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Review article

# Applications of knitted mesh fabrication techniques to scaffolds for tissue engineering and regenerative medicine

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ABSTRACT

Knitting is an ancient and yet, a fresh technique. It has a history of no less than 1,000 years. The development of tissue engineering and regenerative medicine provides a new role for knitting. Several meshes knitted from synthetic or biological materials have been designed and applied, either alone, to strengthen materials for the patching of soft tissues, or in combination with other kinds of biomaterials, such as collagen and fibroin, to repair or replace damaged tissues/organs. In the latter case, studies have demonstrated that knitted mesh scaffolds (KMSs) possess excellent mechanical properties and can promote more effective tissue repair, ligament/tendon/cartilage regeneration, pipe-like-organ reconstruction, etc. In the process of tissue regeneration induced by scaffolds, an important synergic relationship emerges between the three-dimensional microstructure and the mechanical properties of scaffolds. This paper presents a comprehensive overview of the status and future prospects of knitted meshes and its KMSs for tissue engineering and regenerative medicine.



**Contents**



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