



**World Health Organization
Ageing and Health Programme**

Growing Older - Staying Well

*Ageing and physical activity
in everyday life*

Ageing and Health Programme
World Health Organization
20, Avenue Appia
CH_1211 Geneva 27
(Switzerland)

Direct fax: +41-22 791-48-39
Direct telephone: +41-22 791-34-04
or 791-34-05

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The Role of Physical Activity in Healthy Ageing

1. AGEING

Ageing is an integral, natural part of life. The way in which we grow old and experience this process, our health and functional ability all depend not only on our genetic makeup, but also (and importantly) on what we have done during our lives; on what sort of things we have encountered in the course of our lifetime; on how and where we have lived our lives. Lifespan is defined as the maximum survival potential for a particular species. In human beings, the lifespan is thought to be about 110 to 115 years (Matteson 1988). Life expectancy, then, is defined as the average observed years of life from birth or any stated age.

Despite recent developments, the basic biological mechanisms involved in the ageing process remain largely unknown. What we do know is that:

- 1) ageing is common to all members of any given species;
- 2) ageing is progressive; and
- 3) ageing involves deleterious mechanisms that affect our capacity to perform a number of functions.

Ageing is a highly complex and variable phenomenon. Not only do organisms of the same species age at different rates, but the rate of ageing varies within the single organism of any given species. The reasons for this are not fully known. Some theorists argue that individuals are born with a particular amount of vitality - the ability to sustain life - which continually diminishes with advancing age. Environmental factors also mediate the length of life and time of death (Dychtwald 1986).

With the process of ageing, most organs undergo a decline in functional capacity and in their ability to maintain homeostasis. Ageing is a slow but dynamic process which involves many internal and external influences, including genetic programming and physical and social environments (Matteson 1988). Ageing is a lifelong process. It is multidimensional and multidirectional in the sense that there is variability in the rate and direction of change (gains and losses) in different characteristics for each individual and between individuals. Each period of life is important. Thus it follows that ageing should be viewed from a life course perspective.

2. AGEING AND FUNCTIONAL HEALTH

With the continuing growth of elderly populations in modern societies, it has become a matter of increasing urgency to look for ways to maintain and improve the functional abilities of ageing people, to help them cope independently in the community and ultimately, to raise the quality of their lives. The incidence of many chronic illnesses and disabilities increases with age. In Jyväskylä, Finland, among those aged 75 and over, only about one-tenth has no clinically diagnosed disease (Laukkanen et al 1997). However, people adapt: almost half of these elderly people describe their own health as good. Usually people assess their health status by comparing it with that of their peers, so self-reported health assessment may be described as "age-adjusted". Disability-free life expectancy varies between countries and cultures. The health of older people should not and cannot be examined simply from the vantage-point of disease prevalence or the absence of

illness. Even when they do have illnesses, large numbers of older people feel perfectly healthy because the illnesses do not have major adverse effects on their everyday lives.

Research on ageing has traditionally been concerned with health, but recently the concept of functional capacity has also been attracting growing attention. Although the significance of function in health and illness has long been appreciated, it was not until the 1950s that its importance was recognized as the numbers of older and disabled persons grew and the prevalence of chronic disease increased (Katz and Stroud 1989). The importance of function was affirmed by the US Commission on Chronic Illness and the World Health Organization, which fostered the development of a scientific base for measuring functional status. Further theoretical research and instrument development examined key constructs of functional health: activities of daily living (ADL), instrumental activities of daily living (IADL) and psychological and social variables. The functional ability of elderly people is crucial to how well they cope with activities of daily living, which in turn affects their quality of life.

