

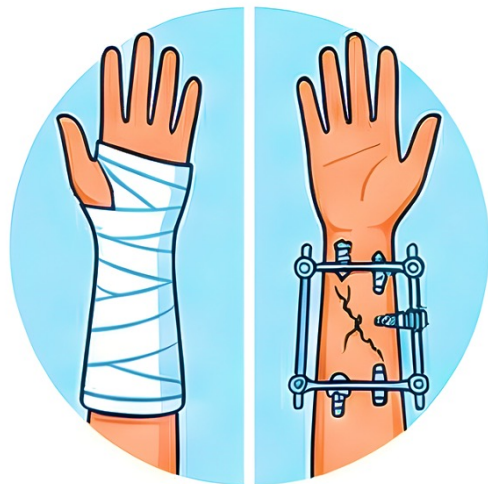
# **DISTAL RADIUS FRACTURE REHABILITATION: A BIBLIOMETRIC & SCOPING REVIEW**



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# INTRODUCTION



## A Prevalent & Impactful Injury

DRFs are among the most common upper limb injuries, affecting daily function and quality of life.



## Treatment Varies by Complexity

Management ranges from simple casting to more rigid surgical fixation for complex fractures.



## Rehabilitation is Essential for Recovery

Effective therapy prevents complications, reduces pain, and improves long-term function.



# PROBLEM STATEMENT

# The State of DRF Rehabilitation: What We Know & What We Don't

## What We Know: Current Evidence



### Rehabilitation is Critical for Recovery

It prevents long-term complications and improves pain, motion, and hand function.



### Tailored Programs Are Effective

Both supervised therapy and structured home programs improve outcomes, especially when individualized.



### Technology-Supported Rehab Shows Promise

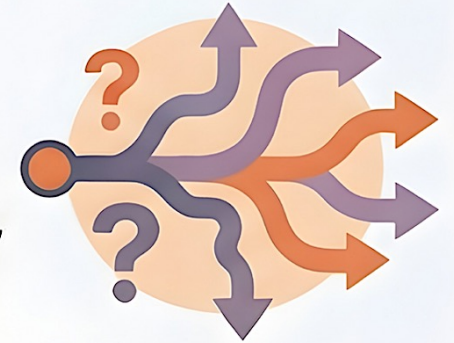
Mobile apps and gamification can enhance patient engagement and self-management.



## What We Don't Know: Key Research Gaps

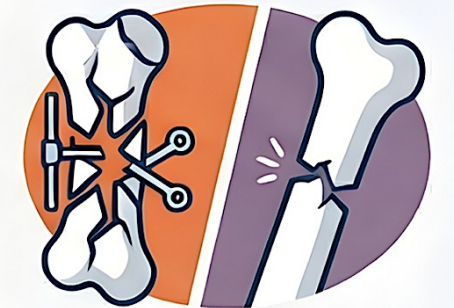
### No Standardized Rehabilitation Protocols Exist

There is no consensus on the type, timing, or intensity of exercises.



### Lack of Evidence for Complex Fractures

Most research focuses on simple fractures, not complex or surgically-managed cases.



### Inconsistent Research Prevents Clear Conclusion

Studies use diverse outcome measures, making it difficult to identify best practices.

