Effectiveness of Bilateral Movement-based Computer Training Program to Improve the Motor Function of Upper Limb in Sub-acute Stroke Patients

A Randomized Controlled Trial

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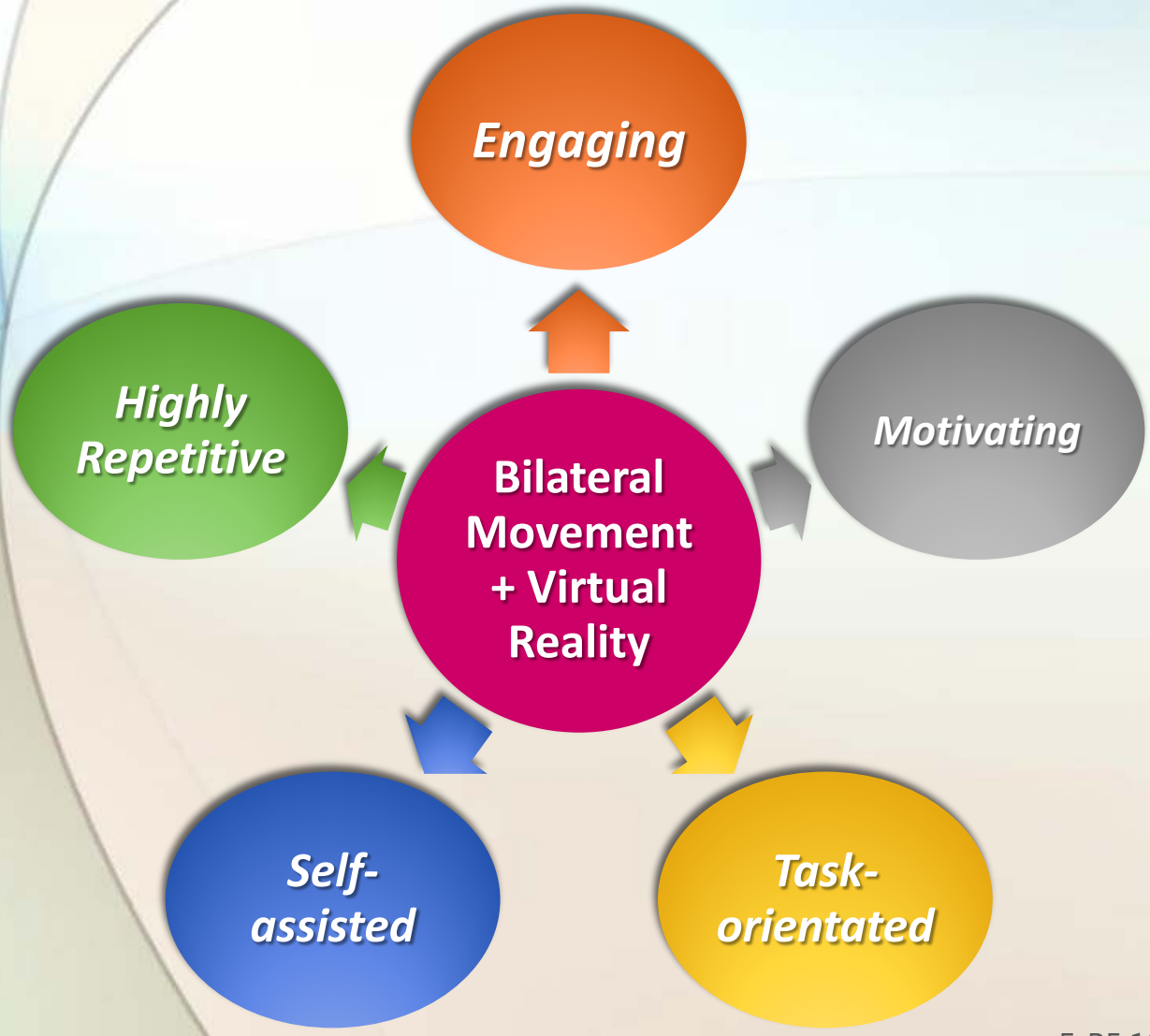
BACKGROUND



OBJECTIVE

To investigate whether Bilateral Movement-based Computer Training program would be ***superior*** to the conventional training in improving the motor control and functional use of paretic upper limb in patients with sub-acute stroke.

METHODOLOGY

Stratified, Single-blinded, Randomized Controlled Trial

Geriatric Day Hospital, Shatin Hospital

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Patients with sub-acute stroke were screened

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Stratified by sex/ age/ type of stroke and randomly allocated to 1 of 2 groups

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BMCT Group | **VDCT Group**

↓

16 treatment sessions over 8-week period

BMCT Group

Standard conventional physiotherapy training

+

30-minute Bilateral Movement-based Computer Training

VDCT Group

Standard conventional physiotherapy training

+

30-minute of Video-Directed Conventional Training

METHODOLOGY

Motor Control and **Function** of Paretic Upper Limb

Evaluated by :

FMA-UE - Fugl-Meyer Assessment of Upper Extremity

ARAT - Action Research Arm Test

GS - Grip Strength

Outcome measures were recorded:

