



A Countryside for Health and Wellbeing: The Physical and Mental Health Benefits of Green Exercise

Executive summary



Introduction

How does nature make us feel? Much, of course, depends on what else is important in our lives. Is it a good or a bad day? Irrespective of where we come from, it seems that the presence of living things makes us feel good. They help us when we feel stressed, and if there is green vegetation, blue sky and water in the scene, then we like it even more. This idea that the quality of nature affects our mental health is not a new one, but it has not greatly affected the planning of our urban and rural environments, nor the setting of public health priorities.

In the UK, more than 80% of people live in urban areas (Defra, 2004), though the greater growth is now in rural areas. Urban settings by definition have less nature than rural ones. And less green nature means reduced mental well-being, or at least less opportunity to recover from mental stress. As natural green environments have increasingly come under pressure from

economic development, so it seems our own wellbeing has suffered as a consequence.

Today, stress and mental ill-health are becoming more common, and the associated public health costs are growing. The World Health Organisation estimates that depression and depression-related illness will become the greatest source of ill-health by 2020. This is partly because some other behaviours, such as smoking, over-eating and high alcohol consumption, are likely to be coping mechanisms for mental ill-health and stress, and have their own serious consequences. In addition, many urgent physical health challenges, including obesity and coronary heart disease, are also connected to sedentary lifestyles. Yet it is known that physically active people have a lower risk of dying from coronary heart disease, type II diabetes, hypertension and colon cancer. In the UK, there is evidence for a dramatic fall in physical activity over the past 50 years.

Purpose of research

There is substantial evidence that links the natural environment with good physical health and psychological wellbeing. The 'Biophilia Hypothesis' states that the desire for contact with nature is partly innate. As both physical activity and nature can positively affect wellbeing, we have undertaken research to explore the synergy in adopting physical activities whilst being directly exposed to nature. We have called this 'green exercise'.

Evidence

The evidence indicates that nature can make positive contributions to our health, help us recover from pre-existing stresses or problems, have an 'immunising' effect by protecting us from future stresses, and help us to concentrate and think more clearly. We have discerned three levels of engagement with nature

- i. viewing nature – as through a window, or in a painting;
- ii. being in the presence of nearby nature – which may be incidental to some other activity, such as walking or cycling to work, reading on a garden seat or talking to friends in a park; and
- iii. active participation and involvement with nature – such as gardening, farming, trekking, camping, cross-country running or horse-riding.

Most evidence, though, comes from the USA, Scandinavia and Japan. There there have been few UK studies on the effect of nature on health, and very little research has investigated the separate effects of social capital on wellbeing.

Methodology

In this report, we have reviewed on existing green exercise studies in the UK on the effects of the view from the window (University of Essex), on Walking for Health Initiatives, and Green Gyms (conservation activities for health).

We have also undertaken research on the effects of active participation in the countryside. To do this, we conducted a quantitative analysis of the effects of ten countryside activities in England, Scotland, Northern Ireland and Wales on the health of 263 people. The range of projects incorporated both group activities (such as the health walks) and activities which people undertook on their own. This enabled us to examine whether the health benefits of green exercise were affected by a variation in social capital context. The projects are shown in the box.

The data from people taking part in the ten green exercise case studies was obtained in the field by means of a composite questionnaire, which was administered both before and after the activity. The questionnaire was designed to fit all scenarios including different levels of activity and engagement and contained questions relating to basic data, physical health, mental health and physical activity. It also included an opportunity to gather qualitative

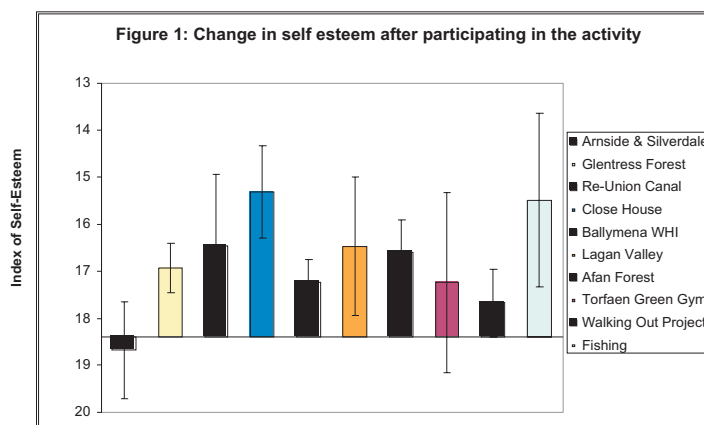
narratives. Components of the questionnaire consisted of standardised and widely used formats (Euroqol EQ-5D, Rosenberg Self-Esteem Scale, Profile of Mood States test), together with additional questions particular to this research.