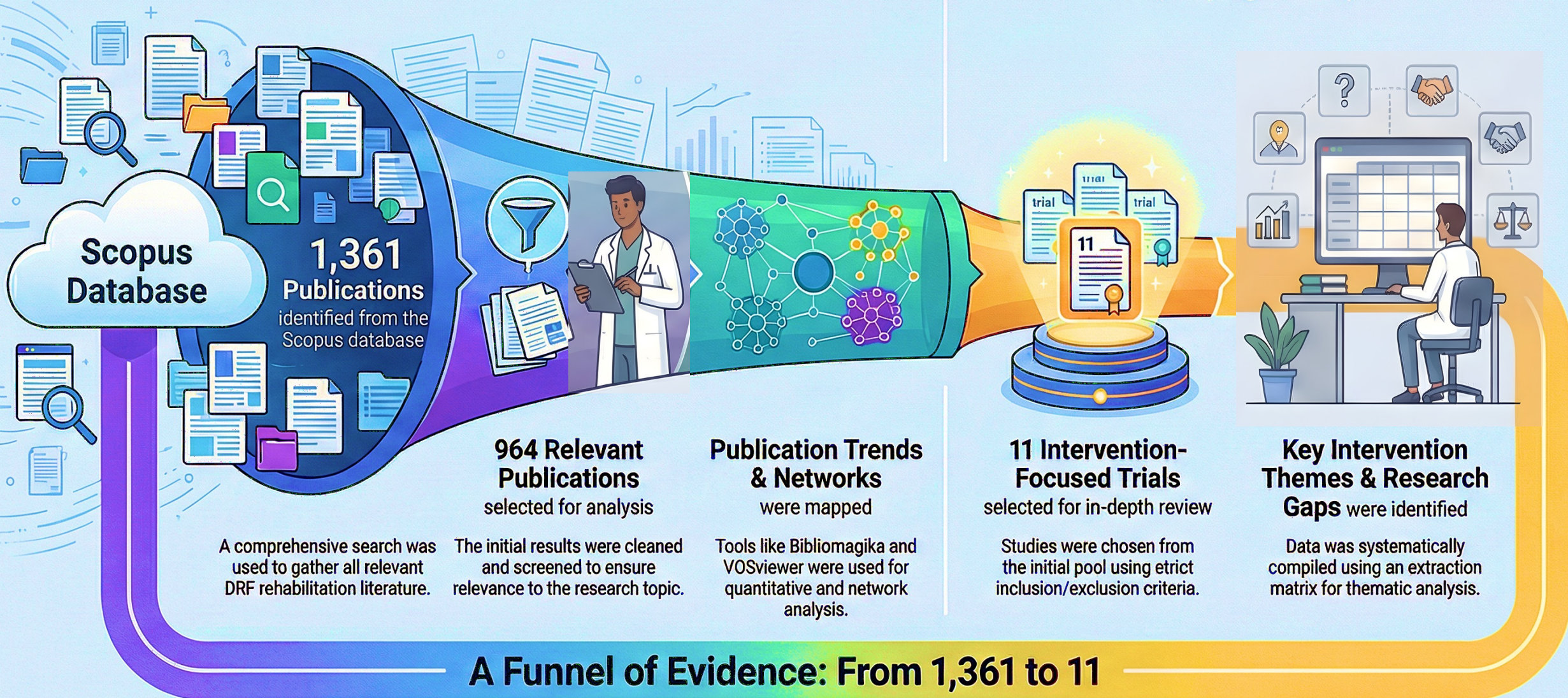


# METHODOLOGY

# A Dual-Method Approach to Research: Analyzing DRF Rehabilitation

## Stage 1: Broad Landscape Analysis (Bibliometric)

## Stage 2: Focused Evidence Synthesis (Scoping Review)



## A Funnel of Evidence: From 1,361 to 11

This process refined a large body of literature into highly relevant evidence.

