for Special Surgery, so when I was speaking with Flip that evening I suggested that we might be able to help.”

Soon after, Flip met 29-year-old Jantzen, who was on a

Wounded Warrior trip to New York, in part to observe how the amputees cope to prepare him for his own imminent surgery. The two fell into conversation and Mullen questioned Jantzen about his wounds and the prognosis. “He said: ‘I know a doctor...’” Jantzen recalled in an interview later.

“Since that time, my work, in collaboration with my colleague Dr Austin Fragomen, has been small by comparison to the hundreds of volunteers from the NYPD, NYFD and ordinary folk who have given of their time, expertise and compassion to the wounded warriors,” John is quick to acknowledge.





“In return we all get something that is not quantifiable but is worth more than anything else that we work for in our daily lives. To make even the smallest bit of difference to these men and women returning from war, whether by a surgical procedure, or to have dinner and listen, or to simply acknowledge their sacrifice and the sacrifice of those that will not be returning, is something that instills a deep sense of gratitude on both sides.

“These are the best America has: the fittest, smartest, toughest people who went out to put themselves in harm’s way for the rest of us. When you see the destruction that war visits upon them, it underscores the sacrifices they have made.”

When invited to talk about some of these cases, John hesitates. “This is hard because most of these guys don’t want any publicity and don’t want to be written about. In general, their stories are all similar. It’s just a different time and a different place. All

of them have been in the wrong place at the wrong time and so much of this is just bad luck.”

He recalls one of his patients, Capt Ryan Miller, a US army ranger who was on patrol when his Humvee hit an IED. The bomb killed his best friend. Surgeons in the Landstuhl Hospital at Ramstein air force base in Germany removed a copper shell casing from his abdomen, which Ryan now wears around his wrist with the name and serial number of his buddy who died.

“Capt Miller was a 4.0 grade point average student who was headed for Harvard when 9/11 happened. He joined West Point instead and went to serve his country. When that IED went off his country did everything it could to help him, and the men and women of the medical corps performed miracles so that Ryan would survive. At the end of his treatment, Ryan was left with a leg deformity from the blast injury and shrapnel that left him with a

drop foot, missing a part of his foot and a leg that was mal-aligned and rotated.

“Ryan has been through four operations with us and is recovering from his fourth, and hopefully last, to address all these concerns. Ryan is typical of the men and women we treat. He is proud to have served but now wants to resume living his life. He has applied to Harvard business school and when he recovers fully plans to run a marathon.

“As a surgeon there is no better patient to have than one who is motivated to overcome their injuries no matter how severe and see the positives in life rather than the negatives.”

But John understands that in some of these extreme cases it is often not clear whether he truly can save a limb and, if so, at what cost. “There are times when amputation is the best way forward. There is no training in medical school to know when enough is enough. There are the hard cases



Clockwise from left: US army soldiers move quickly as they carry an injured serviceman from a UH-60 Blackhawk helicopter in Baghdad, Iraq, on August 26, 2004. The helicopter carried the injured soldier to a combat support hospital for medical treatment. Photo by Staff Sgt D Myles Cullen, US Air Force. High-intensity medicine: Dr John Kennedy at work. John has performed a growing number of limb-saving surgeries, free of charge, for gravely wounded veterans of the Iraq and Afghanistan wars. The purpose of the Wounded Warrior project is to raise awareness and enlist the public's aid for the needs of severely injured service men and women, to help severely injured service members aid and assist each other, and to provide unique, direct programmes and services to meet the needs of severely injured service members



The sports doc

Dr John Kennedy credits his interest in orthopaedics to his involvement in sports. As an athlete, he said he broke “plenty of bones” competing at national and international levels in track, rugby, fencing, and water skiing, and became fascinated by how they healed. He graduated from RCSI in 1989 and, in the mid-1990s, emigrated to Boston to begin a fellowship in orthopaedic sports and orthopaedic joint reconstruction at Saint Elizabeth’s Medical Centre.

During this time, John was also involved in the Children’s Hospital and the Andres Laboratory of the Harvard Medical School where he spent time investigating new composites in bone regeneration, which he later presented as a thesis for his master’s in surgery.

As part of his fellowship year, the young Irishman was engaged as an assistant team physician to Boston College Football. Ever since, John has been actively involved in the treatment of

where you have given 110 per cent to put it all back and [make it] as functional as possible, and then the patient says ‘take it off doc, I can’t deal with the pain.’”

Ryan’s story is emblematic of many of today’s wounded warriors. The ebbing death rate from battle wounds often translates to a rising tide of maimed survivors. The US armed forces have lost almost 4,400 soldiers in action in Iraq since 2003, and a further 1,000 fatalities have been recorded in Afghanistan since 2001, according to the latest data from the Iraq Coalition Casualty Count (www.icasualties.org). However, in Iraq alone, the ever-ascending tally of wounded soldiers has reached a staggering 31,616.

“I saw Jeff Guerin today. He was a 22-year-old army volunteer who was blown up by an IED outside of Baghdad three years ago. We have done several operations on Jeff and he came in today for a follow-up with his Dad,” says John.

