



Barriers and Facilitators of Implementing Resistance Training in Dementia Care

A Qualitative Study using the COM-B Model

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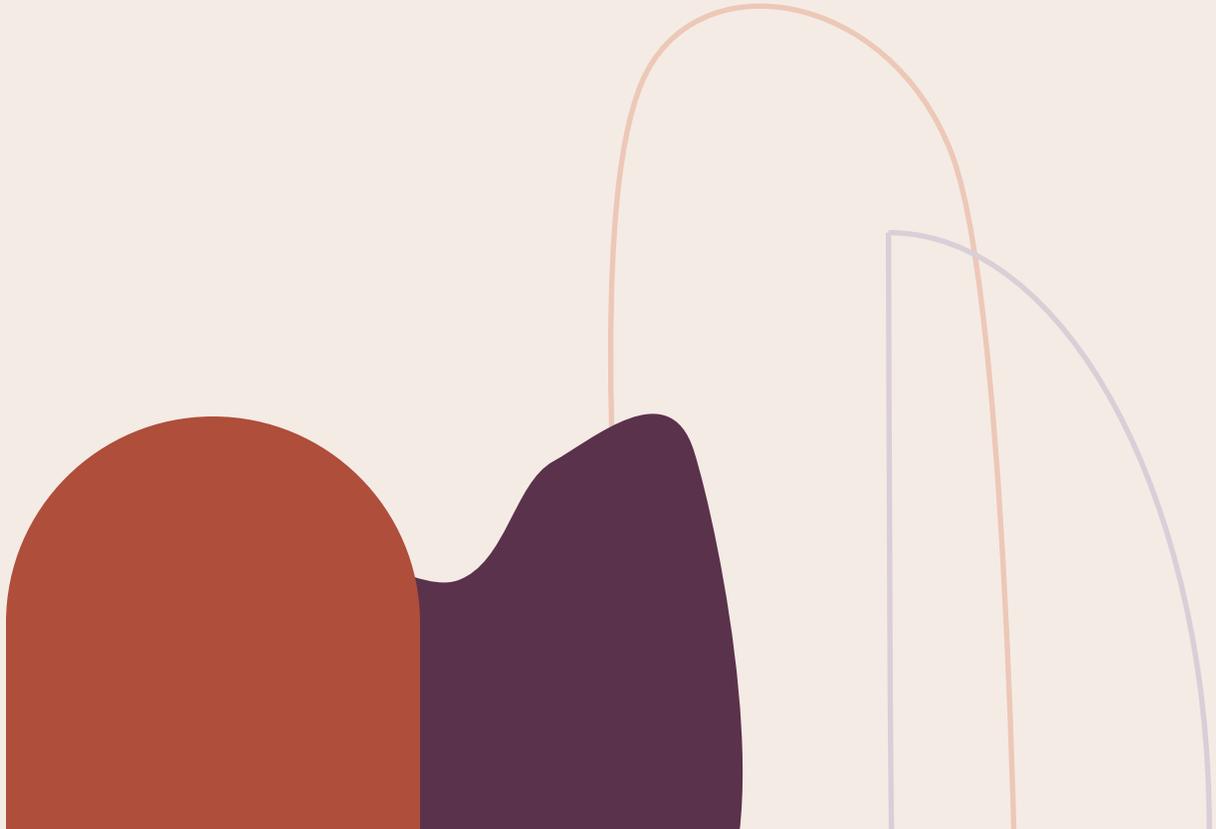


HELLO!



Imagine a world
where **exercise**
is prescribed as
evidence-based
medicine

Outline



01

Why

is resistance
training essential?

02

What

are the determinants
of implementation?

03

How

can we design for
implementation?



01

Why is resistance
training essential?

What is Healthy Ageing?

Maintenance of **functional ability** that enables wellbeing



Bathing



Toileting



Standing up
from a chair



Walking



Carrying
objects

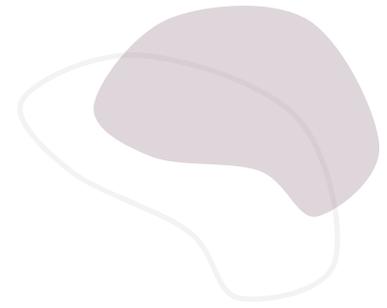
Muscle
Mass

Muscle
Strength

Muscle
Power

Rudnicka, E., Napierała, P., Podfigurna, A., Męczekalski, B., Smolarczyk, R., & Grymowicz, M. (2020). The World Health Organization (WHO) approach to healthy ageing. *Maturitas*, 139, 6-11.