# RESULTS & DISCUSSION



# **BIBLIOMETRIC ANALYSIS**

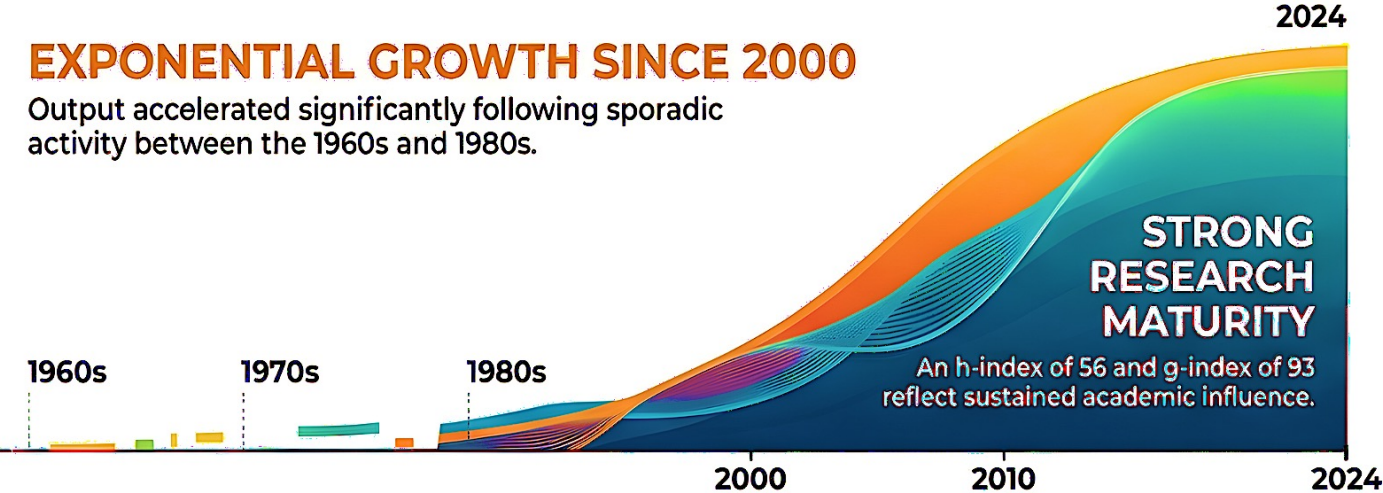
## **OUTCOMES**



# Mapping DRF Rehabilitation: Bibliometric Trends (1967-2024)

## EXPONENTIAL GROWTH SINCE 2000

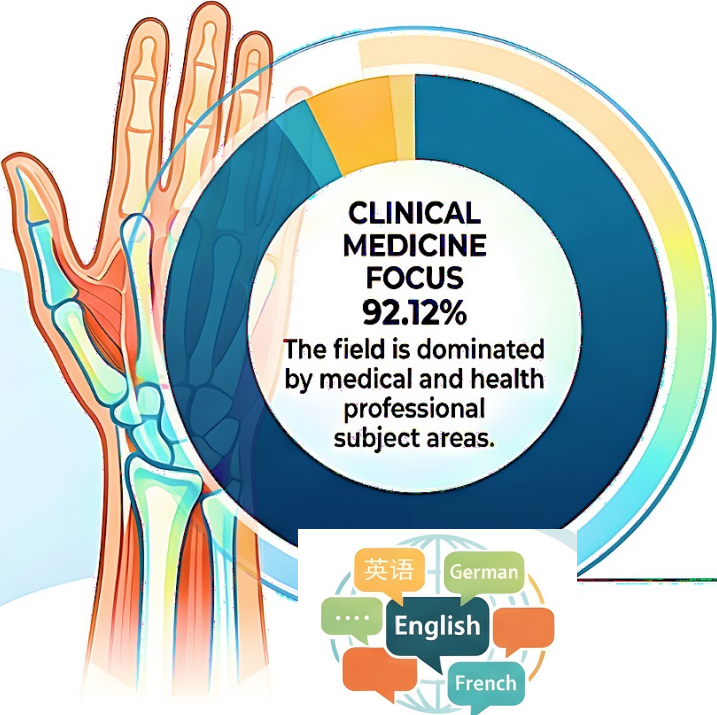
Output accelerated significantly following sporadic activity between the 1960s and 1980s.



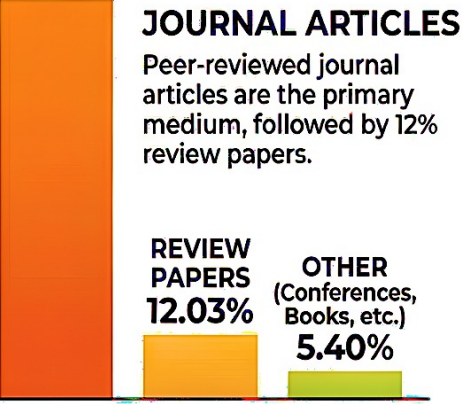
# 14,922

## TOTAL CITATIONS

Research in this field maintains an average of 15.48 citations per paper.



### Published as Articles



### HIGH GLOBAL COLLABORATION

Research involves 4,281 authors with an average of 4.44 contributors per paper.



Analysis of 964 publications spanning nearly 60 years, characterized by exponential growth, high collaboration, and a clinical focus.



# Global Leaders in DRF Rehabilitation Research

Analysis of publications, citations, and field influence in Distal Radial Fracture rehabilitation science.

## Global and Institutional Leaders



Global diversity in research contributions from top contributors across Canada, USA, Austria, Australia, Germany, and the UK.

## High-Impact Individual Researchers



**JOY C. MACDERMID:**  
Leading Author

**24**  
PUBLICATIONS

Citations Per Publication:

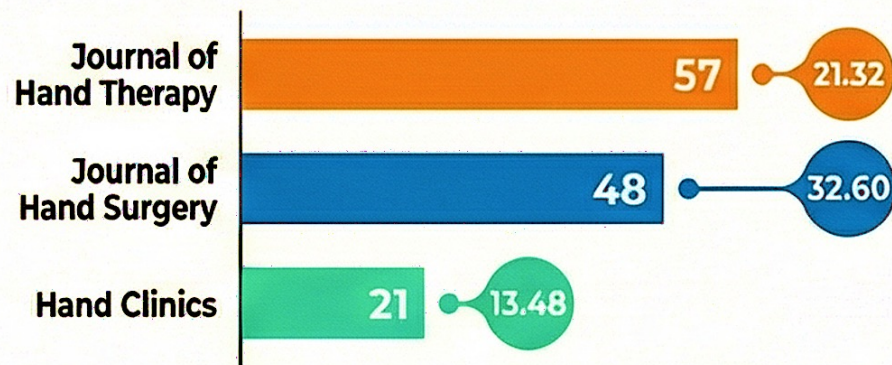
**393**  
CITATIONS

**JESSE B. JUPITER:**  
Exceptional Influence

**10**  
PUBLICATIONS

**442**  
TOTAL  
CITATIONS





Source titles ranked by activity and impact.

