

Swimming

Walking the dog

Taking the stairs

Sex

Washing the car

Mowing the lawn

SECTION 1



ACTIVE FOR LATER LIFE

Promoting physical activity with older people

BEATING HEART DISEASE TOGETHER

The information in this resource is not a substitute for the advice that an older person's doctor may give, based on his or her knowledge of the person's condition.

Users can download parts of this resource (except for extracts or adaptations from other authors) provided they are for use in planning or promoting physical activity with older people. Downloading for commercial purposes must be authorised by the British Heart Foundation.

“A regular programme of moderate exercise is a very appropriate recommendation for almost all older adults. Moreover, there is no known pharmacological remedy that can so safely and effectively reduce a person's biological age and enhance his or her quality-adjusted life expectancy.”

Shephard, R, 1997

“I've always been active because it keeps you young and being partially sighted hasn't put me off. I feel 18, not 81. I suppose I could sit on my backside and watch TV all day, but what's the point? I'd be lost without all the activities. They give you something to look forward to because it's not just the exercise you benefit from, mentally and physically, but just getting out and meeting people, and it also encourages people of my age, and often younger, to try something new.”

Ted Howarth, 81, Activity programme participant, “Up for Owt”, in Blackburn



Aim of Active for Later Life

There is growing evidence of the importance of physical activity for the older person, including the immediate and long-term physiological, psychological and social benefits, its importance in maintaining mobility and independence, and particularly for certain conditions directly associated with old age.

“That which is used develops and that which is not used wastes away.”

Hippocrates

“Sedentariness appears a far more dangerous condition than physical activity in the very old.”

American College of Sports Medicine (1998)

“Man does not cease to play because he grows old. Man grows old because he ceases to play.”

George Bernard Shaw

“Regular physical activity helps to ‘preserve independent living’ and ‘postpone the age associated declines in balance and co-ordination that are major risk factors for falls’.”

WHO, 1996

The **Active for Later Life** resource aims to help all those involved in developing physical activity programmes for older people of all ages and abilities. It includes summaries of evidence and recommendations, policy and strategic connections, and a series of working papers and practical guidance documents.



Who it's for

Active for Later Life has been designed for a wide range of national and local agencies with the potential to work with older people to promote physical activity. These include:

- health promotion managers
- primary health care including primary care trusts
- local authority departments (eg, leisure and recreation services, social services and adult education)
- the independent (voluntary and private) sectors, including the exercise and fitness industry
- national and local branches of age-related agencies
- residential and caring services, eg, day centres and nursing homes
- community groups and organisations involved with older people.

How it can be used

The **Active for Later Life** resource can be used:

- as an advocacy tool for managers and commissioners of health and other services and those involved in the strategic development of programmes for older people, and
- as a guide to planning, for a range of providers, to help increase opportunities for physical activity for older people.

Information directory

This gives details of training opportunities for those working with older people, further reading, and an **A to Z of useful organisations**.



1 Making the case for physical activity and older people

- 1.1 What is an older person?
- 1.2 What is physical activity?
- 1.3 Why is physical activity important for the older person?
- 1.4 How active are older people?
- 1.5 Physical activity recommendations for older people

2 Factors affecting planning

- 2.1 Guiding principles and values
- 2.2 What are the barriers for older people?
- 2.3 Evidence of effectiveness
- 2.4 Connections to national and local policy
- 2.5 Which older people should we target?

3 A guide to programme planning

- 1 Planning
- 2 Implementation
- 3 Continuation

4 Working papers

- Working paper 1 Involving older people in programme development
- Working paper 2 Overcoming the barriers to physical activity for older people
- Working paper 3 Population wide interventions – recommendations for practice
- Working paper 4 Community and locality based interventions – recommendations for practice

Working paper 5 One-to-one interventions – recommendations for practice

Working paper 6 Programme evaluation

Working paper 7 Training for those working with older people

Working paper 8 Promoting and marketing physical activity with older people

Working paper 9 Effective physical activity and exercise programme planning for older people

Working paper 10 Older people, cognitive decline and dementia

Working paper 11 Working with older people in falls prevention

Working paper 12 Working with ethnic minority elders

Working paper 13 Working with older men

5 Putting it into practice

- 5.1 Making Activity Choices for people entering old age
- 5.2 Increasing the Circle of Life for people in the transitional phase
- 5.3 Moving in the Later Years for frailer older people

6 Information directory

A to Z of useful organisations

International websites

Further information and reading

- 1. Books – reports
- 2. Exercise programming for older people
- 3. Selected research papers
- 4. Academic journals
- 5. Policy documents
- 6. Resource and equipment suppliers



1.1 WHAT IS AN OLDER PERSON?

The 'age' of a person may be considered a relative term. Chronological age is neither a reliable nor a desirable means of deciding when a person becomes 'old'. There are 'old' 50 year olds and 'young' 70 year olds, so old age is not a finite, homogeneous classification, nor a useful descriptor. More often, self-identification may be more accurate and the preferred rule of thumb.

In health promotion and recreation provision, older people have traditionally been defined by organisations such as the World Health Organization, Age Concern England and sports and recreation bodies, as people over the age of 50. Improvements in health and longevity have resulted in a debate and additional thinking concerning the needs of those in the 'middle-aged years', those in their later years (75+), and those described as the 'oldest old'.

Significant variations in functional capacity among older people suggest that at times, age-related targets or cohorts may be inappropriate for determining health needs and programme design (Health Education Authority, 1999). Many people aged 50+ have inactivity-related diseases and conditions, while many others participate in high levels of physical activity well into their later life, beyond the age of 80.

"WE ALL AGE, BUT WE ALL AGE DIFFERENTLY."

The *Active for Later Life* resource identifies a framework for working with older people aged 50+. The framework is organised into related and overlapping areas which may be helpful in the planning of national and/or local interventions. They not only relate to life stage, health status and functional capacity, but also give an indication of policy frameworks and the range of professionals and service providers who may be involved at different stages. The three categories in the framework are:

- Making Activity Choices
- Increasing the Circle of Life, and
- Moving in the Later Years.



1.1 WHAT IS AN OLDER PERSON? (CONTINUED)

MAKING ACTIVITY CHOICES

People who enjoy independent living but may also have some early indications of disease.

The principal focus in this category is on encouraging and sustaining 'activity choices' to meet a wide range of physical, psychological and social needs. The role of physical activity for this group of older people includes disease prevention as well as providing opportunities for recreation and social activity. Although there are significant variations, most people in this group are likely to be in the 50-70 age range. These people are most likely to fall in the category described in the National Service Framework for Older People as those **'entering old age'** (Department of Health, 2001).

INCREASING THE CIRCLE OF LIFE

People in their later years who will still be living independently but will be experiencing significant functional decline and a diminishing quality of life, and losing their independence and mobility, thus reducing their involvement in a range of physical and social activities.

Such an older person may be accessing a range of health, care and social services. The principal focus in this area is on 'increasing the circle of life', to reduce disability and to maintain mobility, independence and activities of daily living. Many people in this category will be within the 65-80 age range. These people are most likely to fall in the category described in the National Service Framework for Older People as those in the **'transitional phase'**.

MOVING IN THE LATER YEARS

People in their later years, perhaps over the age of 75, who are dependent and with very limited function.

