

13069

Meet Rex: the \$1m bionic man with working heart, set of lungs and human face

The Independent, Tuesday 05 February 2013

When Luke Skywalker received a bionic replacement for the hand that was cut off in Star Wars, the idea of replicating human organs and body parts seemed far-fetched. Thirty years later, the idea is no longer just science fiction. Scientists, among them the creators of “Rex” – the world’s most complete bionic man, unveiled in London this week – believe they can now replicate about two-thirds of the human body.

“There are some vital organs missing, like the stomach, but 60 to 70 per cent of a human has effectively been rebuilt,” said Rich Walker, managing director of the robotics team Shadow, who built Rex. This is heralded, then, as the dawn of the age of bionic man.

Not everyone in the field believes the recent progress, impressive as it is, places us on the road to complete replication of human limbs, organs and tissue. “We have motors which can lift things but, if you want to mimic the dexterity of a hand, we are not there yet,” said Professor Hsiao of the Johns Hopkins University.

“We are still a long way away from making prostheses which relay sensory information the way the human body does. In 10 years, we will be able to build a robot which has the dexterity to pick up a pen and write with it, but it will not be able to send back sensory information.”

Rex, billed as the pinnacle of robotics achievement to date, consists of a prosthetic face, hips, knees, feet and hands, all of which are commercially available. Other off-the-shelf items include an artificial retina, cochlea and heart.

Rex’s other internal organs, among them a pancreas, a set of artificial lungs and bladder, are still in development. Some of the technology cannot work without human input; bionic hands, for example, need muscles and signals from the brain to function.

Other body parts remain out of the reach of scientists. Mr Walker says: “The only artificial stomach we have seen is very large and generates electricity, so you couldn’t use it to replace a human stomach.”

And replication of the human brain, the most complex structure known to man, was not even on the radar, Mr Walker said. “This is a showcase for prosthetic parts, it shows exactly where we’ve got to in being able to replace parts of a human.”

He said there would be ethical issues surrounding prostheses if they began to outperform human body parts.

405 words