Functional status can be defined as a person's ability to perform the activities necessary to ensure well-being. It is often conceptualized as the integration of three domains of function: biological, psychological (cognitive and affective), and social. Thus, functional assessment is derived from a model which observes how the interrelationship of these domains contributes to overall behaviour and function. In older persons, adaptive responses to stressors in each of these domains assume increasing importance. Although developmental and ageing processes can cause wide variations, measures of physical health attempt to ascertain overall health and fitness levels. Commonly-used indicators of physical health include diagnoses and conditions present, symptoms, handicaps, categories of drugs taken, severity of illness, and quantification of medical services utilized - for example, number of hospital days per year, or days unable to perform usual activities per year (Kane and Kane 1981, Kane 1984). Self-ratings of health and disability may also be included in such measures. Scales of functional status address activities of daily living (bathing, dressing, feeding, transfers, continence and ambulation) and those instrumental activities of daily living (housekeeping, shopping, taking medicines, using transportation, using the telephone, cooking and managing money) which are usually necessary for independent living.

Functional competence has also been defined as the degree of ease with which individuals think, feel, act, or behave in congruence with their environment and the expenditure of energy. Functional health has also been associated with quality of self-maintenance, quality of role activity, intellectual status, emotional status, social activity and attitudes towards the world and self.

Health and functional ability are crucially important to the quality of people's social lives: level of functional ability determines the extent to which they can cope independently in the community, participate in events, visit other people, make use of the services and facilities provided by organizations and society, and generally enrich their own lives and those of the people closest to them.

Population groups within the same country often remain divided by significant disparities in morbidity, mortality and functional ability. The research evidence indicates that length of education is a major factor in determining health disparities between population groups. Education, in its turn, is closely linked to income, lifestyles, work, working conditions, housing conditions, and opportunities at large. A major determinant of people's life chances is their financial situation.

3. FUNCTIONAL HEALTH IN EVERYDAY LIFE

3.1 Coping with the everyday

Assessment of functional ability often includes an evaluation of the individual's ability to carry out various activities of daily living. The ADL scales that have been developed over the past few decades now have a more or less standardized content and format consisting of items relating to Physical Activities of Daily Living (ADL), and Instrumental Activities of Daily Living (IADL). The former address various self-care activities such as eating, dressing, personal hygiene, and moving about in and outside the house (Katz et al 1963, Kane and Kane 1981, Wiener et al 1990), while IADL functions are related to household management, running errands outside the home, use of public transport, cooking meals, etc. (Lawton and Brody 1969, Fillenbaum 1985, Laukkanen et al 1994).

The research evidence indicates that almost all home-dwelling people aged 75-80 can cope with ADL. Problems occur more frequently with IADL tasks. The "cultural" differences in coping with everyday activities are most clearly reflected in the differences between men and women's abilities to perform everyday chores (Laukkanen et al 1994). Rogers and Miller (1997) suggest that it may be possible to limit the number of ADL questions to a 3-item index. The basic activities would then be walking across a room, dressing and bathing.

3.2 Experiences of coping in everyday life

Coping in everyday life is an integral part of measuring functional health. One of the clearest indicators of lowered functional health is a sense of fatigue (Avlund 1996). Researchers have pointed out that it is important to take this feeling seriously and respond accordingly. People should talk to health care staff about fatigue, especially if it persists without an obvious explanation, as it may be a sign of illness or the onset of decline in functional health.

3.3 Social implications of maintaining functional ability

Every community of human individuals involves, by definition, different kinds of relationships which bind people together both within and across generations.

Autonomy is frequently cited as something that helps improve quality of life. The debate on autonomy has tended to emphasize independence, the ability to cope alone, of people having control over their lives (Heikkinen 1997). Although dependence is a possibility at any point in life - and it can be short-term or long-term, partial or overwhelming - everything converges on the maintenance and/or improvement of functional ability, on the individual being instrumental in improving his own quality of life. Independence is important for everyone but so, given

human societal structures, is interdependence. In "ageing well", perhaps the best goal that can be set is to look after oneself and others. An important part of this is safeguarding functional ability and health (Heikkinen 1997).

