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3D Printing Spotlight On: Irene Healey, Founder, Principal Designer, New Attitude Prosthetic Designs

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by Sarah Anderson Goehrke | May 26, 2017 | 3D Design, 3D Printed Art, 3D Printing, Business, Exclusive Interviews, Medical 3D Printing, Metal 3D Printing, Science & Technology |

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3DPrint.com
Spotlight on Women
Featuring:
Irene Healey

When it comes to medical applications for advanced technologies, the tech itself is remarkable — but is by no stretch the full story. It's about the patient. By keeping human needs in focus, medical advances benefit not only the latest lab equipment but those whose quality of life drastically improves because of what comes off those machines and from the technicians' designs. Medical applications require a certain artistry and, above all, a sensitivity to the individuals whose needs are being addressed. Irene Healey, AOCA, B.Sc., AAM, CCA, founded

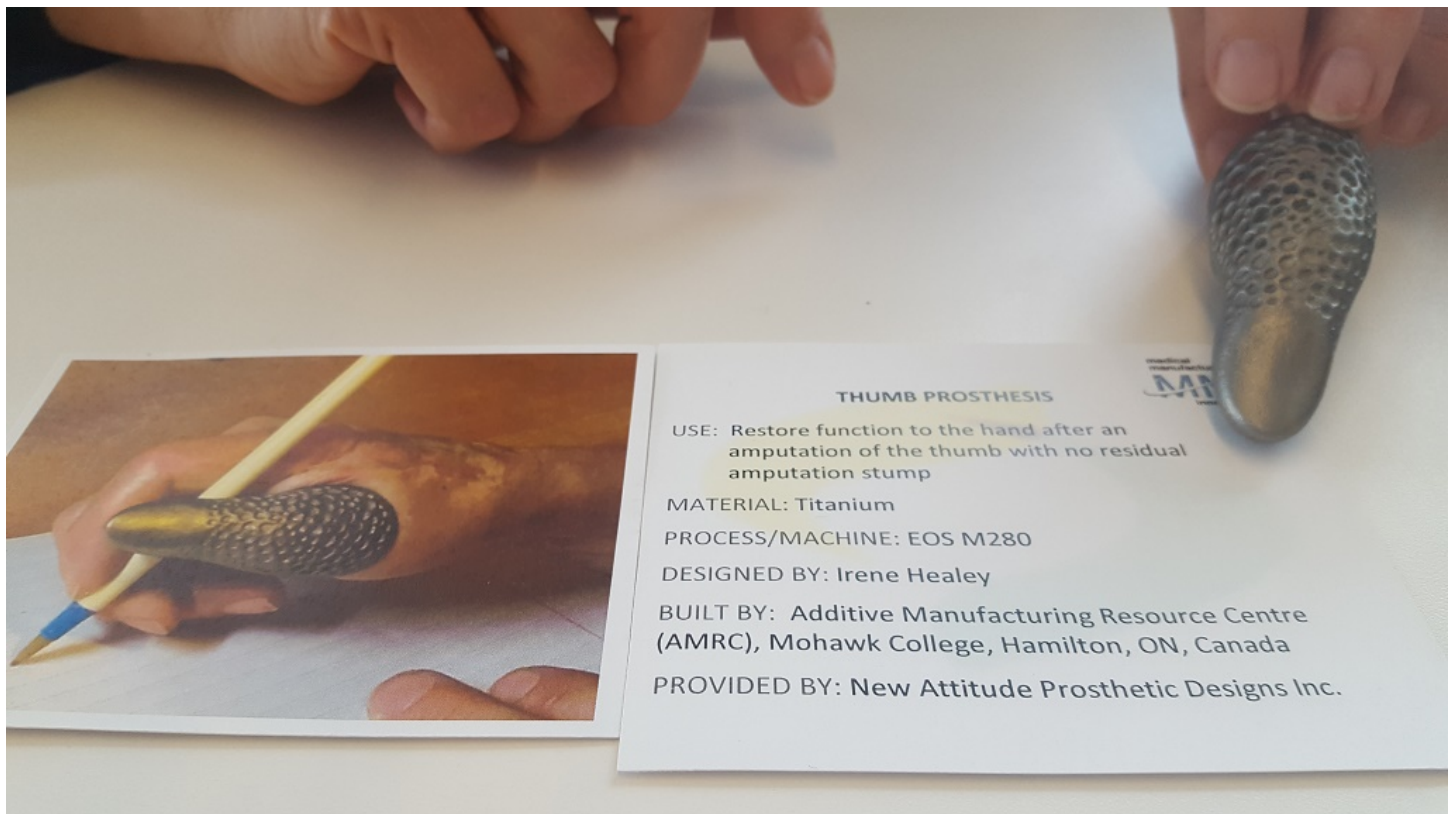
[New Attitude Prosthetic Designs Inc.](#) in Albany, New York in 2004. She is a Certified Clinical Anaplastologist — a

