

# Tendon Transfers, Nerve Grafts, and Nerve Transfers for Isolated Radial Nerve Palsy:



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## A Systematic Review and Pooled Analysis

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### Introduction

- Isolated radial nerve palsy is a debilitating injury treated with tendon transfers, nerve grafts, and nerve transfers
- There is no consensus on the optimal reconstructive technique for isolated radial nerve palsy.

### Objective

- To determine which technique was superior for reconstruction of radial nerve palsy
- To determine which technique was superior at each anatomic level of repair, namely at the elbow, wrist, and fingers.

### Methods

- A systemic review was conducted according to PRISMA guidelines
- Twenty-four papers met inclusion criteria
- Grading scales were converted into a tripartite scoring system to compare outcomes between techniques
- Pooled Chi-squared analyses were performed with a p-value < 0.05

### Results

Table 1: Analysis of Outcomes by Surgical Technique

	Good (%)	Neutral (%)	Poor (%)
<b>Nerve Graft</b>	32% (n=113)	28% (n=101)	39% (n=137)
<b>Tendon Transfers</b>	82% (n=277)	9% (n=30)	9% (n=32)
<b>Nerve Transfers</b>	59% (n=38)	28% (n=18)	13% (n=8)

Table 2: Analysis by Outcomes by Technique by Level of Function

	Good (%)	Neutral (%)	Poor (%)
<b>Wrist</b>			
<b>Nerve Graft</b>	46% (n=6)	46% (n=6)	8% (n=1)
<b>Tendon Transfers</b>	96% (n=94)	2% (n=2)	4% (n=4)
<b>Nerve Transfers</b>	71% (n=41)	19% (n=11)	10% (n=6)
<b>Fingers</b>			
<b>Nerve Graft</b>	52% (n=14)	19% (n=5)	30% (n=8)
<b>Tendon Transfers</b>	77% (n=113)	4% (n=6)	18% (n=27)
<b>Nerve Transfers</b>	68% (n=27)	23% (n=18)	10% (n=8)

Table 3: Comparison by level of muscle targeted based on technique.

	Good (%)	Neutral (%)	Poor (%)
<b>Nerve Graft</b>			
<b>Elbow</b>	100% (n=7)	0	0
<b>Wrist</b>	46% (n=6)	46% (n=6)	8% (n=1)
<b>Finger</b>	52% (n=14)	19% (n=5)	30% (n=8)
<b>Tendon Transfer</b>			
<b>Wrist</b>	96% (n=94)	2% (n=2)	4% (n=4)
<b>Finger</b>	77% (n=113)	4% (n=6)	8% (n=27)
<b>Nerve Transfer</b>			
<b>Elbow</b>	100% (n=9)	0	0
<b>Wrist</b>	71% (n=41)	19% (n=11)	10% (n=6)
<b>Finger</b>	68% (n=27)	23% (n=18)	10% (n=8)

### Conclusions

- Tendon transfers had higher rates of superior outcomes with similar rates of inferior outcomes as compared to nerve transfers and nerve graft
- Tendon transfers should be considered first-line reconstruction for isolated radial nerve palsy as nerve-based reconstruction is less predictable and reproducible