4. PHYSICAL ACTIVITY AND ITS BENEFITS FOR AGEING PEOPLE

An international consensus statement regarding physical activity, fitness and health (Bouchard et al 1994) identifies six areas affected by physiological effort: body shape, bone strength, muscular strength, skeletal flexibility, motor fitness and metabolic fitness. Additional areas that benefit from physical activity are cognitive function, mental health and social adjustment. Exercise has been defined as a regular, patterned time activity pursued to achieve desirable fitness outcomes, such as an improved level of general health or physical performance (Bouchard and Shephard 1994). Fontane (1990) describes physical activity as a continuum of physical behaviour: 1) activities of daily living; 2) instrumental activities of daily living; 3) general activity and exercise; 4) fitness exercise and 5) exercise training. Those who start physical exercise early in life tend to continue it later. So what a person does with leisure seems to shape and develop leisure itself (Mobily 1987, Mobily et al 1991, Mobily et al 1993). In 1995, a WHO expert group underlined the positive health effects of physical exercise by saying that physical inactivity is an unnecessary waste of human resources. A passive, mainly sedentary lifestyle, the expert group pointed out, is known to be an important risk factor for poor health and reduced functional ability.

The lowered level of physical activity and the growing number of chronic illnesses that often follow with increasing age, frequently create a vicious circle: illnesses and related disabilities reduce the level of physical activity, which in turn has adverse effects on functional ability and exacerbates the disabilities caused by the illnesses. A greater degree of physical activity can help to prevent many of the negative effects ageing has on functional ability and health. Physical activity is also the best way to break the vicious circle and move on to a path of progressive improvement. This, ultimately, helps elderly people to and increases their independence.

The benefits to be gained from sensible physical exercise considerably outweigh the potentially adverse effects. These benefits include improved functional ability, health and quality of life, with a corresponding decrease in costs of health care, both for the individual and for society at large. Physical activity involves no immediate drawbacks, although excessively intensive exercise may cause injuries and/or illness and subsequent costs. This kind of cost-benefit analysis provides a useful basis for evaluating campaigns that encourage physical activity as a path to better health.

5. RESEARCH EVIDENCE ON THE BENEFITS

Introduction

The research results indicate that as well as increasing muscle capacity, physical activity can help to improve stamina, balance, joint mobility, flexibility, agility, walking speed and overall physical coordination. Physical activity also has

favourable effects on metabolism, the regulation of blood pressure, and the prevention of excessive weight gain. Furthermore, there is epidemiological evidence that regular vigorous exercise is related to a decreased risk of cardiovascular diseases, osteoporosis, diabetes and some forms of cancer.

5.1 Mobility

One of the most crucial factors determining functional capacity is mobility. As the musculoskeletal system deteriorates with increasing age, mobility problems increase. This is one of the most significant changes that adversely affects the ability of older people to cope independently in their communities and to have contacts with other people. Impaired mobility also greatly increases the need for different kinds of services.

The capacity of the human body to make use of muscle strength peaks between ages 20 and 30 and from there on steadily declines with age, most significantly between ages 50 and 60. In a recent study, some 30% of men and 50% of women aged 65-74 years did not have sufficient muscle strength to lift 50% of their weight (Ashton 1993). At age 70, males are usually capable of exerting about 80 % and women around 65 % of the maximum muscle strength of young people aged 20. These changes are the result of a reduction in the size and number of muscle cells. Leg muscle strength is particularly important in walking, negotiating stairs and maintaining general mobility. Stair-climbing is one way in which leg muscle strength can easily be improved. Any similar type of exercise will sooner or later have a positive effect on the quality of everyday life.

Buchner and de Lateur (1991) argue that there is a threshold relationship between muscle strength and certain functional abilities such as the ability to climb stairs. This means that normally, adults have much more strength than is needed to perform basic daily activities. Thus, if policy makers, when trying to assess reductions in mobility, depend upon people recognizing their own functional limitations, the amount of impaired mobility in the population as a whole (including older people) is likely systematically to be underestimated.

