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46

Implementation and evaluation of an occupational therapy Constraint Induced Movement Therapy (CIMT) outpatient program for stroke survivors

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Introduction

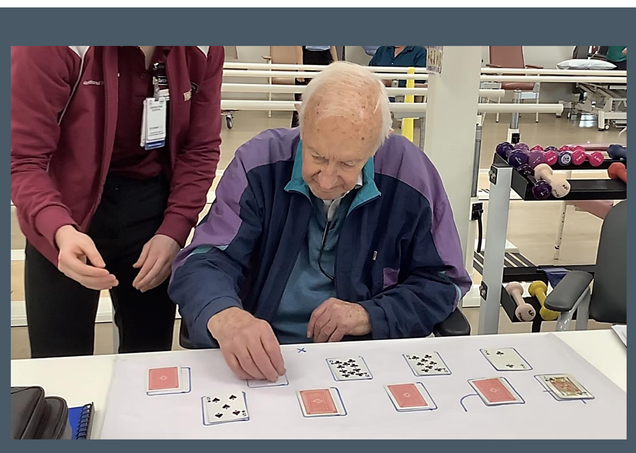
National Stroke guidelines and high-level evidence recommend the use of CIMT for upper limb recovery.[1] Yet, implementation of this intervention across various settings is low. In the 2024 Australian rehabilitation audit, CIMT as an upper limb intervention was only delivered in 12% of stroke survivors.[2]

Hemiparesis of the upper limb (UL) affects up to 80% of stroke survivors, and approximately 40% of stroke survivors experience ongoing arm limitations.[3]

A current challenge in neurological rehabilitation is that although the evidence supports high doses of UL interventions to achieve a benefit, stroke survivors frequently spend large periods of time alone, and inactive.[4]

The improvement of UL function is often integral to an increased ability to then participate in valued roles and activities of daily living. CIMT has demonstrated efficacy in improving this, at any timepoint, after their stroke.[5]

Osborne Park Hospital (OPH) Occupational therapy stroke outpatient clinic has developed a group CIMT program to address the identified gap.





Aim

The primary aim was to evaluate the impact of the group CIMT upper limb program on UL function and goal attainment following stroke.

The secondary aim was to explore participant experiences and feedback in a group program.





Method

This pre-post intervention study aimed to recruit 30 eligible stroke survivors who attended 80% of the program.

3 week small group program (4-8 participants): three sessions of two-hours per week, delivered face-to-face in an outpatient clinic.

All components of the recommended CIMT protocol are included:

- Transfer Package
- Repetitive task-orientated training
- Optional use of constraint

Four upper limb outcome measures were used to measure change in arm function:

- Motor Activity Log (MAL) - How Well (HW) and Amount
- 9-Hole Peg Test (9HPT)
- Box & Block Test
- Jamar Hand Dynamometer (Jamar)

A self-rated measure was for goal attainment (% achieved).

A survey was conducted to explore participant experience and gain feedback at completion.

Descriptive statistics were used to analyse results.

Demographics

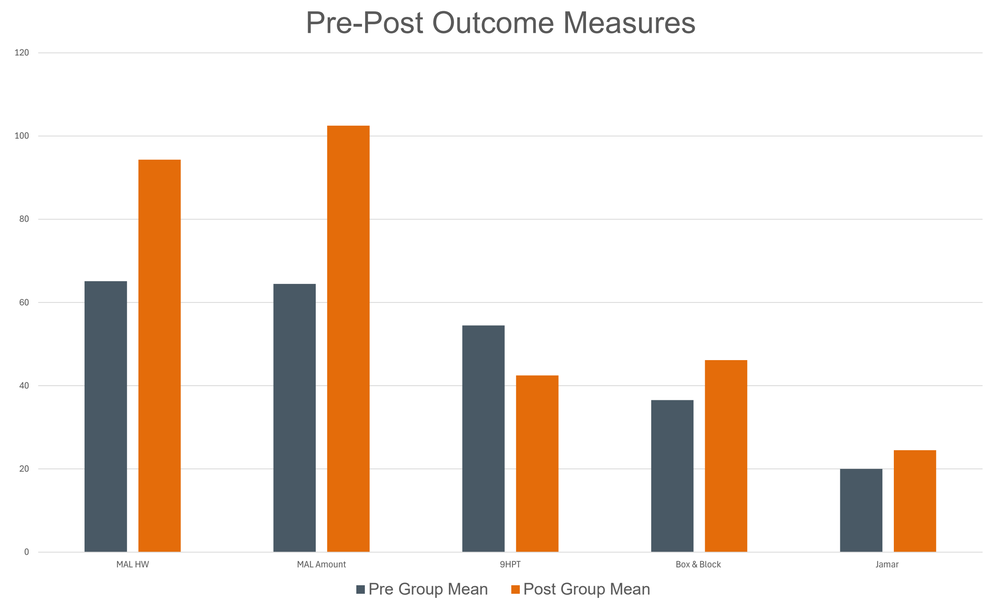
To date, 27 participants have completed the program with over 90% achieving full attendance, demonstrating high program adherence and acceptability.

