

Short Question:

Specific Question:

In an adult population post wrist fracture, is an exercise rehabilitation programme more effective than self-management or no intervention in reducing pain and restoring function?

Clinical bottom line

There is insufficient evidence to establish how to manage the rehabilitation of adults with wrist fractures.

The findings should not be interpreted as a basis for not providing any rehabilitation. The evidence is merely insufficient to determine which rehabilitation strategy maximises clinical outcome. General advice, instruction on mobilisation and instruction on home exercise should be provided as a minimum for all patients, even though there is only low quality evidence to support this. A poor clinical outcome is likely to result in loss of independence, continued pain, increased health and social care requirements and a considerably increased risk of a subsequent fracture especially in women over 65.

Why is this important?

Wrist fracture is the most common fracture accounting for 17% of all fractures recorded. Wrist fractures generally occur in women under the age of 75 and commonly result after a fall when walking when the individual is still healthy, active and functionally independent. The consequence of wrist fracture is known to contribute to a 50% increased risk of clinically important functional decline, impaired independence and the incidence of subsequent hip fracture. The functional decline post wrist fracture is similar to that seen for falls, arthritis and diabetes mellitus and plays an important role in the development of disability. It is suggested that prompt physical rehabilitation after wrist fracture may result in improved clinical outcomes.

Inclusion Criteria

	Description	Search terms
Population and Setting	Adults post wrist fracture	Adults , over 18 wrist fracture, distal radial fracture/Colles or Smiths fracture/Ulnar fracture
Intervention or Exposure (ie what is being tested)	Physical rehabilitation	Exercise, physiotherapy , Physical therapy, occupational therapy, hand therapy, hand clinic, rehabilitation
Comparison, if any	No rehabilitation	GP care, no intervention, usual care, wait and see, leaflet, advice leaflet, rehabilitation advice
Outcomes of interest	Pain and or Function	Pain Function
Types of studies	RCTs , reviews	

Database	Date/Issue searched	Searched from	Number of records downloaded
Cochrane Systematic Reviews	10/02/2016		1
NHS Evidence			
DARE/HTA/NHSEED			0
Pubmed	10/02/2016		9
CINAHL	“		47
AMED	“		3
Cochrane (CENTRAL)	10/02/2016		1
Web of Science	09/02/2016		4
IBSS (BIDS)			
Other databases:			
PEDRO	11/02/2016		4
OT Seeker	“		3
Rehabdata	“		0
TRIP	“		1
Google Scholar	“		2
<p>Search History: exp WRIST FRACTURES/ OR exp RADIUS FRACTURES/ OR exp ULNA FRACTURES/; OR ("wrist fracture" OR "distal radial fracture" OR "colles fracture" OR "smiths fracture" OR "ulna fracture" OR "traumatic wrist fracture").</p> <p>AND exp EXERCISE/ OR exp THERAPEUTIC EXERCISE. OR PHYSICAL THERAPY/ exp OCCUPATIONAL THERAPY OR exp HAND THERAPY. OR exp REHABILITATION. OR (exercise OR physiotherap* OR "physical therapy" OR "occupational therapy" OR "hand therapy" OR "hand clinic" OR rehabilitation)..</p> <p>AND ;exp PRIMARY HEALTH CARE/ OR exp PHYSICIANS, FAMILY OR exp PATIENT EDUCATION OR exp SELF CARE OR ("no treatment" OR "GP care" OR "primary care" OR "no intervention" OR "usual care" AND advice OR leaflet OR "self management" OR education).</p> <p>AND exp PAIN OR ("recovery of function" OR function OR pain).</p> <p>[Limit to: (Language English) and (Age Groups All Adult</p>			

Results

1 Cochrane systematic review downloaded (search to Jan 2015)

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Date CAT completed: Jan 2017
Date CAT to be reviewed: Jan 2019