The first age-related changes that can affect mobility are anthropometric changes. Cross-sectional studies have shown that stature and range of motion in the joints tend to decline with age (Schultz 1992). People between 65 and 74 years of age are approximately 3 per cent shorter than people between 18 and 24: this is thought to be due primarily to the shortening of intervertebral disc spaces and associated kyphosis. Cross-sectional studies of differences in joint range of motion have shown a general decrease with advancing age among healthy elderly people, although the amount of decline varies substantially with the group of individuals studied and the joint measures. In addition to age-related changes in anthropometrics, joint range of motion and strength, age-related decline in postural balance, gait and ability to transfer from one surface to another may underlie reduced physical mobility. Extensive studies of age-related changes in postural balance show age-related decrements in the sensory-motor systems that underlie postural control, even in the absence of awareness of difficulty. Gait disturbances have been documented extensively among older people, including shorter step and stride length and decreased ankle extension and pelvic rotation. However, it is controversial whether these changes are due to a normal ageing

process or whether they are pathological changes accompanying old age. Gait speed is related to aerobic capacity (Cunningham et al. 1982), muscle strength (Bassey et al. 1989), presence of other chronic diseases (Bendall et al. 1989), ability to rise from a chair (Friedman et al. 1988) and cognition (Visser 1983). Recently Tinetti and colleagues (1994) began research on confidence in mobility as a factor that may independently affect mobility.

There are also some findings which indicate that difficulties in moving about indoors and outdoors, reduced walking speed and reduced muscle strength all were associated with an increased risk of death during the five-year follow-up period (Laukkanen et al 1995).

5.2 Cardiovascular disease

Cardiovascular disease is the leading cause of death in many countries. There are several risk-factors associated with atherosclerotic heart disease such as smoking, obesity and high blood pressure. There is strong epidemiological evidence that regular vigorous physical activity is related to a decreased risk of cardiovascular disease (Kannel and Sorlie 1979; Kottke, Puska, Salonen et al 1985; Barry 1986; Donahue, Abbot, Reed et al 1988; Berlin and Colditz 1990). The contribution of exercise to reducing morbidity and mortality is apparent in many ways: positive changes can be seen, for instance, in cardiovascular efficiency, blood lipids, blood pressure and thrombotic tendency.

5.3 Osteoporosis

Loss of bone mineral density, and the directly-related increased risk of bone fracture (Cheng et al 1997), has considerable socioeconomic implications in western societies. Age-related osteoporosis begins at around age 40 and continues for the rest of the individual's life-span. Because of their more dramatic hormonal changes, osteoporosis is more common in women than in men. Exercise has a role in treating osteoporosis. The general trend of most published study findings is so consistent that the use of weight-bearing exercise is considered a standard treatment for osteoporosis (Krolner et al 1983; Chow et al 1987). The role of exercise in prevention of osteoporosis is less clear, however (Elward and Larson 1992). Findings from existing studies are compromised by the lack of control for diet, weight and behavioural changes. There are also limitations in measurement techniques (Elward and Larson 1992). It seems likely that exercise does not strengthen all types and locations of bone but rather affects those areas actually used during the exercise.

5.4 Falls

Exercise can also help to reduce the frequency of falls, which are a major cause of broken bones and which predict difficulties not only in activities of daily living but also in the whole life (Rivara et al 1997). Falls more frequently have more serious consequences for elderly people than for those who are younger. It is estimated that every person aged over 65 suffers at least one fall each year, while the number of falls among those of 85 years and over is about eight times greater than in the age group 65-69. About one-third of those who fall suffer fractures as a

consequence. Cheng et al (1994) showed that falls are common among elderly people, but it can be assumed that only those persons who have low BMD values frequently develops fractures. A fall was the main reason for fractures in the age-group studied (75 and 80 year-old men and women). Evidence is increasing that factors other than osteoporosis are important in the pathogenesis of common fractures. Ninety per cent of hip fractures in elderly people seem to be the result of falls (Grisso, Kelsey, Strom et al 1991).