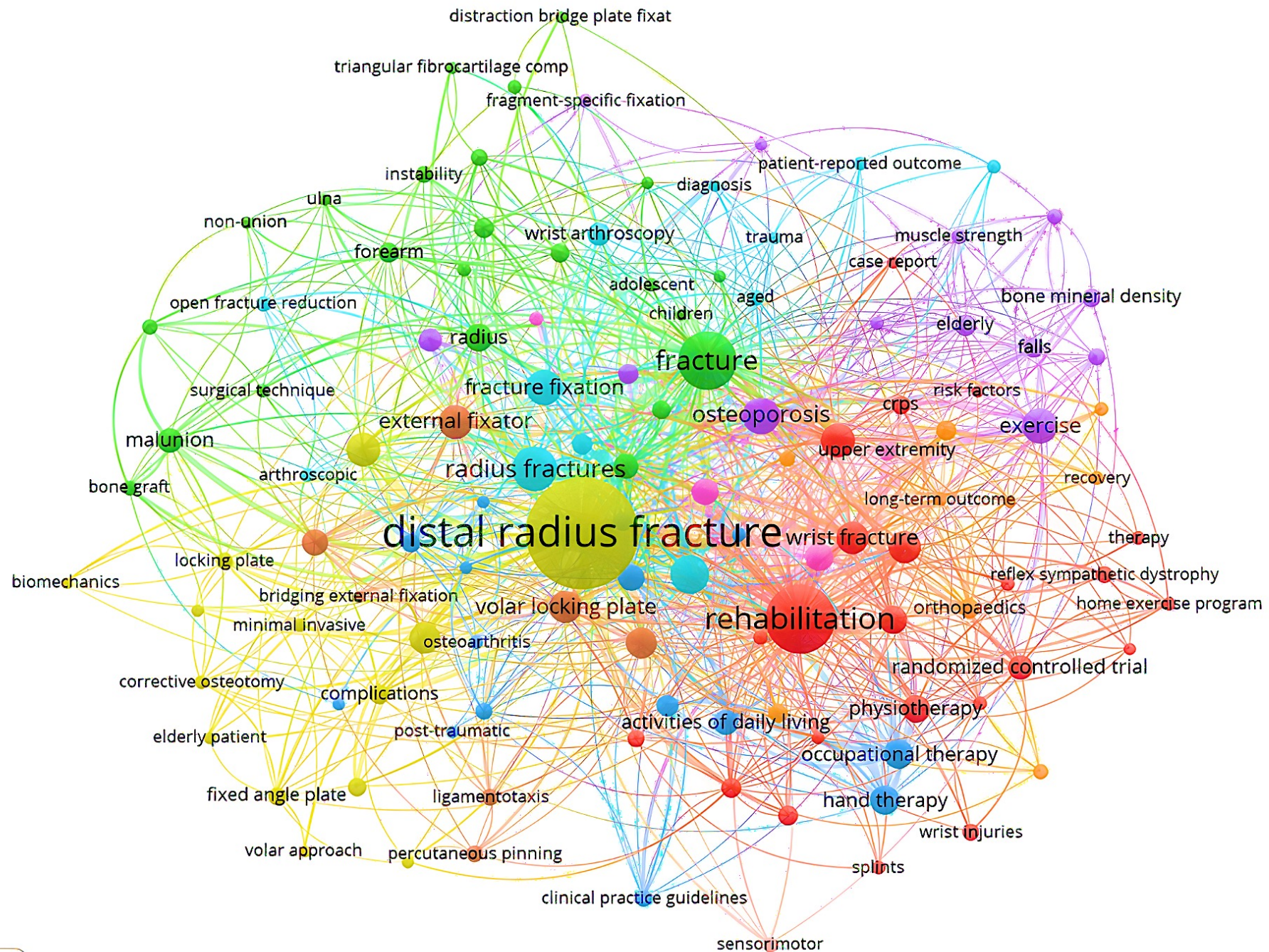
### Global Reach vs Niche Focus

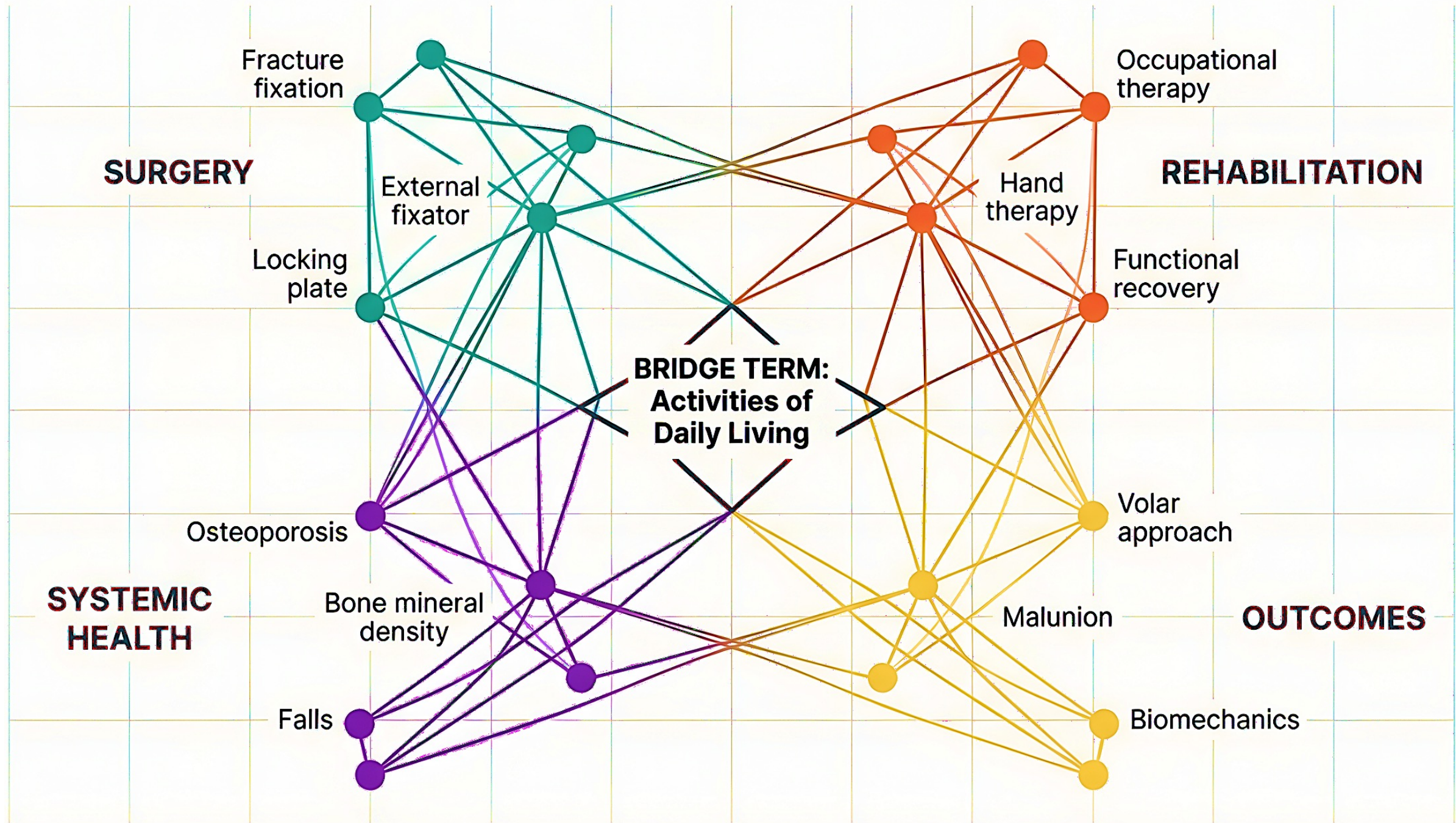


**Injury:**  
 Broader Surgical  
