PRIORITY BRIEFING
The purpose of this briefing paper is to aid Stakeholders in prioritising topics to be taken further by PenCLAHRC as the basis for a specific evaluation or implementation research project. They were compiled in 2-3 days.

Is the Green Gym® more effective than indoor exercise for sustained long-term weight loss and increased health in young adults with obesity?

Question ID: 11
Question type: Intervention
Question: Is the Green Gym® more effective than indoor exercise for sustained long-term weight-loss and increased health in young adults with obesity?

Population: Obese adults aged between 18 and 40 (BMI between 30 and 39.9).

Intervention: BTCV (British Trust for Conservation Volunteers) Green Gym®.

Control: Group exercise in an indoor gym of equivalent intensity and frequency.

Outcome: Primary outcome measures – body mass index, waist to hip ratio. Secondary outcome measures – blood pressure, blood based indicators of cardiovascular risk (e.g. blood lipids), mental health measures (e.g. PHQ-9 depression screener, a patient health questionnaire), mortality and morbidity.

An additional qualitative study would look at factors that affected continued participation in exercise.

BTCV Green Gym®
The BTCV Green Gym® scheme started in 1998, with the aim of inspiring people to improve their health and the environment at the same time. Experienced leaders guide participants through a range of practical projects involving physical activity that aim to improve strength and stamina, boost practical skills and confidence and benefit local green spaces.

Each BTCV Green Gym® session starts with a warm-up and a reminder of how to use the provided tools. There are different jobs and tools to try out and each individual can work at their own pace. Sessions generally last for half a day and end with a cool down and tidy up. The BTCV also run Discover Green Gym® sessions which aim to inspire a lifestyle change through a 10-week programme of Green Gym® sessions. The programme introduces participants to a variety of pulse raising conservation and/or gardening activities. Fitness tests are used at the beginning and end of the 10 weeks, both as a motivational tool and as a way to measure change. Participants are signposted to local ‘green exercise’ activities so that they can continue to sustain their level of physical activity

beyond the 10 weeks. Each programme can accommodate up to 15 participants and costs approximately £7000.

BTCV staff and volunteers are trained through the BTCV Green Gym® training programme. This is accredited through the BTCV Institute. It includes warm up and cool down stretches, leadership skills, health and safety, working with people with physical and mental health needs and planning and delivering a Green Gym® session. BTCV is continually developing training for Green Gym® leaders. This is available to other organisations as part of the Green Gym® Licence Agreement.

Obesity in young adults

Obesity is a major public health problem due to its association with serious chronic diseases such as type 2 diabetes and high blood pressure which are major risk factors for cardiovascular disease and cardiovascular related mortality. Obesity is also associated with cancer, disability, reduced quality of life, and can lead to premature death. The annual cost of treating co-morbidities related to overweight and obesity is estimated to be £4.2 billion and is forecast to more than double by 2050.

Young adults are an important target group for action on reducing obesity in the population. Increasing the proportion of young adults who exercise and are a healthy weight may help to decrease the incidence of health problems in older adults in the future. This age group may also be important for providing a positive role model and healthy lifestyle for children.

The Health Problem

The Health Survey for England (2008)[1] reported that 61% of adults and 31% of children are either overweight or obese. In the age categories specified in this question as 'young adult' 22% of adults aged between 16 and 24 were overweight (and 10.5% classified as obese) rising to 39.2% overweight and 24.4% for obese in the age category 35-44 years. Reported levels of physical activity suggest that the proportion of adults achieving the UK Government's recommended level of exercise (minimum of 30 minutes of at least moderate exercise at least 5 times per week) in 2006 was 40% for men and 28% for women. Patterns in the Health Survey for England data show physical activity levels were related to BMI status and waist circumference. Men and women with high activity levels were half as likely to be obese than those with low activity levels. Similarly, men and women with high activity levels were around half as likely to have a raised waist circumference.

Guidelines

The UK government has recognized the need to tackle obesity and has pledged to be the first major country to reverse the rise in overweight and obesity in the population, with an initial focus on children. The public health white paper *Choosing Health: Making healthy choices easier* set out the government's commitments for action on obesity. *Choosing a Better Diet, Food and Health Action Plan* and *Choosing Activity: a physical activity action plan* specified the action that needs to be taken at national, regional and local level to combat obesity and improve people's health through better diet and nutrition and increasing physical activity.

NICE Clinical Guideline 43 (2006) *Guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children* states that prevention and management of obesity should be a priority for all because of the considerable health benefits of maintaining a healthy weight and the health risks associated with overweight and obesity. These guidelines also recommend that workplaces should provide opportunities for staff to be physically active by e.g. providing recreational opportunities, such as supporting out-of-hours social activities, lunchtime walks and use of local leisure facilities. Local Authorities should also work with local partners, such as industry and voluntary organisations, to create and manage more safe spaces for incidental and planned physical activity e.g. by providing facilities and schemes such as cycling and walking routes, cycle parking, area maps and safe play areas.

