



The benefits of physical activity and the consequences of physical inactivity in older adults

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Table of Contents

04	Introduction
04	Background
04	Aim
05	Methods
05	Results
05	Discussion & Conclusion
06	Implications for Research and Policy
08	References
10	Appendix 1

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Introduction

Across the world our populations are ageing. In the last century we have seen a global decline in fertility rates and increased life expectancy, and this has resulted in the growth in the number and proportion of older adults in the world's population¹. Increase in life expectancy represents one of the greatest public health successes of the 20th Century. The global population aged 60 years and over numbered 962 million in 2017 and this is expected to double by 2050, when it is projected to reach nearly 2.1 billion¹.

Retaining physical and cognitive function and delaying the onset of illnesses and disability is a major challenge for many in older age. Maintaining physical function, independence and Quality of Life (QoL) among older adults are public health and economic imperatives^{2,3}. Evidence suggests that the age-related declines in functional capacity, QoL, and increased risk of morbidity, disability and mortality may be offset or delayed by the adoption of more physically active lifestyles.

Background

Physical inactivity is recognised as one of the leading risk factors for overweight, obesity, non-communicable diseases (NCDs) and chronic conditions. It has been identified as the fourth leading risk factor for global mortality (6% of deaths globally) and is estimated as being the principal cause for approximately 21-25% of breast and colon cancer burden, and approximately 27% of diabetes and 30% of ischaemic heart disease burden⁴.

Physical inactivity has become nearly universal, with an estimated 31% of the world's population not meeting recommended levels of physical activity⁵. Older adults are at a particular risk of leading inactive lifestyles. In Ireland, 55% of older adults aged 65-74 years (and 37% aged 75 years or over) report taking part in sufficient physical activity to meet established guidelines for health⁶. In Northern Ireland 41% of older adults aged 65-74 years (and 10% aged 75 years or over) meet the physical activity guidelines of 150 minutes of moderate activity, 75 minutes per week of vigorous activity or an equivalent combination of the two⁷.

Growing older for many is associated with declines in levels of physical activity, loss of mobility and functional independence and premature morbidity⁸. Therefore, this stage of life represents an important period to promote physical activity to improve functions of daily living and slow progression of disease and disability.

The World Health Organization recommends that people aged 65 and over should do at least 150 minutes of moderate physical activity, or at least 75 minutes of vigorous physical activity weekly. Muscle-strengthening should be done on two or more days a week⁹.

Aim

This resource is based on research that aims to provide a comprehensive and systematic overview of the evidence of

the specific consequences of physical inactivity on physical and mental health outcomes in older adults¹⁰.

Methods

Multiple databases were searched for published reviews of studies that assessed the relationship between physical activity and health in adults aged 60 years or older. Titles and abstracts of the identified articles were screened. Ineligible reviews were removed, and the full text of all potentially relevant articles were retrieved and reviewed. A detailed diagram of the identification, review and selection of research articles is included in Appendix 1. In addition, two reviewers independently evaluated and rated the included reviews using the AMSTAR scale¹⁰.

Results

Twenty-four systematic reviews and meta-analyses were included. Findings of the review highlight that physically active older adults benefit from reduced risks of early death, breast and prostate cancer, fractures, recurrent falls, functional limitations, cognitive decline, dementia, Alzheimer's disease, and depression. In addition, physically active older adults experience healthier ageing trajectories, better QoL, and improved cognitive functioning.

Discussion & Conclusion

The findings highlighted in the Cunningham et al (2020)¹⁰ review provide compelling evidence of positive associations between physical activity and lower rates of morbidity and mortality in older adults.

Compelling emerging evidence reports that moderate intensity physical activity (e.g. a brisk walk) may be sufficient for reducing the risk of all-cause dementia in older adults¹¹ and that some of

the protective benefits of physical activity for older adults can be accrued below current guidelines*. This level of physical activity represents a feasible target for inactive older adults. Starting with small increases in physical activity may encourage some older adults, who were previously physically inactive or chronically ill, to progressively incorporate more activity into their daily routine.