They may have a number of diseases and impairments such as dementia or arthritis, are sedentary for most of the time, and need help with basic activities of daily living. The concept of recreation, play or leisure activities may at times be inappropriate, and physical activity should be placed within a range of activities with purpose and meaning designed to maintain the autonomy and dignity of the older person. These people are most likely to fall in the category described in the National Service Framework for Older People as **'frail older people'**.

Other classifications

The model described above relates closely to other classifications of older people – for example the World Health Organization classification in *The Heidelberg Guidelines for Promoting Physical Activity Among Older Persons* (World Health Organization, 1997), or the hierarchy of physical function described by Spirduso (1996).



1.1 WHAT IS AN OLDER PERSON? (CONTINUED)

WORLD HEALTH ORGANIZATION 'HEIDELBERG GUIDELINES'

Group 1 Physically fit – healthy

These individuals regularly engage in appropriate physical activity. They can be described as physically fit and can participate in all activities of daily living.

Group 2 Physically unfit – healthy independent

These individuals are not engaged in physical activity. While they are still living independently, they are beginning to develop chronic medical conditions which threaten their independence. Regular physical activity can improve functional capacity and prevent loss of independence.

Group 3 Physically unfit – unhealthy dependent

These individuals are no longer able to function independently in society due to a variety of physical and/or psychological reasons. Appropriate physical activity can significantly enhance their quality of life and restore independence in some areas of functioning.

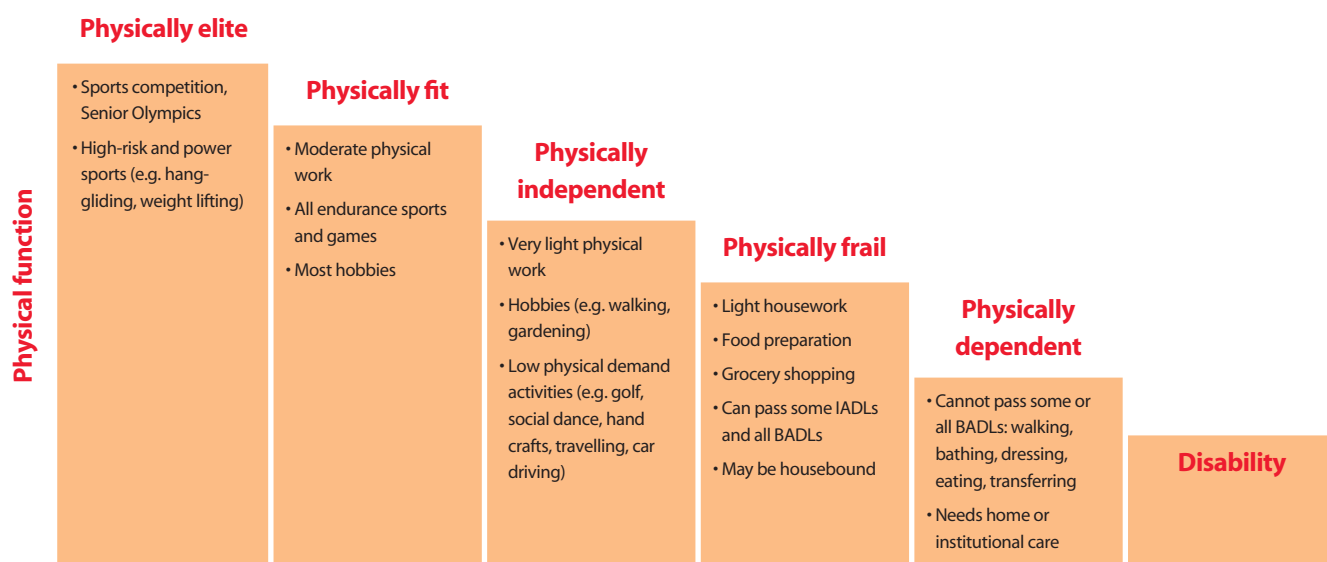


1.1 WHAT IS AN OLDER PERSON? (CONTINUED)

HIERARCHY OF PHYSICAL FUNCTION

A hierarchy of physical function has been identified by Spirduso (1996), classifying older people as being: physically elite, physically fit, physically independent, physically frail, physically dependent, or physically disabled. See Diagram 1 below.

Diagram 1 – Hierarchy of physical function of older people



Key

IADL = Instrumental activities of daily living (e.g. housework, cooking)

BADL = Basic activities of daily living (e.g. drinking and eating, bathing and showering)

Source: Spirduso, 1996. Reproduced from *Physical Dimensions of Aging* by Waneen Spirduso, page 339, fig 12.5, 1996, Human Kinetics. For further information, contact Human Kinetics on 0113 255 5665.

Although these classifications may provide a general description of the needs of older people, there are numerous examples of those who do not fall into any convenient category. Older people will continue to surprise us and confound our attempts to place them in convenient categories.

The first international consensus statement on physical activity, fitness and health suggested that physical activity was an umbrella term that has multiple dimensions (Bouchard et al, 1990). Forms of physical activity such as exercise, sports and dance are considered as sub-categories of physical activity (see Diagram 2 below).

Diagram 2 – The sub-categories of physical activity



Source: President's Council on Fitness and Sports, 2000



1.2 WHAT IS PHYSICAL ACTIVITY? (CONTINUED)

Physical activity and exercise

Physical activity has been defined as:

“any bodily movement produced by skeletal muscles that results in energy expenditure”. *Bouchard et al, 1990*

It is contrasted with exercise, which has been defined as:

“Leisure time physical activity which is planned and structured, and repetitive bodily movement undertaken to improve or maintain one or more components of physical fitness”. *Bouchard, 1990*

Physical activity and active living

While physical activity can be used as the general umbrella term described above, it is also used to describe a more specific form of activity more closely identified with active living.

International and other consensus statements – for example from the US Surgeon General (US Department of Health and Human Services, 1996) and the Department of Health (1999a) – have identified the importance of participation in regular physical activity and active living in health promotion.

Physical activity and active living – a new health promotion message?

The concept of physical activity and active living represents a recent change and a challenge to those involved in health promotion with older people. It allows the possibility of integrating regular physical activity into everyday living, for example through the promotion of brisk walking, cycling, gardening and the use of stairs. It is an inclusive message and removes the need to plan activities such as a visit to the leisure centre, sports club or local fitness centre which often involve time and expense.

Sport and activity for all?

While evidence suggests that active living messages and activities such as walking and cycling are popular among older people, it is also important to promote a range of activities such as exercise classes in the gym or joining a fitness club and to provide opportunities for older people to continue with or take up a new sporting interest. While many older people do not associate themselves with, or may be apprehensive about, sporting and exercise opportunities, others, particularly those in their middle years, the “Baby Boomers”, will have experienced a range of activity choices at school and during adulthood. The expansion of sporting and exercise opportunities during the 1980s and 90s through the promotion of Sport for All, and the increase in leisure centres and fitness and health clubs, suggest that many older people will want the opportunity to continue these activities at a level of their own choosing.

Moreover, providers should beware of stereotyping older people by directing them towards ‘gentler’ activities. With appropriate planning, adaptations and consideration of safety factors, opportunities provided for older people should reflect a range of needs, capacities and interests.

