New 3D-Printed Orthopedic Casts At St. Luke's

By Sam Kennedy

BETHLEHEM - The days of the plaster and fiberglass casts for immobilizing injured or broken limbs may soon be over, like rotary phones and party lines. With the introduction of 3D-printed, durable plastic casts by ActivArmor, of Colorado, many of the inconveniences of traditional casts could become history, replaced by a range of benefits.

ActivArmor is a custom-made device that form-fits the anatomy: hands, wrists, arms and lower limbs. St. Luke's University Health Network is the first healthcare organization in Pennsylvania to offer this innovative option, possibly rendering traditional casts obsolete in time.

Kristofer Matullo, MD, St. Luke's board-certified orthopedic surgeon who specializes in disorders of the hand and wrist, will debut the ActivArmor product in early March in the region. He's impressed with its construction and benefits for patients.

"This device is really going to improve patient comfort, convenience and quality of life," says the network's chief of the division of hand surgery. "It is lighter in weight, easier to maintain and offers the wearer the convenience of being able to scratch an itch through the lattice-like openings in the cast."

To make the cast, a 3D scan is made of the affected appendage, then the image is sent to ActivArmor using proprietary software. The printer creates two, "clamshell-like" halves of the cast, which are then fitted onto the patient's affected body part. It can be locked on like a cast or removed like a splint to allow swelling of an injured area to subside.



The ActivArmor product comes in a variety of attractive colors. Because of its lattice-like spaces, wound care, treatment with advanced healing technologies, cleaning of the skin or sanitizing the device to remove pathogens like the coronavirus all can be done while the cast is being worn.

The 3D cast can get wet and wearing it doesn't impinge on many activities of an active lifestyle, including sports. The plastic is recyclable and 100 percent biocompatible, says Megan Augustine, MS, Network Director of St. Luke's Simulation Center, who researched and spearheaded the introduction of ActivArmor to St. Luke's orthopedics department. She calls it "a perfect match for improving the overall quality of care for our patients here at St. Luke's." It will be available to orthopedic patients throughout the St. Luke's network.

As a busy orthopedic surgeon, Dr. Matullo sees up to 170 patients each week and performs 900-1000 surgeries each year. He believes ActivArmor casts will be ideal for adults and most children.



