

Researchers stimulate blood vessel formation with sugar

November 16 2017

Academics from the University of Sheffield and COMSATS Institute of Information Technology, Lahore, Pakistan have discovered that sugar can, in fact, be good for you following breakthrough research.

The research, conducted by the Department of Materials Science and Engineering and the School of Clinical Dentistry at the University of Sheffield and the Interdisciplinary Research Centre in Biomedical Materials Research at COMSATS Institute of Information Technology, Lahore, Pakistan, found that sugar can help aid new [blood vessel formation](#), also known as angiogenesis. New [blood vessel](#) formation is crucial for wound healing as blood vessels carry blood around the body which ultimately supplies the body with oxygen and nutrients.

The new way of stimulating blood vessel formation with sugar uses a combination of simple and inexpensive sugar added to a hydrogel bandage. This successful method is much more simple and cost-effective than more traditional methods such as adding in expensive short-lived growth factors. The new technique conceived and developed by the collaborative research group, works because a specific group of sugars can stimulate skin healing.

Professor Sheila MacNeil from the Department of Materials Science and Engineering at the University of Sheffield said: "Throughout the world, people are living longer and unfortunately experiencing more non-healing skin [wounds](#) associated with age, poor blood supply and diabetes. These are often difficult to treat and are very expensive for healthcare

systems to manage. The new skin healing technique using simple sugars, promises to aid wound healing more simply, meaning patients would need less treatment, clinicians could treat more patients and significant savings could be made by national healthcare systems."

Doctor Muhammed Yar from COMSATS Institute of Information Technology, Lahore made the initial discovery during his research to understand how tumours stimulate new blood vessels. He found that a naturally occurring sugar (2-deoxy-D-ribose) increased when tumours encouraged new blood vessels to be made.

Working with Professor Sheila MacNeil and Professor Ian Douglas from the University of Sheffield, the team then investigated the ability of this group of sugars to stimulate new blood vessel formation and stimulate wound healing – both of which produced successful results.

This innovative research is a key step to developing simple, robust and low cost wound dressings that can be used to treat poor-healing wounds such as chronic ulcers in the elderly and diabetic ulcers.

The research paper has been published in *Materials Today Communications* in a paper titled "Deoxy-[sugar](#) releasing biodegradable hydrogels promote angiogenesis and stimulate wound healing."

More information: Muhammad Yar et al. Deoxy-sugar releasing biodegradable hydrogels promote angiogenesis and stimulate wound healing, *Materials Today Communications* (2017). [DOI: 10.1016/j.mtcomm.2017.10.015](https://doi.org/10.1016/j.mtcomm.2017.10.015)

Provided by University of Sheffield

Citation: Researchers stimulate blood vessel formation with sugar (2017, November 16) retrieved 26 April 2024 from <https://phys.org/news/2017-11-blood-vessel-formation-withsugar.html>

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