Demographic Variable	Summary n=27 participants
Gender	Male: 22 (81.5%); Female: 5 (18.5%)
Age (years)	Mean = 69.1, SD = 12.4, Range = 41–93
Hand Dominance (UL dominant)	Right: 26 (96.3%); Left: 1 (3.7%)
Hand Affected (UL affected)	Right: 15 (55.6%); Left: 12 (44.4%)
Hours Attended	Mean = 17.1 hours (Range 13.5–18.0 hours)
Sessions Attended	Mean = 8.8 sessions (Range 7–9 sessions)
Social Situation	Lives with partner: 13 (48.1%); Lives alone: 7 (25.9%); Lives with family: 5 (18.5%); Other: 2 (7.4%)

Results

Participants showed clinically meaningful functional arm gains.

- 9HPT: lower times indicate better performance – the mean change (12secs) indicates a clinically significant improvement.
- Box & Block Test: the mean change (9.6 blocks) exceeds established thresholds for stroke rehab and therefore indicates a clinically meaningful improvement.
- Jamar: the mean change of (4.5kg) approaches the commonly accepted threshold for clinical significance (5kg) and although slightly below, the improvement suggest meaningful gains.
- Both MAL domains demonstrate large improvements, supporting enhanced functional integration of the affected arm into daily life.
- 89.4% of participants' identified occupational performance goals were partially or fully achieved.



Participants feedback

100% participants agreed or strongly agreed that the group met objectives of:

- Improving confidence in using their arm
- Improved how well they use their arm
- Improved how much they used their arm
- Was the right level of challenge
- Enjoyable to attend
- Other stroke survivors that attended were helpful

85% of participants agreed or strongly agreed that the timing and length of the CIMT group was right for them.

"CIMT with a group, rather than individually, has had huge benefits – honesty and sharing of challenging experiences has provided reassurance and a real sense of 'can do'… and the collective encouragement of enjoying other peoples' 'wins' helps everyone.."
Carer

"…I pushed myself further to use my weaker arm even more.. [CIMT] gave me more confidence to try new things with my weaker arm.. if it's too hard at home, I give up.."
Participant

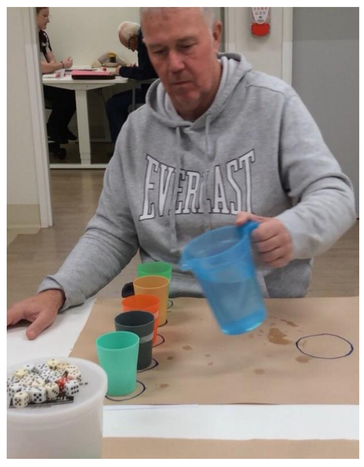
"…working in a group is so beneficial.. can feel the vibes bouncing off each other.. even complaints were motivating.."
Participant

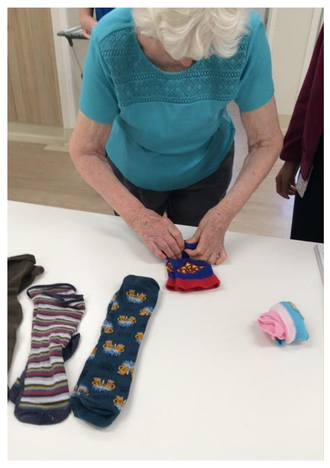
Conclusion

The group CIMT UL program has demonstrated initial high acceptability and program adherence, with clinically meaningful changes in upper limb function for people after stroke.

Participants also reported high levels of upper limb goal achievement and an overall positive experience, benefitting from the group format such as social interactions and peer support.

Ongoing implementation and evaluation are important to ensure sustainability of this intervention.





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