

Ageing, Physical Activity, Recreation and Wellbeing

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Edited by

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In memory of
Armintha Eudora Walcott
8th April 1948 - 15th August 2015



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INTRODUCTION

On every continent people are living longer lives in the 21st century. By 2050, older people are predicted to make up 22% of the world's population with an increase in each major sector of the globe (United Nations Department of Economic and Social Affairs, 2007). The UK is no exception to longevity in communities. For example, one of the most affluent counties in England, Buckinghamshire, has an ageing population of 500,000 (ONS, 2011). Currently, 23% of the population in Buckinghamshire are 60 years old and over. This percentage is expected to rise to 40% by 2026. In the county of Cheshire, statistics indicate that the percentage of the ageing population across Cheshire West is increasing. The number of people aged 65 and over will increase by 19,500 (or 26%), with the number of those aged 85 and over increasing by 41%, an additional 3,000 people between 2010 and 2020. Remaining with the current system will result in a growth pressure of £19 million in West Cheshire (NHS Clinical Commissioning Group, n.d.). In November 2010, the Government's Vision for Adult Social Care: Capable Communities and Active Citizens was published (Department of Health, 2010). This document endorsed both prevention and partnerships as the main principles and focused on community resilience, building community capacity, the Big Society and partnership working across all sectors, all of which are key themes within the 'Ageing Well' agenda.

Policy makers, the public and older people do not always fully appreciate the importance of physical activity and recreation in elders' lives. Furthermore, there is a lack of awareness as to the options available to older people that could help them celebrate the process of ageing and provide them with ways to improve their own, and others', wellbeing. From a medical point of view, leading an active lifestyle is paramount for ageing healthily and for avoiding those medical conditions that result from a sedentary lifestyle. During the past 30 years, there has been a global increase in non-communicable diseases, namely diabetes, hypertension, metabolic syndrome and cardiovascular disease. During the same time period, obesity worldwide has increased manifold and the world is currently facing an 'obesity epidemic'. Older people are particularly susceptible to these medical conditions as levels of activity have been

shown to decrease with advancing age due to people adopting a sedentary lifestyle.

King & King (2010) stated that:

Over the past few decades, a number of nations have demonstrated declining physical activity levels amongst their populations, especially in industrialised nations, with leisure time physical activity ranging from between 20-30% and this generally decreasing with age.

On the other hand, there is a plethora of evidence available to attest to the many benefits of physical activity, for example, '*exercise is the most potent and under-utilised anti-depressant and it's...free!*' (www.mentalhealth.com). Older adults with a poorly responsive depressive disorder should be encouraged to participate in group exercise activities as they alleviate the symptoms of the condition (Mather et al., 2002). The American College of Sports Medicine (ACSM) have launched a global health initiative entitled 'Exercise is Medicine® (EIM)', that focuses on encouraging primary care physicians and other health care providers to include physical activity when designing treatment plans for patients and referring their patients to EIM Credentialed Exercise and Exercise Professionals. EIM is committed to the belief that physical activity is integral in the prevention and treatment of diseases and should be regularly assessed and 'treated' as part of all healthcare (ACSM, n.d). Nevertheless, despite the overwhelming evidence from medical research about the importance of being physically active as one ages many older people may be unaware of its benefits. It may also be the case that they view physical activity as having a competitive nature, e.g. playing sport, and therefore it does not apply to them while they turn to medicinal solutions to alleviate medical conditions. Ironically, the medicalisation and pathologisation of health and wellbeing may not be the answer to improving older peoples' health. What is needed is far greater insight into what it is that makes physical activity enjoyable to older people and how they can access pleasant experiences through physical activity in order to maintain wellbeing into older age.

This book supports Huber et al. (2011, p.12 cited in Bell et al. 2015, p. 3) who calls for a 'dynamic and fluid understanding of health' that emphasises the "capacity to maintain and restore one's integrity, equilibrium and sense of wellbeing throughout the life-course". Wellbeing, what it is and how it might be 'measured', has generated considerable debate amongst various diverse disciplines and professions. We support

the position that what constitutes wellbeing for one person may be different for another. Thus, standardised measures may not uncover subjective wellbeing factors for diverse older populations. Consequently, not only is it important to understand physiological aspects of, and medical issues associated with, ageing, but also we need to understand what it means to age from the perspectives of diverse people from different social, cultural and locational perspectives, how these processes are embodied, and how and why physical activities become part of everyday life for some and not others. For:

