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**The (unintended) benefits of green exercise**

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# **The (Unintended) Benefits of Green Exercise**

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## Introduction

The purpose of the article is to demonstrate and explain some of the indirect consequences of “green exercise” (defined below). Member of the public may participate in green exercise programmes for in order to improve their health and most often to lose weight, but also see additional positive changes in their understanding of the natural world and their appreciation of nature. As Pretty et al. (2005) have argued, the arguments in support of environmental conservation frequently boil down to economic or ethical reasons. The emotional benefits of the environment are rarely mentioned except in the research literature on green exercise, and Pretty et al. are notable contributors to this body of work. However, there is general recognition that, in its simplest form, the natural environment makes most people feel good. There is a link between the quality of neighbourhood environments and wellbeing, for example (Barton et al., 2009). This knowledge is not new, but the direct link is rarely researched.

Furthermore, it has been argued by MacNaghten and Urry (1995) that the principles of sustainable development imply “rights” to access and to the use of the environment. This, they argue, is the consumption of the environment, including the scenery. The article therefore explores two themes: the emotional attachment to and additional benefits gained from the environment and; whether this supports an alternative or additional form of value to be placed on the environment for conservation purposes.

Green exercise entails undertaking physical activity in an environment which enables direct exposure to nature. As Pretty et al. (2005: 320-1) state, “natural and built features of the environment affect behaviour, interpersonal relationships and actual mental states.” Levels of engagement with nature range from simply viewing a natural scene or landscape, to being close to nature in a passive context (e.g. walking, cycling or visiting a park) to active engagement. Active engagement with nature involves participation, and includes gardening (engagement with plants and soils) or horse riding (engagement with animals) or camping (living in very close proximity to nature and the elements).

In this paper, we discuss research undertake in East Lindsey, a coastal district of Lincolnshire, in the East Midlands of the UK. The aim of East Lindsey Active, the green exercise coordinators in the area, is to improve the health and well-being of local residents, and to connect people to nature in their local area. The main focus of the project is on the coastal strip as this is proven to have the highest levels of obesity and the lowest levels of physical activity in the region.

The green exercise element of the project involves working closely with local GPs and exercise referral specialists to support individuals in making lifestyle changes by using the outdoors to improve their physical and mental health. The project involves two primary activities, to which participants are referred by health professionals:

- Walking for Health, in which participants join groups for regular, led walks
- Goes Green, in which participants join in with conservation activity in local green spaces such as nature reserves

The aims of the project are to encourage East Lindsey residents to participate in regular physical activity and to address sedentary lifestyles and related diseases including obesity, diabetes, coronary heart disease, cancer, osteoporosis, and mental health issues.

This is green exercise which is physical activity undertaken while “...directly exposed to nature” (Pretty et al 2007: 212). The authors also comment that it has a range of synergistic benefits to psychological and physical wellbeing. Participation in green exercise generates a sense of community similar to Urry’s (1993) ‘sociations’ which individuals can choose to join and leave; membership and a sense of inclusion is based on satisfaction linked to common goals and shared experiences; and membership can be fleeting (Urry 1993 in McNaghten and Urry, 1995). Sociations are “...contemporary sites where people can experiment with new kinds of social identity” (McNaghten and Urry, 1995: 216). They provide a safe learning environment for participants.

### **Literature Review**

This section contains a brief review of existing literature to provide context for East Lindsey Active, and to explore and understand:

- environmental attitudes and how these are affected by participation in outdoor activity and green exercise
- the impacts of outdoor activity and green exercise on participants’ health

The review included analysis of previous evaluations of green exercise conducted by Hine, Peacock and Pretty (2008) for BCTV Cymru, and is outlined in the following section. This informed the questionnaire design for the interview process with participants of the current initiatives within East Lindsey Programme.

