

Is it time to assess the ethical impact of real cyborgs on modern society?

June 2 2017, by Bob Yirka



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(Tech Xplore)—A trio of authors involved in writing about or

researching robot and cyborg technology has published an editorial piece in the journal *Science Robotics* raising the question of whether it is time to start discussing the ethical impact of rehabilitation technology on society. In their paper, editor of *Science Robotics* Guang-Zhong Yang, Robert Riener with ETH Zurich and Paoplo Dario, director of the BioRobotics Institute and a professor of Biomedical Engineering at the Scuola Superiore Sant'Anna in Italy, offer their opinions on the matter.

The term [cyborg](#) comes from science fiction—it refers to human beings who have been outfitted with technological devices to replace natural body parts such as arms, legs, or even damaged brains. In recent years, the term has become more mainstream with advances in devices to assist those with physical disabilities or to improve the performance of soldiers on the battlefield. As the authors note, we now see examples of disabled athletes fitted with devices that improve their abilities to the degree that they now rival or surpass those with natural bodies. And this, they suggest, means that it might be time to start addressing ethical issues that might arise.

One area where such a discussion has already begun is sports—should disabled athletes equipped with high-tech prosthetics be allowed to compete with able-bodied athletes? Such problems lead to more questions, such as whether someone with enhanced abilities should be allowed to compete in the workplace with others who lack such enhancements. If a man or woman has bionic arms and legs, logic suggests they would be able to load a truck faster and for longer periods of time, for example, than able-bodied people. Moreover, in the not-too-distant future, prosthetics will include features to assist in hearing, feeling, seeing and perhaps brain processing. Is it ethical to give a job to someone with such enhanced abilities over someone who must rely on their natural abilities? And conversely, is it ethical to deny people with enhanced abilities jobs they are clearly more qualified to do?

The day is coming soon, the authors warn, when such circumstances will become reality, and because of that, they suggest we start having conversations about such issues now.

More information: To integrate and to empower: Robots for rehabilitation and assistance Science Robotics 31 May 2017: Vol. 2, Issue 6, eaan5593, [DOI: 10.1126/scirobotics.aan5593](https://doi.org/10.1126/scirobotics.aan5593) , robotics.sciencemag.org/content/2/6/eaan5593

Abstract

When Oscar Pistorius (often known as "Blade Runner") became the first amputee sprinter to compete with able-bodied athletes for the men's 400 m at the 2012 Olympics in London, the achievement raised the question of whether disabled athletes would ever outcompete their able-bodied counterparts. Now the German long jumper Markus Rehm, who uses a carbon-fibre bladed prosthesis for his amputated right leg and is outperforming more and more able-bodied athletes, is the notion of "cyborg," coined over 50 years ago to describe part machine and part human, becoming a reality?

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