

California man unveils new smile after most advanced face transplant surgery ever

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After struggling with depression since adolescence, California native Cameron Underwood spent a June 2016 day drinking, placed a shotgun

under his chin and pulled the trigger.

The blast destroyed much of his face—and began a journey that led to the most advanced face transplant surgery ever performed.

More than two years later, Underwood's priorities are to return to work and start a family of his own someday.

"Thank you for not giving up on me," the 26-year-old Yuba City man said to loved ones and family Thursday during a news conference at New York University.

After his attempted [suicide](#) and conventional surgical repairs left him disfigured and required five months of skin grafts just to make reconstructive plastic surgery a possibility, Underwood underwent a successful face transplant at the start of 2018. On Thursday, almost 11 months later, Underwood made his first public appearance, speaking at NYU Langone Health center.

Addressing media and dozens of surgeons, therapists, nurses and other medical staffers whom he called "incredible," Underwood smiled and told them they'd given him a second chance at life.

"It hasn't been easy but it has been worth it," he said in the news conference, which was streamed live to Facebook.

The procedure took 25 hours, from the morning of Jan. 5 into Jan. 6. Two teams of surgeons worked concurrently in adjacent operating rooms, lead surgeon Dr. Eduardo Rodriguez explained: one for the donor and one for the recipient.

Less than a year later, Underwood can speak intelligibly. He is restoring an old truck he recently bought. He's golfing. And, as Rodriguez showed

in a slideshow presentation, the outdoorsy Underwood has even gone skydiving. (No, he did not ask his doctor's permission first).

"There have been so many amazing advances in surgery. I'm living proof of that," Underwood said. "But it only happens because of special people like Will and his family."

On Jan. 4, New York City writer Will Fisher died at age 23 after a lengthy battle with mental illness. An organ donor, Fisher was Underwood's perfect match.

The two were connected by LiveOnNY, New York City's federally designated organ procurement organization, ahead of Fisher's death. LiveOnNY is a nonprofit that provides eye, organ and tissue donation; it has connected 20,000 donors to recipients, according to its website.

"It's like finding a needle in a haystack," Helen Irving, LiveOnNY's chief executive since 2011, said in Thursday's news conference. "We want the perfect patient for Cameron."

The first successful, complete face transplant involving a living recipient happened in 2010 in Spain. Fewer than 50 face transplants have been performed worldwide, and fewer than 10 total or near-total operations have been performed in the United States.

A significant portion of the surgery's cost was covered under Underwood's insurance through his employer, according to a news release by NYU Langone Health. Rodriguez said this was the first U.S. case in which third-party insurance covered any part of the procedure. Face transplant surgeries are usually funded by research grants, often from the Department of Defense, according to the release.

With just 18 months between the initial injury and the surgery,

Underwood's procedure represented the shortest wait time for a face transplant in the U.S.

"We're often asked about identity crisis following a face transplant," Rodriguez said. "As Cam defined it, his life was in pause" while he lived with a disfigured face.

Here is a more in-depth look at what happened.

Before the 2016 [suicide attempt](#), Underwood was employed as a welder and machine worker in Yuba City, as told by family members in an exclusive story earlier this month in People magazine.

The self-inflicted shooting followed a day of drinking. His mother, Bev Bailey-Potter, told People that she knew her son was unhappy, but did not think him suicidal.

Underwood was airlifted to the University of California, Davis Medical Center for his gunshot wound, which had disintegrated the bottom of his face.

An emergency room doctor told Bailey-Potter her son wouldn't survive, that his face was "dust," but he still had his eyes and forehead.

But he did survive. Underwood remained under heavy sedation for more than a month, requiring a feeding tube.

Months after initial medical treatment, Bailey-Potter read a story in a December 2016 issue of People about NYU's Langone center and its revolutionary face transplantation program.

She booked an appointment with Rodriguez almost immediately.

The distance wasn't a deterrent. At 2,800 miles, Underwood traveled the farthest anyone has ever gone for a face transplant surgery, according to a news release by NYU.

The plastic surgeon's resume is impressive to say the least. With a single-digit total of successful face transplants having been done in the United States prior to Underwood's, Rodriguez was lead surgeon on two of them—one with NYU Langone in 2015 and one with the University of Maryland Medical Center in 2012.

In the March 2012 transplant, Rodriguez and his team gave a new face to a 37-year-old man, Richard Norris, who suffered a ballistic injury in 1997.