 Advancements



**Hand Clinics:**  
 Niche Rehabilitation  
 Focus





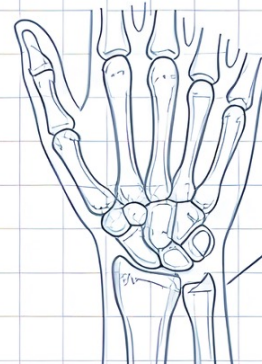
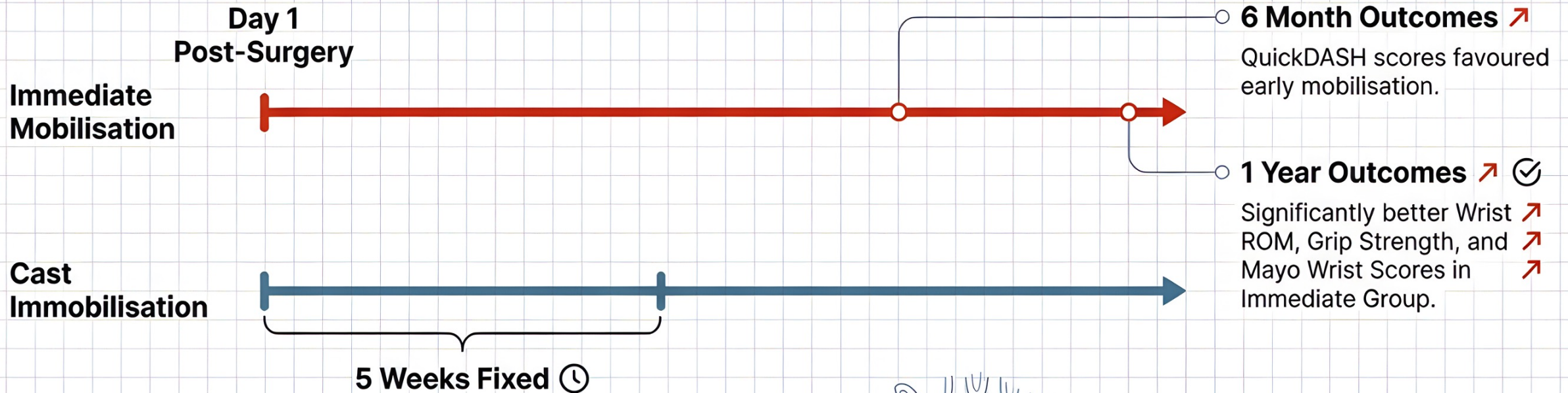