### **Physical Activity**

Physical activity is known to have beneficial effects on physical and mental health. Despite this, in Europe and the USA, levels of physical activity amongst the general populace have been declining steadily for decades (Dustin et al. 2010). In the UK, this decline has been particularly steep. The trend is in part explained by changes in working practices, increasing use of cars for short trips and relatively low levels of participation in sports (Pretty et al. 2003).

### **Attitudes to the Environment**

A number of academic studies (McGinn et al., 2007; Mansfield, 2009; Hine et al., 2008) show there is a link between spending time in nature and environmental attitudes. Recent thinking on sustainability and sustainable development holds that people are rooted in the natural world – they are, essentially, part of nature. This thinking was absent in earlier 20<sup>th</sup> century science. Current themes of social responsibility and sustainable development subtly encourage a reconnection with nature and an increase in environmental advocacy (Dustin et al. 2010). It is argued that this can be assisted by schemes such as green exercise programmes (Mansfield 2009): encouraging people to exercise outdoors has the side-effect of encouraging them to connect with nature. Further connection is made if the exercise or activity has a beneficial impact on the environment in which it takes place – for example through environmental remediation or conservation work (Mansfield 2009).

Furthermore, Hinds and Sparks (2008) argue that a disconnection from the environment (due to urban living or a lack of green exercise activity, for example) can lead to a self-reinforcing apathetic attitude towards ecological issues. In other words, those who do not spend time in the natural environment fail to see its value. Hinds and Sparks (2008) found correlations between time spent in nature and simple environmentally friendly behaviours such as recycling, buying eco-friendly products or using public transport. It was also found to be true in many cases that those with regular contact or experience with nature had an increased attachment to or value for nature.

Hine et al.'s (2008) report for BCTV Cymru provides further detail on behaviour and attitudes to the environment. Their findings demonstrated an increased motivation to improve their community, meet people, learn new skills and get involved with the environment among those who participated in BCTV voluntary schemes. The study also found a link between participation in volunteering and changes in everyday behaviour to more "environmentally friendly" practices. They concluded that an increase in connectedness with nature increased the sense of individual responsibility for the environment and its protection (Hine et al. 2008).

Parr (2007) traced society's attitudes to the environment back much further than any of the above. Parr's (2007) research into the benefits of human-nature interactions links the 19<sup>th</sup> century debates around urban and rural environments to the persistent and widespread belief in the health benefits of the rural environment and 'fresh air.' By the 20<sup>th</sup> century, Parr (2007) notes, the connection was also being made between outdoor activity, wellbeing and social inclusion, commenting that "...garden work for vulnerable social groups beyond the institution often involves key components of 'social inclusion..." (Parr, 2007: 545). This sort of outdoor activity provides a forum for social interaction and the integration of excluded groups.

### **Health and the Environment**

In its Health and Wellbeing Position Statement, Natural England states "*better health and wellbeing are two of the major social and economic benefits we can secure through good management of the natural environment in both rural and urban settings*" and that "*adults should be offered increased contact with the natural environment resulting in reduced stress and more fulfilling lives*" (Natural England, 2008: 1). Green Exercise has been developed from the premise that encouraging people to spend time in nature is one of the most cost effective ways to improve physical and mental wellbeing. This is supported by Bird (2007) who demonstrates, in a report for the RSPB, that contact with nature may be an effective method for coping with anxiety, strengthening communities, reducing crime, and giving a sense of improved wellbeing and mental health.

The 2011-12 Monitor of Engagement in the Natural Environment (MENE) Survey conducted on behalf of Natural England suggests that the level of participation in visits to the natural environment varies considerably across the English population (TNS Consulting, 2012). Participation is highest among those aged 45-64, those in employment, and people within higher socio-economic groups. It is shown to be significantly lower among the oldest age group (over 65), within black and minority ethnic groups, and those in lower socio-economic groups. People with a long term

illness or disability are also shown to be less likely to visit the natural environment compared with those with no illness or disability (TNS Consulting, 2012; McGinn et al., 2007).

