

## Benefits of exercise

Examining evidence based resistance plus balance training in community-dwelling older adults with complex health care needs: Trial protocol for the Muscling Up Against Disability project

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<https://doi.org/10.1016/j.archger.2016.10.001>

## Highlights

- Many older adults have mobility limitations that require aged care support packages.
- Age care support packages may be somewhat costly and ineffective in reducing disability.
- Few community based progressive resistance and balance training programs cater for older adults.
- Sustainable community-based exercise programs may have many benefits for older adults.

## Abstract

Progressive resistance plus balance training (PRBT) has been demonstrated as effective in reducing later life physical disability, falls risk and poor health, even among those with complex health care needs. However, few studies have examined the influence of PRBT on health service utilisation, cognitive wellbeing and training modality acceptance or undertaken a cost benefit analysis. This project will investigate the broad scope benefits of PRBT participation among community-dwelling older Australians receiving Government supported aged care packages for their complex health care needs. Using a modified stepped-wedge design, 248 community-dwelling adults 65 years and older with some level of government support aged care have been randomised into the study. Those randomised to exercise undertake six months of twice weekly machine-based, moderate to high intensity, supervised PRBT, followed by a six month unsupervised, unsupported follow-up. Controls spend six months undertaking usual activities, before entering the PRBT and follow-up phases. Data are collected at baseline and after each of the six month phases. Measures include level of and change in health and care needs, body composition, muscle capacity, falls, sleep, quality of life, nutritional and mental health status. In addition, acceptance and engagement is determined through telephone and focus group interviews complementing a multi-model health cost benefit evaluation. It is hypothesised this study will demonstrate the feasibility and efficacy of PRBT in improving primary and secondary health outcomes for older adults with aged care needs, and will support the value of this modality of exercise as an integral evidence-based service model of care.

# The influence of exercise on brain aging and dementia

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## Abstract

Physical activity has been recognized as an important protective factor reducing disability and mortality and therefore it is focus of many health promotion activities at all ages. More recently a growing body of literature is focusing whether physical activity could also have a positive impact on brain aging with exploring healthy brain aging as well as on cognitive impairment and dementia. An increasing number of prospective studies and randomized controlled trials involving humans take place both with older adults with normal cognition as well as with mild cognitive impairment or dementia. However, the body of evidence is still sparse and many methodological issues make comparisons across studies challenging. Increasingly research into underlying mechanisms in relation to physical activity and brain aging identify biomarker candidates with especially neuroimaging measurements being more used in trials with humans. Whilst the evidence base is slowly growing more detailed research is needed to address methodological issues to finally achieve clinical relevance. This article is part of a Special Issue entitled: Imaging Brain Aging and Neurodegenerative disease.