The significance of active leisure to older people and society is now becoming more greatly appreciated, yet associated research and analysis has tended to remain functionalist in approach. Research evidencing and advocating active leisure as a way towards a healthy old age is a positive strategy for individuals and society, but without locating this research in the broader socio-cultural contexts of ageing and taking seriously the voices of a diversity of older people, we cannot fully understand what it really means to age to different people, nor can we hope to create good practices for healthy ageing (see Walker and Hagan Hennessy, 2004; Walker, 2006). (Humberstone, 2010, p.vii)

Walker (n.d) argued that popular understanding and medical discourses about older people do not take account of the changes in society over the last 20-30 years. These discourses tend not to acknowledge the diversity of older people, some of whom may have wealth but many may have very little economic resources. Older peoples' lifestyle and choices are not homogeneous and are shaped by a variety of social, cultural and economic factors (Gilleard & Higgs, 2000; Victor, 2005). The gap between rich and poor is further emphasised when people reach retirement. The National Equity Panel (2010, p. 34) reported that:

[I]nequalities affecting different groups in the labour market are magnified in the resources people reaching retirement have through pensions, housing and savings. The end result is huge differences in the resources, including pension rights, with which people enter retirement.

We hope that this book speaks to the heterogeneity of older populations.

Background to this volume

This compilation emerged from the 2014 conference held on 'Ageing, Physical Activity, Recreation and Wellbeing'. This was the second conference on 'healthy ageing', exercise and leisure held at Buckinghamshire

New University (BNU). The first conference on this topic was held in 2009. Emerging from the first conference was a book entitled ‘Third Age and Leisure Research, Principles and Practice’ which included chapters from presentations and drew attention to the diversity of methodological research approaches that might provide insight into, and knowledge of, active, healthy ageing, and which may ‘trouble’ popular notions of what it is to age (see Humberstone, 2010).

After a few years it was decided that it was time for another conference which this time would be both practical, showcasing the important work of the ‘Movers & Shakers’ groups (see chapter 2), and academic with presentations involving keynotes and papers from scholars within Buckinghamshire and further beyond, considering the role of physical activity in ageing well. We intended to engage not only professionals (in academia and social work), but also to get the local community to come along to the University and become involved in discussions, open forums and showcases.

This volume aims to raise awareness of ways to healthy ageing that are facilitated by different forms of, and approaches to, physical activity, exercise and recreation. The publication presents a collection of studies focussing on the effectiveness of different methods that promote an active lifestyle among communities and older people generally. It includes contributions drawing upon qualitative and quantitative paradigms that have ‘active ageing’ in the core of their investigations. Through this book we hope to impart knowledge about recent advances in physical activity, recreation and wellbeing initiatives that will be of benefit to both the academic community and the wider public. Secondary intentions are to dispel myths about ageing and physical activity, to ‘trouble’ popular notions of ageing and to present different intervention strategies that aim to improve older peoples’ lives and develop an understanding of active and healthy ageing.

Chapter 1 (Cutler-Riddick) draws upon a meta-analysis of research on what promotes healthy ageing in individuals and communities. This sets the scene for the book, highlighting the importance of physical activity in promoting healthy ageing. It evidences the importance of physical activity and recreation in creating and maintaining social connections, particularly through fostering age-friendly neighbourhoods and social institutions that prepare us for ageing well via activity. Chapter 2 (McBarnett) evidences this sense of belonging to a social group through exemplifying how this works within an NHS local initiative for culturally diverse older

populations (Movers & Shakers). It examines the effectiveness of weekly physical activity sessions within the groups of the 'Movers & Shakers' (Caribbean style, Chinese style, Asian Dosti style, VIP style), a unique programme for engaging older adults in weekly exercise and recreation sessions in a holistic approach which also encourages eating a healthy meal together.

Resilience is the focus of Chapter 3 (Chappell & Welsh) and considers the way that individuals are able to anticipate and navigate life's events, respond to adversity and restore their wellbeing from the perspectives of older people. The significance of activity and participation in community networks to resilience and wellbeing of older people is reflected upon. Focus groups and one-to-one life history interviews provide insights into the life experiences of older people in the UK today. Stuart's Chapter 4 explores the relationship between ageing and exercise experienced by participants in structured exercise classes targeted at the over 50s and which are led by the author. The chapter details the unique position of the researcher who is herself a 'baby boomer' and discusses the way in which the methodological approach is shaped by the researcher's positionality.