**SCOPING REVIEW**

**OUTCOMES**



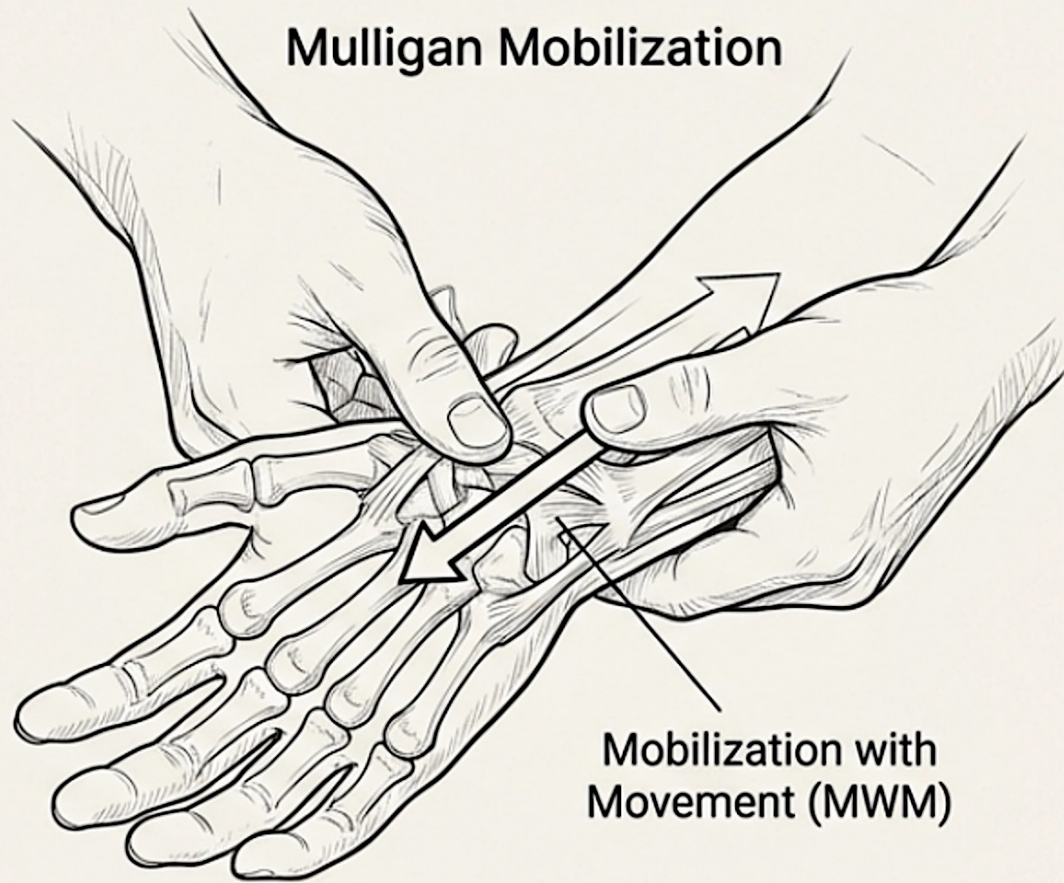
# The Critical Window: Early vs. Delayed Mobilisation



## Specific Gains

Faster ROM improvements noted in supination/pronation and radial/ulnar deviation during the first nine weeks.

# Manual Therapy: Specificity Matters



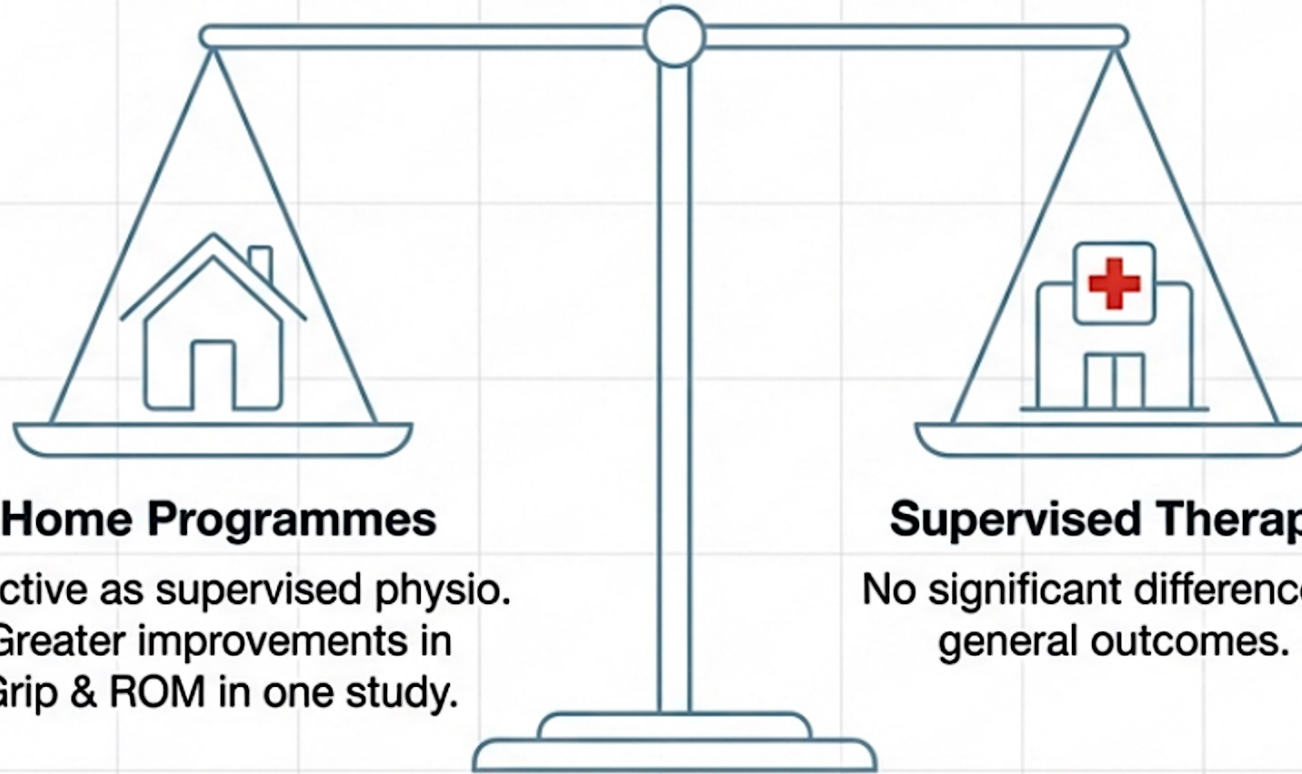
## Mulligan Mobilization + Standard PT vs. Standard PT Alone

