

Promoting healthy exercise among older people in general practice: issues in designing and evaluating therapeutic interventions

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SUMMARY

The potential health benefits derived from sustained physical activity in older people are numerous; however, whether exercise promotion should take place in general practice is unsubstantiated. Exercise promotion should use existing research evidence of the advantages of exercise for various conditions, and target those inactive individuals who currently have no intention of changing their level of physical activity. Research has also raised methodological issues and questions about the feasibility of exercise interventions which still need to be tested in exercise trials conducted in general practice.

Keywords: exercise; elderly; health promotion.

Introduction

Physical activity is good for our health, and general practitioners (GPs) may be well placed to promote healthy exercise to their patients, especially middle-aged and older people whose exercise levels have decreased significantly since young adulthood, and who exhibit patterns of morbidity that may be ameliorated or prevented by consistent exercise. Community studies of exercise behaviour in Britain show that older people are active but that the level of vigorous exercise that is probably needed to improve cardiovascular health, reduce functional loss or diminish psychological morbidity is not commonly found.^{1,2}

Practices claiming Band 3 level reimbursement under the 1993 health promotion contract were required to ask about and document the physical activity levels of their patients, and were encouraged to advise appropriately on exercise, as a contribution to the primary prevention of coronary heart disease (CHD) and stroke.³ Although the funding of health promotion has changed, the earlier approach to exercise promotion is developed in detail in the Health Education Authority's recent guide, 'Promoting physical activity through primary care'.⁴

The number of practices that 'prescribe' exercise is increasing,^{5,6} and funding bodies are looking sympathetically at local schemes that divert patients from health centres to leisure centres, even though there is little evidence that general practice is the appropriate place for physical activity promotion⁷ and despite concern that prescribing exercise may 'medicalize a lifestyle change'.⁸ Before GPs jog into a healthy future with their compliant patients, or take a place at the front of the aerobics

class, they should look critically at the issues around promoting healthy exercise, and decide whether their time and energy (or that of their staff) is being best spent. Considerable resources could be devoted to promoting healthy exercise to people who constitute the fittest section of their peer group and who will get the least health benefit (but much satisfaction) from exercise initiatives launched in general practice.

In this paper, we discuss issues for promoting physical activity among older people, and for recruiting older patients to exercise trials. These include being aware of the research evidence for exercise being beneficial to health, identifying important questions about promoting physical activity that need to be answered, and acknowledging the methodological issues that are involved in answering them. The focus of our discussion is the 65-and-over age group, although those over 65 are not considered as a homogeneous group since physical limitations increase significantly with advancing age.⁹ However, it is useful to compare findings with those of younger age groups.

Evidence of the benefits of physical activity

Cardiovascular disease

Evidence to support increasing physical activity as a primary prevention factor for coronary heart disease has been growing in recent years. A meta-analysis of such studies indicated a summary relative risk of death from CHD of 1.9 for sedentary compared with active occupations.¹⁰ How much exercise is enough or too much is still subject to debate, but there is evidence that metabolic fitness (the modification of cardiac disease risk factors) can be achieved without the training-related changes of cardiorespiratory fitness simply through regular, sustained, brisk walking.¹¹

Disability

Functional impairment increases significantly with advancing age, and exercise or physical training can alter reaction time, cardiovascular endurance, muscle and grip strength, agility and joint flexibility.^{12,13,14,15} Physical training may help to prevent age-related impairment in both men and women.¹⁶ Muscle strength training is encouraging to participants who can feel the benefit of it in activities of daily living (ADL), which may have been restricted previously.¹⁷

There is little evidence that exercise programmes can produce a sustained improvement in functional ability in disabled elderly people, although one randomized controlled trial of seated exercise (involving the training of both upper and lower limb for volunteers in an old people's home) did produce an improvement in ADL scores in the intervention group.¹³ Most studies assessing the effect of exercise on functional ability have been cross-sectional, with self-selected and predominantly health study populations of mixed age-range, and have not used changes in ADL scores as outcome measures.¹² However, Fries *et al*¹⁸ conducted a six-year longitudinal study, comparing habitual long-distance runners and controls. He reported that years of vigorous running activity did not increase musculoskeletal pain with age, and that vigorous physical activity was associated with decreased levels of disability and mortality rates.

