Chapter 24. Embroidery Technology for Medical Textiles


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Textile structures are widely used as medical implants to replace and support soft and load bearing tissues and they serve as scaffolds in tissue engineering applications. In this study the potential of embroidery technology is investigated for the development of textile scaffold structures for tissue engineering and for medical applications. In a comparative experimental study the influence of ingrowing tissue on the mechanics of the thereby formed vital-avital composite has been investigated. An interlock knitted fabric has been compared to a specially designed embroidered fabric and a gelatine matrix has been used to simulate the ingrown tissue. It could be shown that due to the specific structure of the embroidery, stiffening effects known from other textiles i.e. woven and knitted fabrics could be inhibited. This observation together with the potential structural variety of embroidered fabrics, makes them interesting candidates for medical textiles applied to mechanically stressed tissues.

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