Pretty et al's (2007) work on the psychological benefits of access to green spaces identified a number of benefits to be gained from this. Local green space, they found, promotes social contact and encourages stronger neighbourhood ties and also encourages outdoor activity. In their quantitative study of green exercise participants, Pretty et al (2007) found that self esteem and levels of mood disturbance among participants improved after participation, and that this result remained consistent regardless of the type of exercise undertaken, the intensity of activity or the duration of participation. Their study recommended encouraging greater use of outdoor spaces as a means of countering increasing rates of mental ill health (Pretty et al 2007). They did, however, note the need to understand better the barriers to participation in outdoor activity and green exercise, in order to address them and support wider participation.

Parr (2007) notes that outdoor activity projects are more common, and more likely to receive funding, if they are demonstrably productive. Therefore, evidence of achievements such as the taming of wasteland, gardening and food production, improving the aesthetics of an area and benefiting the local community is sought. This, Parr (2007) argues, creates a 'green social economy' of volunteer labour working for the collective as well as the personal good. There is a risk that community volunteers effectively take on work in these roles which might otherwise have been paid. Parr (2007) is also critical of the potential beneficiaries of aesthetic improvements made by volunteers, as the volunteer workers often do not live in the immediate vicinity of the works.

Levels of outdoor activity also typically vary with the weather and by season, with a general decrease being noted in winter months (McGinn et al. 2007). The physical environment itself also affects participation in this type of activity, with hillier regions, for example, deterring walkers and cyclists from community group participation in outdoor activity (McGinn et al. 2007). Poortinga (2006) concurs, stating that "living in a 'convenient' environment...increases the likelihood of walking" (Poortinga, 2006: 2836). Poortinga's (2006) research focused specifically on obesity levels and outdoor activity, and the study revealed that the following preconditions generally encouraged participation in outdoor activity such as walking:

- Access to amenities such as sports facilities
- Features of the environment, for example the presence of green spaces and cycle paths
- The reputation of the neighbourhood. Areas with lower crime rates and those in which residents felt safe naturally encouraged more outdoor exercise.
- Aesthetics: an attractive or appealing neighbourhood
- Social capital and the organisation of the wider local community in all activities, not just walking or other outdoor exercise.

(Poortinga, 2006)

### **Noted benefits of walking & outdoor exercise**

Sugiyama et al. (2009) note the benefits of outdoor exercise on the quality of life of elderly people, in their study. These benefits are psychological and physiological. Exposure to the natural environment is a noted stress-reliever and Sugiyama et al. (2009) point out that even visual exposure (for example, looking at the view) can have beneficial effects. Barton et al. (2009) referred to contact with greenspaces and a correlated improvement in mood. They (Sugiyama et al., 2009) also noted that having regular social contact is an important aspect of wellbeing, and that unplanned contact, such as bumping into neighbours and acquaintances happened in the outdoor environment. Barton et al. (2009) also refer to outdoor activity's positive impacts on people who suffer from depression, and that it can boost confidence.

Similar findings were reported by Roe and Aspinall (2011) and Pinder et al. (2009). They found that outdoor exercise was more beneficial than indoor and that natural settings were more beneficial than urban environments (Roe and Aspinall, 2011: 104). These benefits included an increase in the sense of belonging and sense of self (Roe and Aspinall, 2011: 104) and an overall sense of recovery and restoration of mental wellbeing. Participants from all groups experienced some benefit, but improvements were more marked in those with poor mental health initially. Pinder et al. (2009) also noted links between participation in green exercise and lower levels of stress and obesity and also note a longer-term link to increased longevity. However, they disagree with Roe and Aspinall (2011) in that urban sites were also found to be helpful for participants in outdoor exercise who, in their study, saw improvements in their mental restoration and increased physical exercise and social contact irrespective of the outdoor environment in which exercise took place.

