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Meta-analysis of repair techniques for mixed nerve damage

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Meta-analysis of repair techniques for mixed nerve damage

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BACKGROUND: Injuries to the upper extremity are common and can occur with trauma, surgery, or compression. Particularly, injuries that result in complete transection often require surgical intervention in attempt to restore function and quality of life. Classically, nerve autografts have been used as the gold standard to repair these peripheral lesions. An alternative to the autologous nerve graft is the use of the processed nerve allograft. limited research exists in comparing sensory and motor outcomes of allograft nerve repair in the upper extremity with data for autograft repair. In this systematic review and meta-analysis, we set out to cumulate results of motor and sensory outcomes of allograft peripheral nerve lesion repair and compare those results with outcomes of autograft repair.

METHODS: Current literature on motor and sensory outcomes of autograft and allograft peripheral nerve repair were reviewed using British Medical Research Council (MRC) score of sensory recovery or British Medical Research Council (MRC) muscle strength grading system and complication rates as outcomes of interest. After inclusion and exclusion criteria were applied, 12 articles were reviewed and 826 nerve repairs were analyzed.

RESULTS: The mean gap length for the allograft group and autograft group was 28.6 mm and 24.7 mm, respectively. In terms of MRC sensory and motor outcomes, allograft repair was statistically superior to autograft repair. Complication data was insignificant.

CONCLUSIONS: Based on the current updated meta-analysis using recent data, we found that both autograft and allograft repair have reasonable outcomes. Yet, processed nerve allograft repair outperformed autograft repair.