For those older adults meeting international physical activity recommendations there is evidence of a significant reduction in risk of all-cause mortality, Alzheimer's disease and incident depression. The included reviews also consistently report that the greatest risk reduction across health outcomes comes with higher levels and intensities of physical activity.

The review reports that the risk of recurrent falls was reduced in older adults with higher levels of physical activity (although the association of falling (any fall) with physical activity was inconclusive**). Other reviews evaluating the association of usual physical activity with the risk of falling in the general population have suggested a general decrease in risk¹² and a strong positive relationship between fall-related efficacy (perceived self-confidence at avoiding falls during essential, relatively non-hazardous activities) and activity¹³.

Maintaining functional status is an important part of active ageing and reducing age-related morbidity. The evidence reported in Cunningham et al (2020) suggests that greater physical activity reduces the age-related decline in functional capacity and maintains muscle strength and mass among adults aged 65-85 years¹⁴. The risk of developing functional limitations or a decline in Basic Activities of Daily Living (BADL) disability^{14 15} was reduced

by participation in physical activity¹⁵. Emerging evidence also highlights the positive impact of physical activity on the healthy ageing process, by improving QoL and increasing the odds of maintaining wellbeing in older age¹⁶.

Finally, as the global population ages, the number of people living with cognitive impairment or dementia is expected to increase substantially, with some estimates suggesting that the number of people living with dementia will triple worldwide from 50 million to 152 million by 2050^{17 ***}. Changes in physical function often occur with cognitive losses, which can then accelerate the risk of disability and need for care. Evidence contained within the review suggests that all levels of physical activity provide significant and consistent protection against the occurrence of cognitive decline in people without dementia^{11 18}. Growing evidence also reports that physical activity can improve cognitive function and, consequently, delay the progression of cognitive impairment in older adults^{14 20 21}.

Implications for Research and Policy

Physical activity plays a key role in healthy ageing across the life cycle but especially in later years in the management of one's health and wellbeing. The goal of public health is to decrease the time spent in ill-health as people age and ensure that an increase in life expectancy is also an increase in lifetime spent in good health. The Cunningham et al (2020)¹⁰ review highlights that those older adults who are physically active experience healthier ageing. However, evidence shows that many older adults are not engaging in enough physical activity to attain these health benefits.

This stage of life represents an important period to promote physical activity to improve not only our functions of daily living but also to slow progression of disease and disability. To unlock the benefits of physical activity it is imperative that policy and practice supports older adults to achieve the recommended levels of physical activity set by national and international guidelines²². To make active and healthy ageing a reality by keeping older adults healthy, independent and fulfilled, it is imperative that policies and actions in addressing physical inactivity in older adults reflect this emerging evidence.

Endnotes

*UK Guidelines on physical activity for older adults (65+ years) were most recently published in 2019. They suggest that older adults should do some type of physical activity every day; any type of activity is good for you; the more you do the better. Do activities that improve strength, balance and flexibility on at least 2 days a week. Do at least 150 minutes of moderate intensity activity a week or 75 minutes of vigorous intensity activity if you are already active, or a combination of both. Reduce time spent sitting or lying down and break up long periods of not moving with some activity. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832868/uk-chief-medical-officers-physical-activity-guidelines.pdf

**There was substantial variation in measurement of physical activity between studies and further large, cohort studies using objective physical activity sensors should be conducted to estimate the dose-response of overall physical activity to prevent falls (Soares et al, 2019).