Pretty et al. (2005) noted further and more detailed findings. Their research demonstrated a link between viewing scenes of nature while exercising and reductions in blood pressure along with improvements in mood and self esteem. The study found that rural, pleasant scenes had the greatest positive impact and that the effect was greater than that of exercise alone.

Sport England (2002) noted that regular exercise promotes improved physical, social and mental health (Barton et al., 2009). Barton et al's (2009) study found that the UK government promoted walking more than any other form of outdoor activity, and identified this as the preferred way in which the majority of the population could reach their weekly activity targets. Barton et al. (2009) also highlight the link between regular contact with nature and improved levels of physical and mental wellbeing, particularly reductions in stress levels. Their research into led walks found that participants had mainly joined the walking group for health reasons, but returned and became regular walkers because of the social contact they enjoyed on the walks. Both social contact and contact with nature increased motivation among participants and caused them to enjoy their exercise.

Participation in green exercise in particular, was found to raise self esteem levels, stabilise mood and reduce tension, stress and depression and increased energy levels (Barton et al. 2009). In addition, Poortinga (2006) made the link between lower obesity levels and better access to amenities such as sports facilities, green spaces and cycle paths as well as the aesthetics of the area.

## Methods

The focus of this evaluation was on a number of aspects of participants' attitudes and was based on the principles of sustainability. For sustainability to be achieved, a change in attitude and in environmental values is required of the population at large. Minimising impacts on the environment and acting responsibly in order to make positive changes are two important examples of such changes. In this evaluation, we focused on:

- participants' connection with the natural environment through the green exercise activities (i.e. their experiences, perceptions, attitudes and any changes in these over the duration of the project) and participants' access to green space outside the led activities;
- comparisons of the different interventions in terms of their effectiveness in connecting people to nature and encouraging access to green space.

To explore the effects of green exercise on attitudes to the environment and sustainability, face-to-face interviews were undertaken with a sample of East Lindsey Active participants. These included participants of the Walking for Health group-led walks and the Goes Green conservation activity which took place on a nature reserve in the district of East Lindsey. Both groups comprised local residents that had been referred to the programme by health professionals.

Fourteen semi-structured interviews were conducted with new arrivals to the green exercise programmes. Interviews were conducted with all participants who volunteered to take part in research, and were conducted in situ. The concluding interviews, 12 weeks later, were also semi-structured and conducted in situ. In this case, twelve interviews took place, with participants who were willing to be involved in research. The lower number at the end reflects a change in participants over the course of the exercise programmes: some dropped out and others joined the programme late. Not all those who were interviewed at the start of the programme, therefore, were interviewed again at the end of the programme. However, those who took part in the concluding interviews had all participated in green exercise for the duration of one programme cycle (12 weeks) minimum.

Because the study focused on how participants experience the natural environment, as well as their attitudes and how these changed during the course of the programme, the research approach combined both qualitative and quantitative methods. The interviews included semi-structured questions to gather qualitative information on participants' experiences and perceptions, and a set of structured questions to measure environmental attitudes.

Interviews with participants were undertaken at project inception and again at project completion to track how environmental attitudes had changed over the course of the project. The researchers were introduced to the participants at the start of the project to provide an overview of their research and assurances that no personal or financial information would be disclosed to other organisations. To minimise intrusion, the



researchers accompanied the groups on their walks and activities and asked questions of participants on a one-to-one basis.

During the interviews, the demographic characteristics of participants were gathered together with information on levels of outdoor activity undertaken before joining the programme and at the end of the programme. Drawing on the work of Hine, Peacock & Pretty (2008), a number of likert-scale questions were included to measure environmental attitudes. These were presented as a range of statements about environmental issues, from global environmental problems to those affecting the local natural environment. Participants were asked to score their extent of agreement with each statement, where 1= strongly disagree, and 10= strongly agree. These questions, which are listed below, were asked at the start and end of the project to measure and quantify any change in attitudes among the participants.