The Ageing Trajectory of Musculoskeletal Decline

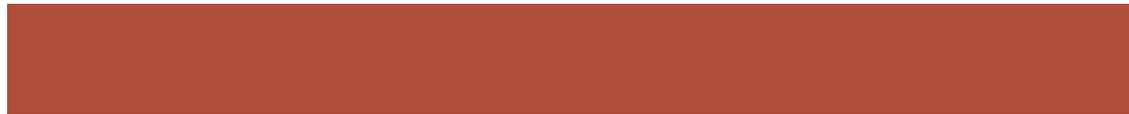


Muscle mass



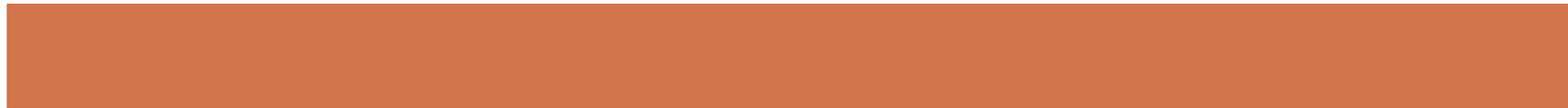
0.47% per year

Muscle strength



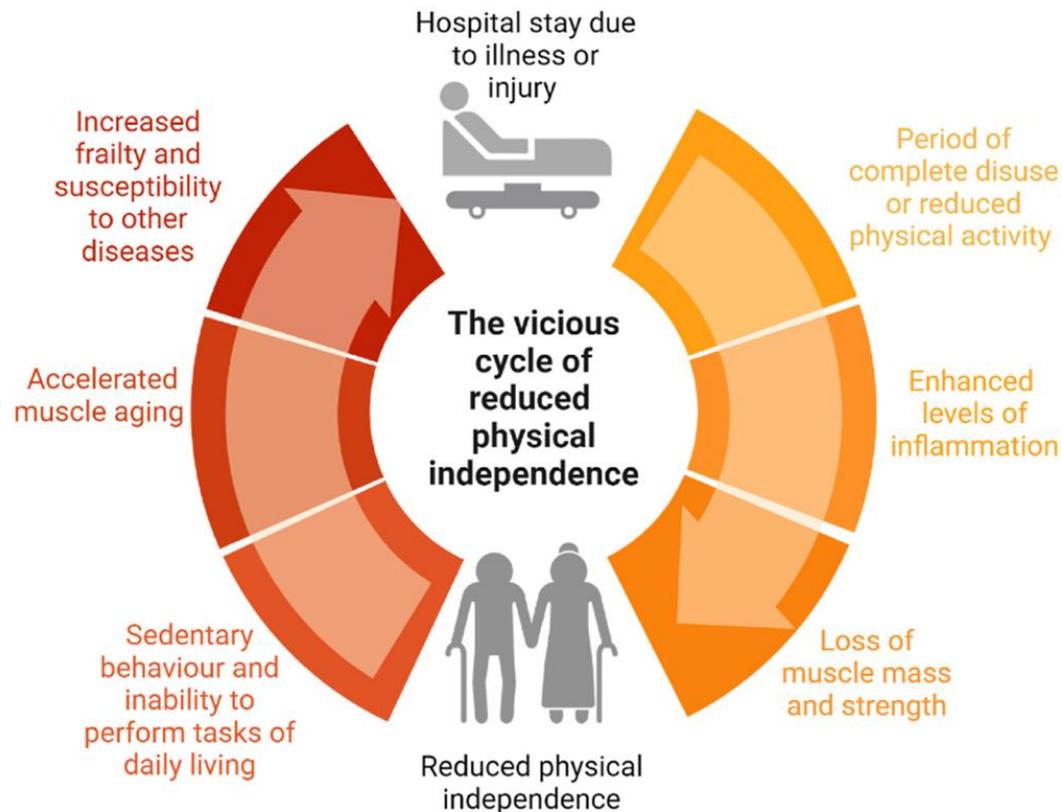
2-4% per year

Muscle power



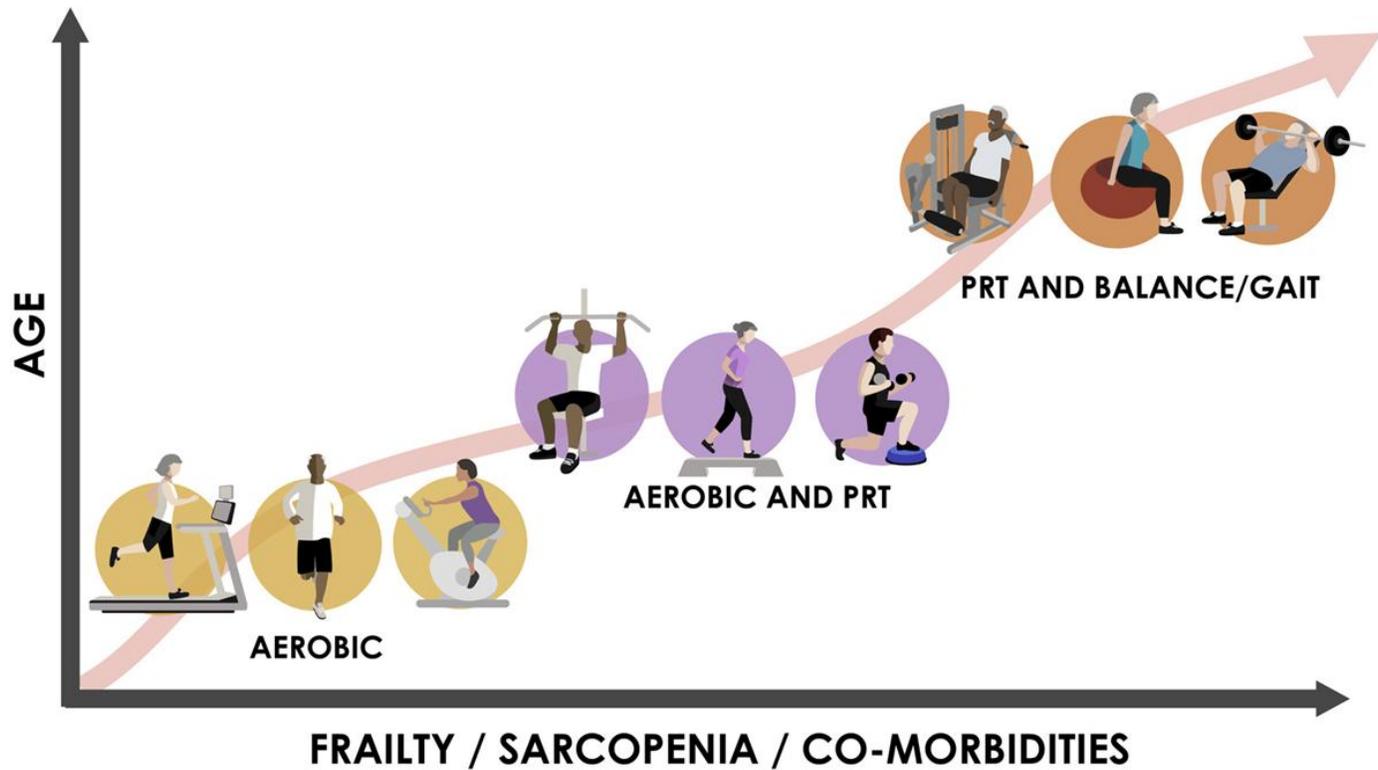
Mitchell, W. K., Williams, J., Atherton, P., Larvin, M., Lund, J., & Narici, M. (2012). Sarcopenia, dynapenia, and the impact of advancing age on human skeletal muscle size and strength; a quantitative review. *Frontiers in Physiology*, 3, 260..

Sedentarism-Vulnerability Vicious Cycle



Muscle weakness is not contraindication but reason for physical activity

Resistance Training is a Need, Not a Choice



PRT: Progressive resistance training

Age-associated loss of muscle **necessitates** progressive resistance training as a priority exercise to preserve functional ability

Not All Exercise is Equally Effective.

