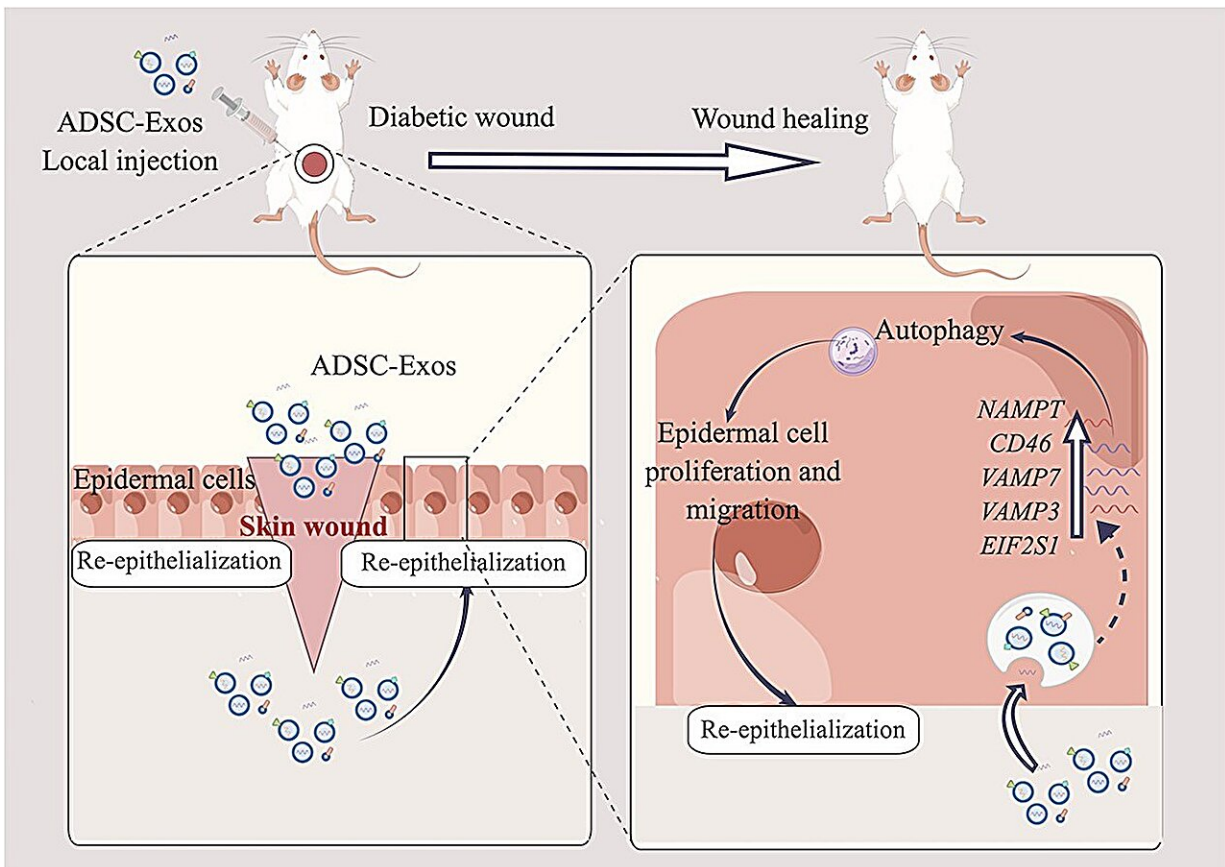


Stem cell 'messages' fast-track healing of diabetic wounds

March 18 2024



Credit: *Burns & Trauma* (2024). DOI: 10.1093/burnst/tkae001

The increasing prevalence of diabetes worldwide has led to a rise in diabetic wounds, such as diabetic foot ulcers, which are challenging to

treat and can result in amputation. Traditional treatments have limited effectiveness, underscoring the urgent need for innovative solutions.

In a [new study](#) published in February 2024 in the journal *Burns & Trauma*, a team from Shengjing Hospital of China Medical University has made a significant discovery. They found that exosomes, obtained from adipose mesenchymal stem cells (ADSC-Exos), drastically improve the healing process of skin wounds in diabetic mice. This vital research sheds light on the urgent health crisis presented by diabetic wounds, known for their severe complications and debilitating effects.

In diabetic wounds, [high glucose levels](#) disrupt normal cellular processes, including [autophagy](#), which leads to impaired healing. This study meticulously demonstrated through a series of sophisticated experiments—ranging from molecular analyses in [cell cultures](#) to comprehensive wound healing assays in diabetic mouse models—that treatment with these stem cell-derived exosomes restores autophagy, revitalizes skin cells, and accelerates wound closure.

Importantly, this approach tackles the underlying cellular dysfunctions caused by diabetes, providing a highly effective strategy for enhancing wound repair. This research opens new pathways for developing advanced treatments for diabetic patients, potentially transforming the management of diabetic wounds and reducing the need for drastic measures like amputations.

Lead researcher Dr. Zhe Wang from the Department of Pathology at Shengjing Hospital of China Medical University states, "Our study not only highlights the pivotal role of autophagy in wound healing but also opens new avenues for treating chronic [diabetic wounds](#) through ADSC-Exos."

The application of ADSC-Exos represents a promising therapeutic

strategy for diabetic wound healing. By enhancing autophagy, ADSC-Exos improve the function of epidermal cells, facilitating rapid and effective wound closure. This could dramatically improve the quality of life for individuals with diabetes.

More information: Haiyue Ren et al, Adipose mesenchymal stem cell-derived exosomes promote skin wound healing in diabetic mice by regulating epidermal autophagy, *Burns & Trauma* (2024). [DOI: 10.1093/burnst/tkae001](https://doi.org/10.1093/burnst/tkae001)

Provided by TranSpread

Citation: Stem cell 'messages' fast-track healing of diabetic wounds (2024, March 18) retrieved 27 April 2024 from <https://medicalxpress.com/news/2024-03-stem-cell-messages-fast-track.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--