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Technology helps Sheboygan man get use of his hand back a decade after industrial accident

By Janet Ortegon



Lee Miller talks about the thrill of regaining function in his left hand following an industrial accident about 10 years ago in which he lost three fingers. Miller recently received a special prosthetic hand that allows him to move his new fingers by impulse. Photo by Gary C. Klein/Sheboygan Press Media

Lee Miller is not bionic.

The 34-year-old Sheboygan man looks a little like he might be, especially when you notice his left hand. Three of his fingers are “mechatronic” wonders that put Miller in a very rare group.

After living 11 years with the disability of only a thumb and forefinger on his left hand, Miller has a high-tech new hand and is at the beginning of a whole new life.

On Oct. 18, 2001, Miller lost three fingers when a 4-ton punch press fell on his hand in an industrial accident at a local factory.

The devastating loss was compounded by the fact that his daughter was only two weeks old at the time.

“One of the hardest parts was not being able to hold my daughter for a few months after the accident,” Miller said.

His middle, ring and pinkie fingers had to be amputated and he spent a year learning to live with the loss. Unable to succeed at his factory job, he floundered.

“I haven’t had a steady job since I lost my fingers pretty much,” said Miller, who has worked temporary jobs and driven a taxi since the accident. “Just a lot of bouncing back and forth.”

After a year, he was outfitted with a silicone hand — basically a rubber glove with holes for his existing fingers to stick out and hard rubber fingers to replace his missing digits.

It was cosmetic, but didn’t make his life any easier and he found himself going without it most of the time. For 10 years, that’s all he could do.

Then last year, one of his doctors suggested he look into something new — mechanical fingers attached to a power pack worn around the forearm.

It was just what Miller had hoped for.

The “iLimb Digits,” designed by Advanced Arm Dynamics in Maple Grove, Minn., are mechanical fingers Miller controls by flexing the muscles in his hand.

Pat Prigge, clinic manager and prosthetist at Advanced Arm Dynamics, said Miller was a very good candidate for the new technology.



Lee Miller's new prosthetic hand as seen Wednesday January 23, 2013 have a high tech look due to the carbon fiber look that Miller selected.

“I don’t even know how to put it,” Prigge said. “Lee was ecstatic. Only in his wildest dreams did he think he’d ever have his fingers back.”

Miller is among the first 10 people in the nation to have this model of prosthetic. A different version has been available for a couple of years, but it wouldn’t have worked for Miller, Prigge said.

“It was not appropriate for candidates like Lee because he had too much of his hand left,” he said.

In Miller’s case, the black carbon-colored with blue tint was his own design.

“To customize it to his preference was something that was really fun for us,” Prigge said. “We really enjoyed working with him and to see his face light up when he was able to work those fingers that first day — that was pretty incredible.”

The device is run by two lithium ion batteries, a microprocessor and a charging port all contained in the forearm section, Prigge said. Wires from that section feed into the hand unit and the individual fingers contain motors that make them move.

Miller used a temporary version for about a month in the fall, and got his permanent replacement at the beginning of the year.

He’s already planning changes, including possibly going to school to become an occupational therapist.

“I figure, who better to work with hand patients than someone who’s been through it?” Miller said.

In the meantime, will his new hand enable him to get a better job?

“God, I hope so.”