clinician with the expertise to create lifelike and functional body prostheses — who works with each individual client to create uniquely designed and fitted prostheses.

I had the opportunity to sit down with her at [RAPID + TCT](#) earlier this month to learn more about her work as we continue to talk to those in the industry and to [spotlight women's achievements](#) working with the latest 3D scanning and 3D printing technologies, including some truly [innovative leaders](#) in [healthcare applications](#). Healey immediately exudes an air of expertise, as she holds clear passion for and understanding of the needs and wants of the clients she and her team work with every day.

"I am trained to help with needs," she told me of working with complex designs. "It's important to know the client. You want to bring a full complement of skills. We need to see 3D printing as a continuum of materials and offerings."

RAPID 2017 included a showcase of 3D printed medical devices as part of its [Medical Manufacturing Innovations](#) series, among them an artistic prosthetic Healey designed for a woman whose thumb had been amputated without a residual amputation stump. As the conference was winding down when we sat to chat, the thumb had been returned to Healey and we could look at it for reference as we chatted, and she told me the story of the unusual prosthetic's creation. This particular design is not indicative of much of the work done in prosthetics, where many requiring such devices prefer to have natural-looking prostheses that are less immediately identifiable as such, but serves to show the breadth of offerings possible in patient-specific creation.



"We have to be sensitive to people facing their own mortality, who don't want to be defined by their disease or injury," she said, emphasizing the importance of the patient-first philosophy that drives her work. "There are

some amazing designs, but they may not be appropriate for people who don't want that out there. Some are realistic, and in a sense restore the body. Patients respond to well-crafted, well-designed prostheses."

She continued of the thumb piece, "I worked with her the way I would have for a traditional one. This one was made of metal, and the fit is so important, especially for soft, mobile tissue. It requires knowledge of soft tissue to design; we need a good functional analysis and a true fit."

This prosthetic was designed by Healey and 3D printed by the [Additive Manufacturing Resource Centre](#) at Mohawk College in Hamilton, Ontario, created on an [EOS M 280](#) 3D printer using titanium material. The design is meant to stand out, which has been a trend among some requiring such devices — and has helped with public perception of prostheses, particularly 3D printed ones as [artistic designs](#) have "sensitized the public to these images," Healey noted, making images of amputees more accessible.

"Patients have a goal in their mind — how you realize that goal is your function as a clinician. Prosthetics are part of an identity, and as someone who needs one, how you fashion your identity," she told me.

While the artistic thumb piece is an attention-grabber, it's important to note that many amputees do not want to draw attention to their injuries through their prosthetics, and that every individual requiring a prosthetic device of any kind is unique in needs and wants. There remains an absolute place for craftsmanship, for artisanship, in the creation of prosthetics, Healey noted, due to the individual needs at play. Many designs are also artistic in the sense that they draw back to earlier efforts in the field; Healey pointed to the well-known 3D printed hands created by [e-NABLE](#) as an example, as these basic designs are in fact similar in look to those seen in 17th century prosthetics.

"It is important not to have blanket statements," Healey underscored. "There are different design needs, and what works for one person may not work for many. We are working with many breast cancer patients, where there is a continuum of need. We have a responsibility to respond to those needs, physically and psychologically... By doing something well-made, you do almost a counteracting event, paying homage to what they've been through."



The underlying message that Healey drove home, though, is straightforward: It's not that simple to create prosthetics. The technology is changing, but the human needs remain the same. The key for those working with prosthetics is to bring the best of practices together for the benefit of the patient. 3D printing is, of course, among these practices — though not for every case.