In August 2015, Rodriguez repaired the face of Patrick Hardison, a retired firefighter who had been badly burned.

The exact circumstances of Fisher's death have not been publicly disclosed, but Irving said that Will's mother, Sally Fisher, first met with LiveOnNY on New Year's Eve.

"While the world was celebrating, a family was being consoled, and a mother was facing the loss of her only child," Irving said.

Underwood—whom Irving, Rodriguez and others call Cam—was "waiting and waiting, as all our families do," for word of a donor match, Irving said.

As Rodriguez pointed out, poor luck with the weather almost made it impossible to proceed on schedule.

A devastating "bomb cyclone" struck the Northeast in January. Intense storms hit the region, including New York.

Air travel was mayhem the week of Underwood's scheduled surgery, but he made it on time thanks to advance planning between NYU and air ambulance teams.

"Through the generosity of pilots, they were able to get Cameron here in the nick of time," Rodriguez said.

A camera crew with NYU Langone's communications department followed the process for months, leading up to the operation and through his recovery phases.

On Jan. 4, the same day Will Fisher died, Sally Fisher asked to meet and thank Underwood.

Rodriguez called this type of meeting between a donor's parent and a face transplant recipient prior to the surgery "unprecedented."

"Welcome to New York," Sally told Cam during a hugging embrace. "Thank God for you."

Underwood's procedure was monumental in terms of its use of advanced technology and novel in other facets.

The two-room operation required a team of more than 100 total surgeons, nurses and other staff, according to a news release by NYU Langone Health.

It used techniques that had never been used before, Rodriguez said.

"We're able to take advantage of the most advanced technological procedures that exist, and we can do a lot of computerized planning before we do the operation," Rodriguez said in Thursday's news conference. "Not everything is perfect and it will require a little bit of

interoperative manipulation."

Three-dimensional printing was among the new technologies used. The guiding frames that assisted surgical tools in place were 3-D printed, Rodriguez said. And for the first time ever in a face transplant, a 3-D printed mask was grafted onto the donor's face following extraction, done out of respect to the Fisher family.

The surgery itself required taking mid-face structures, soft tissues and facial nerves from the donor [faces](#), as well as Fisher's teeth and jawbone. Both donor and recipient operations included an incision surrounding the whole face, from eye-level to mid-neck.

Advanced computer systems helped Rodriguez's team navigate via what he called "interoperative" maneuvers to make the graft fit as well as possible.

Titanium plates were inserted at the middle of Underwood's face. Screws were used to set his new jaw in place.

Underwood benefited from the closeness of the match and the strong features of Will Fisher.

"Willie had beautiful teeth," Rodriguez said.

A world-class orthodontist has assisted in straightening those teeth, Rodriguez said. Underwood wore braces for several months following the procedure, but his teeth appeared bare during Thursday's news conference.

Though 25 hours may seem long, the procedure was nine hours shorter than the previous face transplant undertaken by Rodriguez's team, though that one required forehead reconstruction as well.

The moment Underwood first saw his new face was also captured on camera. Rodriguez gave him a mirror, and the patient paused a moment before flipping it around.

"It was a few weeks," until he could see it, "but it kind of felt like it was almost overnight," Underwood said in Thursday's news conference. "It was still a rough sketch, but you could see it there. It was overwhelming, with excitement."

Healing is a gradual process with many stages. As Rodriguez said during Thursday's news conference, it's not instantaneous as it appears in some action movies, like "Face/Off."

Nerves and blood vessels need time to restore their normal function. Bruises and swelling are immediate and last weeks or months.

But monthly photos taken of Underwood's face show noticeable reduction in swelling and a gradually improving appearance as time goes on.

It took five months for Underwood to regain facial movements, and until that point, the outdoorsman had to breathe through a tube in his throat. Seven months after the surgery, he could eat again.

Underwood's road is still long. Rodriguez estimated about three to five years until his face is "pristine."

Now 11 months later, Rodriguez said Underwood's body has shown no signs of rejecting the transplanted face so far.

"There was no way we could have ever taken him back to a normal life without a face transplant," the surgeon said.

Underwood still lives in California but must continue to travel monthly to New York City to see the surgeon.

Irving, the LiveOnNY CEO, said that there are currently about 9,000 hopeful organ, tissue and eye donor recipients on New York City's waiting list.

She asked residents of all states to take the lifesaving step of becoming an organ donor. Will Fisher registered as an organ donor when he was a teenager.

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