“I’ll play bowls and that stuff when I get old. Right now I want to sea kayak and row on the river.” *Woman of 65*

“A regular programme of moderate exercise is a very appropriate recommendation for almost all older adults. Moreover, there is no known pharmacological remedy that can so safely and effectively reduce a person’s biological age and enhance his or her quality-adjusted life expectancy.” *Shephard, 1997*

A growing body of evidence suggests that diseases and conditions, such as coronary heart disease, stroke and diabetes, which are the primary cause of loss of function and independence in later life are preventable and physical activity can play an important part in risk reduction and prevention of these diseases. Physical activity also has important preventative and therapeutic effects on other issues pertinent to older people including preserving mobility, reducing the risk of falls and fractures, improving muscle strength and enhancing aspects of mental well-being and quality of life.



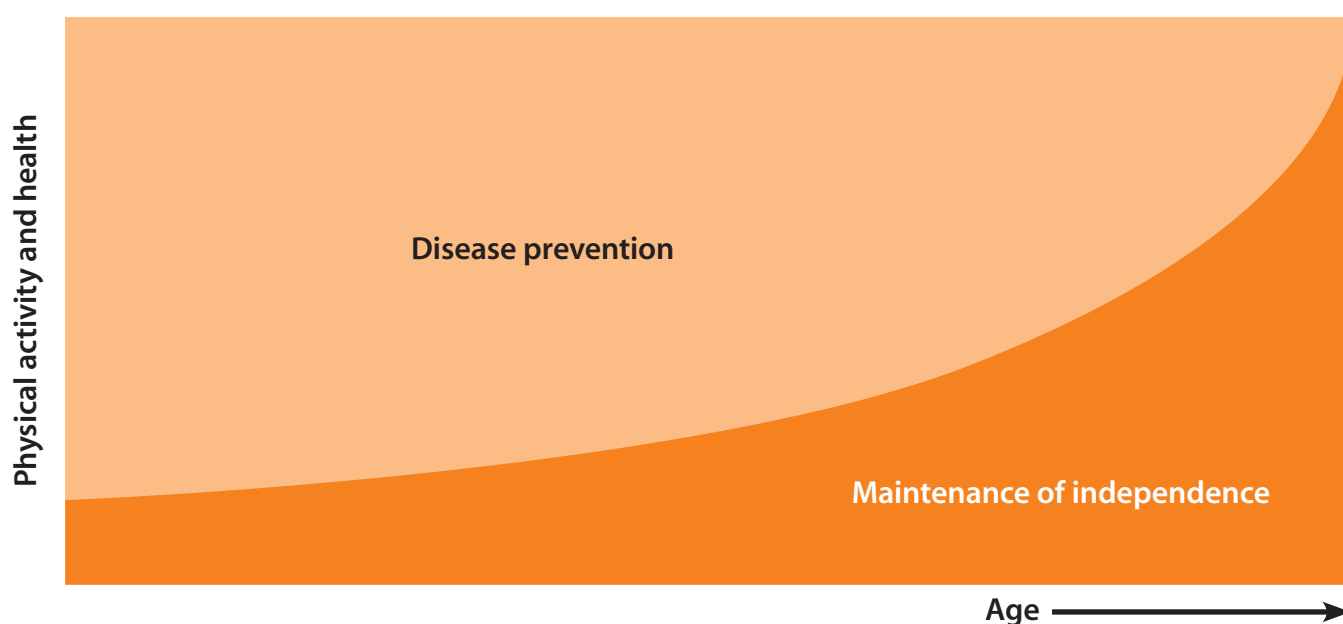
1.3 WHY IS PHYSICAL ACTIVITY IMPORTANT FOR THE OLDER PERSON?

Physical activity and successful ageing

The adoption of a more physically active lifestyle can add years to life, even for previously inactive people. There is increasing evidence of the benefits of physical activity in relation to disease prevention, mobility, independence and quality of life. However, there is often a rather negative view and image of older people expressed through the portrayal of age-related changes in functional capacity as a decline. Current policies consistently emphasise the need for strategies to promote successful ageing, which will enable older people to maintain their capacity to undertake all the activities of daily living and to maintain their social networks.

Striking a balance between disease prevention, the maintenance of independence, and improving quality of life is an aspiration expressed by older people themselves and provides a more optimistic view of successful ageing.

Diagram 3 – Disease prevention and maintenance of independence



Specific types of physical activity can:

- significantly improve functional capacity and strength, which in turn helps to maintain independent living and caring skills, and
- provide psychosocial benefits by improving mood and anxiety, leading to improved quality of life.

These benefits can be achieved both by healthy older people and by the frail and very old. *Butler et al, 1998.*

However, adaptations to the programming of exercise may be necessary for those with medical conditions and disability. *Heath and Fentem, 1997.*

The following pages outline the main benefits of physical activity for adults in later life in terms of:

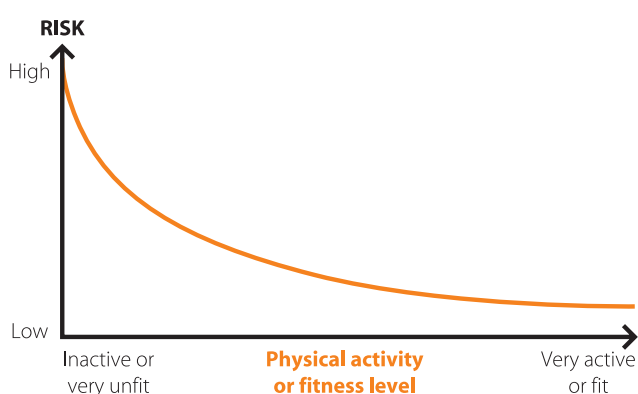
- disease prevention;
- greater mobility, falls & fractures prevention, improved muscle strength; and
- enhanced well-being and quality of life.

1.3 WHY IS PHYSICAL ACTIVITY IMPORTANT FOR THE OLDER PERSON? (CONTINUED)

Disease Prevention (and independence)

Becoming more active can bring substantial benefit. There is a clear dose-response relationship between physical activity and all-cause mortality and between physical activity and diseases such as coronary heart disease and type 2 diabetes: greater benefits occur with greater activity participation (Figure 1).

Figure 2. Schematic representation of the dose-response relationship between physical activity level and risk of disease.



This curvilinear dose-response curve generally holds for coronary heart disease and type 2 diabetes: the higher the level of physical activity or fitness, the lower the risk of disease. Curves for other diseases will become more apparent as the volume of evidence increases.

From a public health perspective, helping people to move from an inactive level to low to moderately active levels will produce the greatest reduction in risk. Being active at the recommended level reduces the risk of premature death by 20-30%. These considerable health benefits hold for both women and men and are evident even up to the age of 80 yearsⁱ.

Preventive effects arising from regular physical activity in older age are at least as strong as those found in middle age for all-cause mortalityⁱⁱ, cardiovascular diseaseⁱⁱⁱ, and type 2 diabetes^{iv}.

Coronary heart disease (CHD)

- Physical activity is a major independent protective factor against coronary heart disease.
- Inactive and unfit people have almost double the risk of dying from coronary heart disease compared with more active people^v.