- |                                 |   |
|---------------------------------|---|
| <i>Global Awareness</i>         | <i>1. Climate change is one of the world's major environmental problems</i>                               |
|                                 | <i>2. Maintaining biodiversity is one of the main environmental challenges of the century</i>             |
|                                 | <i>3. I believe that environmental problems are less important than economic problems</i>                 |
|                                 | <i>4. Destruction of the world's rainforests does not affect me</i>                                       |
|                                 | <i>5. I can do nothing to prevent global warming</i>  |
| <i>National Awareness</i>       | <i>6. I am worried about over-fishing in the North Sea</i>  |
|                                 | <i>7. I think we should be doing more to prevent loss of rare species of plants and animals in the UK</i> |
| <i>Local Awareness</i>          | <i>8. Protecting the environment is not my responsibility</i>   |
|                                 | <i>9. I would be willing to pay money for environmental cleanup or conservation programs in my area</i>   |
|                                 | <i>10. I am willing to change my life to a more environmentally sustainable way of living</i>             |
| <i>Perceptions of Solutions</i> | <i>11. Donating money is the only way people can help solve environmental problems</i>                    |

Source: Hine, Peacock and Pretty (2008: 19)

The semi-structured approach adopted by the researchers enabled detailed information to be gathered on the development of participants' environmental attitudes, and also provided the opportunity to engage with each individual's unique story. The researchers were therefore able to facilitate this story-telling while using probing questions to delve more deeply into the influences affecting key attitudes.

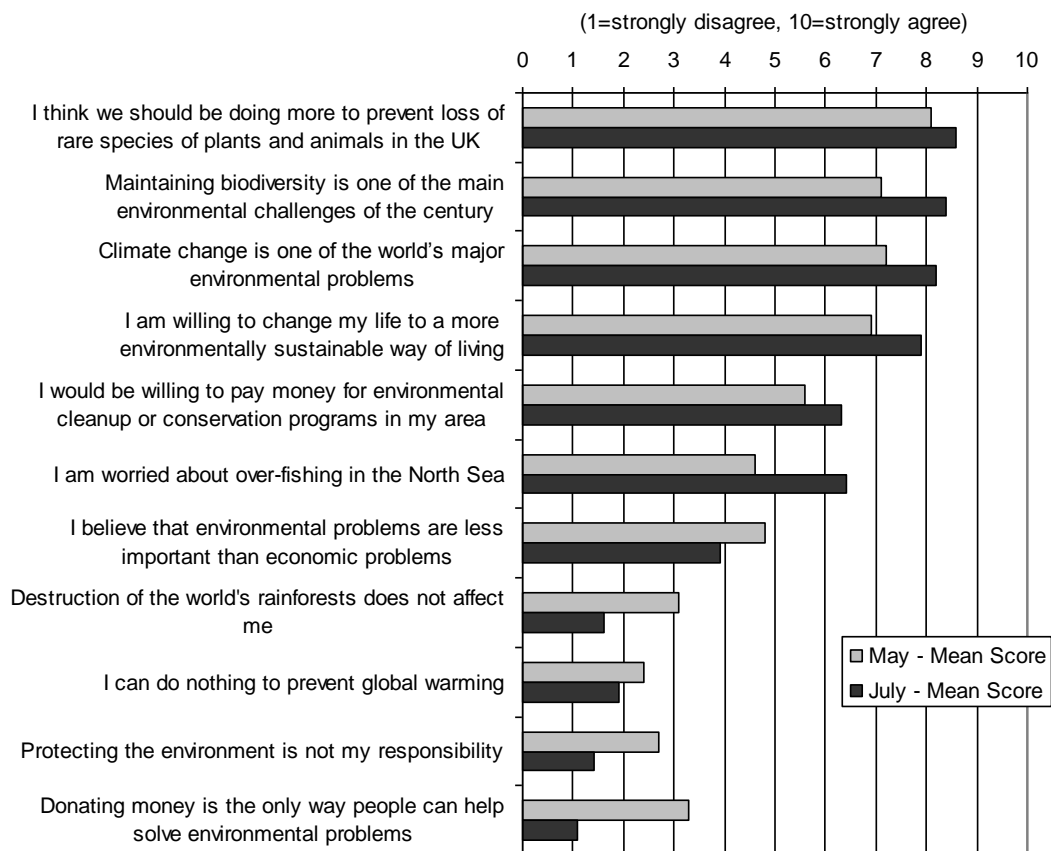
The experiences and perceptions of each individual are seen to be key determinants of their environmental attitudes. One of the success factors for the green exercise project is whether these perceptions have changed during the course of the participants' involvement. It was therefore important to explore interviewees' attitudes and behaviour towards the natural environment in a two-step interview process; at the inception of the project and again at the project's conclusion.