Dargent-Molina et al (1996) maintain that factors such as muscle strength, neuromuscular coordination, postural stability, steadiness of gait and the structural properties of bone all influence fall frequency. Referring also to Tinetti et al (1988) and Nevitt et al (1989), they stated that performance-related measurements of physical capacity (particularly measurements of balance and gait impairments) are strong predictors of risk of falling among elderly individuals. The findings further suggested that neuromuscular impairment may play two distinct roles in the occurrence of hip fractures: it may not only increase the risk of falling but also influence an individual's speed, coordination and protective responses during a fall. Another important finding was that visual impairment is an independent risk for hip fracture. These findings suggest that intervention programmes to prevent hip fractures should target both fall-related factors and the maintenance of bone mass (Dargent-Molina et al 1996).

In everyday life, the combination of reaction speed, coordination and strength is the key factor in carrying out tasks. Rivara et al (1997) mention that the most important risk factors for falls and fall-related injuries among older people are a history of one or more prior falls, cognitive impairment, a low body-mass index, female sex, general frailty, use of diuretics, use of psychotropic drugs and hazards in the home. In their review article related to physical exercise, they mention weight-bearing exercise, physical exercise combined with balance training and multimodal programmes (Province et al 1995; Tinetti et al 1994) as being effective preventive measures.

Limitations in joint range of motion often mean that ageing individuals have to give up a number of activities.

5.5 Glucose metabolism (diabetes)

Type II (maturity-onset) diabetes usually occurs after the age of 40 and is strongly associated with obesity (Ashton 1993). Glucose tolerance deteriorates with increasing age. Regular moderate exercise appears to reduce the risk of developing Type II diabetes in both normal and obese middle-aged people (Ashton 1993). Later-stage diabetes is associated with many disorders (such as blindness and neuropathy which can lead to the amputation of extremities), each of which has its own substantial impact on function and quality of life. It is known that exercise improves the physiological control of glucose metabolism and evidence does exist which suggests that regular aerobic exercise of at least 30 minutes' duration three or more times a week offers potential benefits to those elderly people with glucose intolerance or overt diabetes (Harris 1984; Tonino 1989).

6. PHYSICAL ACTIVITY AND MENTAL HEALTH

Introduction

The connections between physical activity and mental health have been studied quite extensively in young and middle-aged people, but not in older people. Physical activity is most typically described in terms of a specific type of physical exercise. Most work in this field to date has taken the form of intervention studies aimed at preventing or resolving mental health problems by means of exercise programmes. At the population level there has been very little research on the possible effects on mental health of lifelong regular exercise.

The focus of earlier research was on the indirect effects of physical exercise. Most studies found a positive correlation between exercise and mental health, albeit an ambiguous one: it is not known which influences the other or in what direction the influence operates. Furthermore, the correlation is not normally particularly strong, nor does it not show up in all studies. The most common positive effects of physical exercise on mental health are reduced depression and anxiety, better tolerance of stress and improved self-esteem (Brannon & Feist 1992).

The research evidence on the connection between physical activity and mental health is not conclusive as far as the intensity of this connection is concerned. Some researchers maintain that the evidence points at a causal link between physical exercise and mental health (e.g. Brannon & Feist 1992), while others indicate that they have only been able to demonstrate that there is a correlation (e.g. Sime 1990). In most cases, the evidence does not warrant conclusions of a causal link: the effects have been short-term and have not necessarily shown any connection to physical exercise. According to Berger (1989), the mental health benefits of physical activity are equally wide-ranging among both older and younger people. From the gerontological research and studies carried out in the field of physical education, it may be inferred that regular physical activity and exercise help to maintain and improve the functional ability, health and mental well-being of older people (Ruuskanen & Ruoppila 1995).

Ojanen (1994) proposed a number of hypotheses with regard to the connections between physical activity and mental health. Although his studies focused on young and working-age people, it is possible to extract from Ojanen's work research hypotheses that concern elderly people as well and take into account physical activity as a whole. Follow-up research is now needed at population level to establish exactly how physical activity and mental health are connected to each other. A simple intervention study within a selected sample is not enough to test the hypotheses and obtain relevant data at the population level.