"3D printing increases the breadth and scope of practice, it increases the vocabulary in prosthetics. The 3D printing element restores function and is restorative, because it is not cheaply made or badly designed," Healey explained. "3D printing is so amazing you don't need justification to find its merits; but its use needs to be well-informed, not just used as something to replace something else. In our work, we often use 3D printed prototyping. We work with wax, 3D scan the patient's anatomy, create a digital file, and go back to the patient."



One advance in 3D printing technology that will greatly advance work done with prosthetics is the widening availability of materials — namely silicone. This, Healey said, "will be huge." [There is work being done now](#) with silicone 3D printing, including [work for prosthetics](#), but there's still a ways to go before this material is readily available for regular use.

While working with new technologies and materials will allow for a larger toolbox, the key to creating prosthetics remains the human element.

"The major complaint after injury is that people don't listen," Healey said. "We must co-partner for treatment and design; it's not for me to impose my views because I'm a 3D printing enthusiast."



Listening to what someone wants is as important in patient care and healing as is creating what they need; by working directly with their clients, New Attitude Prosthetic Designs can offer customized solutions. The work Healey and her team do in

advancing technologies and designs while advocating for the clients they serve is an inspirational look to direct applications for technology today.

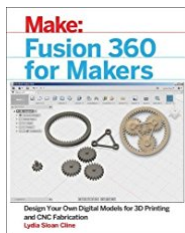
If you are interested in sharing your story, or know a woman we should get in touch with for this series, please reach out any time. Send us an [email](#) or connect on [Twitter](#). We're looking forward to sharing more stories about women in 3D printing. Find all the features in this series [here](#).

[Photos: Sarah Goehrke]

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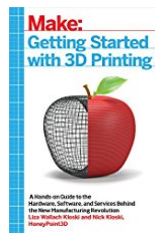


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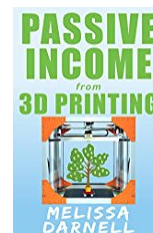
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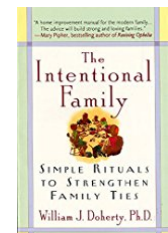
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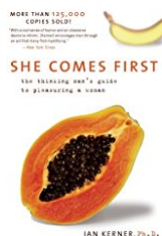
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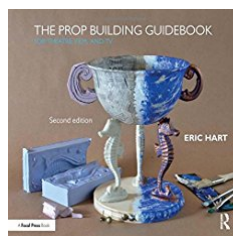
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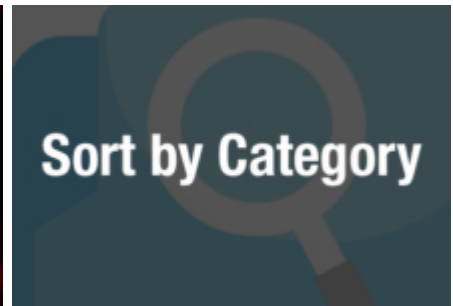
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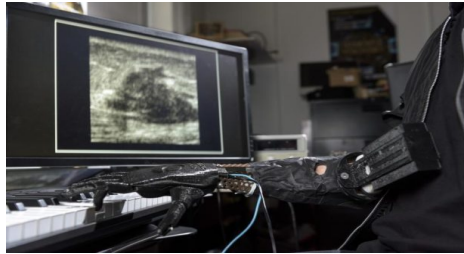


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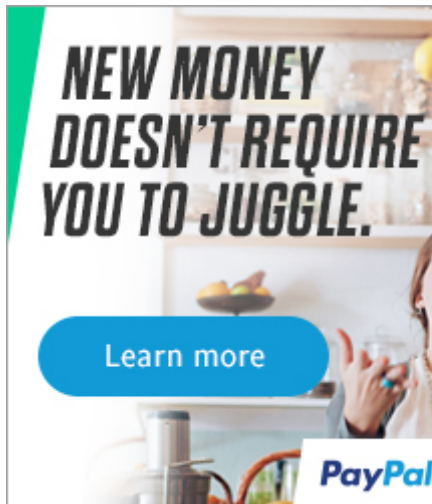


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