Sutures or fibrin glue for divided rat nerves: Schwann cell and muscle metabolism.

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Abstract:

Peripheral nerve anastomoses using either epiperineurial sutures or a fibrinogen adhesive technique have been compared in the rat sciatic nerve model. Evaluation of results was made using radiolabelling of the metabolically active acid-soluble phosphate fractions of both nerve and muscle. In none of the situations tested - traumatic degeneration and regeneration in the sciatic nerve proximal segment, Wallerian degeneration and regeneration in its distal segment, atrophy and regeneration of the fast gastrocnemius muscle, and atrophy and regeneration of the slow soleus muscle - was one repair method significantly superior to the other. A significant degree of cross-reinnervation was shown to take place after anastomosis, altering the characteristics of the regenerating muscles. Both repair methods were equally inferior to the spontaneous repair occurring after a simple nerve crush.