- The benefits of physical activity for cardiovascular disease appear to be just as strong for older people as they are in middle age^{vi}.

Why is this important for people in later life ?

Age is a significant risk factor for cardiovascular disease (including CHD & cerebrovascular disease).

In general, the older you get, the greater the risk of suffering and eventually dying from cardiovascular disease. In 2003, approximately 85% of all coronary heart disease deaths occurred in people aged over 65^x.

Whereas mortality from CHD is falling, morbidity from CHD and other circulatory disease appears to be rising, especially in older age groups. In those aged 65 and older, morbidity has risen by around 20% since the late 1980s. Around 1.3 million people in the UK have had a heart attack and approximately 2 million people are suffering from angina, the most common form of CHD. Around 675,000 people have definite (and a further 235,000 probable) heart failure.

It is estimated that 42% of all deaths from coronary heart disease in Scotland are attributable to physical inactivity^x.

The costs of CHD to the NHS are calculated to be £6.4 billion per year with £1.6 billion attributed to physical in-activity^{xi}.

Stroke

- Physical activity can reduce the incidence of stroke^{xii} ^{xiii} ^{xiv} ^{xv}.
- People who are highly active have roughly a 27% lower risk of stroke incidence or mortality than less active people¹¹. Similar results were seen in moderately active people compared with inactive people.
- There is growing evidence that vascular dementia is related to stroke.

Why is this important for people in later life ?

Stroke is an illness predominantly affecting older people. It is estimated that 26% of all deaths from stroke are attributable to physical inactivity^{xvi}. In 2003, 91% of all cerebrovascular deaths occurred in people aged over 65¹³.



1.3 WHY IS PHYSICAL ACTIVITY IMPORTANT FOR THE OLDER PERSON? (CONTINUED)

Risk factors for cardiovascular disease

Raised Blood pressure

- High blood pressure (hypertension) can be both prevented and treated by physical activity.
- Being physically active is associated with reductions in both systolic (3.8mmHg) and diastolic (2.6mmHg) blood pressure^{xxvii}.

Why is this important for people in later life ?

Older people are more likely than younger people to have hypertension. Older people with hypertensive blood pressures have a higher risk of cardiovascular complications when compared to younger hypertensives^{xxviii}.

Blood lipids

- There is considerable evidence that physical activity can help to improve blood lipid profiles and prevent adverse blood lipid profiles from developing.
- The main benefit appears to be improved levels of HDL cholesterol (the 'protective' cholesterol)^{xxix}.

Why is this important for people in later life ?

Among women the prevalence of raised cholesterol increases continuously with age with a jump from 7.0% among those aged 35-44 to 43.3% in women aged 65-74^{xxx}.

Insulin resistance

- Both resistance exercise and aerobic exercise have been shown to prevent and modify insulin resistance^{xxxi xxxii}.
- Improvements in glucose metabolism of between 11% and 36% can be expected. More about this is given under 'type 2 diabetes' below.

Endothelial function

- Regular physical activity has been shown to have a positive effect on the coronary circulation of people with coronary vascular disease through improved endothelial function^{xxxiii}.
- Similar improvements have also been seen in the peripheral circulation of those free of coronary vascular disease^{xxxiv} and people with congestive heart failure^{xxxv}.

Rehabilitation

- Exercise-based cardiac rehabilitation programmes for people with coronary heart disease are generally effective in reducing cardiac deaths, and lead to important reductions in all-cause mortality^{xxxvi}.
- Exercise therapy may be effective in the rehabilitation of stroke patients^{xxxvii xxxviii} however limited evidence currently exists.
- Exercise rehabilitation for people with peripheral vascular disease generally results in improved walking ability and their ability to perform everyday tasks^{xxxix xxxx}.

Overweight and Obesity

- Being regularly physically active will represent a significant increase in energy expenditure for most people, lower fat mass and reduce the risk of substantial weight gain^{xxxxi xxxxii xxxxiii xxxxiv xxxv xxxvi xxxvii xxxviii xxxix}.

For those who are overweight and obese, being physically active:

- brings important reductions in risk of mortality and morbidity^{xl};
- helps people to maintain weight loss over several months or years; and
- provides a better chance of long-term success when included as part of a weight loss plan^{xli xlii}.

Overweight is associated with raised blood pressure, raised blood cholesterol, non-insulin dependent diabetes and low levels of physical activity. Overweight individuals therefore have an increased risk of CHD. About 44% of men and 35% of women are overweight (have a body mass index of 25-30kg/m²) in England and a further 23% of men and 24% of women are obese (a BMI of more than 30 kg/m²).

In England over three-quarters of men and two-thirds of women age 65-74 years have a BMI above 25kg/m². Obesity is also more common in adults employed in lower supervisory, semi-routine and routine occupations, particularly in women.

This puts them at increased risk of other types of cancer as well as osteoarthritis and back problems.

Low levels of physical activity are a significant factor in the rise of overweight and obesity.



1.3 WHY IS PHYSICAL ACTIVITY IMPORTANT FOR THE OLDER PERSON? (CONTINUED)

Type 2 diabetes

- Physical inactivity is a major risk factor for the development of type 2 diabetes^{xliii xliiv}.
- Physically active people have a 33-50% lower risk of developing type 2 diabetes compared with inactive people^{xlv}.

Why is this important for people in later life ?

Over 4% of men and 3% of women in the UK (around 1.9 million people) have diagnosed diabetes. However not all diabetes is diagnosed. The Health Survey for England estimates that in addition, 3% of men and 1% of women aged 35 and over (around 600,000 people) have undiagnosed diabetes. Prevalence increases with age. Among the older age groups the rates for men and women were 8.3% and 5.8% in those aged 65-74²³. Type II diabetes accounts for almost 90% of all cases of diabetes. The number of cases of type II diabetes has been increasing and is estimated to double in the next 10 to 15 years⁵⁰.

Prevalence increases with age: those aged 65-74 are at least 10 times as likely as those aged 25-34 to have the disease. The prevalence of diagnosed diabetes in Black Caribbean men and women, Indian men and Pakistani women is more than double that found in the general population.

Cancer

- Physical activity is associated with a reduction in overall risk of cancer^{xlvi xlviil xviii}.
- To maximise protection against cancer, physical activity throughout the lifetime is important^{xlix}.
- Physical activity has a clear protective effect on colon cancer. The most active individuals have, on average, a 40-50% lower risk than the least active^{li}.
- Physical activity is associated with a reduced risk of breast cancer in women after the menopause. Women with higher levels of physical activity have about a 30% lower risk of breast cancer than the least active^{lii liii liiv}.

Why is this important for people in later life ?

It is estimated that 25% of all deaths from colon cancer in Scotland are attributable to physical inactivity^{lvi}. Prevalence of cancer increases with age, with 7.1% of men and 5.4% of women aged 65 and over living with a diagnosis of cancer^{lvii}. Breast cancer is the most commonly occurring cancer in women. Screening has recently been extended to include women up to age 70.

Mobility, falls, fractures and muscle strength

Mobility

- Mobility declines with age, however, people with higher levels of lifestyle physical activity are more likely to maintain mobility and independent living and have reduced subsequent functional disability^{lviii}.
- Physical activity, particularly in the form of walking, can increase strength and aerobic capacity and reduce functional limitations^{lix}.
- Physical activity can improve in stair climbing and walking ability.