A baseline assumption which can be made about the connections between physical activity and mental health in elderly populations is that physical activity as a whole and taking physical exercise are associated with mental health. Mental problems have adverse effects on the level of physical activity: on the other hand, moderate regular physical activity may reduce the emergence or existence of mental problems. The intensity and regularity of physical activity is connected with mental health. Health and functional ability, as well as socio-economic factors, influence the connections between physical activity and mental health (McAuley & Rudolph 1995; Clark 1996).

6.1 Depressive symptoms

A connection between physical exercise and depression has been reported both for young and middle-aged people (Brown 1990; Brannon & Feist 1992; Ojanen 1994; McAuley & Rudolph 1995) and for older people (Berger 1989; O'Connor et al. 1993; Ruuskanen & Ruoppila 1995). Despite their various shortcomings, these studies generally support the conclusion that physical activity and exercise reduce depression. Although people who exercise frequently suffer from depression less often than others, it has been impossible to establish the direction of the causal link. Regular aerobic exercise shows the clearest connection with reduced depression. According to Brown (1990) physical activity may be used to help prevent or alleviate mild or moderate depression. There also seems to be a link between a low level of physical activity and high depression scores, but no causal connection has been established. O'Connor et al. (1993) suggest that physical activity may reduce depression through a cognitive rather than a social mechanism, meaning that elderly people who can cope independently with physical activities by virtue of an exercise programme, for instance, will see their self-esteem and confidence increase, which in turn may also contribute to reducing depression.

6.2 Anxiety

Physical exercise has been successfully prescribed as a treatment for anxiety (Berger 1989; Brown 1990; Brannon & Feist 1992; Ojanen 1994). At the same time as it reduces anxiety and muscle tension, exercise helps to reduce and prevent stress. The best remedy for stress is regular physical activity (Brannon & Feist 1992), while for anxiety it is aerobic exercise (Ojanen 1994). Brannon and Feist (1992) suggest that aerobic exercise is most effective in the treatment of state anxiety but may also help with trait anxiety.

There are connections between physical activity and mental health in areas other than those discussed above, but they have not been researched in any depth. These areas include improved self-esteem and self-confidence, greater overall life-satisfaction and general well-being (Berger 1989; Brannon & Feist 1992; Morris 1992; Ruuskanen & Ruoppila 1995; US Department of Health and Human Services 1996). No clear connection has been established with psychotic disorders (Ojanen 1994). Tuson and Sinyor (1993) observe that change in mood is predicted by self-perceived meaning of physical exercise and other physical activity, as well as by the duration of exercise taken.

Positive expectations, commitment and the conviction that physical activity has beneficial effects, all strengthen the favourable impact exercising has on mental health (Ojanen 1994). It seems that continuous, intensive physical exercise is the most effective (Kaplan et al. 1993; Ojanen 1994; Shephard 1994; Clark 1996). The longer the individual has exercised, the stronger the link between physical activity and mental health (McAuley & Rudolph 1995). In elderly people, moderately intense physical activity is usually sufficient to maintain physical and mental capacity, although Clark (1996) argues that three-quarters of elderly people in the United States do not take regular moderate exercise. Follow-up studies in Jyväskylä (Oinonen et al. 1997; Hirvensalo et al. [submitted]) found that one-third

of the elderly population goes for walks several times a week. A high level of participation in other forms of exercise such as callisthenics, cross-country skiing and swimming was also reported. It seems that people who most need physical exercise are precisely those for whom participation is most difficult. The positive effects of physical exercise on mental health may be undermined by adverse environmental factors as well as by excessively intensive exercise (Berger 1989).

In the light of the latest research results, it seems that physical exercise and other forms of physical activity are the most significant means whereby individuals can influence their own health and functional ability, and accordingly maintain a high quality of life into old age.

7. WHAT KIND OF PHYSICAL ACTIVITY?

Any form of physical exercise is suitable for anyone at any age, provided that it is not excessive in terms of general or local stress loads. The structures and functions of the human body usually adapt to the loads imposed upon them, whether these increase or decrease. When exercise is discontinued and the stress loads disappear, the changes created in the body will also disappear. This applies to all the effects of physical exercise, although the rate at which they disappear varies considerably from a few hours to months. The results achieved can be maintained even if the duration is reduced, provided that the intensity of training remains at the same level.