- ✓ Superior PRWE Scores
- ✓ Superior DASH Scores
- ✓ Reduced Pain Levels
- ✓ Increased Grip Strength

**Short-Term Accelerator:** MWM showed improved ROM and QuickDASH scores at 4 weeks. Benefits normalized by 12 weeks.

Manual intervention accelerates early-stage recovery metrics, particularly regarding stiffness and pain.

# Delivery Models: Supervised Therapy vs. Home Programmes



## Home Programmes

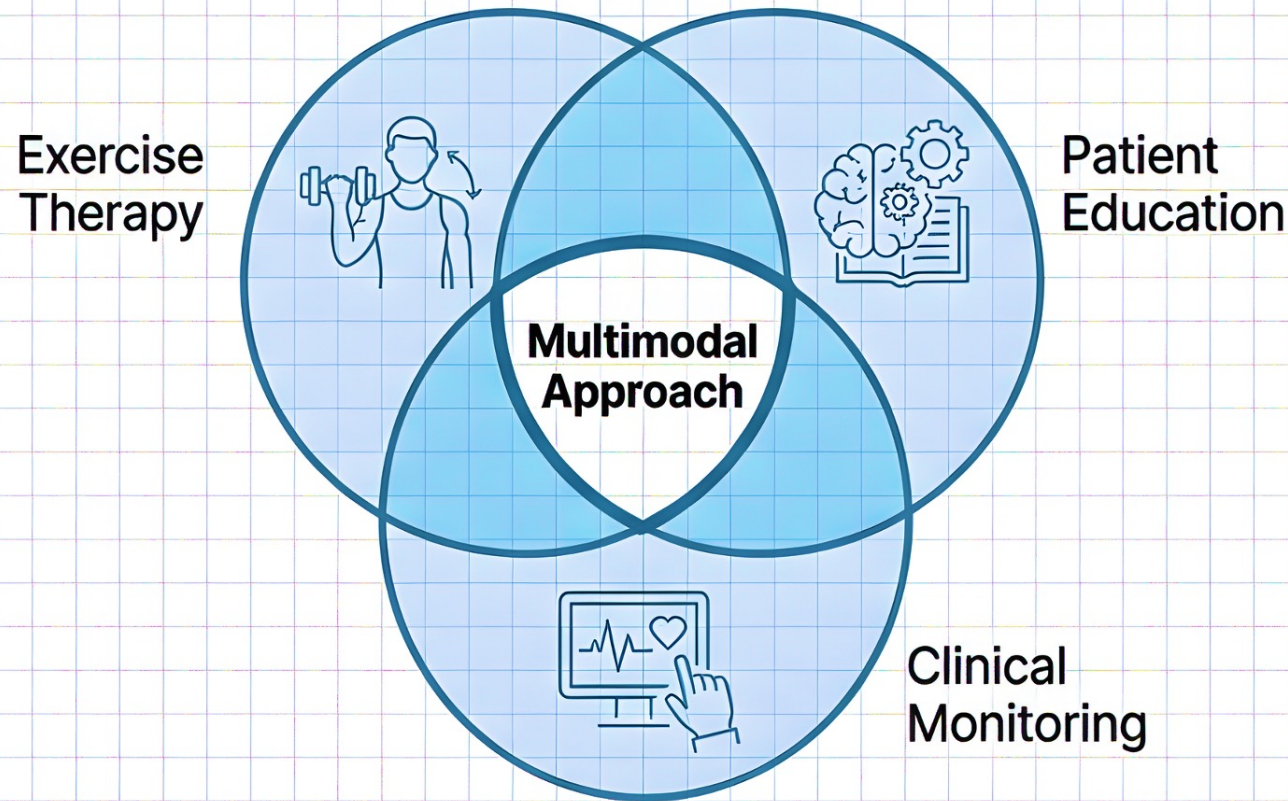
Effective as supervised physio.  
Greater improvements in  
Grip & ROM in one study.

## Supervised Therapy

No significant difference in  
general outcomes.

**CRITICAL NUANCE:** Patients with comorbidities or specific risk factors derived significantly more benefit from supervised therapy. Triage should be based on patient complexity, not just injury type.

# The Holistic View: Multimodal Rehabilitation



## EVIDENCE BASE

2 Studies (18.2% of review)

## OUTCOMES

Integration leads to **enhanced grip strength** and **functional recovery**.

## NOTE

Pain reduction findings were mixed.