NICE Public Health Guidance (PH02) published in 2008 entitled '*Four commonly used methods to increase physical activity: brief interventions in primary care, exercise referral schemes, pedometers and community-based exercise programmes for walking and cycling'* recommends that primary care practitioners should take the opportunity, whenever possible, to identify inactive adults and advise them to aim for 30 minutes of moderate activity on 5 days of the week. When providing physical activity advice, primary care practitioners should take

into account the individual's needs, preferences and circumstances. They should agree goals with individuals and should also provide written information about the benefits of activity and the local opportunities to be active. However, the Public Health Interventions Advisory Committee were unable to identify sufficient evidence to recommend the use of exercise referral schemes to promote physical activity nor the use of pedometers or walking and cycling schemes other than as part of research studies where effectiveness can be evaluated. Although professionals should continue to promote walking and cycling (along with other forms of physical activity such as gardening and household activities) as a means of incorporating regular physical activity into people's daily lives.

Regional

SW SHA Priorities framework 2008-11

- Have jointly agreed plans in place by 30 June 2009 in each local authority area to reduce adult obesity.

Local

- Reduce the gap between people with the best health and those with the poorest health by targeting support where it is needed most (NHS Cornwall).

- An increase in consumption of fruit and vegetables and physical activity and a downward trend in childhood obesity and smoking by 2013 (NHS Devon).

- Health promotion and prevention: To increase investment in order to address prevention and health promotion. Specific areas identified include obesity and spatial planning to promote health promoting activities (Healthy Plymouth).

Existing Research

Published research:

The PenCLAHRC Evidence Synthesis Team is currently involved in producing a systematic review entitled 'The effects of physical activity participation in the outdoor environment compared with the indoor environment'. Searches for this review did not identify any previously published randomized clinical trials in which a comparison between the BTCV Green Gym® and indoor exercise was made. Several studies were identified in which the effects of indoor exercise were compared with the effects of outdoor exercise but none of these included measures of obesity as an outcome.

There have been several evaluations of the BTCV Green Gym® scheme. None of these have focused on measures of obesity although they have looked at levels of physical activity and effects on mental wellbeing; one of the pilot studies[2] reports a decrease in waist-to-hip ratio in the first three months and a trend towards weight loss for the same period.

The School of Health and Social Care at Oxford Brookes University independently evaluated two pilot Green Gym® projects in Oxfordshire and East Sussex.[2] The first evaluation, published in 1999, reported that Green Gym® tasks are of sufficient intensity and duration to produce significant improvements in

cardiovascular fitness, provided that they are performed on a regular basis, although it is not clear from the reports available online how this was measured. In this evaluation long term adherence rates were encouraging with 72% of the participants who took part in the research still active after six months. The second report published in 2001 examined the effects of the Green Gym® on mental wellbeing and found a significant improvement in the Mental Health Component score of the SF-12 health related quality of life instrument. Neither of these evaluations included a control group. Oxford Brookes University also conducted a national evaluation of Green Gym® s between 2003 and 2007.[2] Fifty-two projects around the country were included. Questionnaires (including SF-12, and a self reported physical activity inventory) were completed at the start of the evaluation by 703 participants and 194 of these completed continuation questionnaires at the end of the evaluation. Similar improvements were seen in physical and mental health status.

Between 2007 and 2009, BTCV applied the Green Gym® model to nine primary schools in which a BTCV officer has held a weekly green gym session throughout term time.[2] The sessions were run for 90 minutes and involved the children (a total of 122 in groups of 10) in environmental activities in the school grounds or nearby. Oxford Brookes developed a questionnaire to monitor the changes in physical activity levels, benefits to physical and mental health and self-confidence. The questionnaire included the PedsQL Paediatric Quality of Life Inventory which measures a Physical Health Summary Score, Psychosocial Health Summary Score and a Total Scale Summary Score. Introductory questionnaires were administered before the children began Green Gym® and continuation questionnaires which included questions about the children's experience of green gym were administered after 10 weeks. The findings show that the childrens' Psychosocial Health and overall Total Scale Summary Scores (a combined measure of Physical Health and Psychosocial Health) improved significantly after 10 weeks of involvement in Green Gym®. This is supported by children's own views, with 102 children positive about the statement that 'Green Gym® made me feel good about myself'.

Ongoing research:

We did not identify any ongoing studies of the effects of the Green Gym® scheme on measures of obesity.

Feasibility:
The necessary expertise in obesity and exercise research is available within the PCMD and the University of Exeter School of Sport and Health Sciences. BTCV can be commissioned to set up a Green Gym®. They provide an officer to help devise the programme, co-ordinate the scheme and run sessions as well as helping to recruit participants via local health services and wider promotional activity.

References

1. http://www.dh.gov.uk/en/Publicationsandstatistics/PublishedSurvey/HealthSurveyForEngland/index.htm

2. http://www2.btcv.org.uk/display/greengym_research