

# How 3-D printed hair prostheses are changing cancer survivors' lives

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Rheana Murray  
TODAY

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It's yet to be seen exactly how 3-D printing will change the world, but the technology is already proving to be an asset in the prosthetics industry — in this case, hair.

Danielle Grillo of **Transitions Hair Solutions** in New Jersey has made dozens of 3-D printed hairpieces for people who suffer from hair loss, many of them cancer survivors. She's worked in the industry for more than two decades, and says the 3-D printed hairpieces, while expensive, "are the closest thing to your natural scalp and hair," Grillo told TODAY.



Transitions Hair Solutions

Transitions Hair Solutions owner Danielle Grillo makes a mold during a training in Europe.

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But it's definitely not a wig: "It's considered a scalp and hair prosthetic because it can be used for any kind of hair loss — related to chemotherapy, a scalp disorder, burn, autoimmune disorder, and because it can be made into whatever size is needed," she explained, adding that the hairpiece is also semi-permanent. "Maybe you need a full head of hair or only a small area covered on the top of your head."

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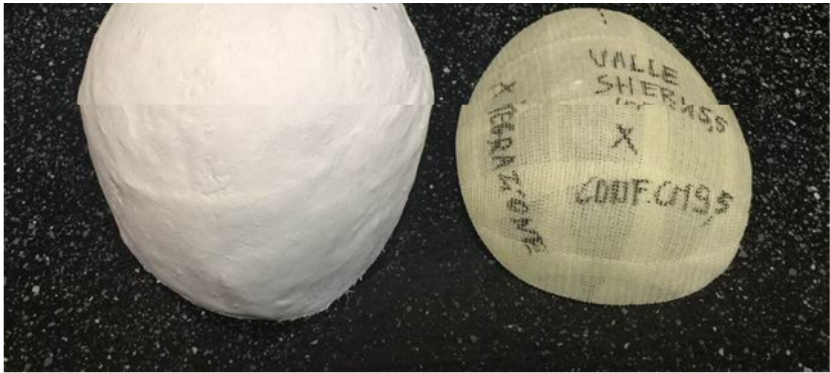
Thanks to the 3-D printing, the hairpieces are also one-of-a-kind. After a consultation, Grillo makes a mold of a client's scalp and takes detailed measurements, making note of scalp color, hair texture, length, color and density, as well as the direction the hair grows. She sends all that information to a company in Italy, Cesare Ragazzi Laboratories, where the 3-D printing happens. Real human hair is then implanted into the scalp prosthetic, strand by strand, and the piece is adhered to a client's head with a dermatologist-tested adhesive.



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A finished mold, one step to creating a client's 3D-printed hairpiece.

The whole process takes about 12 weeks and it's not cheap — depending on the amount of hair a client needs, the 3-D printed hairpieces can cost between \$2,000 and \$15,000, Grillo said.

"It's a very, very precise, in-depth operation," she said. "It's not for everyone; not everyone can afford it. There are other options that are still good. This is just a step above, and something different."

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Some people have found problems with traditional wigs, like Sheri Valle from Scotch Plains, New Jersey, who was diagnosed with lung cancer in 2011, and suffered hair loss after undergoing chemotherapy and radiation.



Finished 3D-printed hairpieces.

"I wore regular wigs when I had cancer and was totally bald," Valle said. "They're hot, they feel binding. They look fake."

For her, a 3-D printed hair prosthetic, something she wouldn't have to take on and off every day, was worth it.

"As a woman, I finally survive cancer, and now I have to go without hair?" Valle said. "I started to lose self-esteem. For a while, I wasn't even going out at all. And I said to myself, listen, I went through all of this, so I'm going to do this for myself so I can feel like a woman again."



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Sheri Valle, a cancer survivor who got a 3D-printed hairpiece.

She got her hairpiece through Transitions Hair Solutions, but there are now many hair loss centers and stylists working with 3-D printers.

Grillo's clients come in every four to six weeks for a cleaning treatment, but otherwise, they're free to do what they want — wash their hair, go swimming and exercise, for example.

"Once it's attached, they can literally do anything someone with a full head of hair can do," Grillo said. "Seriously, go ride a jet ski! But a lot of people just tell me it's so amazing they can shower in it."

"It's just one less thing to worry about," she added.

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