First Author, year and type of study	Population and setting	Intervention or exposure tested	Assessment of quality and comments
<p>Handoll 2015</p> <p>Cochrane systematic Review</p>	<p>Adults with distal radial fracture</p> <p>26 trials, n=1269 participants were mainly female and older adults</p> <p>Studies generally excluded serious fracture requiring hospital admission, treatment-related complications, older people with comorbidities and existing poor overall function</p>	<p>Rehabilitation interventions in adults with conservatively or surgically treated distal radial fractures</p> <p>Initial treatment: Participants of 15 trials were treated <u>conservatively</u>, (plaster cast immobilisation). <u>surgery</u> in 5 trials. Either <u>surgery or plaster cast</u> alone in 6 trials.</p> <p>Rehabilitation start: during immobilisation in 7 trials and after post-immobilisation in 19 trials.</p>	<p>Good quality, comprehensive systematic review?</p> <p>Included trials were small with methodological shortcomings and high risk of bias (mainly due to lack of blinding) that could affect the validity of their findings.</p> <p>Based on GRADE criteria for assessment quality, evidence rated as either low or very low quality for each of the 23 comparisons indicating considerable uncertainty in the findings.</p>

Study Results

Only 4 of the 23 intervention comparisons evaluated by more than one trial.

Rehab during immobilisation:

Hand therapy vs instructions improved hand function 4 days after plaster cast removal & continuing beneficial effects 1 month later - Very low quality evidence (1 trial, n=17).

Early occupational therapy improved hand function in the short-term, but not in the longer-term (3 months) - Very low quality evidence (1 trial, n=40), and

Supervised and unsupervised exercises showed no differences - Very low quality evidence (1 trial, n=96).

Very low quality evidence (4 trials) with clinically marginal benefits of specific interventions applied in addition to standard care:

Therapist-applied programme of digit mobilisation during external fixation (n=22)

Pulsed electromagnetic field (PEMF) during cast immobilisation (n= 60)

Cyclic pneumatic soft tissue compression using an inflatable cuff placed under the plaster cast (n=19)

Cross-education involving strength training of the non-fractured hand during cast immobilisation with or without surgical repair (n=39)

Rehab Post-immobilisation:

Single physiotherapy session (primarily advice and home exercise programme) vs 'no intervention' after cast removal improved function - very low quality evidence (1 trial, n=47)

Routine physiotherapy or occupational therapy in addition to home exercise instructions vs home exercises from a therapist alone showed no clinically important differences in outcome - Low quality

evidence (4 heterogeneous trials, n= 30, 33, 66 & 75)
Physiotherapy vs home exercise instructions by surgeon showed better short-term hand function - Very low quality evidence (1 trial, n=16)
Physiotherapy vs progressive home exercise programme had improved short-term hand function - Very low quality evidence (1 trial, n= 20)
Progressive home exercise programme preceded by instructions or coaching vs physiotherapy or occupational therapy after volar plate fixation was beneficial - low quality evidence (2 trials, n= 46 & 76)
Accelerated vs usual rehabilitation after volar plate fixation showed short-term, but not persisting benefit - very low quality evidence (1 trial, n=63)

Very low quality evidence of no significant difference of a range of adjunctive therapies (e.g ice, PEMF, odema treatment and continuous passive movement)

Implication for research:

In the Cochrane review, Handoll and Elliot conclude that the available evidence from RCTs is insufficient to establish the relative effectiveness of the various interventions used in the rehabilitation of adults with fractures of the distal radius. Further randomised trials are warranted. However, in order to optimise research effort and engender the large multicentre randomised trials that are required to inform practice, these should be preceded by research that aims to identify priority questions for patients, clinicians and all stakeholders.

Summary:

The available evidence is insufficient to establish exactly what rehabilitation protocol or intervention package is necessary to optimise functional recovery, or what type of rehabilitation specialists should provide this care, or when or for how long this care should be provided, or in what circumstances it should be provided. It is known however that a poor clinical outcome (especially in women over 65) will result in a high risk of functional and clinical decline. Clinicians should therefore continue to provide appropriate interventions identified from other forms of evidence or guidance.

What would you tweet about this CAT?

There is insufficient evidence to establish how to manage the rehabilitation of adults with wrist fractures.

Reference

Handoll HH & Elliott J. 2015 Rehabilitation for distal radial fractures in adults. Cochrane Database of Systematic Reviews. Sep 25;9:CD003324. doi: 10.1002/14651858.CD003324.pub3.

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