- 1 Arnside & Silverdale AONB, Lancashire, England – conservation work
- 2 Glentress Forest Recreation, Borders, Scotland – mountain biking and walking;
- 3 Re-Union Canal Boats, Edinburgh, Scotland – canal boating;
- 4 Close House Initiative, Herefordshire, England – woodland activities;
- 5 Walking the Way to Health Initiative (WHI), Ballymena, County Antrim, Northern Ireland - walking;
- 6 Horse riding club, Lagan Valley, County Antrim, Northern Ireland – horse riding;
- 7 Afan Forest Centre, Port Talbot, West Glamorgan, Wales – mountain biking and walking;
- 8 Torfaen Green Gym, Pontypool, Gwent, Wales – conservation work;
- 9 Walking Out Project, Lincoln, England - walking;
- 10 Layer Pit fishing club, Essex, England - fishing

Results of the research

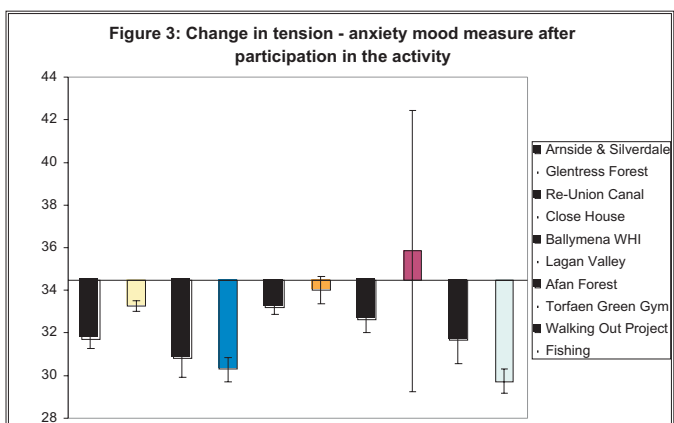
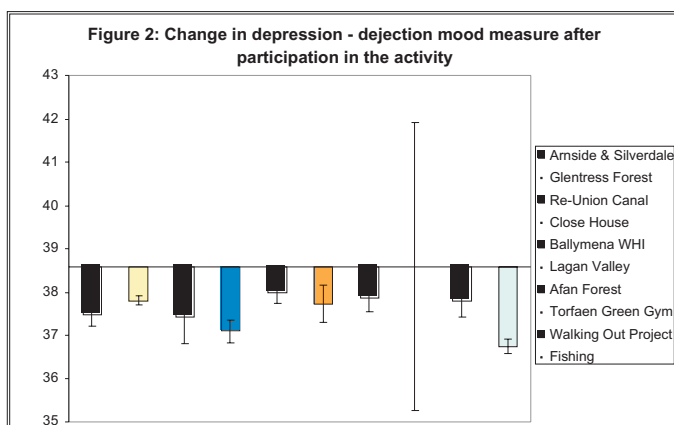
The ten case studies represented a variety of activities that took place in diverse contexts with varying durations and intensities. The amount of activity varied from 100 to 650 calories per hour and from 330 to 3,500 calories per visit.

As a result of green exercise, there was a significant improvement in self-esteem in 9 out of the 10 case studies, excluding Arnside and Silverdale (where participants had an arduous and long day) (Figure 1). The largest change was detected amongst the Close House participants, followed closely by the fishing group. The smallest increases in self esteem were found in both the walking project groups and the Green Gym. [Note a decrease in score equals an increase in self-esteem].



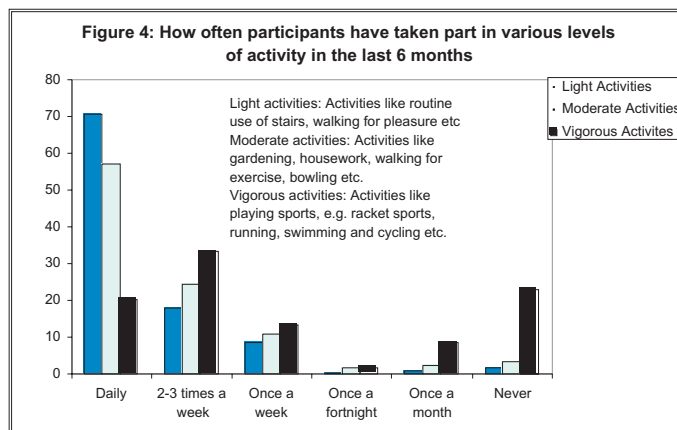
We found that self-esteem was significantly correlated with an individual's body weight. The heavier the body weight reported, the poorer the self-esteem score. We also found that self-esteem was not affected by the intensity of the green exercise activities, though it did appear to rise over very long visits. This is an encouraging finding as it implies that all intensities and durations of activity generate significant mental health benefits.

