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**All grins, Baltimore boy becomes 1st to receive new hands**

By [Eliott C. McLaughlin](http://www.cnn.com/profiles/eliott-c-mclaughlin-profile), CNN Thu July 30, 2015

(CNN) Zion Harvey just wanted to swing from the monkey bars.

That's what the Baltimore youngster told his doctor when asked why he wanted hands. Sometimes in an 8-year-old's simplicity is profundity.

Earlier this month, Zion took a big -- nay, massive -- step toward that long-awaited jaunt on the jungle gym when he became the first child to receive a double hand transplant.

"When I was 2, I had to get my hands cut off because I was sick," Zion succinctly put it, in a video taken last year.

Actually, he downplayed it, as is indicative of his disarming optimism. At 2, Zion suffered a life-threatening sepsis infection, resulting in the failure of multiple organs and necessitating the amputation of his hands and feet.

At age 4, after two years of dialysis, he received a kidney from his mother, Pattie Ray, and despite an early lifetime of hardship, Zion figured out not only how to get by, but how to do it with the widest of grins across his face.

Pre-surgery video shows [Zion strumming a mandolin](http://www.chop.edu/stories/zion-s-story-gift-hands#.Vbj040VTsmM), playing foosball, scrolling through an iPad's offerings and playfully covering his younger sister's eyes with the stubs of his wrists.

He even put a positive spin on bullies.

"They don't mean to say mean things to me, but it just slips out," he said. "Somebody says something to me, and I just figure it slipped out and they didn't mean to say it. Everybody has their own way of thinking."

But don't take his heart-melting quips and smile for softness. Zion is tough as nails, maybe tougher.

"This is just another hurdle that he jumps. He jumps so many hurdles," Ray said before the surgery. "He's so amazing. This isn't the first amazing thing that he's done. He's been doing amazing things since he's been sick. I don't know many adults that can handle half of his life on a day-to-day basis."

**'I will be proud'**

Not even the prospect of a failed procedure daunted Zion. In the months before his operation -- [Philadelphia's Shriners Hospital for Children](http://www.cnn.com/2015/07/29/us/baltimore-boy-zion-harvey-first-double-hand-transplant-recipients/www.shrinershospitalsforchildren.org/Philadelphia) and [The Children's Hospital of Philadelphia](http://www.chop.edu/) evaluated him for 18 months before he was deemed a candidate for the surgery -- he was filmed bopping around on prosthetic legs without a hint of fear.

"When I get these hands, I will be proud of what hands I get," he said, falling into Ray's arms for a kiss.

"And if it gets messed up," he continued, his mother reassuring him that everything would be fine, "I don't care because I have my family."

Images from the 10-hour surgery looked more like a scrubs convention than an operating room. Among the 40 medical personnel that helped with the operation were a dozen surgeons, eight nurses and a team of at least three anesthesiologists.

"We know what we have to do today," [Dr. L. Scott Levin](http://www.chop.edu/doctors/levin-l-scott#.Vbj0z0VTsmM) told his troops before the operation began. "I know everybody assembled here has a commitment to this patient and making this a reality for this little boy. We can have complications. We can fail. We can have trouble. But we're not planning on it."

**Puppy in his future?**

The procedure is so complicated that the medical staff had to create tags with descriptions such as "ulnar artery" and attach them to the various vessels, bones, nerves and tendons that needed to be connected, said Levin, who is director of [the hand transplantation program](http://www.chop.edu/centers-programs/hand-transplantation-program#.Vbj5UEVTsmM) at The Children's Hospital of Philadelphia and who chairs the Department of Orthopaedic Surgery at Penn Medicine.

After many hours with Zion under the knife, Levin pointed to a sign of success: Zion's new hand was pink and when doctors pressed the palm, it turned white briefly and then pink again, indicating "capillary refill" or blood flow in the newly attached appendage.

When the surgery was complete, Levin delivered word to Zion's mother.

"We have some good news for you. Your little guy has two hands," he said.

Ray walked through Levin's handshake to embrace the surgeon.

In the days after his surgery, video shows Zion progressing out of a fog of sedation and learning to grip things with his new fingers. Again spinning his plight into a positive, he matter-of-factly tells his mother that he and sister Zoe want a puppy.

"Where's the puppy going to live?" Ray asks. "My room! Where else?" the youngster replies.

**Concerns remain**

Zion's travails are not yet over. He will require a lifetime of immunosuppressant medication to avoid rejection of his new hands, which increases his chance of infection and cancer -- a fact Levin concedes raised concerns that were negated by Zion already taking anti-rejection drugs after his kidney transplant four years ago.

**Medical Terms**

* **Sepsis**: invasion of the body by microorganisms or their toxins
* **Amputation**: to cut off by surgery
* **Dialysis**: filtering harmful wastes from your blood
* **Anesthesiologists:** doctor who provides anesthesia- drug to prevent pain
* **Appendage**: a member of the body off of the main trunk
* **Immunosuppressant**: something to weaken the immune system

Zion also needs to stay at a rehabilitation unit for several more weeks, where he will undergo "rigorous hand therapy several times per day," before returning to his home in Baltimore, according to the hospital.

Not that Zion seemed terribly fazed.

"I just want to say this: Never give up on your dreams. It will come true," [he told CNN affiliate KYW-TV.](http://philadelphia.cbslocal.com/2015/07/28/boy-becomes-first-child-to-receive-double-hand-transplant/)

Levin stressed that while Zion's bravery is to be applauded, the operation wouldn't have been possible without a grieving family, fresh off a crushing loss, putting its courage on display as well. It's remarkable, he said, that [Gift of Life Donor Program](http://www.donors1.org/), a regional organ procurement organization, found Zion a pair of hands mere months after he was placed on a waiting list in April.

"I think the difference is finding a family who has the courage to relinquish the arms of a child who just died and give hope and life and quality of life to a child who's still living," he told KYW.

As for what this trailblazing surgery might mean for other children hoping to have their hands restored, Levin said he hopes it's just the beginning.

"I hope he's the first of literally hundreds or thousands of patients that are going to be afforded this surgery," he said.