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## Introduction

- Upper limb recovery after stroke is essential to perform activities of daily living.
- Evidence suggests that task-oriented training (TOT) helps to improve upper limb function after stroke **(1,2)**
- TOT is a core element of various approaches such as the motor relearning programme (MRP), bilateral arm training (BAT) and constraint induced movement therapy (CIMT) **(3)**.
- The application of motor learning principles during TOT is essential to get the desired results.

## Objectives

### Primary:

- To investigate whether motor learning principles such as practice and augmented feedback were reported in stroke clinical trials involving upper limb task oriented training (UL-TOT).

### Secondary:

- To investigate whether principles of practice were reported in stroke clinical trials involving UL-TOT.
- To investigate the practice intensity of TOT reported in stroke clinical trials involving UL-TOT.

## Materials & Methods

**Database searched:** PubMed, CINAHL, Web of Science, Scopus, and Cochrane databases.

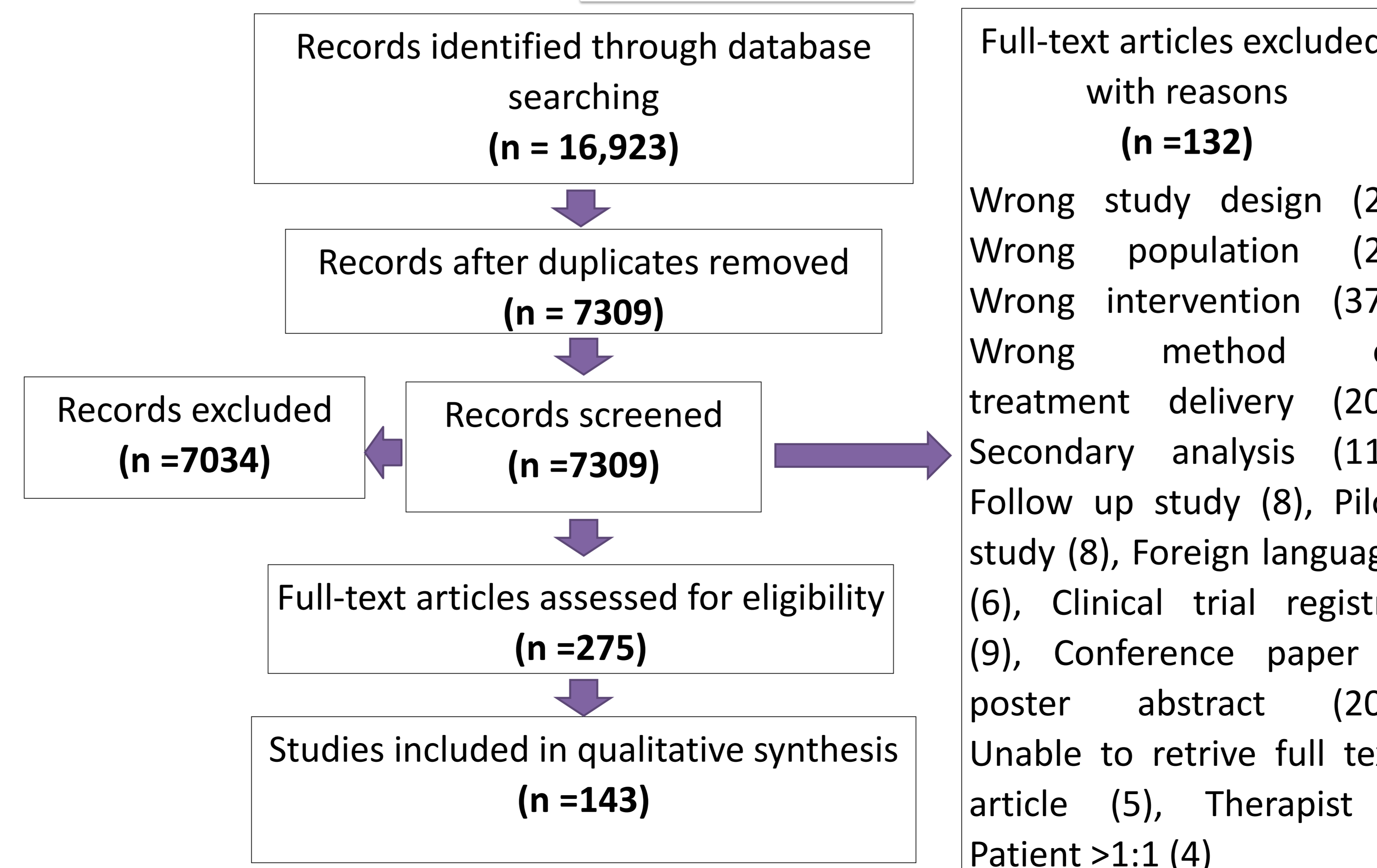
**Screening:** Two reviewers independently did the title, abstract, and full text screening based on the inclusion and exclusion criteria.

