

ADVANCEMENTS AND TECHNIQUES IN TEXTILE WOUND DRESSINGS

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The process of wound healing is an extensive part of post-operative care. A textile material needs to be breathable, antimicrobial and antimycotic and to stimulate cell proliferation to be considered as appropriate for the purposes of wound dressing. The field of wound management has progressed immensely over the last few decades, with cotton textile-based dressings giving way to the development of advanced functional materials.

Recent advancements in biomaterial and textile production have proven critical in improving post-operative and chronic condition wound healing. The integration between textile engineering and biomedical science has significantly improved the properties of wound dressings and their versatility – drug delivery, moisture control, infection prevention and real-time monitoring are just a fraction of the numerous purposes a textile wound dressing can serve.

Different fabrication techniques have different advantages that make them more compatible with surface level or deeper wounds. Electrospinning is widely used to produce nanofibers mimicking the extracellular matrix, knitting can produce a mechanically stable and flexible material. Some non-woven adhesive dressings are chosen for their ability to be easily and securely fixed to the wound site.

Different drug delivery options have recently become of significant interest to scientists. Microencapsulation, micro- and nano-emulsions, and liposomes for drug release are just a small part of the healthcare improving advancements in medical textile fabrication techniques.

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