7 real-life human cyborgs

Photo: simonlesleyphoto/flickr

See how bionic technology has **enhanced** people's lives with everything from robotic **limbs** to electronic eyes.

https://www.treehugger.com/real-life-human-cyborgs-4863961
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Updated May 17, 2020

"Between our laptops, smartphones and tablets, we already use technology to connect ourselves in ever-advanced ways to the world. Indeed, the line between technology and reality has become increasingly blurred. Projecting into the future, it's not hard to imagine the line disappearing entirely — when humans and technology merge and become indistinguishable. Some philosophers and scientists think this kind of "technological singularity" could be achieved within just a few more generations. In other words, we're all well on our way to becoming cyborgs.

In fact, for some of us that future has already arrived. Cyborg technology has advanced to the point where it's safe to say that **bionic humans** are no longer the stuff of science fiction. They're here now.

Don't believe it? The following are real-life cyborgs, individuals who have willingly become part-human, part-machine. All of them are inspiring harbingers of the future and none of them are “Terminators” — at least not yet.

Neil Harbisson

Although artist Neil Harbisson was born with achromatopsia, or extreme colorblindness that meant he could only see in black-and-white, he is now capable of experiencing colors **beyond the scope** of normal human perception.

How is this possible? Harbisson is equipped with a specialized electronic eye, or eyeborg, which **renders** perceived colors as sounds on the musical scale. In other words, his device allows him to “hear” color. He has become so adapted to this device that his brain has formed new neural pathways that allow him to develop an advanced kind of perception.

“At the start, I had to memorize the names you give to each color and I had to memorize the notes, but after some time, all this information became a perception,” said Harbisson, in a recent talk. “When I started to dream in color, I felt the software and my brain had united.”

Harbisson is so passionate about his status as a cyborg that he has founded the Cyborg Foundation, an international organization to help other humans become cyborgs.

Kevin Warwick

A professor of cybernetics at the University of Reading in the United Kingdom, Kevin Warwick takes his work seriously. So seriously, in fact, that he and his work have become one. Warwick is the founder of Project Cyborg. Using himself as the **guinea pig**, he's on a mission to become the world's most complete cyborg.

Warwick has been experimenting with various electronic implants since 1998, when he "installed" a microchip in his arm that allowed him to operate doors, lights, heaters and other computers remotely as he moved from room to room.

Jesse Sullivan

Cyborg technology is perhaps most immediately useful for amputees. In the future we might imagine a world where every **amputee** is equipped with new robotic limbs that are connected to their nervous systems, capable of being operated just like normal limbs. (Think of Luke Skywalker's robotic hand.)

Jesse Sullivan is a pioneer **in this respect**. He effectively became one of the world's first cyborgs when he was equipped with a bionic limb, connected through a nerve-muscle **graft**. Not only can Sullivan control his new limb with his mind, he can also feel hot, cold, and the amount of pressure his grip is applying.

Jens Naumann

After a pair of horrific accidents, Jens Naumann was struck blind in both eyes, but he never gave up hope that he would someday see again. That dream became a reality when, in 2002, Naumann became the first person in the world to receive an artificial vision system. His electronic eye is connected directly to his visual **cortex** through brain implants. Unlike with other cyborg implants, which translate visual information into another sense such as sound or touch, Naumann actually "sees" the world. Though it has its limits (he can only vaguely see lines and shapes), his vision has been technically **restored**.

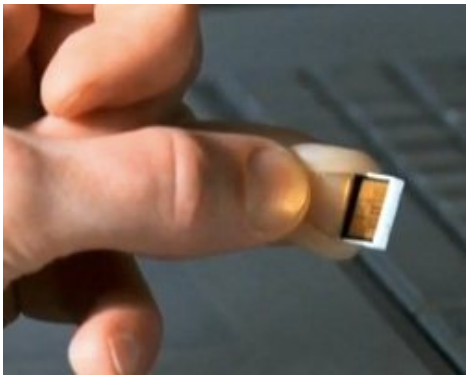
Looking to the future, it's possible to imagine artificial vision systems that allow users to see in wavelengths beyond normal human perception. (Perhaps someday, after the inevitable cyborg takeover, we'll all be able to see in infrared.)

Nigel Ackland

After losing part of his arm during an accident at work, Nigel Ackland got an upgrade. His incredibly advanced robotic **prosthetic** might be the closest thing to “The Terminator” that exists today (it's also eerily reminiscent of Dr. Claw from “Inspector Gadget”).

Ackland controls the arm through muscle movements in his remaining forearm. The range of movement is truly extraordinary. He can independently move each of his five fingers to grip delicate objects, or even pour a liquid into a glass. He is even equipped with one alarming grip called the "trigger grip."

Jerry Jalava



Jerry Jalava is the perfect example of how you don't need to be a robotics mastermind to become a cyborg; you can pretty much do it yourself. After losing a finger in a motorcycle accident, Jalava decided to embed a 2GB USB port into his prosthetic. It doesn't upload information directly into his nervous system (**a la** “The Matrix”), but it's at least more useful than a USB keychain.

Claudia Mitchell

Claudia Mitchell became the first woman to become a cyborg when she was outfitted with a bionic limb. Her robotic arm is similar to the one installed on fellow cyborg Jesse Sullivan. The limb is connected to her nervous system, allowing her to control it with her mind.

The range of motion is extraordinary, allowing her to use it for "cooking, for holding a laundry basket, for folding clothes — all kinds of daily tasks." (Or, perhaps someday, for arm-wrestling?)

VOCAB – Explain these words in English

1. enhance
2. limb
3. bionic
4. the line is blurred
5. merge
6. harbinger of the future
7. beyond the scope of human perception
8. render
9. guinea pig
10. amputee
11. in this respect
12. graft
13. cortex
14. restore
15. prosthetic
16. a la

COMPREHENSION QUESTIONS (Texts)

1. When did Harbisson realize that he had become a hybrid?

2. What does Warwick's electronic implant do?

3. Sullivan's bionic limb can not only move but also……..

4. What is the difference between Naumann's implant and other cyborg implants?

5. What could the future of artificial vision be?

6. How does Ackland's bionic arm work?

7. What could you put in any prosthetic body part pretty easily?

8. How does Mitchell control her bionic arm?

QUESTIONS (VIDEOS)

1. **Kevin Warwick:** Why is Kevin feeling nervous? What are the reasons for his experiment? Is the operation dangerous? How does the implant work? What can he do with it?

2. **Jens Naumann**: How did "lightning strike twice" in Naumann's life? What did he decide to do then? Which did his skills use to be? What is he good at now? How does Dobelle's system work?

EXTRA

Find another example of human cyborg online and write down a summary about him / her, including information about his / her condition and the function of the implant.

video links:
https://www.youtube.com/watch?v=JWMYW-SkURI - Jens Naumann
https://www.youtube.com/watch?v=LW6tcuBJ6-w - Kevin Warwick
https://www.youtube.com/watch?v=FrSaZZQEZ8M - Kevin Warwick
https://www.youtube.com/watch?v=FPIaU8QJh3g - What Is It Like To Be A Cyborg? | Kevin Warwick | TEDxPrague
https://www.youtube.com/watch?v=GgTwa3CPrIE - Beyond bionics: how the future of prosthetics is redefining humanity

Bionic technology is removing physical barriers faced by disabled people while raising profound questions of what it is to be human. From DIY prosthetics realised through 3D printing technology to customised AI-driven limbs, science is at the forefront of many life-enhancing innovations