Following the interviews, the quantitative and qualitative findings were analysed. These together with examples and case studies from the two initiatives, were presented in a report together with a series of conclusions and recommendations for improvement.

## Results and Discussion

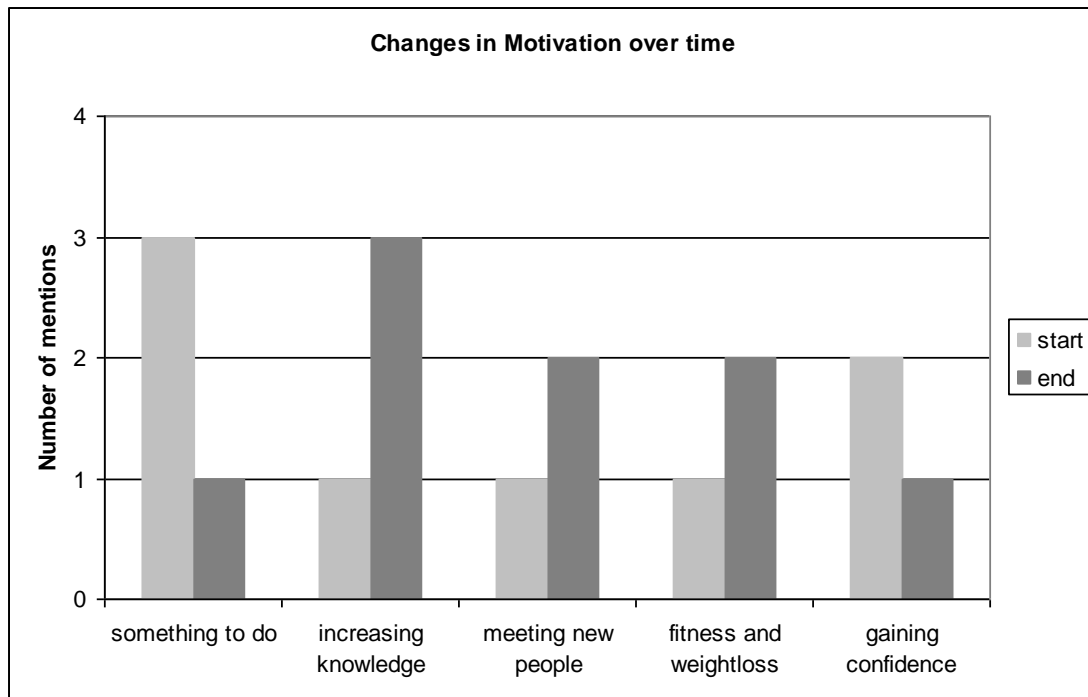
This study has attempted to evaluate the green exercise programme and the environmental attitudes of the participants involved. This was achieved by investigating participants' connectedness to nature and their environmental awareness at various scales.

