

Novel Brain Implant Restores Visual Perception to the Blind

With wireless device, patients can detect motion, distinguish light and dark

UCLA Health

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NEWS PACKAGE

SUGGESTED TEASE	GROUNDBREAKING NEW TECHNOLOGY IS GIVING THE BLIND A WAY TO VISUALLY PERCEIVE THE WORLD AROUND THEM. DETAILS, COMING UP.
ANCHOR LEAD	ABOUT THIRTY-NINE MILLION PEOPLE WORLDWIDE ARE LEGALLY BLIND ¹ . MANY WERE BORN SIGHTED BUT LOST THEIR VISION TO DISEASE OR INJURY, DRASTICALLY CHANGING THEIR ABILITY TO FUNCTION IN DAILY LIFE. NOW A GROUNDBREAKING DEVICE IS HELPING THOSE WHO ARE BLIND SEE IN A NEW WAY, BY RESTORING THEIR VISUAL PERCEPTION OF WHAT IS IN FRONT OF THEM. BARB CONSIGLIO HAS THE DETAILS.
(PACKAGE START) ----- CG: Courtesy: UCLA Health :00 - :03 Video of Jason when device was turned on Photo of Jason in hospital Video of Jason using device for first time	(Nats - First time device is turned on. "Wow.") :02
CG: Jason Esterhuizen Lost his vision	AFTER LOSING HIS SIGHT IN A CAR ACCIDENT, JASON ESTERHUIZEN (ES-ter-hay-zen) NEVER DREAMED HE'D SEE LIGHT OR MOVEMENT AGAIN. BUT WITH THE FLICK OF A SWITCH, HIS WORLD SUDDENLY GREW BRIGHTER. :08 <i>"I still can't put it into words. I mean from being able to see absolutely nothing, it's pitch black, to all of a sudden seeing little flickers of light move around." :12</i>
Shots of Jason putting on glasses in appointment Shots of light representation on computer during calibration	WHILE IT'S NOT NORMAL SIGHT, A GROUNDBREAKING DEVICE IMPLANTED IN JASON'S BRAIN AT U-C-L-A HEALTH ALLOWS HIM TO NAVIGATE THE WORLD AROUND HIM. :08
CG: Nader Pouratian, MD UCLA Health	<i>"Being able to tell where a doorway is, being able to tell where the sidewalk begins or ends or where the crosswalk is, are all extremely meaningful events that can help regain or help these people regain some form of independence." :15</i>

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<p>Shots of Dr. Pouratian showing where device is implanted on x-ray</p> <p>Closeup of Jason putting glasses on</p> <p>Animation of how camera and implant communicate</p>	<p>DOCTOR NADER POURATIAN (per-ROD-ee-in) IMPLANTED THE DEVICE MADE BY SECOND SIGHT OVER THE VISUAL CORTEX IN JASON'S BRAIN.</p> <p>THE ORION DEVICE CONVERTS IMAGES FROM A TINY VIDEO CAMERA ON A PAIR OF SUNGLASSES INTO A SERIES OF ELECTRICAL PULSES.</p> <p>THOSE PULSES STIMULATE ELECTRODES IN JASON'S BRAIN THAT LET HIM SEE PATTERNS OF LIGHT THAT ACT AS VISUAL CUES. :17</p>
<p>Dr. Pouratian (CG'd earlier)</p>	<p><i>"We basically have the video camera and the video processing unit functioning or performing the functions of what the eye normally does. And we go directly back to the brain." :10</i></p>
<p>Split screen of Jason looking for objects and simulation of lights he sees</p>	<p>BY MOVING HIS HEAD, JASON CAN DISTINGUISH LIGHT AREAS AND OBJECTS FROM DARK. :09</p>
<p>Jason Esterhuizen (CG'd earlier)</p>	<p><i>"There's little white dots on a black background. It's like looking up at the stars at night." :04</i></p>
<p>Shots of Jason doing exercise to look at objects and pick them up</p>	<p>ONLY THE WORLD'S SECOND PERSON TO RECEIVE THE DEVICE, JASON IS HELPING THE TECHNOLOGY GROW MORE USEFUL AS HE LEARNS WHAT EACH FLICKER OF LIGHT REPRESENTS. :06</p>
<p>Jason Esterhuizen (CG'd earlier)</p>	<p><i>"It's someone moving across the room walking past me or walking away from me or it's a light against the wall. It was just amazing to have some form of functional vision again." :13</i></p>
<p>Shot of Jason sorting laundry</p> <p>Shot of Jason crossing street</p>	<p>NOW HE CAN PERFORM EVERYDAY TASKS HE COULDN'T BEFORE, LIKE SORT LAUNDRY AND SAFELY CROSS THE STREET.</p>
<p>Shots of Jason practicing picking up objects on table</p>	<p>AND WITH A LITTLE PRACTICE... :06</p> <p>(Nats - "I'm closing the camera to show you that I'm not cheating.) :03</p>
<p>Jason walking across street</p> <p>(PACKAGE END) -----</p>	<p>JASON CONTINUES TO EXPAND WHAT HE CAN DO.</p> <p>AT UCLA HEALTH, THIS IS BARB CONSIGLIO REPORTING. :04</p>
<p>ANCHOR TAG</p>	<p>RESEARCHERS ARE LEARNING RIGHT ALONG WITH JASON AS THEY WORK TO ADVANCE THE TECHNOLOGY AND IMPROVE THE LIVES OF THOSE WHO HAVE LOST THEIR VISION.</p> <p>UCLA IS THE FIRST OF TWO STUDY SITES,</p>