Chapter 5 (Lewis) focuses on an intergenerational intervention. It describes and evaluates a tea dance performance by BNU students held to commemorate World War 1. Many of the participants were older people and the students were tasked with managing the event that was held in a village hall. Amongst its goals were social impacts, including reducing loneliness and encouraging movement for health. The chapter provides an analysis of the perspectives of participants, students and professionals and explores its impact. Chapter 6, (Hockley & McCormack) discusses the health and wellbeing benefits of three types of walking groups as sustainable approaches to exercise for an ageing population. It draws on examples of projects in the UK and Europe. It is proposed that the sustainability of walking schemes can be analysed with reference to three key facets of sustainability: individual, community and environmental.

Diminution in hearing is significant from the age of 40 years onwards. Chapter 7 (Parris & Batchelor) discusses the findings of a small-scale, qualitative research project entitled 'The D/deaf CAN Dance!' designed to investigate people over 50 with differing degrees of hearing loss and their experience of music and musicality through the bodies of their dance partners as they dance the Argentinian tango. 'The D/deaf CAN Dance!' project draws on research into a series of tango dances. The project

followed Queer Tango principles in which there are no gender role assumptions, i.e. who leads and who follows. Feedback on participants' experiences was gathered through participants' reflective journals, as well as by individual, semi-structured interviews following the tango workshops.

The next two chapters take a physiological approach to examining active ageing. Chapter 8 (Konstantaki & Higgins) examines the effects of weekly physical activity sessions on health measures of 11 older people attending the Caribbean style 'Movers & Shakers'. The study followed participants of this 'Movers & Shakers' group for six weeks with measurements taken both before and after this period. The health benefits of physical activity as they are reflected in physiological measurements are discussed in this chapter. In Chapter 9 (Patel & Konstantaki) the effects of regular exercise on patients with hypertension who do not comply with pharmacological and non-pharmacological treatment are investigated for two diverse groups, one being the Chinese style 'Movers & Shakers'. This chapter discusses the motives of two groups of Stage 1 hypertensive individuals engaging in a systematic physical exercise programme alongside measuring their physiological attributes. Nine hypertensive individuals were studied and evidence concerning motivations for taking part in Tai Chi or circuit training in a local gym once a week were uncovered.

The final chapter, (Humberstone) takes an interpretative approach drawing upon ethnographic and autoethnographic methodologies with phenomenological underpinning. It critically examines these methodologies for researching ageing and physical activity and points to the importance of sensory experiences, 'emplacement' and how "the shift towards more sensuous forms of scholarship in sport and physical culture" (Sparkes & Smith, 2012, p. 170) can add to understanding and making sense of ageing healthily. Drawing upon three cases; yoga, windsurfing and swimming, it argues for the significance of understanding the pleasures that inspire older people to maintain active involvement in physical activity.

The differing methodological approaches and theoretical frameworks informing each chapter speak to the importance of interdisciplinarity in understanding how we might age healthily through physical activity. These small scale interpretative and physiological studies, narrative inquiries and action research projects highlight the richness and heterogeneity of ageing well and provide older people, policy makers and service providers with rich food for thought and significant strategies for action.

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CHAPTER ONE

THE IMPORTANCE OF PHYSICAL ACTIVITY AND RECREATION TO AGEING WELL: UNVEILING RESEARCH FINDINGS AND TAKE AWAY IDEAS

CAROL CUTLER-RIDDICK

Abstract

What can individuals and communities do to promote healthy ageing? In order to answer this question, a search of eight databases covering original research reports was undertaken. Findings are broken down into four areas: (1) what we know about the importance of being physically fit in later years as well as the existence of evidence-based programmes that have been found to promote the health and wellbeing of elders; (2) how participation in a variety of recreation pursuits has been found to make a difference in the lives of older persons; (3) the importance of building and maintaining social connections via physical activity and recreation; and, (4) why creating neighbourhoods and social institutions that prepare us for ageing well, via activity, is important and ideas for fostering these kinds of communities and institutions. In this chapter, ready-to-go lifestyle practices as well as societal initiatives to help prepare individuals for healthier ageing will be shared.

Introduction

Globally, the 60 years and older age group is the fastest growing age faction in the world. Indeed, over time there has been a steady increase in the numbers of older persons living across all continents. For instance, in the years 1950 and 2015 the percentage of the world population that comprised the 60 years and older age group was 11% and 22%,

respectively. By 2050, it is predicted that one out of three, or two billion people worldwide, will be celebrating a 60th or older birthday (United Nations, 2013).

Given the burgeoning numbers of persons who will be living longer, from a humanistic perspective we are thus confronted with the questions of what individuals, as well as societies, can do in order to promote experiences of ageing well. This chapter will review results of studies found in the scientific literature regarding the reported benefits and impacts physical activities and recreation pursuits have had on the lives of older persons. Moreover, special attention will be directed at identifying different ideas and interventions, for individuals as well as communities and social institutions, which have emerged as able to foster older persons' wellbeing.