We also gathered data on the six mood measures assessed using the POMS method. Mood is measured according to six characteristic themes: anger-hostility, confusion-bewilderment, depression-dejection, fatigue-inertia, tension-anxiety, and vigour-activity. The majority of these showed significant positive changes in most of the projects (see Figures 2 and 3).



An estimation of participants' physical fitness level was calculated. Some 70% of individuals reported participating in light activities daily, with the overall majority (97%) participating at least once a week. Only 20% engaged in vigorous activities daily. The average weekly duration for moderate activities was 404 minutes, which is equivalent to 58 minutes per day.

This data shows that the participants studied were a very healthy, active group, who currently meet the Chief Medical Officer's physical activity recommendations of 30 minutes of moderate activity, five times a week. It re-emphasises the difficulty in accessing those people who do not currently engage in regular activity. If this active group of individuals can derive numerous health benefits from participating in varying



types and intensities of activity, the possible gains for a more inactive group may be substantial.

The full report presents detailed findings on each of the ten case studies, but from the range of initiatives examined for this research it can be noted that the synergistic effects of green exercise generate many positive physical and mental health benefits regardless of the level of intensity, duration or type of green activity.

Research implications

We conclude therefore that green exercise has important implications for public and environmental health. A fitter and emotionally more content population would clearly cost the economy less, as well as reducing individual human suffering. Thus increasing support for and access to a wide range of green exercise activities for all sectors of society should produce substantial economic and public health benefits.

If green exercise can have such a positive effect on health, why then do not more people regularly take exercise and visit green space? First, it is clear from participation rates that many people in the UK already do engage in forms of green exercise. Each year, some 1.5 billion day visits are made to the UK countryside and seaside, and 2.5 billion day visits are made to urban parks. The Walking the Way to Health Initiative has already encouraged 900,000 people to walk more. Thus, there is already a health dividend being experienced. On the other hand, health data indicates that a substantial proportion of the population is obese and too sedentary. It is clear that barriers to participation (eg lack of time, feeling too tired from work, no motivation to take exercise) are affecting different groups of people in different ways. Many of these, however, have been overcome in the best projects, and factors that make up best practice in green-exercise land-based and group-based projects – which include attention to good partnerships, opportunities for feedback, clearly-marked routes, good information, facilities, successful market research, good staff, a programme of events with clear dates and locations, personality of group leaders, and advertising to local people.

Recommendations

We conclude with sectoral policy recommendations, addressing

- i) Access and recreation providers (including local authorities), who need to address maintenance of paths, sustainable transport, promotion of facilities and provision of information.
- ii) Agricultural managers and policy makers, who need to increase countryside access and encourage the farming industry to promote the opportunity to indicate that land management can involve opportunities for public health provision.
- iii) Schools should ensure that all primary age school children experience visits to a range of types of countryside, and where possible establish their own on-site gardens; they should also emphasise the public health value of physical activity for all children.
- iv) Health sector – which needs to consider the contribution that green exercise makes to public wellbeing and saving money for the NHS. The forthcoming Physical Activity Plan should emphasise the value of nature and green space for formal and informal use, and also stress the therapeutic value of the outdoors (both rural and urban) for delivering mental wellbeing.
- v) Planners and developers – who should take account of the vital role that local green space (or nearby nature) plays for all people, and regard outdoor recreational activities as part of economic regeneration strategies in both rural and urban economically depressed areas.
- vi) Social services – who should acknowledge that green exercise has clear mental health benefits for those people who engage collectively with existing groups or new groups, and so countryside and local authority agencies should ensure their provision of services at recreation and leisure locations is focused on encouraging families and other groups. Crime/social service agencies should also consider the therapeutic value of green exercise.
- vii) Environmental managers – local and national Biodiversity Action Plans should be rewritten to include a component on biodiversity activities that contribute to public health.
- viii) Sports and leisure industry – gyms and fitness centres should improve the green aspects of their facilities, and the formal sports sector should emphasise the health value of participation, as some sports (eg football, cricket) draw from a wider range of social groups than most countryside recreation.
- ix) Partnerships - green exercise has implications for many sectors, suggesting the need for cross-disciplinary and sectoral strategies and action, and so countryside agencies should market the countryside as a health resource, and the private sector, particularly the food manufacture and retail industry, should be engaged in partnerships for provision of both healthy food and healthy places where the food is raised and grown.

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The research was commissioned and funded jointly by members of the Countryside Recreation Network (CRN). These members are British Waterways, Countryside Agency, Department for Food, Environment and Rural Affairs, Department for Culture, Media and Sport, English Nature, Environment Agency, Environment and Heritage Service, Forestry Commission, Hampshire County Council and Sport England.

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