Age is not, in itself, an obstacle to physical exercise. Indeed, exercise can contribute to positive changes and increase physical performance in older people just as it does in younger people. Improvements in muscular strength are particularly interesting. For example, training can help to improve considerably the strength of the lower limbs within a matter of months (Fiatarone 1990). The most crucial issue is the extent to which physical activity can be incorporated into ageing people's lifestyle.

It is known from earlier research that the most common form of physical activity for older people is walking: for example, around two-thirds of the elderly population in Jyväskylä, Finland regularly go for walks. Around one-third does callisthenic exercises at home. It seems that both these forms of exercise remain popular as people get older: it is only in the age group over 80 that the number of people engaging in these activities clearly begin to decline. Cross-country skiing, cycling and swimming are comparatively rare forms of physical exercise for older people, even in Nordic countries. Factors which influence the level of involvement include culture, age cohort, income level, and the availability of public services (Heikkinen et al 1990).

Many older people enjoy different forms of so-called utility exercise such as gardening and other outdoor jobs around the house. It is also quite common for older people to decide to walk to the shops or do their errands on foot, simply in order to get some exercise and fresh air. Men engage in heavy keep-fit exercise more often than women, but otherwise there are no major differences between men and women.

8. WALKING

Walking is the most natural, the most "everyday" form of movement human beings undertake. It starts very early in life and continues, for the most part, until the very end. It is an activity common to everyone except the seriously disabled or the very frail (Morris and Hardman 1997). No special skills and/or equipment are required. Walking is convenient and may be included in occupational and domestic routines. It is self-regulated in intensity, duration and frequency and, having a low ground impact, is inherently safe (Morris and Hardman 1997).

Walking is a year-round, readily repeatable, self-reinforcing, habit-forming activity and the main option for increasing physical activity in the sedentary population (Morris and Hardman 1997). For ageing and elderly people, walking is an ideal way to start exercising more. A low level of walking is the major factor in the current widespread waste of potential for health and well-being that is due to physical inactivity.

The reason for walking is usually the need to get from place A to place B to do an errand, but it can also be to clear the brain. Walking is such a natural way of moving that it is not even perceived as a separate activity, unless problems occur (Morris and Hardman 1997).

A normal middle-aged person should not be aware of any major physical changes, but around the age of 50 it becomes desirable to set goals for maintaining the physical self: for instance, consciousness of posture, speed of movement, sprightliness, and weight.

As individuals begin to grow older and their levels of physical activity begin to decline, their bodies begin to regress. Pain, illness or an injury may also affect the permanence of physical skills. Ageing in itself changes the way people move: they begin to walk more slowly, posture may change, stride gets shorter. Walking is an all-encompassing activity which requires not only muscle strength but also balance, a skill learned very early in life. During a walk, as in other forms of aerobic exercise which use the body's large muscles (e.g. swimming or cycling), there are important changes in cardiovascular and respiratory functions. Controlled trials involving both men and women have shown that fast walking (i.e. at faster than normal pace) improves fitness.

Even though walking is the most common method of getting about, it also offers a variety of ways - such as walking with someone else or walking in demonstration for a common cause - to break loose from everyday routines.

Fitness gains from walking are particularly valuable for elderly people and proportionately can be as significant as those benefits enjoyed by younger age groups. Leg muscle strength (which has already been mentioned on several occasions in this paper) is particularly important in minimizing immobility, thus in turn contributing to the maintenance of independence in older people. Weakness makes it difficult to support bodyweight and stand up from a low chair or toilet seat, to climb stairs or mount a bus.

The importance of observing an older person's gait cannot be overemphasized.

Direct observation of walking gives the health care professionals useful screening data about mental status, muscle strength, joint range of motion, motor planning skills, ability to concentrate, sitting and standing balance and potential to rehabilitation.