**Data extraction:** Two reviewers independently did the data extraction.

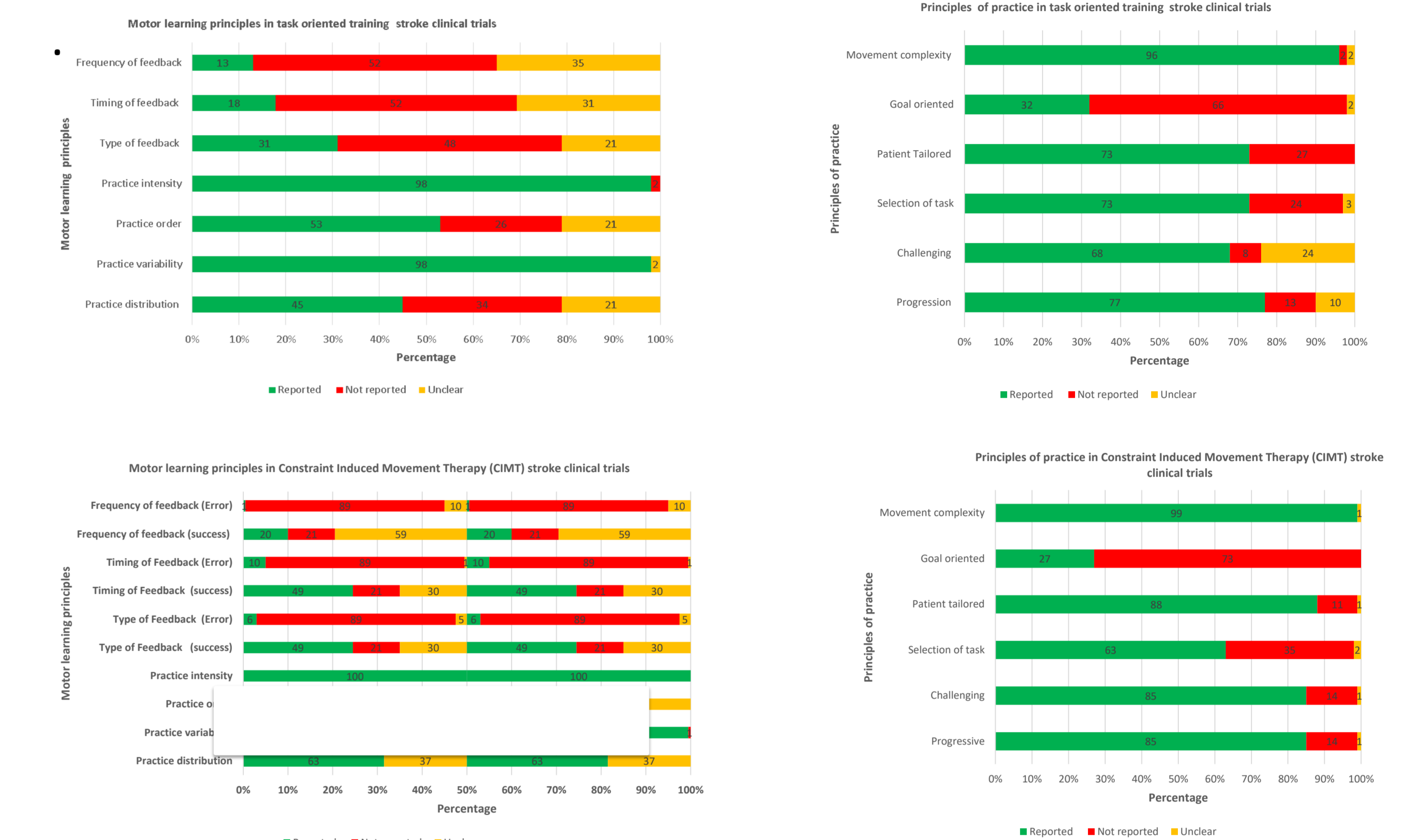
Conflicts between two reviewers were resolved by a third reviewer

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> <li>✓ Studies that addressed the effects of UL-TOT such as Unilateral or Bilateral TOT, MRP and CIMT on patients in the acute, sub-acute or chronic stage of stroke.</li> <li>✓ Studies that delivered UL-TOT face to face with patient therapist ratio of 1:1.</li> <li>✓ Studies that were randomized controlled trials (RCT), non RCTs, cross-over, case series or case studies.</li> <li>✓ Studies that were published between 2000 and 2020 in the English language.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Studies that delivered technology based TOT, strength training techniques without TOT, neurophysiological approaches without TOT, mirror therapy and mental practice with TOT and medical and surgical interventions with TOT.</li> <li>✓ Studies that delivered TOT on animals.</li> </ul>

### PRISMA flowchart



## Results



Practice intensity of different methods of task oriented training in the included studies

Types of intervention	No of hours per day in median (Range)	No of sessions per day in median (Range)	No of days per week in median (Range)	No of weeks in median (Range)
TOT	1:00 (0:20–5:00)	1 (1-2)	4 (1-6)	5 (2-10)
BAT	1:00 (0:20–6 :00)	1 (1-2)	5 (3 -6)	4 (2-12)
MRP	2:00 (0:30–3:00)	1 (1-1)	5 (3 -6)	4 (3-6)
CIMT	3:00 (0 :30–7:00)	1 (1-3)	5 (2-6)	2 (2-12)

## Conclusions

- This scoping review showed that the principles of motor learning and principles of practice were inconsistently reported in stroke clinical trials involving UL - TOT.
- Practice variability, intensity and task complexity were more frequently reported.
- Feedback timing, frequency and goal oriented task practice were very rarely reported.

## References

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