Fibrin glue: An alternative technique for nerve coaptation - Part I. Wave amplitude, conduction velocity, and plantar-length factors.

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Abstract:

The search for better surgical repair of nerve injuries should be aimed at uncovering alternatives that not only are efficient, but also enhance nerve growth. The purpose of this study was to compare functional nerve responses following repair with either a traditional microsuture technique or Quixil human fibrin sealant. Thirty female Lewis rats received transection of the right sciatic nerve. Nerve repair was achieved with either epineurial microsuture (n = 15) or Quixil fibrin glue (n = 15). Functional results were assessed at 2, 6, and 12 weeks postoperatively with walking-track analysis. Electrophysiologic nerve recordings were also performed 12 weeks postoperatively. Rats receiving Quixil nerve repair returned to baseline performance on the walking-track analysis significantly faster than those with microsuture repairs (6 and 12 weeks postoperatively, $p < 0.0001$). Recovery of nerve conduction velocities and wave amplitudes was also significantly better in the nerves repaired with Quixil than in those repaired with microsuture (p's < 0.0001). Quixil human fibrin sealant is a good alternative to traditional microsuture nerve repair techniques.