The scope of people's existence is directly related to how much and in what way they engage in physical activity (Heikkinen 1995). Not only does mobility favour contact with other people; it is the best guarantee of retaining independence and being able to cope.

9. HOW TO ENCOURAGE PHYSICAL ACTIVITY IN DAILY LIFE

Earlier in the history of humankind, mobility was an essential part of survival: hunting for food, avoiding dangers, self-defence - all involved and required movement. Today, most daily activities have been delegated to machines: the length of the stride required today is shorter than it used to be, the amount of strength required in hands and arms is less. A number of things which previously obliged people to go out - shopping or paying bills, for example - can today be done from the comfort of the home. There are fewer things in everyday life which necessitate physical activity. However, since it is recognized that some activity is nonetheless necessary, some people try to meet this need through organized exercise. This sort of "artificial" activity does not appeal to all. Some people feel it is awkward and not worth the trouble; others feel they do not have the time to spare.

10. LIFE AS A PROJECT

Most people's lives are oriented towards the future (Merleau-Ponty 1962, Heikkinen 1995). In a normal life course, the future perspective is one of ageing. Ageing is often marked by concerns about independence, coping, health and functional ability. Sometimes such concerns lead to situations in which everyday life is increasingly structured within a medical framework. This in turn may become a source of anxiety.

Individuals are always bound to a certain extent by the conditions of their lives and environments. The degree to which they succeed depends largely on functional ability. The better their functional health, the greater their functional freedom within the confines of their life-situations. There is no doubt that physical activity is a crucial factor in maintaining functional health throughout the life span.

It is important to become conscious of the messages that the body sends. As mentioned in the discussion on walking, people do not normally pay attention to their bodies. With increasing age, however, more ailments and pains begin to make themselves felt, even if the individual is not actually ill. This is a sign that functional health has started to deteriorate. In this situation, everyday actions, and life in general, become increasingly difficult (Heikkinen 1995). However, by moving more than previously and by exercising, it is possible to induce positive changes. Such changes can help to reinforce people's belief in the value of continued physical activity for maintaining well-being.

Individuals need to register both negative and positive experiences, as this helps maintain a mental balance and eventually facilitates adaptation to the changes that inevitably occur with time.

The key to maintaining physical activity and functional ability lies within each individual, although immediate surroundings, significant others and family also play a crucial role in creating and maintaining a positive, active approach to life. People can resort to past experiences for inspiration, to push themselves forward both mentally and physically. It is not easy to develop effective strategies to promote exercise or physical activity in ageing people. Shephard (1986) has shown that the idea of "training" is difficult for elderly people to appreciate, and may even be intimidating. The benefits of exercise may be easier to accept if ageing people can perceive them, for instance, in terms of having more or better time with loved ones or not being dependent on others in later life.

The way in which people experience their bodies is also a cultural phenomenon, bound to a particular cultural context. In many cultures the training of the body is recognized as crucially important to mental pursuits as well. The Western tradition, which makes a distinction between the physical and the mental, complicates the natural relationship between these two planes of human existence.

10.1 What kind of exercise?

Physical activity and exercise should meet the individual's current needs. It is important that health care personnel explain why it is necessary, useful or beneficial to engage in physical exercise. Initially it may be very difficult to convince older people to adopt more mobile and active ways of life. They may need to be persuaded that age is no obstacle to physical activity and that the more they invest in maintaining their capacity to move, the more they will enjoy physical independence and interaction with others. Practical examples can be used to illustrate the daily possibilities for increasing physical activity - e.g. climbing the stairs instead of taking the lift - and highlighting the concrete benefits that this will have. Another good way to encourage exercise is to find forms of physical activity that have interested the individual earlier in life. In the presence of a specific problem such as an illness, it must be explained why certain types of physical activity are recommended, while others - which may be too demanding - should be avoided. Ageing well - to which physical activity can make a substantial contribution - is a challenge that brings its own rewards to those who are prepared to face it.

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