Before, however, sharing the findings of the reviews, a few preliminaries are necessary. Namely, the next section will provide a brief summary of how physical activity and recreation have been defined and theorised as affecting a number of constructs including successful ageing, wellbeing and active ageing.

Activity, Recreation, Successful Ageing, Wellbeing and Active Ageing

The notion that activity and recreation may have some bearing on one's wellbeing was first formally asserted in the 1960s with the articulation of the 'activity theory'. This paradigm espoused the ideas that the wellbeing of older adults is promoted by higher levels of participation in social and leisure activities (Havighurst, 1961).

Over time, evidence has unfolded that suggests that the simplistic 'activity theory' has merit. Adams, Leibbrandt, and Moon (2011) critically reviewed two decades of research dealing with the linkage between how leisure/recreation¹ activities affects wellbeing in later life. It was surmised

¹ Leisure and recreation will be used interchangeably in this paper. Leisure has been defined as time outside of work and other obligations, whereas recreation has been characterised as an activity that happens during leisure time, which has a positive 're-creating' benefit on the participant (Mannell, 2007). This author adopts the notion that leisure or recreation activity is an activity that happens during discretionary time and indeed has the potential to be positive or beneficial to the participant. Thus, leisure or recreation activity has many forms-physical activity,

that evidence exists which supports the ideas: activity participation contributes to an older individual's sense of meaning and sense of identity, and social interactions with family and other individuals promote mental health in terms of contributing to a person's sense of belonging and stress reduction.

A seminal work on the topic of 'successful ageing' was one written by Rowe and Kahn in 1987 [this article has been cited in over 900 scientific articles (cf. McLaughlin, Jette, & Connell, 2012)]. Rowe and Kahn maintained that *successful ageing* occurs when an individual is free of disease, risk factors for disease, and disability; has high physical and cognitive functioning; and, is socially and productively engaged, that is, is involved in meaningful activity. This definition, however, has been criticised for adopting the medical approach to ageing since its emphasis is on disease and infirmity. Indeed, using this definition results in many older persons being labelled as entities who have 'failed to successfully age'. For example, using this mindset only 11% of the American population could be considered as having aged successfully (McLaughlin, Jette, & Connell, 2012)!

An alternative to Rowe and Kahn's 'successful ageing' approach is instead to focus on older persons' 'wellbeing'. Steptoe, Deaton & Stone (2014) point out that *wellbeing* is subjectively defined and can be distinguished in any one of three ways: *evaluative wellbeing* (or life satisfaction), *hedonic wellbeing* (feelings of happiness, sadness, anger, stress and pain), and *eudemonic wellbeing* (sense of purpose and meaning in life).²

Moreover, attention has been paid to the roles communities and societies play in promoting more positive ageing experiences. The World Health Organisation's (WHO, 2002) notion of *active ageing* encompasses:

...the process of optimising opportunities for health, participation and security in order to enhance quality of life as people age ... allowing

art, to name just a few-and hence has key roles in increasing health and/or happiness for people all ages.

² Incidentally, the inextricable link often reported between subjective and objective proxy health measures was underscored in Steptoe, Deaton, and Stone's (2014) analysis using the English Longitudinal Study of Ageing. Eudemonic wellbeing perceptions emerged as being associated with increased survival. That is, older persons who were in the lowest wellbeing quartile, when compared to those in the highest wellbeing quartile, were three times more likely to be dead 8½ years later.

people to realise their potential for physical, social and mental wellbeing through the life course (p. 12).

Several governments, including Australia, have repackaged the notion of active ageing to the simpler idea of 'Living Longer, Living Better' campaigns, but retaining the idea that both societies and the individual have roles in making active ageing a reality (Renehan et al., 2012).

Methods

In spring 2014, eight databases (Academic Search Complete, PsychINFO, PubMed [National Institutes of Health], CINAHL, ERIC, JSTOR, Proquest, SPORTDiscus) were accessed to locate research that was conducted from 2009 to mid-2014. Original research articles published in English in peer-reviewed journals were considered along with references appearing on government and professional websites. The following keywords or search terms were used:

- Activity, physical activity, leisure, recreation, evidence-based programmes/interventions;
- Ageing, older adults, elders, elderly;
- Wellbeing, healthy ageing, successful ageing, ageing well, active ageing, physical health, social health, mental health.

