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Occupational Therapy Interventions to Optimize Functional Use of the Upper Extremity After Peripheral Nerve Injury: A Systematic Review

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Occupational Therapy Interventions to Optimize Functional Use of the Upper Extremity After Peripheral Nerve Injury: A Systematic Review

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Background

Peripheral Nerve Injury Causes¹

- Motor vehicle accidents
- Falls
- Industrial and household accidents
- Penetrating trauma

Peripheral Nerve Injury Effects¹

- Unrelenting pain
- Loss of sensation
- Burning sensations
- Motor loss and subsequent muscle imbalance

Purpose

To determine which OT interventions promote UE function after PNI



Method

Developed inclusion criteria

Searched MEDLINE, CINAHL, Embase, & Scopus databases

Screened articles for inclusion

Determined strength of evidence using U.S. Preventative Services Task Force grade definitions



Results

Records identified through database searching: n=30



Records after duplicates removed: n=27



Records screened after hand searching: n=31



Full text articles assessed for eligibility: n=31 [irrelevant outcomes (n=5); no OT intervention (n=13); lack of sufficient data (n=7)]



Studies included in review: n=6

Results

	Mirror Therapy	Sensory Re-education	Orthosis
Number of Articles	4	1	1
Level of Evidence	3 Level I RCTs ²⁻⁴ 1 Level II two-group pre-post test ⁵	Level II two-group pre-post test ⁶	Level IV case series ⁷
Strength of Evidence	Moderate	Low	Low
Outcomes	Purdue Pegboard Test, Minnesota Manual Dexterity Test, DASH questionnaire, Rosen Assessments, Sollerman Hand Function Test, Grip MMT	Two-Point Discrimination Test, Touch Pressure, Paresthesia Level Scale, Object Recognition Test	Grasp and pinch MMT w/ hand-held dynamometer, Jebsen-Taylor Hand Function Test
Findings	All studies found that mirror therapy was effective in improving upper limb function. However, only one study found differences between the intervention and control group.	One study found that sensory re-education was significantly more effective in improving upper limb function when compared to the control group.	Volar wrist orthosis was effective in improving upper limb function with a patient with Carpal Tunnel Syndrome. However, adverse effects of ulnar wrist orthosis use was seen in a patient with ulnar neuropathy.

Discussion

Practice

- Moderate strength of evidence for mirror therapy
- Low strength of evidence for sensory re-education

Education

- Training and education for mirror therapy in OT curricula and ongoing professional development

Research

- Developing mirror therapy protocol
- Higher quality research designs & larger sample sizes



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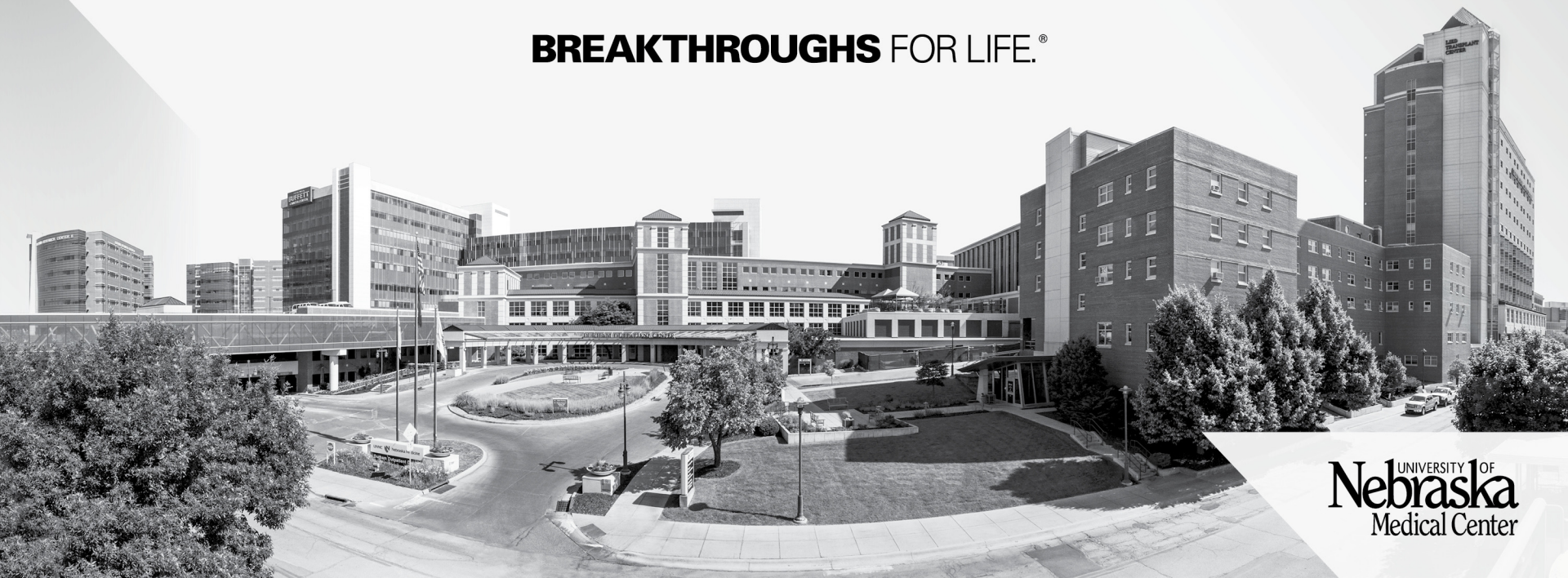
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