Connection to nature is noted in the published academic literature as an important aspect when predicting environmental awareness and attitudes. The results of the primary research conducted in East Lindsey suggest that the participants were already moderately connected to nature, but that this sense of connection increased during the course of the 12-week green exercise programme. Similarly, levels of environmental awareness appear to have increased during participation. It should be noted that the participants stated that they were reasonably knowledgeable about environmental issues before the programme started and it could, therefore, be argued that the programme has served to support or reinforce existing attitudes rather than making wholesale changes. The results of the survey are illustrated in graph 1.



**Chart 1:** survey of general environmental attitudes, from global and national to regional and local scale. Bars represent average scores across the participants, who were surveyed at the beginning and end of their green exercise programme.

Motivations for participation in the green exercise programmes were also investigated. Our study revealed an interest in environmental issues at the local level, general interest, curiosity and a desire to learn, and also a desire for social contact. The social impacts of this programme were outside the remit of study, but it should be noted that social aspects were mentioned throughout participants' interviews and in survey responses, and should not be discounted. It is very clear that all participants gained substantially in terms of social confidence, making new friends, acquiring new skills and adding structure to their week. None of these benefits would have been achieved without a group setting. This is demonstrated in chart 2, below.

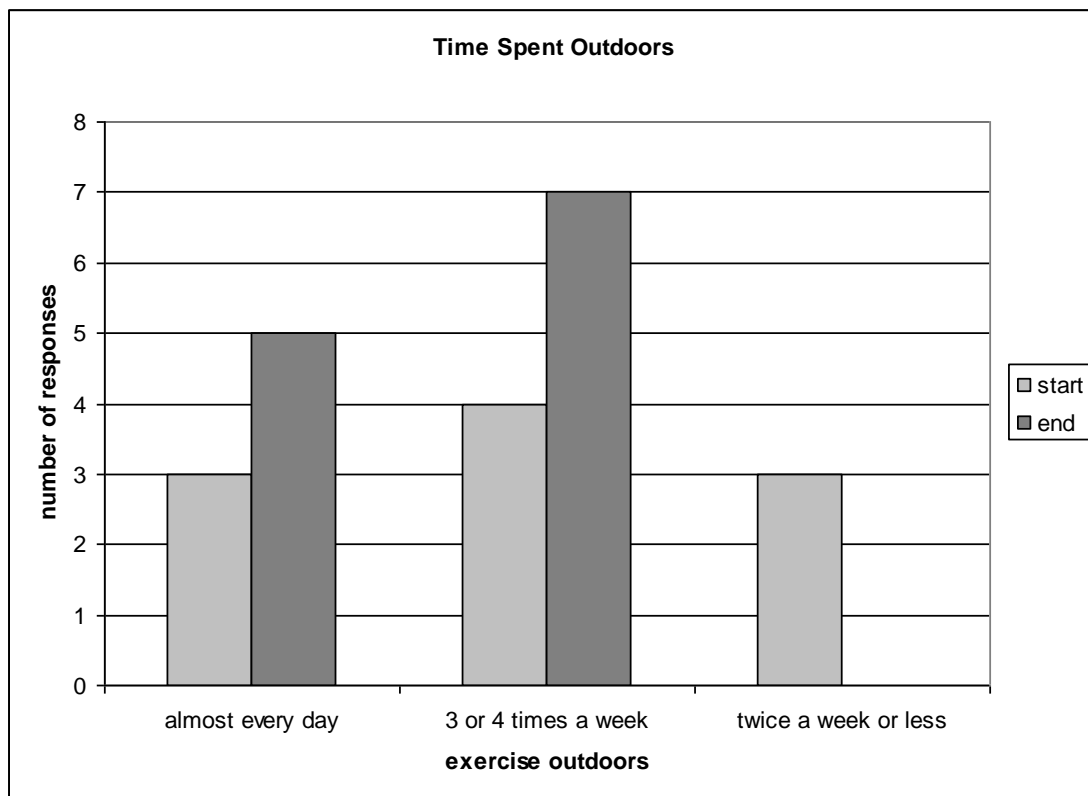


**Chart 2:** motivation to participate in May (start of programme) and July (end of programme)

In addition, participants' comments included the following:

- Seven mentioned social aspects and satisfaction gleaned from helping others.
- Four mentioned the opportunities for learning and increasing knowledge.
- Participants also praised the programme leader in Saltfleetby-Theddlethorpe for his patience, organisational skills and approachability.
- One noted that the scheme had increased their awareness of Natural England.