Unveiling Research Findings and Take Away Ideas

At the onset, it is important to keep in mind the danger of making sweeping generalisations or promoting the notion that 'one size fits all'. Some people may find engagement in physical activities satisfying and beneficial, while others may feel it is more valuable to pursue either mentally challenging activities and/or social interactions during their leisure time. Alternatively, some individuals thrive when they partake in a blend of physical, mental, and social activities. For disparate developmental, environmental, and pragmatic reasons, leisure/recreation/physical activities are not equally and universally valued by all older adults.³

³ The evidence suggests there are positive effects of physical activity, recreation/leisure activity, and social activity on wellbeing, but such effects are tempered, in part, by a variety of factors (Adams, Leibbrandt, & Moon, 2011; Mullee, Coleman, Birggs, Stevenson, & Turnbull, 2008) including: individual personal characteristics (such as gender, life situation, and cognitive appraisals of the activity), also known as *moderating factors*. For instance, it has been reported

With the above caveat in mind that there is no ‘right’ or ‘wrong’ way to age, a review of the literature reveals the three findings that have repeatedly been reported as actions that go a long way in promoting the wellbeing of older persons:

- Keeping physically active and fit;
- Participation in recreation pursuits that promote cognitive functioning and social connections/interactions;
- The creation of neighbourhoods/communities and societal institutions that prepare individuals for ageing well.

The Importance of Physical Activity and Recreation

Regarding the value of physical activity and recreation, five major points will be reviewed. First, a brief discussion of the concept of evidence-based programmes will be presented. Then, a summary of research findings for the six year period that was under review will be shared. Fitness guidelines for elders that have been adopted by two major governments will follow. The fourth part of the paper provides information for service organisations and communities interested in undertaking or expanding their initiatives regarding wellbeing programming for elders. Finally, information on how to create communities and social institutions that prepare individuals for ageing well will be highlighted.

Evidence-based programmes: To begin to answer the question, ‘What programmes/interventions/activities should be considered for adoption when promoting the physical activity or fitness of older persons?’ ideally we should rely on *evidence-based programmes*. By this, we mean finding studies that have used rigorous science in order to document and

that a woman’s family and social domains influenced their wellbeing more than a man’s.

- Intervening variables (such as the amount of choice, perceived quality and meaning behind the chosen activity), also known as *mediating factors*. For example, activity self-evaluation or satisfaction with a leisure activity has been reported as an influential variables when examining the relationship between activity and wellbeing.
- The causal-effect relationship. That is, the order of events is unclear, in terms of whether or not activity affects wellbeing or wellbeing or health affects activity. Obviously there is a reciprocal relationship between these two variables and scientists continue to struggle to untangle it.

demonstrate the efficacy of specific interventions/programmes/activities that were initially offered in clinical settings and then offered in real-world community settings (Sallis, Bauman, & Pratt, 1998; Glasgow & Emmons, 2007). Detailed information on over three dozen of the highest-tier evidence-based health promotion/disease prevention programmes that been offered to older population groups can be found at <https://www.ncoa.org/resources/highest-tier-evidence-based-health-promotiondisease-prevention-programs/>. Anyone contemplating offering or revising physical activity/fitness/Tai chi/walking programmes for older individuals and/or using physical activity to help with balance, osteoarthritis, arthritis, chronic health problems or depression would be remiss in not consulting this noted reference.

A second strategy for identifying worthwhile interventions to emulate is to turn to studies that have been set up with some degree of care (but not as scientifically ‘strict’ as evidence-based programmes) and have then reported that positive impacts have been experienced by older persons participating in the programme/service/activity. One reference that reveals these sorts of studies (including those set up to promote physical activity for community as well as home-bound, frail, sedentary adults; those that have a fitness or wellness orientation; interventions designed to improve flexibility and strength; and, walking programmes) can be found at <https://www.ncoa.org/healthy-aging/physical-activity/physical-activity-programs-for-older-adults/>.

Summary of Research Findings

What do we know regarding the benefits that have been associated with being physically active and fit? Based on the literature review (that did not include studies reported in the voluminous online account, by the National Council on Ageing for evidence-based health promotion/disease prevention programme [see link noted above]), the following results have emerged:

- Exercise prevents/reduces/slows down (Costlow, 2013; Davies, 2010; National Institute on Aging, 2014; Potkanowicz, Hartman-Stein, & Biermann, 2009):
 - ✓ Coronary heart disease;
 - ✓ Diabetes;
 - ✓ Arthritis;
 - ✓ Osteoporosis;