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Osteoporosis and hip fracture

Several studies have shown a relationship between regular exercise and the risk of hip fracture, with moderate exercise being associated with a 40–50% reduction, and higher levels of activity with a 70% reduction in risk.¹⁹ Intervention studies have shown short-term benefits from exercise programmes, which may improve protective responses as well as increase bone strength.²⁰ Post-menopausal bone loss can be slowed by a combination of either calcium supplementation or hormone replacement therapy with increased physical activity.²¹ However, the protective role of exercise is unclear,²² as are the types of exercise that are most effective.²³ Increases in bone density occur only in the specific regions being exercised,^{22,23} and high volumes of exercise can be overwhelming, leading to damage or injury.²³ For older people, adequate diet supplementation is also important for treatment of osteoporosis.^{22,24,25}

Psychiatric morbidity

Most older people with depression have the 'dysphoric' or 'demoralization syndrome' type, often associated with disability. The relative effectiveness of different treatment modalities is unknown, but there is evidence that aerobic exercise has an adjunct effect with other treatments for depression.²⁶ Exercise may itself have a direct anti-depressant effect,^{27,28} but this has not been found in all trials.^{12,29}

Anxiety is common in later life and has been little studied. There is some evidence that exercise reduces 'trait anxiety',²⁶ and that continuation of regular exercise after cessation of exercise research programmes is associated with low levels of anxiety.³⁰ Evidence suggests that higher aerobic capacity is also associated with lessening of depression and internal locus of control, but not with state or trait anxiety in younger volunteers.³¹ Since anxiolytic use of exercise is common among older people, anxiety reduction may be a worthwhile objective and further investigation of the effectiveness of exercise is warranted.

Cognitive impairment has been extensively studied, as have the effects of exercise programmes on intellectual functioning.^{12,32} Although studies of different treatment approaches to cognitive impairment, including exercise programmes, have been disappointing there is some evidence that exercise improves intellectual functioning in those categorized as unimpaired on standard rating scales.³²

Unanswered questions about exercise promotion

American physicians are urged to promote tailored exercise programmes to their older patients,³³ and current knowledge about the benefits of exercise supports such an approach to individuals, who can decide whether to commit their own time, energy and resources to exercise. In the British context it is not clear that promotion of exercise among older people by GPs, as part of a population-based health promotion programme, would be effective. However, the possibility that exercise programmes might reduce future morbidity makes desirable a large-scale, multi-practice trial with a long follow-up period and multiple outcome measures.

The Frailty and Injuries: Co-operative Studies of Intervention Techniques (FICSIT) trials³⁴ in the United States studied different exercise interventions in eight sites (seven were randomized trials), examining functional status, muscle strength, falls and fall-related injuries in over 2400 older volunteers aged 65 and over. Most of the sites involved participants living in community. A common database³⁵ was developed to allow cross-site comparisons. Most interventions were conducted in laboratories, the

others in nursing homes or in individuals' homes. It is difficult to say whether these interventions would be effective in general practice in Great Britain. However, valuable information on the effects of exercise on functional and psychosocial status has been produced, and a similar venture in this country would show the feasibility of these interventions when patients are recruited through general practice.

If exercise interventions could significantly reduce falls, cardiovascular events, and the use of medications and medical services, there could be implications for GP contracts, health promotion funding, annual assessment of the elderly, the content of contracts set by providers and the decisions taken by GP fund-holders. Whether such interventions are feasible is difficult to answer. This is partly because most primary care staff use a limited conceptual framework when thinking about exercise and health,³⁶ and partly because the methods used to recruit and retain the target population of unfit and impaired older people in programmes of physical activity are poorly developed.

Methodological issues in developing exercise trials

Selection and response biases

There are few differences between young and old individuals with regard to attitudes and beliefs about physical activity, although such activity tends to decline with age.³⁷ The main difference between the under-65s and the over-65s is that about 50% of older persons who are not physically active have no intention of starting an activity programme.³⁷ Those most likely to benefit from exercise may be least likely to take it up.

Physical activity may become a lower priority for leisure time, and the nature of habitual activity that is commonly considered acceptable changes as a person gets older.^{9,38} Positive encouragement to participate may be lacking from friends (whose own level of activity may also have declined) and from family, who may be worried that activity will precipitate serious injury.⁹ Effective strategies to promote exercise in older people are not easy to develop, and exercise programmes may be perceived as competitive and intimidating.³⁹ Ebrahim and Rowland⁴⁰ reported that health promotion for older women should focus on increasing knowledge of the amount and intensity of exercise required for health, and on increasing domestic as opposed to sporting activity.