The results also show that building environmental awareness and connections with nature are likely to increase participants' desire to continue with green exercise or other outdoor exercise activities. Many participants were keen on outdoor activities to start with, but their strength of conviction appears to increase over the course of the 12-week programme. The results show a general increase in the amount of time spent outdoors, too, which may hint at an increasing desire to exercise or an increasing awareness of the outdoors.



**Chart 3:** number of times per week the respondent exercised outdoors in May (start of programme) and July (end of programme)

The conservation group, in which participants undertake conservation and environmental protection measures on a nature reserve, has more obvious links to the environment and to environmental awareness and appreciation. The walking group respondents did not make such clear connections with the environment, and one possible means of developing these links would be to guide walks in local nature reserves or to provide some verbal environmental interpretation during the walk.

Other important themes which emerged from the qualitative results were the desire to do something useful or constructive, the desire for social contact and the opportunity to progress or achieve something. The conservation work clearly also has greater benefits in other instances, too. Participating in a project (such as footpath repairs, for example) gives participants an achievable goal and a real sense of satisfaction when the work is complete. It also gives a sense of giving something back, or of doing something for the wider community. This cannot be easily achieved during a regular walking programme unless other activities are incorporated.

Social contact and the opportunity to make friends is something which many of the participants are seeking. Given that numbers of participants in the walking group were relatively small and had fallen, there are obviously few opportunities to mix with new people there. Additionally, the structure of the walking group, with one leader, does not allow for a sense of progress or promotion. One of the noted benefits of the conservation group was that experienced participants could help new members and could also become volunteer leaders. Although one successful member of the walking group is now also leading his own group walks, this seems to be a rarity. The informal “promotion” to volunteer leader seems to be more common in the conservation group.

## **Conclusions**

The results of this study highlight that participants enjoyed increased levels of social contact and the opportunity to progress to leadership roles in some cases. This, it is argued, reflects MacNaghten and Urry's (1995) discussions of loose community formations, as outlined first by Urry in 1993 (MacNaghten and Urry, 1995) and termed "sociations." These loose or informal groupings are communities which individuals can choose to join and leave, but the sense of being part of these communities can be strong and is based on satisfaction linked to common goals and shared experiences (MacNaghten and Urry 1995). This would appear to describe the green exercise community very well, in that participants choose to join and, as members, note the sense of pride and satisfaction they get from working together, helping others and achieving goals by completing projects. As the authors (MacNaghten and Urry, 1995) note, membership can be fleeting and these groups are not set up with the intention of very long term participation by the same individuals. However, they are valuable in their provision of a safe learning environment and act as "contemporary sites where people can experiment with new kinds of social identity" (2007): 216). In the context of green exercise, the group was a safe environment in which those who had not exercised for some time could do so without fear of judgment and in which those who had little social contact with strangers and were, for many reasons, isolated, could develop a new network of friends and build their self-confidence. Learning also took place, and an increase in environmental awareness and understanding was noted in the findings. This supports the work of Dustin et al. (2010), Mansfield (2009), Hinds and Sparks (2008) and Hine et al. (2008). Reconnecting with nature in this way was not the purpose of the exercise referral schemes, which were set up to promote and improve the health of the individual. However, the personal development and increased environmental awareness appear to be an unexpected side-effect which contributes to the participants' enjoyment and increases their likelihood to maintain the good exercise habits and healthier lifestyle they are encouraged to develop.

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