“Jeff’s face is scarred for life. He can see out of one eye only, the other is fixed permanently looking up and out, sightless. His skin is pockmarked with purple and black shrapnel that is making its way slowly to the surface. Jeff is a Man United fan and wears their latest gear proudly and chats about how he loves how they beat Liverpool. His dad has devoted his life to helping Jeff get over his injuries, and sits proudly with a cap declaring ‘Go Army’: a proud dad.

“Jeff isn’t one bit sorry for himself. He has just got married and is getting on with his life as best as his injuries allow. Jeff has one major remaining orthopaedic issue: his talus bone lost its blood supply after the blast and his bone was dying in his ankle. Our treatment is typically to put these soldiers in a frame that distracts the joint and prevents the bone from collapsing while the bone revascularises. We perform tiny drill holes in the bone to allow marrow cells to populate the bone and start producing blood

both recreational athletes as well as elite athletes from the New York Giants, New York Metro Stars, Manhattan Rugby, the National Basketball Players Association, and the National Basketball Referees Association.

2001 found Dr Kennedy in New York City where he worked in the Memorial Sloan-Kettering Cancer Centre before moving on to the Hospital for Special Surgery (HSS). He is currently the clinical director of the running clinic in the gait laboratory at HSS. Dr Kennedy’s involvement in all aspects of lower limb sports injuries has led him to publish articles on running injuries, cycling injuries, ballet injuries, and ankle instability following sports injuries. He has published more than 100 peer-reviewed articles. Read more about Dr Kennedy on his personal websites, www.sportsmedicine-newyork.com and www.osteochondraldefects.com.

vessels and new bone. It's a time-intensive procedure but can be very worthwhile, ultimately."

John explains that distraction arthroplasty, or the use of a frame to spare the joint while the joint and surrounding bones heal, has previously been used only in very select cases. Having had the experience of using this technique in several of the wounded veterans, John and his colleague Dr Fragomen can now refine its application to the civilian population.


"These cases are all done at HSS," he adds. "When I spoke to Tom Sculco, the surgeon-in-chief, about the Wounded Warrior project, he was very supportive. The hospital donates the OR and staff for any surgery and post-op care."

Another of Kennedy's Wounded Warrior patients is Sergeant John Borders. Both of his legs were crushed, his left arm sustained two open fractures, his ring finger was severed, he fractured a vertebra in his neck, had contusions to his lungs, a lacerated liver, shrapnel to his eyes, face and torso, and multiple burns in an explosion that happened while he was on patrol in Taji, Iraq, in 2006.

Sgt Borders had undergone 50 operations, including the amputation of his left leg, and met with Kennedy and his team as a last-ditch effort to save his remaining leg. They operated with great success in December 2007. "Dr Kennedy is a lifesaver," Borders' wife Mollie told *Irish America* magazine recently.

It is to be expected that John's interaction with these brave soldiers – all of them so young but dealing stoically with their enormous trauma and loss – has left an indelible impression on the Irish surgeon.

"War is a tragic waste of the best a nation has to offer," he ponders quietly. "The men and women I have met through the Wounded Warrior programme have left a profound effect on me and my family. I am humbled and honoured to know them. During the summer of 2009 the Wounded Warrior project held an awards ceremony. I was very lucky to be invited and even luckier to get an award along with many other recipients.

When I went up to receive the award, a young 19-year-old marine was looking at me. He had returned from Afghanistan two months earlier. He had no legs and no arms. He had a new prosthetic arm and was learning to use it. He looked at me and tried to clap. I will never forget that man or that moment." 



Extremity war injuries

"DURING WORLD WAR II, the likelihood of surviving battlefield wounds was 69.7 per cent; by the end of the Vietnam War it had improved to 76.4 per cent; and survival of those wounded in the current Iraq War has increased to an astounding 90.4 per cent."

Directorate for Information Operations and Reports, US Department of Defense

THE MAJORITY OF trauma that currently occurs among both military and civilians in Iraq and Afghanistan involves the upper and lower extremities, and happens as a result of the detonation of explosive devices. That's according to a paper summarising the findings from the Extremity War Injuries Symposium held in Washington, DC, published in the January 2010 issue of the *Journal of the American Academy of Orthopaedic Surgeons* (JAAOS).

"Our military medical personnel in Iraq and Afghanistan are facing serious challenges on every level," noted key author, Dr Andrew Pollak, Professor and Head, Division of Orthopaedic Trauma, University of Maryland School of Medicine, Baltimore, MD. "But the most critical need right now is funding for more research, so medical personnel can offer the highest level of care," he added.

"Our goal is to provide our wounded warriors with the best care possible to improve their quality of life. Since orthopaedic injuries result in the largest source of disability cost for the government, investing to improve care should result in less expense for the taxpayers in the long run."

The symposium also revealed important information related to host nation care capabilities. A major portion of the care currently delivered by US military medical personnel is offered to the local population. In Afghanistan, this includes many enemy combatants and insurgents as well as members of the regular Afghan military forces.

"The common theme we learned is that the inherent capacity of the Iraqis and Afghans to deliver this care themselves is extremely lacking – and even absent in some areas," said Dr Pollak. "The patient follow-up care also is not available in these countries."