***It is estimated that there were 47,000 people with dementia in the Republic of Ireland in 2011, and this number has been projected to grow to 132,000 by 2041 (Department of Health, Northern Ireland, 2019). There were 14,646

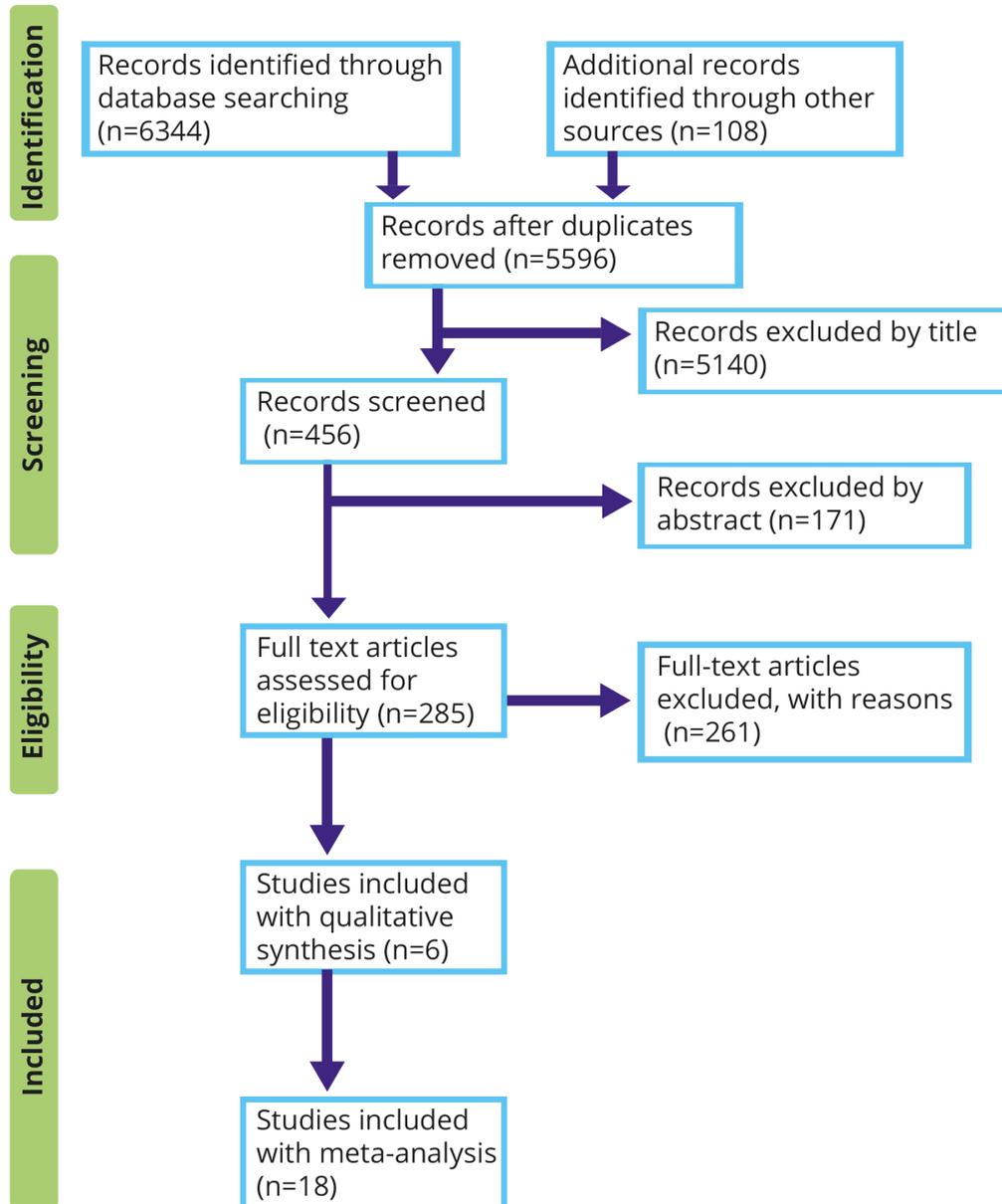
people on the dementia register in Northern Ireland in 2019 (Department of Health, Northern Ireland, 2019). This number is projected to rise to 60,000 by 2051 (DHSSPS, 2011).

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