- ✓ Injuries from falls;
- ✓ Cognitive incapacity.
- Participation in a physical activity intervention reduces mobility disability (Pahor et al., 2014). The Lifestyle Interventions and Independence for Elders (LIFE) study followed a group of 1,635 sedentary older adults over 2.6 years who had been assigned to one of two groups. One group participated in a moderate intensity physical activity programme (which offered aerobic, resistance and flexibility training activities) conducted at a centre twice a week and also worked out at home three to four times a week. The other group experienced health education workshops on topics relevant to older adults and also participated in upper body stretching exercises. The exercise group, in relation to the other group, experienced significant reductions in major mobility disability, persistent mobility disability, and the combined outcome of major mobility disability or death.
- Weightlifting (also known as resistance training) has a positive influence on the health of older persons. A review of literature spanning 24 years (1989 to 2013) across 21 counties found 243 studies that examined how weightlifting affected older persons (Al-Kashi, 2013). It was reported that older men and women, with limited mobility, safely participated in high intensity weightlifting that built muscle and strength effectively leading to increased functional mobility, reduced osteoporosis and rheumatoid arthritis; improved memory and cognitive function.
- Engagement in physical activity as well as informal social activity contributes to successful ageing. This generalisation was based on a review of scientific literature from 1995 through to 2009 (Adams, Leibbrandt & Moon, 2011).
- Cognitive activity (reading a book, completing crossword puzzles, etc.) coupled with physical activity training appears to have a multiplier effect in enhancing cognitive function as well as promoting mental health (Potkanowicz, Hartman-Stein, & Biermann, 2009).
- Intergenerational programming, that brought older persons into the classrooms of elementary (leading singing, reading and writing activities) and middle school students (engaging in life-history reminiscence sessions and guided conversations about politics, the environment, etc.) resulted in stress reduction as well as enhancing the health and sense of purpose/usefulness of the older volunteers (George, Whitehouse & Whitehouse, 2011).

- Participation in brain or cognitive games improves older adults' cognitive functioning (Potkanowicz, Hartman-Stein & Biermann, 2009; Rebok et al., 2010; Wolinsky, Weg, Howren, Jones & Dotson, 2013).
- Participation in recreational activities-including travel, music, dance, photography, crafts, drama, and journal writing-positively affects older persons' mental health and overall wellbeing. This conclusion emerged from a study of 321 Canadians who were chosen by stratified random sampling (Sloane-Seale & Kops, 2010).
- Volunteering (either *formal volunteering* through an organisation or group or *informal volunteering* or support or care given to family, friends and neighbours) impacts positively on the health and wellbeing of older people (Renehan et al., 2012).

Fitness Guidelines for Older Persons

Fitness guidelines have emerged for older persons. Professional organisations and governments alike have issued physical fitness standards for elders. Table 1 summarises standards issued by two governments that cover four aspects of fitness that older persons should aspire to reach on a weekly basis⁴.

⁴ For American standards see: Nelson et al. (2007). U.K standards are published at <http://www.bhfactive.org.uk/olderadultsguidelines>

Table 1. United States and Great Britain Fitness Guidelines for Persons Aged ≥ 65 years.

Activity Category	Why is it Important?	Activity Examples	Frequency/Duration/Intensity
Aerobic	Increases oxygen levels in the body that is used to improve heart and lung function; lowers blood pressure and cholesterol; improves mood and sleep	Moderate intensity activities which include: gardening/mowing/raking, walking up a hill, brisk walking, swimming, dancing, cycling, playing tennis, pushing grandchildren on a swing	Minimum five days/week of 30 minutes sessions; “5-6” on a “10” point, self-reported, exertion scale (or 55-90% maximum attainable heart rate), where “0” is no effort and “10” is an all-out effort ⁵
Resistance	Promotes health, physical independence (assists with such things as standing up and getting out of a chair, climbing stairs, carrying groceries, opening jars), appearance as well as reduces risk of falls	Lifting weights (e.g., hand weights or cans of food) and resistance bands	Two non-consecutive days/week for 30 minutes/sessions; perform eight to ten exercises (working out both upper & lower body), each at 10-15 repetitions at moderate exertion (“5-6” on 10 point scale). ⁶

⁵ For those who are already regularly active at a moderate intensity, comparable benefits can be achieved through: 75 minutes of *vigorous intensity* (“7-8” on a “10” point scale, as a result of playing basketball, jogging, climbing and cycling hills, etc.); or a combination of moderate and vigorous activity spread: (A.) across the week (U.K. standard); or (B.) three days each week for a minimum of 20 minutes each day (United States standard).

⁶ When easy, add more weight so they can lift/push relatively easily ~ eight times.

