

UT Arlington, UW partner to design bioengineered REHEAL Glove to heal extremity trauma

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The REHEAL Glove is pictured above. Credit: UT Arlington

UT Arlington and University of Washington researchers are developing a healing glove that delivers needed medicine to an injured hand and speeds up healing so that rehabilitation can start sooner.

Dr. Christopher Allan of the University of Washington and Muthu Wijesundara of the University of Texas at Arlington Research Institute have received \$117,959 from the University of Washington Coulter Translational Research Partnership to extend research and development of the Bioengineered Smart-Glove for Regenerative Healing of Extremity Trauma.

This is a flexible polymeric glove wound dressing for treatment after [hand](#) trauma. The UT Arlington Research Institute will develop the glove and associated controls while the University of Washington will conduct a small pilot study.

The human hand is a complex appendage and recovery is challenging. Current medical technology falls short in supporting hand restoration following traumatic injuries and burns by leaving significant scar formation and stiffness. The University of Washington and the UT Arlington Research Institute will improve treatment by creating a new wound dressing, regenerative healing glove, aptly named the REHEAL Glove.

The current practice of treating hand injuries completely immobilizes the hand which delays rehabilitation exercises, and reduces the recovered dexterity. Furthermore, the dressing must be frequently changed to

examine the wound and apply medicine. This is extremely painful to the patient, especially those with burn [wounds](#).

The REHEAL Glove not only has the capability of providing commonly used negative pressure wound therapy, but also provides a means for delivering therapeutics and controlling the wound environment for better and faster healing.

The REHEAL Glove can be used to deliver topical gels and creams, as well as wash the wound and remove fluids. It is easily applied and removed, and does not adhere to the wound to avoid painful removal. The material of the glove is made of transparent silicone, allowing for continuous monitoring of the wound.

In addition, the REHEAL Glove allows greater mobilization of the hand in the earlier phases of [wound healing](#), which accelerates the rehabilitation process.

Wijesundara said, "What makes the REHEAL glove such an exciting concept is that it is a relatively simple device that enables many therapeutic approaches—which we already know are effective—to be delivered through one platform."

Dr. Allan, a hand surgeon, said hand injuries are some of the most challenging injuries.

"Hands are our connection to the world around us. Estimates are that up to a third of all ER injury visits involve the upper extremity, with injuries to the hand among the most challenging due to its complex anatomy and intricate structure and function," Dr. Allan said. "The REHEAL Glove offers a chance to better preserve and restore that connection by maintaining hand function while improving healing in the most severe of hand injuries. We are delighted to partner with UTARI in

this exciting and important work."

Mickey McCabe, executive director of the UT Arlington Research Institute, said, "The REHEAL Glove is an example of great research-turned-prototype that can truly be a benefit to victims of severe hand burn or trauma. We strive to find collaborative projects like this that are worthy causes for fulfilling our mission to help the human condition."

Provided by University of Texas at Arlington

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