Participation in exercise programmes

Several factors have been found to be associated with participation in physical activity among young and middle-aged adults. These include knowledge, attitudes, intentions, beliefs about the benefits of exercise, beliefs about personal control of health and fitness, perceived barriers, education, perceived enjoyment, past participation, social and spouse support, self motivation and self-efficacy (confidence in ability to exercise).^{37,41,42} Whether these factors are effective in increasing physical activity for persons aged 65 and over has not been well studied.³⁷

Participation in regular exercise by older people is associated with higher levels of social interaction and with fewer medical problems, but disabled and sedentary people have a poorer perception of health⁴³ than more active people.⁴⁴ Obstacles to involvement include boredom with exercises, lack of knowledge of how to get involved in exercise programmes, transport problems, lack of self-discipline, and concerns about exercise exacerbating existing medical problems.¹² Access to facilities is particularly important to older people, who may prefer to exercise at home alone, rather than in a supervised and monitored environment.³⁷

Self-motivation is an important factor in uptake and adherence to programmes.⁴² Evidence from the United States suggests that

as people age, their locus of control⁴⁵ for health-specific measures shifts away from themselves and towards 'powerful others': they prefer health professionals to make decisions for them.^{46,47}

Identifying the therapeutic component

The therapeutic components of exercise programmes that affect disabled, ill, depressed or anxious older people need to be identified.³⁹ These may include an improvement in functional ability; social interaction and regular group support; the extra attention received from health professionals and others; a component that offsets lack of motivation and lethargy; and reduction in muscle tension. Social interaction may have a large therapeutic effect but it is hard to measure. For the older person, in particular, it may be as important as the exercise itself.

Implications for study design

Randomized trials of health promotion interventions are difficult to conduct.⁴⁸ A poor perception of health, whether realistic or not, increases contact with physicians⁴⁹ but reduces the response to invitations to participate and adhere to an exercise programme. Different randomization techniques have potential difficulties.

Randomization before or after recruitment. Once people have agreed to take part in a study, randomization to a non-exercise control group may be unacceptable to individuals who do see exercise as potentially beneficial. Randomization of persons before entering a trial may address this issue but it reduces the comparability of the 'treatment' groups.

Individual or group/general practice randomization. This may depend on the nature of the intervention. If 'exercise promotion' is the 'intervention', it would be unreasonable to ask primary care staff to 'promote' to some of their patients and not to others under individual randomization, and 'contamination' is very likely. The choice to randomize by GP or practice would involve deciding on the extent to which 'control' participants can also be contaminated by being in the same practice as 'intervention' participants. Randomizing by practice would require far more patients and practices to accommodate the reduced power.⁵⁰

Blindness in the trial may depend on the outcomes. It is unlikely that any intervention administered by primary care workers will enable them to be 'blind'; however, a 'blind' assessor is possible if the aim is to determine physical improvement by a 'fitness assessment'. This may not be feasible if the outcomes are measured by questionnaires.

Discussion

Siting a trial of exercise in general practice may have important effects on recruitment and involvement. General practitioners and other primary care workers have extensive contact with older people, the average consultation rate being six per year for those aged 65–74 and seven for those aged 75 and over.⁵¹ Medical advice about the benefits of exercise may have greater impact than advice or information from other sources, especially if it comes from someone with whom the older individual has had a long-term relationship.

The current enthusiasm for prescribing exercise schemes suggests an acceptance of exercise in the therapeutic management of illness. Reports of larger schemes^{52,53} indicate that uptake and adherence to the programmes tend to be better for the older age groups. This may be attributable to their 'powerful others' locus

of control, and the persuasiveness of the primary care staff, but does not imply that the 'unwilling', sedentary population is being reached.

A pertinent finding from the Stockport evaluation⁵² was that GPs felt they could not be as directive about the scheme as they could be about medication. Perhaps the first step in promoting healthy exercise is a training programme for primary care workers who wish to be updated on the health benefits of exercise for older people, familiarized with the attitudes and practices of older people with respect to exercise, and given information on techniques for producing a 'lifestyle change'. Motivational interviewing, a style of consultation derived from work with addicts, which has been reformulated for general behaviour change in primary care,⁵⁴ may be a technique to use in the future.

Rigorous trials of exercise promotion among older people in general practice will be difficult to mount until the knowledge gap in primary care about the health benefits of exercise is closed and methods of recruitment are refined, ideally through a series of systematic feasibility studies.

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