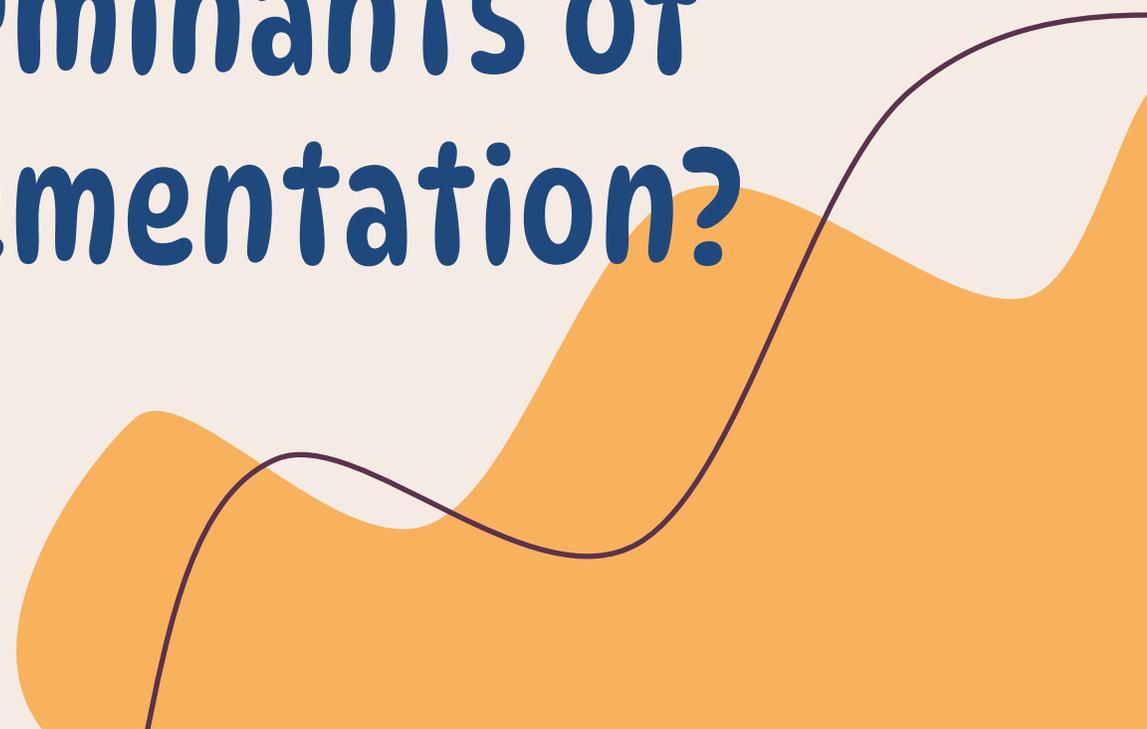
Exercise needs to be prescribed in an evidence-based manner.



02



What are the
determinants of
implementation?



Study Design

End Game

To develop an **evidence-based**, structured exercise programme that is **implementable** in community dementia care settings.