Why is this important for people in later life ?

The Allied Dunbar National Fitness Study (1990) found that 30% of all men and 60% of all women could not maintain walking speed of three miles an hour walking up a moderate slope^{lx}.



1.3 WHY IS PHYSICAL ACTIVITY IMPORTANT FOR THE OLDER PERSON? (CONTINUED)

Falls

- Physical activity – and particularly exercise training to improve strength, balance and coordination – is highly effective in reducing the incidence of falls among people in later life^{lx}.
- Tailored, progressive and specific exercise programmes combining strength, balance and endurance training, reduced risk of falling by 10%; programmes with balance training alone reduced the risk by 25%; tailored Tai Chi has been shown to reduce the risk of falling by 47%^{lxii}.

Why is this important for people in later life?

Falls are a major cause of disability and the leading cause of mortality due to injury in older people aged over 75 in the UK^{lxiii}. Roughly one in three people over 65 reported having a fall in the past year. This rate rises to 40% for those over 80 years old.

Fear of falling can provide a significant limitation to daily activities, and osteoporosis can cause fear, anxiety and depression particularly in women^{lxiv}. Fear itself is a risk factor for falling^x.

Muscle strength and power

- Regular strength training using external weights or body weight (resistance exercises) has been shown to be highly effective in increasing or preserving muscle strength, even into very old age, which is important for tasks of daily living such as walking or getting up from a chair^{lxv}.
- An increase in muscle strength is accompanied by improvements in functional mobility, such as walking speed^{lxvi}.

Why is this important for people in later life ?

Loss of muscle mass, (sarcopenia) associated with ageing is one of the main causes of musculoskeletal frailty and reduced mobility in old age. Loss of muscle *strength* and loss of muscle *power* are consequences of sarcopenia. Muscle strength and muscle power are critical to perform the activities of daily living such as walking and getting up from a chair.

Among people older than 65, 12% could not manage walking outside on their own and 9% could not manage stairs unaided^{lxvii}. In the over-70s, 25% of women and 7% of men do not have sufficient leg strength to get out of a chair without using their arms^{lxviii}.

Bone health

- Physical activity in later life may delay the progression of osteoporosis, as it slows down the rate at which bone mineral density is reduced. However, it cannot reverse advanced bone loss^{lxix}.
- Physical activity programmes can help reduce the risk of falling, and therefore fractures, among older people^{lxx}.
- Physical activity can help prevent osteoarthritis, daily physical activity, especially walking, may be associated with a lower risk of subsequent osteoarthritis, especially among women^{lxxi}.
- A broad range of physical activities can reduce pain, stiffness and disability, and increase general mobility, gait, function, aerobic fitness and muscle strength in older adults with osteoarthritis^{lxxii}.

Why is this important for people in later life ?

There are currently 60,000 hip fractures in England and Wales each year, occupying 25% of all orthopaedic beds. Given the continued increase in the age specific rate of hip fractures and the predicted increase in the older population there could be as many as 96,000 new hip fractures in the UK by the year 2031¹, costing £507 million in direct hospital costs alone^{lxxiv}. It is estimated that 15-20% of those people with fractures will die within a year from causes related to the fracture^{lxxiii}.

The health and social care costs of osteoporosis in the UK amount to £1.7-1.8 billion a year, with 85-95% of these costs due to hip fractures^{lxxiv}.

Osteoarthritis is the most common joint disease in the UK. It is not an inevitable consequence of ageing but does appear to be strongly related to age. It is uncommon in people under 40 years of age^{lxxv}.



1.3 WHY IS PHYSICAL ACTIVITY IMPORTANT FOR THE OLDER PERSON? (CONTINUED)

Enhanced well-being and quality of life

Emotional and mental well-being

- Physical activity can help improve the emotional and mental well-being of older people. It is associated with reduced risk of developing depressive symptoms and can be effective in treating depression and enhancing mood^{lxxxvi}.
- Physical activity is effective in reducing clinical and non-clinical depression among older people^{lxxxvii lxxxviii}.
- Physical activity can reduce anxiety in older people^{lxxxix} and enhance mood^{lxxx}.
- The reduction in depression might be as effective as antidepressants *Blumenthal et al, 1999*.

Why is this important for people in later life ?

Mental health problems – particularly depression – are very common in later life. Depression affects 3-5% of over 65s at any point in time, with milder forms of mood disorder being present in another 10-15%^{lxxxi}.

Enhancement of cognitive function & prevention of cognitive impairment

- Physical activity may improve at least some aspects of cognitive function which are important to tasks of daily living^{lxxxii}.
- Physical activity is also associated with reduced risk of developing problems of cognitive impairment in old age^{lxxxiii lxxxiv}.

Why is this important for people in later life ?

As people get older, they have an increased risk of aspects of cognitive impairment such as confusion, dementia and Alzheimer's disease. About 5% of people above age 65 suffer from some form of dementia, a figure that rises to around 25% above age 85. The commonest form is Alzheimer's Disease, accounting for about 60% of cases³⁶.

About 20% of people with dementia have vascular dementia (the second most common form of dementia) or mixed dementia. (caused by problems with the supply of blood to the brain. Lifestyle factors e.g. diet and inactivity may play a part in the development of the vascular dementia.

Self efficacy

- Physical activity is associated with improvements in self-esteem and self-worth *Fox, 1999*.
- Physical activity programmes that aim to increase self-efficacy through a cognitive-behavioural approach have been successful in changing behaviour^{lxxxv}.

Why is this important for people in later life ?

Low self-efficacy for physical activity is one of the most important determinants of functional decline with chronic knee pain^{lxxxvi}, of risk of falling^{lxxxvii}, and of future engagement in physical activities^{lxxxviii}.

Physical symptoms

Physical activity can have a beneficial effect on symptoms caused by several diseases, including:

- It can help with joint pain for people with rheumatoid arthritis and knee osteoarthritis^{lxxxix xc xci}.
- It can also help with symptoms of breathlessness for people with chronic obstructive pulmonary disease^{xcii xciii}.
- It can improve sleep for older people^{xciv xcv}.
- It can increase vigour and reduce fatigue in older people^{xcvi}.
- It has positive effects on energy and fatigue in people with heart failure^{xcvii} and chronic obstructive pulmonary disease^{xcviii}.

Social functioning

While research has concentrated on evaluating the effect of exercise on measurable physical and psychological outcomes, the social gains, although more difficult to quantify, are equally important and are, in some cases, of particular relevance to adherence to physical activity *Young and Dinan, 2000*.

- Physical activity programmes involving people in later life can provide positive social benefits. Opportunities to meet people at similar life stages (possibly retired, widowed, and having a smaller circle of friends) are important^{xcix c}.
- Remaining physically active in older age may offer opportunities for maintaining independence. Daily routines involving walking to local shops may mean less reliance on others while at the same time promoting social and community interaction^{ci}.



