

MEDICAL



NEW ATLAS



CHRONIC WOUNDS

By Ben Coxworth
July 27, 2022

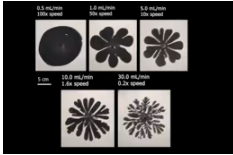


The research team with samples of bullfrog skin, along with a wound patch incorporating collagen extracted from such skins (lower right) Nanyang Technological University

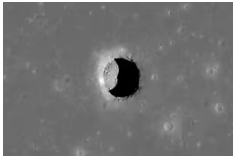
Chronic diabetic skin ulcers are notoriously slow to heal, but an otherwise-wasted material may soon help change that. Scientists at Singapore's Nanyang Technological University (NTU) have developed a new regenerative wound dressing, and it's made from frog skin.

Although frog meat is considered a delicacy, oddity or both in many parts of the world, it's widely consumed in Singapore. It mainly comes from bullfrogs raised on farms, and the skins of those frogs are typically discarded during processing.

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Led by Assoc. Prof. Dalton Tay, an NTU team developed a process in which impurities are removed from frog skin, that skin is blended into a paste, then pure collagen is extracted from the paste. That collagen is subsequently incorporated into a biodegradable, biocompatible patch.

The hope is that when applied to a chronic wound, the patch will speed healing by providing a porous layer for white blood cells and healing agents to coagulate within. It will then also serve as a protective barrier, which will further enhance healing by keeping the wound moist.

Additionally, in the later stages of healing, the collagen should function as a scaffolding-like structure for adjacent skin cells to migrate into. Over time, as the skin cells reproduce and the patch degrades, it should be completely replaced by new skin.



The frog-derived collagen patch (left) is intended to be used with a wound treatment solution that incorporates live maggots (right) Nanyang Technological University

Although the use of bovine-sourced collagen has previously been explored for the same purpose, Tay believes that amphibian-derived collagen will offer better biocompatibility with humans. In fact, last year he announced an experimental [bone-repair material](#) that was also made from frog skin (and fish scales).

The wound dressing is being developed in partnership with Singaporean medical technology firm Cuprina Wound Care Solutions, which makes a product that utilizes live maggots to remove dead tissue from wound sites. Plans call for both technologies – used together – to be the subject of human clinical trials within the next two years.

Source: [Nanyang Technological University](#)

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Based out of Edmonton, Canada, Ben Coxworth has been writing for New Atlas since 2009 and is presently Managing Editor for North America. An experienced freelance writer, he previously obtained an English BA from the University of Saskatchewan, then spent over 20 years working in various markets as a television reporter, producer and news videographer. Ben is particularly interested in scientific innovation, human-powered transportation, and the marine environment.

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