

A Comprehensive Review on the Utilization of Nanofiber Systems on Diabetic Wound Healing

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Introduction

Diabetes is a multifaceted issue that creates significant hurdles to an already important clinical issue that is wound healing. Diabetes affects wound healing in various ways including but not limited to altering immune responses, impairing angiogenesis, increasing susceptibility to infections etc. Not only does diabetes significantly slow wound healing but it also dramatically increases the complications associated with it. This brings forth an urgent need for innovative therapeutic approaches to facilitate wound healing in diabetic patients such as nanofiber aerogels, which this paper aims to provide an overview about.

Method

This review was synthesized by going through existing literature on pubmed and google scholar for recent findings on the application for nanofiber aerogels in wound healing in diabetic patients.

Result

The review shows promise for the application of electrospun nanofiber based systems for wound healing as they have several features which improve wound healing. Not only do they mimic the extracellular matrix but also provide better oxygenation and nutrient flow to the wound site, These aerogels can also infused with molecules such as LL-37 which has wound healing properties or be loaded with other factors that enhance growth, angiogenesis and other aspects of wound healing which would otherwise be impeded in diabetic patients.

Conclusion

These new technologies offer up a way to reduce the great strain that complications of diabetic wound healing create for the healthcare sector and to improve the lives of these patients vastly. With the proven efficacy of treatments, there is now a need for further research to understand the best clinical utilization of these therapies and to design the best implementation plans.