1.3 WHY IS PHYSICAL ACTIVITY IMPORTANT FOR THE OLDER PERSON? (CONTINUED)

Other benefits include:

- role maintenance and new role acquisition e.g. volunteering, grand-parenting and caring,
- enhanced inter-generational activity
- promotion of a more positive and active image of older people

Reduction in the complications of immobility

Immobility, particularly in frail older people with multiple pathologies and disabilities, can lead to further complications, which can be reduced with specific exercise. These complications include:

- deep vein thrombosis (clotting)
- gravitational oedema (swelling of the legs caused by accumulation of fluid)
- contractures (thickening of the joint tissues leading to deformity)
- pressure sores
- faecal impaction (severe constipation).

Reduction in costs of health and social care and other services

Physical activity and exercise have been suggested as a cost-effective 'treatment' within the NHS (Munro et al, 1997; Robertson et al, 2001). Physical activity has the potential to impact on the costs of:

- falls and accidental injuries – which amount to £1.7 billion per year (Department of Health, 2001)
- coronary heart disease – which costs £8.5 billion per year, including the cost of days lost due to death, illness and informal care (British Heart Foundation, 2006)
- poor mental health – which costs £32 billion per year, including the cost of lost employment and benefits (Department of Health, 1999b).

However, there is a danger that the emphasis on the potential for savings in health and social care will lead to the re-enforcement of ageist views and older people being negatively portrayed as a drain on services. These views may be reinforced by the demands made on service providers to make savings in this area.



1.4 HOW ACTIVE ARE OLDER PEOPLE?

Activity levels among older people in the UK

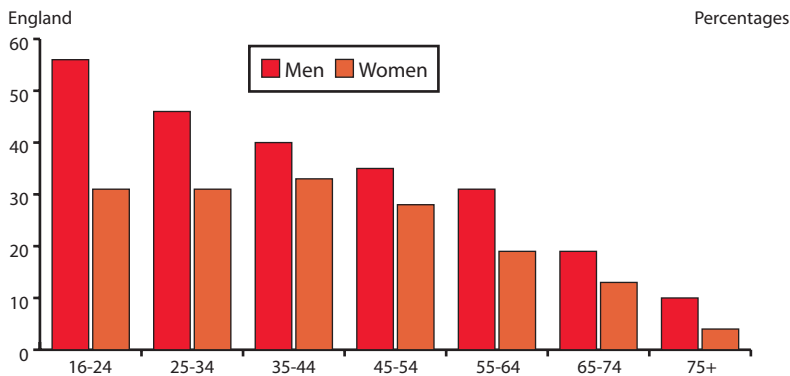
Despite the increase in the promotion of exercise and physical activity for prevention of functional decline and disease, people in the UK become less physically active as they age (Skelton et al, 1999). Sedentary lifestyles are also very common among minority ethnic groups (Erens et al, 2001).

How many people are exercising enough to benefit health?

- In the 45-54 age group, only 39% of men and 35% of women participate in enough physical activity to benefit their health. Over the age of 74, only 14% of men and women regularly participate at this level.
- Just over 10% of men and women aged over 50 take part in sporting or exercise activities at least once a week. Nine per cent of men and 4% of women aged over 80 take part once a week. Exercises, cycling, social dancing and swimming are the most frequently mentioned activities, with exercises showing the least age-related decline.
- Twenty per cent of men and women aged over 50 walk a mile or more at least five times a week. By the age of 80 only 9% of women walk this often.
- In minority ethnic groups aged over 55, those participating in enough exercise to benefit health are approximately:
 - 20% of African-Caribbean men and 14% of women
 - 22% of Indian men and 2% of women
 - 15% of Pakistani men and 6% of women
 - 7% of Bangladeshi men and 1% of women
 - 13% of Chinese men and 14% of women.

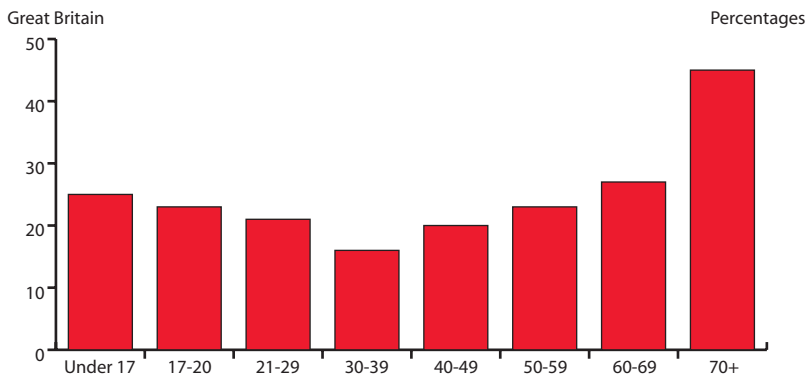
Activity levels decline in 5 x 30 with age

Figure 4.1 Adults achieving the recommended physical activity guidelines, by age and gender, 2004



Source: Health Survey for England – updating of trend tables to include 2005 data. The Information Centre.

Figure 4.5 Percentage of people who walk (20 minutes or more) less than once a year or never, 2005



Source: Transport Statistics Bulletin, National Travel Survey: 2005. The Department for Transport. Copyright © 2006. Re-used with the permission of the Department for Transport.



1.4 HOW ACTIVE ARE OLDER PEOPLE? (CONTINUED)

How many people are not exercising enough to benefit health?

- Among the over-50s, 40% of men and women are sedentary. Among the over-80s, 40% of men and 65% of women are sedentary.
- Only 3% of men and women aged over 50 take part in sporting or exercise activities at least five times a week.
- Nearly 90% of over-50s walk, at a sufficient intensity or duration to benefit their health, less than once a week. Thirteen per cent of men and 15% of women aged over 70 are unable to walk for more than 5 minutes on their own.
- Twenty per cent of the over-50s climb no stairs at all in a week. Fifty per cent of the over-80s climb no stairs.
- In minority ethnic groups aged over 55, those who are sedentary account for:
 - 57% of African-Caribbean men and 59% of women
 - 67% of Indian men and 78% of women
 - 73% of Pakistani men and 85% of women
 - 85% of Bangladeshi men and 92% of women
 - 68% of Chinese men and 64% of women.

Physical activity among residents in care homes

- The vast majority of residents in care homes are classed as inactive, with significantly more women (86%) than men (78%) in this category *Department of Health, 2000*.
- Inactivity levels are highest in nursing homes, with about 90% of residents not having done a continuous walk of 15 minutes or more in the past month, and lowest in private residential homes (72% of men, and 82% of women) *Department of Health, 2000*.
- Overall, about four in five residents in care homes are inactive, compared to about two in five people aged 65 and over in private households. The difference between care homes and private households is largest in the youngest age cohort (65-74) and narrows gradually with advancing age *Department of Health, 2000*.
- Almost half of all men (49%) and women (52%) in local authority residential homes either never or only very occasionally take trips outside the home *Department of Health, 2000*.