Intervention development

Feasibility Hybrid Type 1 Effectiveness-Implementation Trial

Needs
Assessment

Co-designing
intervention

Designing
implementation
strategies

Examine
preliminary
effectiveness

Examine
contextual
factors

Evaluate
implementation
strategies



Stakeholder
engagement

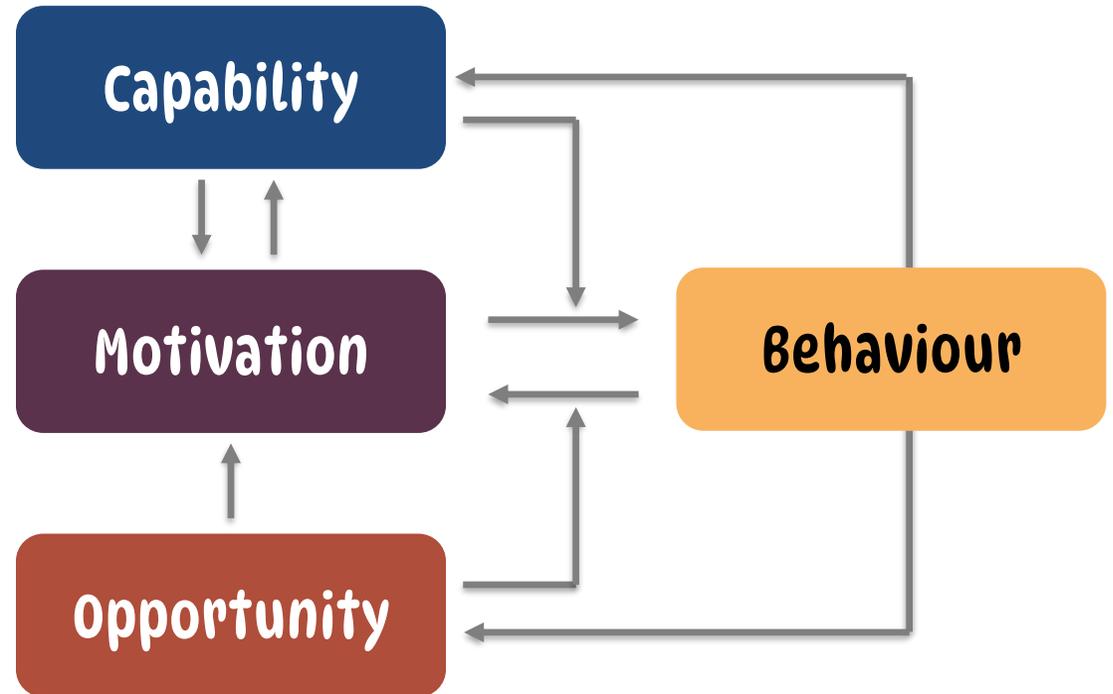
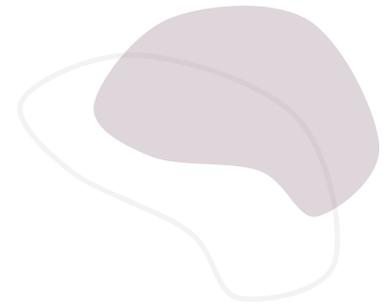


Observations



Focus group
discussions

The COM-B Model



Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation Science*, 6(1), 42.

The Implementation Context





03



How can we design
for implementation?