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	INCLUDING BAYLOR COLLEGE OF MEDICINE IN HOUSTON. IN THE FUTURE, PATIENTS WHO ARE BLIND DUE TO GLAUCOMA, DIABETES OR CANCER MAY ALL BENEFIT FROM THE DEVICE, AS WELL AS THOSE WHO WERE BORN BLIND OR WITH LOW VISION.
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SOCIAL MEDIA

 Share it! Suggested tweet:	Neurosurgeons at @UCLAHealth have implanted the first blind patients with a brain device that helps them visually navigate the world around them. A tiny video camera on sunglasses sends signals to the implant, which allows users to detect movement and distinguish light objects from dark. http://bit.ly/210mWfl
 Suggested post:	For the first time, researchers at UCLA Health have implanted blind patients with a brain device that allows them to detect movement and recognize light and dark, helping users navigate the world around them and become more independent. A tiny video camera on sunglasses sends signals to electrodes in the brain that parallel the view of the camera. http://bit.ly/210mWfl

EXTRA BITES

<p>CG: Nader Pouratian, MD UCLA Health</p>	<p>Pouratian explains how the implanted device works: <i>“We implant the device or the actual generator into the skull and then it’s completely internalized. So we close the skin over it. And the external components, the video camera, the video processing unit, communicate wirelessly with that device that’s implanted in the brain.”</i> :16</p> <p>Pouratian says device recipients are helping researchers learn: <i>“We were really looking for dynamic people who were motivated, excited and who would really be partners with us in this clinical trial that can help us learn and improve the device for future generations of recipients of the device.”</i> :15</p> <p>Pouratian says the device is first-of-its-kind technology: <i>“This is really the first time that we’ve had a completely implantable device that people have been able to go home with, use on their own in their own living conditions without having to be plugged into an external device.”</i> :12</p>
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CG: Jason Esterhuizen
Lost his vision

Jason explains how the device helps him navigate:
“Instead of tapping against the wall with my cane, I can just follow the lights in the roof and just walk straight as an arrow down a hallway. Crossing the road is much easier and much safer for me because I can look down and just follow the white line that's painted on the road.”
:20

Jason explains how exciting it was to start using the device:
“I still can't put it into words . I mean from being able to see absolutely nothing, it's pitch black, to all of a sudden seeing little flickers of light move around and then actually then figuring out that the flickering lights mean something.” :17

Jason explains how he perceives depth with the device:
“Say someone is moving towards me, it would start like maybe two or three little dots flickering and then it will just become more and more and more until the whole array lights up.” :11

References

¹Global Data on Visual Impairments 2010, World Health Organization, 2012. Online:
<https://www.who.int/blindness/GLOBALDATAFINALforweb.pdf>

For viewer information on this story, contact:

UCLA Health

Produced by:

MEDIA  SOURCE

1800 West 5th Ave.

Columbus, Ohio 43212

Phone: (614) 932-9950 Fax: (614) 932-9920

www.mediasourcetv.com

Video content provided by: UCLA Health

Media Relations:

Elaine Schmidt, UCLA Health

eschmidt@mednet.ucla.edu / (310) 267-8323

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