$\mathbf{A_0}$ - At baseline before treatment

$\mathbf{A_1}$ - After 8 sessions of treatment

$\mathbf{A_2}$ - After 16 sessions of treatment

$\mathbf{A_{Fu}}$ - 4 weeks after treatment ended

RESULTS

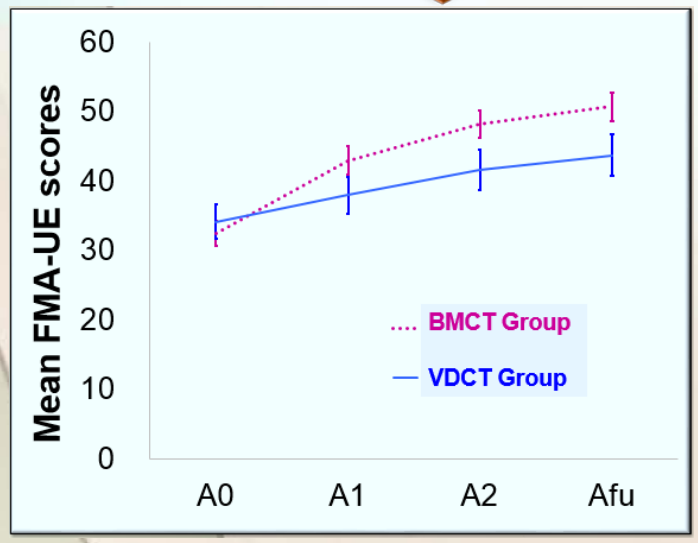
Group	BMCT	VDCT
N	47	46
Age	65.1 ± 10.2	66.0 ± 9.0
Post-stroke days	57.6 ± 24.7	63.4 ± 39.6

BMCT Group ***VDCT Group***

Demonstrated ***statistically significant increases*** in ***mean scores*** of **FMA-UE, ARAT and GS (affected hand) scores** from baseline A_0 to A_1, A_2, and A_{FU}

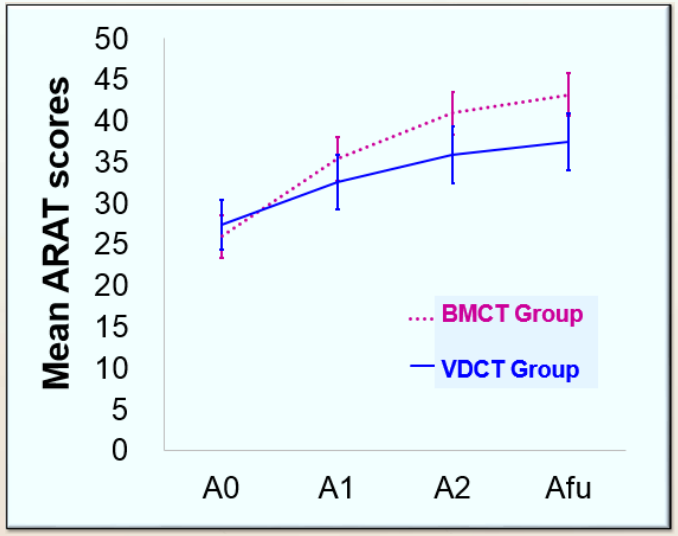
RESULTS

Mean changes in **FMA-UE scores, ARAT scores and GS (affected hand) scores** were statistically ***significantly greater in the BMCT group than the VDCT group*** from baselines A_0 to A_1, A_2, and A_{FU}



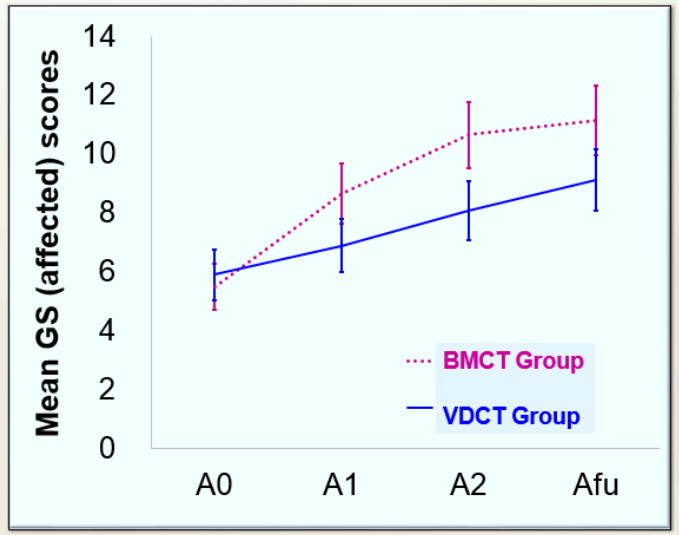
FMA-UE scores

All p-values < 0.001



ARAT scores

All p-values < 0.05



GS (affected hand) scores

All p-values < 0.05

CONCLUSION

- Application of ***BMCT*** is ***effective*** in ***improving motor control and function*** of paretic upper limb in sub-acute stroke patients.
- ***BMCT*** could be a ***useful complement*** to conventional therapy in stroke rehabilitation.

Thank You

Implementation of this technology at home or in day care centres could

- ***motivate patients to exercise*** as well as
- ***to maintain or even improve*** their physical health after being discharged from rehabilitation.