Implementation Science Lens



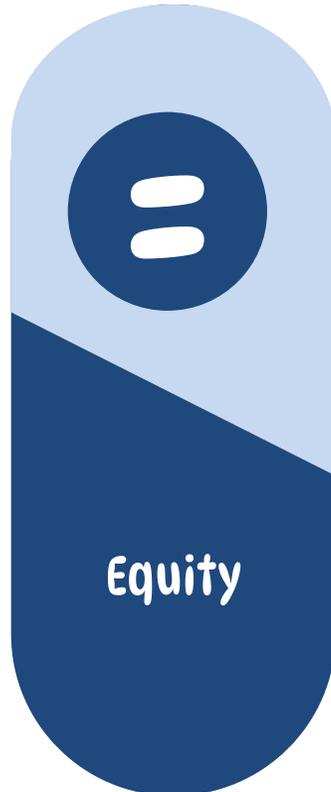
Effective health
interventions



Effective
implementation

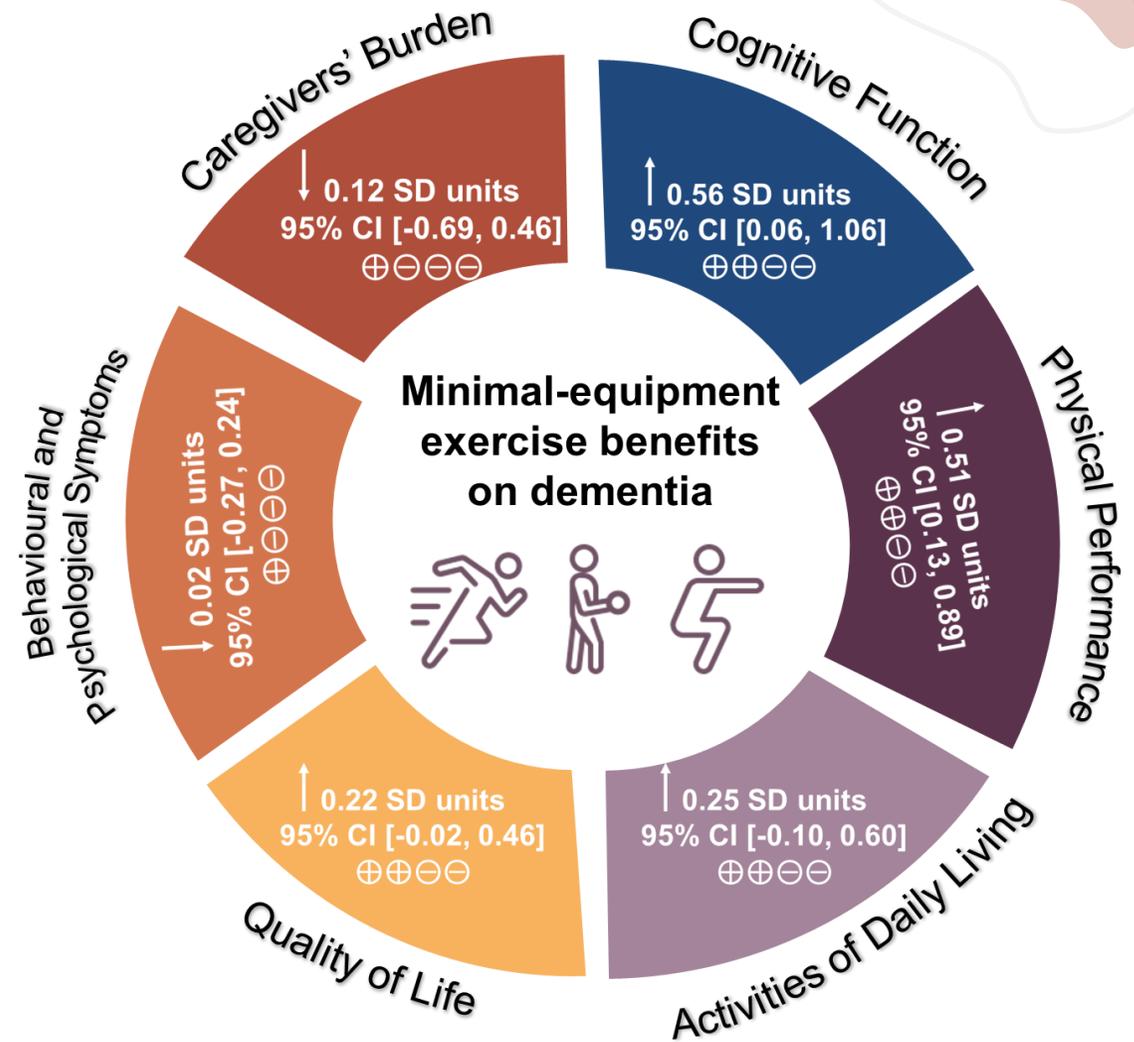


Significant
Health Benefits



Minimal-Equipment Exercise Intervention

Minimal, portable and low-cost equipment enhance the feasibility and accessibility of exercise interventions, and show promising benefits in improving various outcome domains among people with dementia.



Core Components for Voltage Effect



Principle of Overload

Training adaptations only occur when muscles are sufficiently challenged.

Principle of Progression

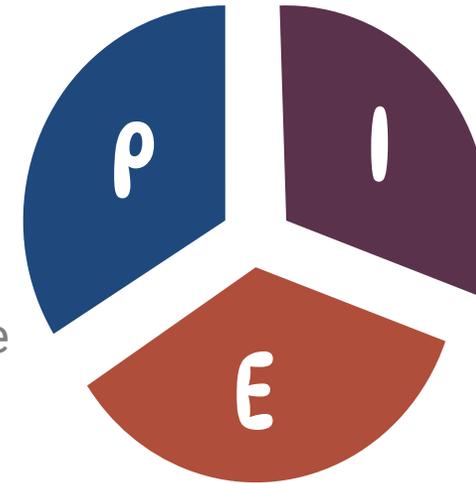
Training adaptations continue if training load progresses.

Principle of Specificity

Training adaptations only apply to muscle groups trained.

Progression

Increase in exercise dosage over time



Intensity

Adequate intensity to elicit adaptations

Execution

Correct performance of exercises targeted at major muscle groups

Design for Implementation at Scale

- 1 | Co-designing aids **feasibility** by tailoring intervention to context.
- 2 | Minimal-equipment **enhance equity and scalability** by reducing financial and infrastructure barriers
- 3 | Design for adaptation to support **dynamic sustainability**.
- 4 | **Implementation support** to develop capability among centre staff to **self-sustain** the intervention with **adequate fidelity**.



Some Thoughts...

1

Design intervention to fit the realities and needs of the targeted population.

2

Be thoughtful about implementation.

3

Begin with the end in mind.

IMAGINE

A world where older adults receive
evidence-based exercise prescription

'you may say I'm a dreamer, but I'm not the only one'



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Thank You!

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