Flexibility	Prevents injuries and stiff joints, helps with backing out of a driveway, making the bed, bending over to tie shoes, reaching for food items on a kitchen shelf, pulling a sweater over your head, swinging a tennis racket or golf club, etc.	Perform activities that maintain or increase flexibility of major muscle groups and their respective range of motions (such as stretching, participating in yoga or Pilates, and swimming)	Minimum two days/week for at least 10 minutes/session; each stretch exercise should be performed three to five times, holding the stretch for 10-30 seconds.
Balance	Reduces risk of falls and prevents stiff joints; helps with walking on stairs and uneven sidewalks without falling, stepping off the bus and standing on tiptoes to reach something on a top shelf.	Balance exercises, such as Yoga and Tai Chi	Minimum of two to three days/week ⁷

⁷ The U.K. guideline is two days/week; whereas the U.S. guideline is three days/week.

- *Balance.* Falls are the leading cause of fatal and nonfatal injuries among adults 65 years and older (Center for Disease Control, 2015). In response to this global public health issue a number of community-based as well as activity programmes (Tai Chi and Yoga, for example) have been developed to teach older persons how to avoid falling or how to reduce the severity of a fall. A number of excellent resources exist related to fall prevention. A review of the efficacy of exercise, multiple interventions, and home based fall prevention programmes can be found at http://www.cdc.gov/homeandrecreationalafety/pdf/CDC_Falls_Compendium-2015-a.pdf. A guide on how to implement effective community-based fall prevention programmes as well as a multitude of resources that can assist with such an endeavour are available at <http://www.cdc.gov/HomeandRecreationalSafety/pdf/FallPreventionGuide-2015-a.pdf> and <http://stopfalls.org/resources/organizational-resources>, respectively. Organisations needing assistance in identifying tools and check lists that exist for establishing evidence-based programmes, with special emphasis on physical activity and fall prevention programmes, should consult <http://stopfalls.org/researchers-educators/balance-mobility/> and <https://www.ncoa.org/resources/tools-and-checklists-for-evidence-based-programs/>.

Community and Organisation Initiatives

For communities and organisations wanting to get involved in offering evidence-based programmes, references exist that can help with such an endeavour. For example, the National Council on Ageing offers an array of resources that document how to plan, implement, recruit, sustain, and evaluate evidence-based programmes for elders (see <https://www.ncoa.org/center-for-healthy-aging/basics-of-evidence-based-programs/offering-evidence-based-programs/>). Those who have a particular interest in conducting evidence-based programmes in senior centres should consult <https://www.ncoa.org/resources/conducting-evidence-based-programs-in-senior-centers/>. If, on the other hand, ideas are needed on how to evaluate health promotion programmes for seniors, then useful information can be found at <https://www.ncoa.org/resources/evaluating-evidence-based-programs-journal-article/>.

If the emphasis is on planning and offering programmes aimed specifically either at health challenges or particular activities, additional resources exist. For instance, programmes that have documented fidelity for

improving balance and lowering depression of older persons are described at <http://www.ncoa.org/improve-health/center-for-healthy-aging/about-evidence-based-programs.html#sthash.fGynoZ1d.dpuf>. Physical activities, such as dancing, that have been linked to improving psychological and social health along with resources that are available to assist with offering the listed activity are outlined in the excellent publication from the British Heart Foundation entitled, *Active for Later Life: Promoting Physical Activity With Older People* (see particularly pages 7-10 of <http://www.bhf.active.org.uk/userfiles/Documents/BHFAFLPDFSec5.pdf>).

Principles to abide to when designing or becoming involved in physical activity. Safety and freedom of choice should always be overriding concerns, whether one is designing a physical activity programme or as a consumer of that programme. Some important principles for promoting the wellbeing of elders through physical activity or fitness programmes are outlined below (adapted from Renehan et al., 2012):

- Determine if medical clearance is needed before starting to exercise or signing up for a physical activity programme. One such tool to make this determination is the *Exercise Assessment and Screening for You (EASY)* (<http://www.easyforyou.info/>).
- Individuals should have had their eyes tested within the past year. Vision change and vision loss affect balance with falls being the leading cause of injury or death among adults age > 65 years) (Center for Disease Control, 2015).
- Empower older adults by engaging them in planning the physical activity behaviour changes that he/she desires. One option is to initially measure an individual's functional assessment by using, for instance, the normative based (broken down for males and females, by various age categories) *Senior Fitness Test* (Rikli & Jones, 1999a; 1999b). Additionally, the British Heart Foundation and the National Institute of Health (NIH) have excellent guides (the latter also focuses on endurance, strength, balance, and flexibility) that assist with setting goals and monitoring progress (<https://www.bhf.org.uk/publications/being-active/be-active-for-life> and <https://www.nia.nih.gov/health/publication/exercise-physical-activity/introduction>).
- For individuals who have previously been sedentary, start slowly by beginning with approximately 10 minutes of light exercise (such as walking or chair exercises). A number of resources are available to assist with those getting started with exercising, including *Get*

