

Hindustan Times

MIND, MUSCLE CONTROL INDIA'S FIRST BIONIC ARM

It can pick up a pen and play the piano — it even looks like a real limb

Hand of hope

Sanchita Sharma
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PLAY THE piano. Lift 20-kg bags. Use a laptop.

You can do all this — even if your hand or arm has been amputated — using India's first bionic arm, available now in India.

Unveiled to the *Hindustan Times* on Wednesday, the silicone-skinned arm, called iLimb, looks startlingly human and is controlled directly by the brain and muscles.

At Rs 20 lakh, the iLimb arm is about 13 times as expensive as a conventional artificial limb. That's like comparing a Ferrari with a Premier Padmini.

"Though some amount of learning about muscle movement needs to be done, the bionic hand can achieve precision movements within days. It's the closest you can get to a real hand," said Dr Sunil Choudhary, director, aesthetic and reconstructive surgery, Max Hospitals.

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The flexible iLimb can be used to dial numbers on a phone.

POWER GRIP



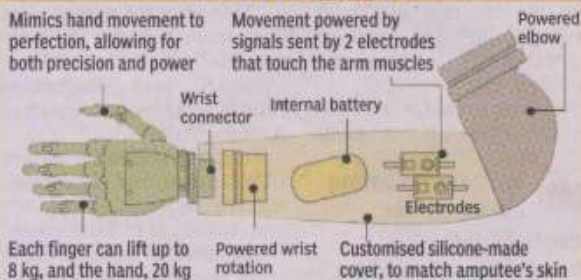
KEY GRIP



PRECISION GRIP



HOW IT WORKS



Useful for

The bionic hand can fit amputations from the wrist, elbow or shoulders

Rs 20 lakh

Price of iLimb arm — about 13 times costlier than a conventional artificial limb

10 lakh

Number of amputees in India, who rely on simple prostheses that can, at best, open and close

Photos: RONJOY GOGOI/Graphic: SANJAY KAPOOR



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Each of the bionic arm's fingers are motorised — moving, bending and grasping much like a real hand. Its wires are plugged directly into an amputee's nerves, which relay signals from the brain like a real hand.

India has about a 10 lakh amputees who rely on simple prostheses that can, at best, open and close. Some amputees have reconstructed hands or transplanted fingers, which are often hard to use or useless.

iLimb's motorised fingers allows amputees to move each finger, form different grips, and so pick up a pen, carry a water bottle or crush a cup.

"It replicates delicate movements and the force of the natural hand by moving each finger, including an opposing thumb, for actions as diverse as

playing the piano to carrying bags that weigh 20 kg," said Sailesh Kumar, vice president, Innovative Prosthetics and Orthotics, who trained with the arm's creators—Touch Bionics, a Scottish company, which first sold it in 2007 — and will now distribute the iLimb in India.

The iLimb does a good job of hiding its advanced electronics and mechanics: It looks like a real arm, down to matching the amputee's skin and other details, like creases, hair and veins.

"Black is a popular colour with soldiers, for the Terminator look," said said Gaurav Mishra, director of international business, Touch Bionics. "We even graft hair, but we had to say no to a Greek customer last week because he was so hairy that replicating his hair growth would have taken months,"

The iLimb is already popular with soldiers and people who have lost their limbs in war and accidents. It's sold in 30 countries and to the armed forces in the UK, US, Iran, Iraq, Israel and Saudi Arabia.

"It helps people get back the lives they have lost," said Mishra. He explained how a 31-year-old Australian Navy diver who lost a hand and a leg in a Sydney Harbour shark attack in February this year is back to diving, while a pianist in Spain is back to playing after getting the iLimb in September 2008."

The grip is sensitive and the curving movement of the iLimb's fingers is controlled by the opposing force of the object in hand. That means a user is unlikely to break the glass—unless of course she wants to.

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