1.4 HOW ACTIVE ARE OLDER PEOPLE? (CONTINUED)

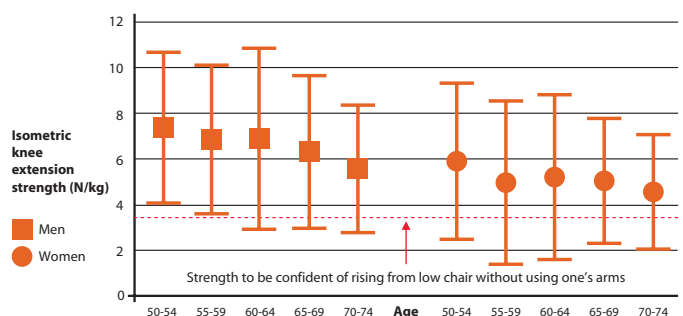
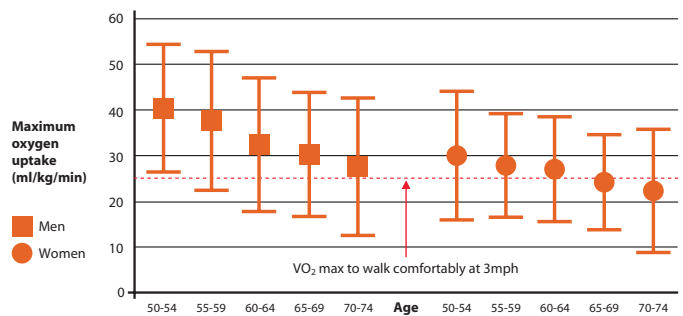
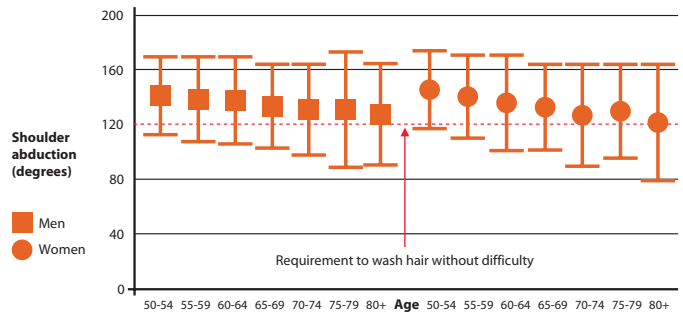
Decline of functional capacity with age

Even among healthy and active people, strength, endurance, bone density and flexibility are all 'lost' at a rate of about 10% per decade. Muscle power (the speed with which a muscle is used) is lost at an even faster rate of about 30% per decade *Skelton et al, 1994*.

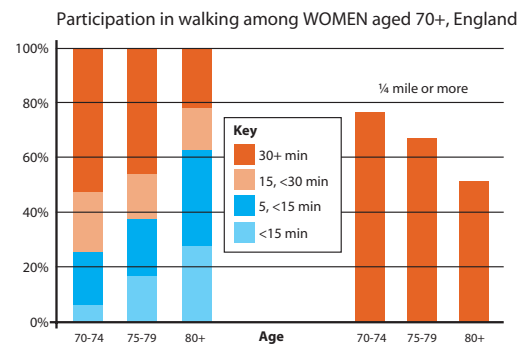
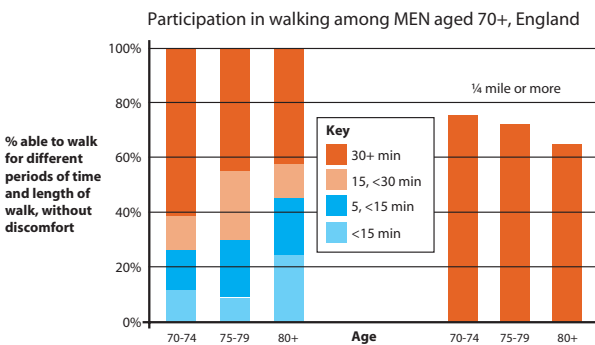
Inactivity significantly contributes to lower levels of functional capacity. The loss of physical function is exponential and will eventually cross a threshold level beyond which a person cannot maintain an independent life. For some older people, rising from a chair is difficult, and getting up off the floor without help is impossible.

Research following the Allied Dunbar National Fitness Survey (*Skelton et al, 1999*) showed that, among those over the age of 50 in the UK:

- Twenty per cent of women and 14% of men do not have the flexibility to wash their hair comfortably.
- Nearly 10% of men and over 30% of women aged 50-74 do not have the aerobic capacity to walk comfortably at a 20-minute mile pace. Among 70-74 year olds, 35% of men and 80% of women are unable to maintain this pace of walking.
- Twenty-five per cent of women and 7% of men aged 70-74 do not have enough strength in their legs to be confident of getting out of a low chair without using their arms.



Walking abilities



Together, the evidence of functional decline and decreased levels of physical activity associated with ageing emphasise the importance of promoting physical activity to older people.



1.5 PHYSICAL ACTIVITY RECOMMENDATIONS FOR OLDER PEOPLE

Organisations including the World Health Organization, the Department of Health, the British Heart Foundation, the Centers for Disease Control, and the American College of Sports Medicine agree that older people should be encouraged and helped to develop and maintain the practice of regular physical activity throughout their lives. Physical activity is regular if activities are performed most days of the week, preferably daily.

This section summarises current advice on how much physical activity older people should do to benefit their health. It outlines

- a) current examples of national and international public health messages
- b) further detail for health and other professionals
- c) examples of messages to communicate such information to older people themselves.

Current International Recommendations:

RECOMMENDATIONS FOR ALL ADULTS

Everyone should try to do at least 30 minutes of moderate intensity physical activity on most days of the week. *Australian Government Physical Activity Guidelines.*

Put together at least 30 minutes of moderate-intensity physical activity on most preferably all days. *Canada physical activity guidelines*

All adults should accumulate a minimum of 30 minutes of at least moderate intensity physical activity on most, if not all days of the week. *USA*

For general health benefit, adults should achieve a total of at least 30 minutes a day of at least moderate-intensity physical activity on five or more days of the week. *England.*

RECOMMENDATIONS FOR OLDER PEOPLE

The Chief Medical Officer's report on physical activity indicates that:

“The levels of activity recommended for adults of 30 minutes of moderate intensity activity on at least 5 days of the week continue to be appropriate for older adults.” *Department of Health 2005*

The Chief Medical Officer's report also indicates that:

“Resistance and strength training, and activity which improves endurance and balance, are particularly valuable in maintaining independent living.” *Department of Health, 2005*

Evidence also suggests that for the maintenance of independence once or twice a week is satisfactory but should be considered a minimum *Evans, 1999; World Health Organization, 1997.*



1.5 PHYSICAL ACTIVITY RECOMMENDATIONS FOR OLDER PEOPLE (CONTINUED)

PEOPLE AGED 60 AND OVER

The World Health Organization (2002) has published recommendations for older people aged 60 and older:

“The following recommendations for aerobic and strength-training exercises are appropriate for individuals aged 60 and older. Any exercise programme should of course first be discussed with one’s health care provider”.

Aerobic exercise

Older persons should build up to at least 30 minutes of aerobic exercise – for example walking, swimming, water exercises and stationary cycling – on most, if not all, days.

Strength training

The following regimen allows the individual to maintain bone and muscle strength. In order to continue to strengthen muscle and bone, one should steadily increase the intensity (weight) of the workout. Recommendations are:

- Strength training 2 to 3 days a week, with a day of rest between workouts.
- In a fitness centre, 1 set of 8-12 repetitions on 12 or more machines.
- At home, 2 to 3 sets of 8-12 repetitions using 6-8 different exercises.
- When repetitions can be made in good form with ease, weight lifted should be increased. *ACSM 1998*

Additional recommendations for health and other professionals

There are a range of health and other professionals who are in a position to promote physical activity with older people. It is important that in addition to understanding the recommendations for physical activity for older people, they also understand and are able to interpret and communicate additional information about physical activity to the older person e.g.