Ready, Set, Go (three parts, available at <http://go4life.nia.nih.gov/get-started>); *Try These Exercises* (at <http://go4life.nia.nih.gov/try-these-exercises>), *Workout to Go: A Sample Exercise Routine* (<http://www.nia.nih.gov/health/publication/workout-go>), and *Exercise & Physical Activity: Your Everyday Guide* (<http://www.nia.nih.gov/health/publication/exercise-physical-activity/introduction>).

- A host of references exist for the older individual who is self-directed.
 - If someone desires to take up exercising within their own home, a number of excellent resources can be helpful. For instance, the National Health Service has put together a reference on exercises designed to be done whilst sitting that will increase flexibility, strength and balance (<http://www.nhs.uk/Tools/Pages/Exercises-for-older-people.aspx>). Another good reference is *Later Life Training* that offers free online exercises that can be practiced at home (including those designed to develop strength and balance as well as chair exercises designed to improve strength and flexibility; go to <http://www.laterlifetraining.co.uk/llt-home-exercise-booklets/>). The United States' *Center for Disease Control* has written a strength training exercise programme for older adults that also includes exercises to improve balance, coordination and mobility. The publication is available online and is free at <http://www.cdc.gov/physicalactivity/growingstronger/exercises/index.html>. Similarly, the *Dartmouth-Hitchcock Ageing Resource Center* has several excellent exercise videos for older persons posted on YouTube. For seated exercises see <https://www.youtube.com/watch?v=8BcPHWGQO44>; for standing exercises go to <https://www.youtube.com/watch?v=mQLzNf8VOIc>.
 - Likewise, for older persons who want to begin walking, numerous sources exist to assist in that endeavour. To begin with, learn about the three styles of walking (health, fitness and speed) by viewing a video developed by the *International Council on Active Aging* at <http://activeagingweek.com/resources-participants/walkingvideo2.php>. Learn more about how to start and keep walking as well as where to walk by going to <http://www.walkingforhealth.org.uk/>. The British Heart Foundation also has easy-to-understand reference materials on how to assess how much walking you are doing and how to set up and implement your own walking programme

(<https://www.bhf.org.uk/publications/being-active/put-your-heart-into-walking>).

- Turning to another good activity for persons of any age-swimming-view the *International Council on Active Ageing* videos that demonstrate simple exercises that can be done in the water, even by non-swimmers (<http://activeagingweek.com/themedays/day4-take-the-plunge-with-swimex.php>).
- Individuals seeking cognitive or mentally stimulating activities might find the following free online brain games useful: http://www.aarp.org/health/brain-health/brain_games.html (multiple games listed); <http://www.gamesforthebrain.com/>; and <http://freerice.com/category> (includes games covering humanities, maths, languages, sciences, English, and geography). Additionally, resources exist that could be used by both individuals or as the basis for designing formal recreation programme offerings that conceivably would promote cognitive development and stimulation. See, for instance, art work found in museums around the world (<https://plus.google.com/+GoogleArtProject/about>); various photos, performing arts, veterans history, sound recordings, etc.; collections held by the United States' Library of Congress (at <http://www.loc.gov>); the National Recording Registry (<http://www.loc.gov/today/pr/2015/15-041.html>); selected recordings of music, human and natural environments, etc. from around the world (at http://sounds.bl.uk/?ns_campaign=brand&ns_mchannel=ppc&ns_source=google&ns_linkname=%2Bbl%20%2Bsound&ns_fee=0) and sea shore sounds in the United Kingdom (<http://www.bl.uk/sounds-of-our-shores/map>).
- Organisations and public entities involved in or aspiring to become involved in promoting older persons' wellbeing should build on the work of others. For example, the British Heart Foundation has written a publication entitled, *Active for Later Life: Promoting Physical Activity with Older People*. This excellent resource contains six parts, four of which may prove valuable in planning community initiatives or: *Section 1- Making the Case for Physical Activity & Older People*; *Section 2 - Factors Affecting Planning*; *Section 3 - Guide to Programme Planning* (this section is particularly useful in planning community interventions, since special attention is given to conducting a local assessment, identifying potential partners, and identifying possible outcomes for an intervention), and *Section 5 – Making Activity Choices* (which basically covers the need to identify a target audience,