“ Incorporating multiple treatment modalities provides more comprehensive support than singular interventions.” ”

# The Digital Frontier: Technology-Assisted Interventions

## Digital/Video Rehabilitation vs. Traditional In-Person Therapy

### Digital Media Group



**QuickDASH: Greater improvement** at 6 & 12 weeks (Not statistically significant).

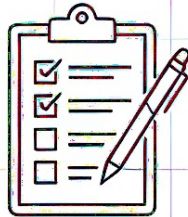
### In-Person Group



**Functional Outcomes: Comparable** Grip, ROM, and Pain levels.

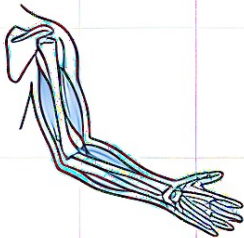
# Measuring Success: Standardised PROMs

91% of included studies utilised these standardised tools to validate findings.



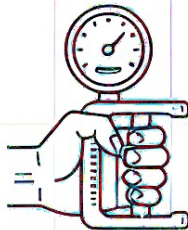
## **PRWE (Patient-Rated Wrist Evaluation)**

The gold standard for assessing pain, function, and disability.



## **QuickDASH**

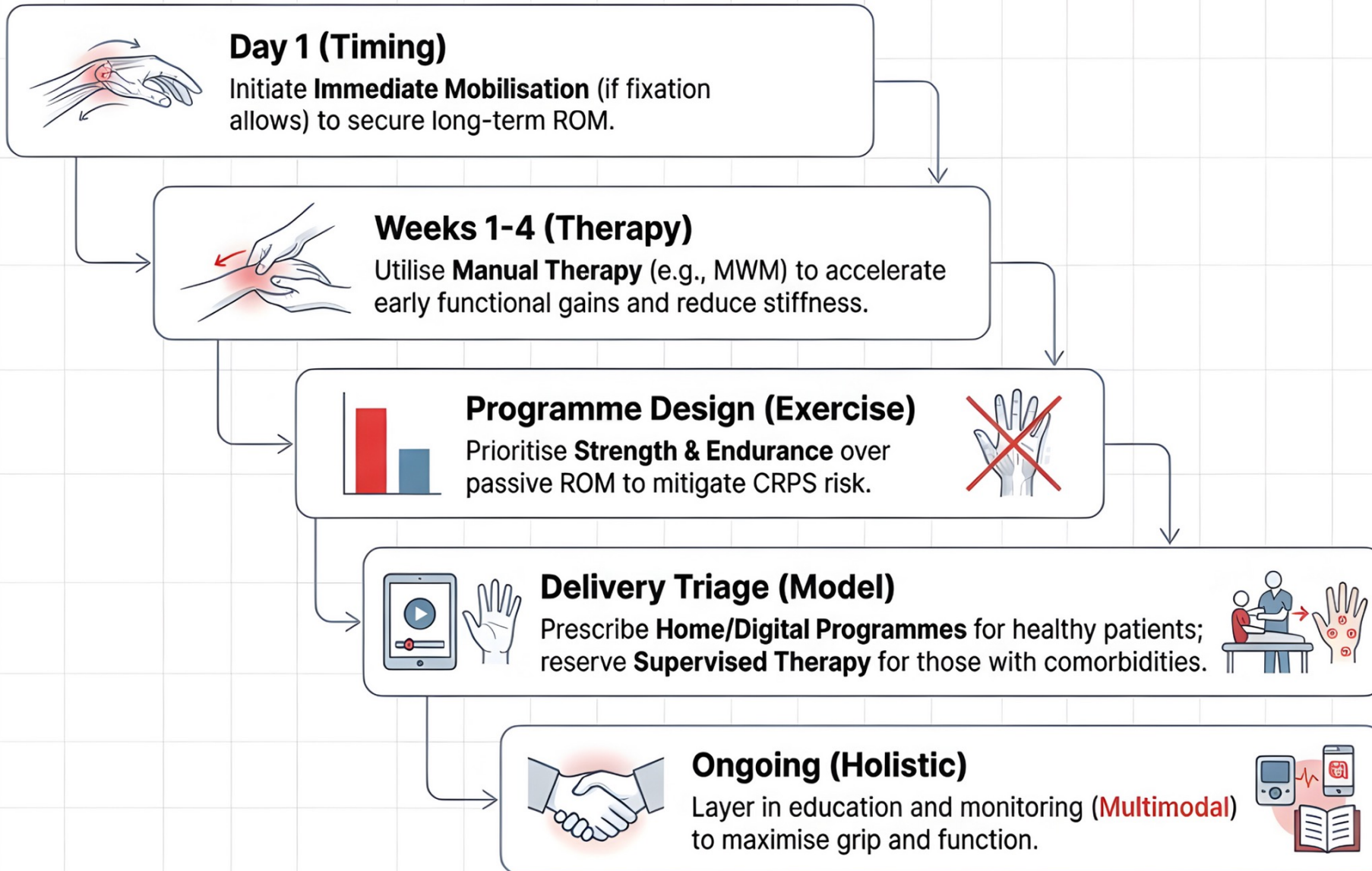
Primary measure for upper limb function and recovery speed.



## **Grip Strength Testing**

Objective metric for muscle recovery and rehabilitation effectiveness.

# CONCLUSION



Scan for full paper