Building towards the recommendations – “a bit at a time”

While the recommendation is to take part in moderate intensity activity for half an hour on five days of the week, it should be acknowledged that any activity is better than none at all, and sedentary people should be encouraged to start at a level of activity with which they are comfortable. This may be as little as five minutes of activity to begin with, with the aim of gradually increasing in duration and intensity.

Two sessions of 15 minutes’ moderate activity, or three sessions of 10 minutes’ moderate activity, has been found to achieve a similar benefit to one single session of 30 minutes in middle-aged men (Haskell).

The sedentary population

The greatest gains are achieved when a sedentary person is encouraged to become a little more active, more often.

Older people who have been sedentary should start with physical activity sessions of short duration and light intensity.

The level of physical activity should be increased gradually in older people to decrease the risk of soreness, discomfort, and injury.

Moderate intensity and older people.

The relative intensity of moderate physical activity will depend on the age and fitness of the person. An indication of moderate physical activity is when the activity makes you warm and slightly breathless but you are still able to maintain a conversation. For some people this may require sustained activity such as jogging; for others with lower levels of fitness, it may mean walking at quite a slow pace. For older people who are not used to activity, this could also be achieved with chair-based activity. Many may find that even a 10-minute walk may be beyond their functional capacity and they will have to begin with a more limited and gentler physical activity programme.

All older people should meet the guidelines listed above for adults in addition to the recommendations below.



1.5 PHYSICAL ACTIVITY RECOMMENDATIONS FOR OLDER PEOPLE (CONTINUED)

THE COMPONENTS OF FITNESS

Endurance activities

Cardiorespiratory (aerobic) endurance activities increase the heart rate and increase breathing for extended periods of time. They improve the health of the heart, lungs and circulatory system, and have been shown to delay and prevent some diseases. Examples include brisk walking, cycling, swimming, heavy housework or gardening, dancing and jogging. Suggestions for intensity and frequency are 15-60 minutes of continuous aerobic exercise on at least three days of the week but preferably daily *American College of Sports Medicine, 1998*.

Muscular strength and power

Muscle strength and power exercises can help older people perform general activities of daily living (such as climbing stairs, rising from a chair with ease, lifting and moving household objects), and may also help to offset bone loss.

Recommendations for strength training are:

- 2 to 3 days a week, with a day of rest between workouts.
- In a fitness centre: 1 set of 8-12 repetitions on 12 or more machines.
- At home: 2 to 3 sets of 8-12 repetitions using 6-8 different exercises (WHO, 2002).

This could be a mix of supervised and unsupervised (home-based) activity (National Institute on Aging, 2001). When working with vulnerable older patients, isotonic work (work which involves the movement of a joint) is preferred even though there is no evidence that either moderate activities or isometric strength work (where the joint is static) increases the risk of a clinical event *Haskell*.

Bone-building exercises

To stimulate bone activity the American College of Sports Medicine (1998) recommends exercises that target the main fracture sites (three sets of 6-10 repetitions at 85% of the individual's maximum strength). This prescriptive approach may not be well tolerated and a more realistic number of repetitions and sets at a lower intensity may be necessary. Squeezing tennis balls daily for 10 minutes increases wrist bone density (Beverley et al, 1989). Particular emphasis should be placed on strengthening the spine, hip and wrist.

Balance exercises

Balance exercises help prevent falls, and can be incorporated into strength training exercises. For example, lower body exercises for strength that require standing are also balance exercises *National Institute on Aging, 2001*. However, balance has both static and dynamic components and balance exercises should reflect this. Tai Chi and aqua-aerobics help improve balance, but changes in head and eye movement, sway training and gait (multi-directional walking) also make demands upon balance mechanisms *Skelton and Dinan, 1999*. Balance exercises are ideally performed for between 10 minutes and one hour, at least three times a week.



1.5 PHYSICAL ACTIVITY RECOMMENDATIONS FOR OLDER PEOPLE (CONTINUED)

Flexibility

Stretching helps keep the body supple and flexible and can help maintain freedom of movement and the ability to perform everyday tasks. Stretching of all major muscle groups through the fullest range of movement should be done regularly, before and after strengthening or aerobic exercise, and at least five times a week if not daily (National Institute on Aging, 2001). Initially stretches should be held for 8-10 seconds to be effective (American College of Sports Medicine, 1998).

Agility, mobility, coordination, and reaction time exercises should be performed by persons experiencing a diminished capacity in these areas of function. (Evidence suggests that these recommendations will include most older people.)

For the maximum benefits from physical activity, the ideal would be to choose a large range of different activities that tax the different components of fitness in order to retain functional abilities and skills.

It must be remembered that training effects will only occur if the body is presented with an 'overload' – i.e. more than it is used to. It is important to emphasise that any physical activity, either supervised or undertaken independently, must tax the body in some way for physiological changes to occur. Psychological and social benefits may not require such 'overload'.

Older people with existing medical conditions or those who are unsure about their safety during physical activity should first consult their physician before embarking on a physical activity programme.

Increasing intentional or habitual physical activity?

As people get older they tend to decrease the amount of habitual activity they do. Therefore, if older people are to achieve the recommended levels of activity, there is a need to increase the amount of both intentional and habitual physical activity they do.

To benefit health, physical activity should be at an intensity that raises the heart rate sufficiently to leave the individual breathing more heavily than usual and feeling warmer (Health Education Authority, 1997).



1.5 PHYSICAL ACTIVITY RECOMMENDATIONS FOR OLDER PEOPLE (CONTINUED)

KEY PROMOTIONAL MESSAGES FOR OLDER PEOPLE

Guidelines must be translated into meaningful and helpful messages for older people e.g. what activities might contribute towards improving strength.

Older people require clear messages about how much physical activity is beneficial for their health, but they also need reassurance that they are unlikely to over-exert themselves. For many older people, the concepts of physical activity and exercise are problematic and are associated with either 'drill' (especially among the oldest age groups), or with fashionable exercise such as aerobics or gym or health club based activities.

No single message will be appropriate for all older people and language is known to be important e.g. for many older people, exercise produces a negative response as being too hard and too difficult, associated with going to the gym or potentially harmful. However the term physical activity is associated with choice and variety, not just going for a walk. The term activity is also well received by older people, but is seen to include engagement with friends and the community rather than associated with exercise. *ICAA 2002*

In general physical activity messages need to encompass the following elements:

- Reducing the barriers and making it easy
- Offering choice
- Is tailored to the individual
- Benefits are tailored to life-stage and values e.g.

“Get active your way – age is no barrier”

“Every form of exercise or physical activity is an opportunity for improving health”

“Try to be active every day in as many ways as you can”

“Think of ‘being active’ every day as an opportunity, not an inconvenience”

“The more you move, the better you will feel”

“A little is good, more is better if you want to achieve health benefits”

“Put energy back into your life”

“30 minutes of walking is only 2% of your day”

“Build physical activity into your daily life, that’s active living!”

“Think of minutes spent walking each day as £s in your health bank, start investing today”

“Half an hour a day”



SECTION 1

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