Physical activity and mental health

healthyliving

Why is this important?

Fostering good mental health and well-being and addressing mental health problems are increasingly being seen as a crucial role for health improvement. Whilst the *physical* benefits of physical activity have long been known and promoted, the recognised links with mental health, well-being and illness are more recent. However, the past 10 years have seen a growing recognition that being physically active is strongly associated with mental well-being and that being *in*active can contribute to poor mental well-being. Likewise, the potential for physical activity to alleviate the symptoms of various mental illnesses is noted.

What is Scotland's current policy on physical activity and mental health?

Support for linking physical activity to mental health improvement comes from general health, physical activity and mental health policy areas. *Improving Health: The challenge* links positive mental health to a 'physically active childhood'. *Let's Make Scotland More Active: A strategy for physical activity* recognises the potential for physical activity to 'promote positive mental health' amongst children, young people and adults.

In the context of mental health improvement, *National Programme for Improving Mental Health and Well-being: Action plan 2003–2006* sets out the general need to promote mental health and well-being and the *Mental Health of Children and Young People: A framework for promotion, prevention and care* specifically stresses the influence that physical activity can have on social and emotional well-being. Within the growing field of mental health improvement, physical activity is increasingly being seen as an important factor in three main domains:

- promoting mental well-being
- preventing mental health problems
- improving the quality of life of those experiencing mental health problems and illnesses.

The evidence

What aspects of mental health are influenced by physical activity?

Both formal research and personal accounts indicate the following benefits of physical activity to mental health:

- *perception of well-being:* physical activity (particularly moderate active living-type like walking) is linked with improved psychological well-being
- *self esteem:* physical activity is linked to positive effects on self esteem and self perceptions
- *cognitive function:* there is some evidence that physical activity can promote some aspects of cognitive functioning such as memory, reasoning, problem solving and spatial awareness – this work has particularly emphasised the potential for physical activity to contribute to educational attainment within young people and to maintain good cognitive functioning in older people
- *sleep:* those who are active tend to fall asleep faster and sleep longer and deeper than those who are inactive – the likelihood of having sleep disorders is lower amongst those who are active
- *stress and anxiety reduction:* those who are active tend to be able to cope with stress better – this can act as a general long-term level (trait anxiety) or immediately (state anxiety).

The Department of Health states in *At least five a week: Evidence on the impact of physical activity and its relationship to health* that physical activity can be effective in alleviating some symptoms in those with clinically-defined mental illnesses:

- It is effective as a treatment of mild, moderate and severe clinical depression.
- It may help people with other mental illnesses, for example, schizophrenia.
- It can improve their physical health and mental well-being even if there is no change in the status of their mental illness.
- It can support recovery from alcohol and drug misuse.
- There is emerging evidence that it can contribute to effective rehabilitation from cancer and coronary heart disease.

How do we explain the link?

Whilst there are no definitive conclusions, various explanations have been offered as explanations of the link between physical activity and improved mental health. These could act independently or more likely in unison:

- *biochemical and physiological:* improved mental health is linked to increased core body temperature; increases in endorphins; changes in the serotonergic systems due to effects on neurotransmitters
- *mastery:* effects are linked to increases in self-worth and personal control that come with the mastering of new physical activity tasks
- *distraction:* positive outcomes are associated with the tendency for physical activity to take us away from stressful parts of our lives
- *social interaction:* mental health benefits can arise from the collective experience of being active as a group.

What type of physical activity?

Evidence suggests it is regular *moderate* intensity physical activity such as walking, cycling, swimming or dancing that has the greatest potential to promote mental health. At least five sessions per week of at least 20–60 minutes in duration is seen to be best, though accumulated shorter bouts of 10–15 minutes can also be beneficial.

The immediate effects of more vigorous 'resistance' type activities such as aerobics and weight training may for some be valuable in promoting self perceptions. More competitive sports can offer similar benefits *for those who find such activities enjoyable* and the social basis of group sports and recreational activities can specifically contribute to mental health promotion.

What are the implications for policy and practice?

Creating a supportive context

Establishing a strong policy foundation for embarking on work that explicitly links physical activity to mental health is seen to be crucial. From a mental health perspective, a range of requirements have been stressed:

- increasing awareness of a 'public health' approach to mental health that recognises social and cultural influences on mental health (for example interventions involving communities, schools, workplaces, etc.)
- an ability to see mental health in positive terms and encourage services and interventions that try to *promote* mental well-being and *prevent* mental illness
- a willingness to attempt more non-clinical interventions in working with those with a defined mental illness – both to help alleviate symptoms and to support mental well-being.

Likewise, those within the physical activity field are calling for re-orientations that will strengthen the link, involving:

- the need to see physical activity benefits in more than *physical* and *physiological* terms
- the need to offer activity opportunities that are most likely to lead to mental health gains – namely regular *moderate* intensity physical activity such as walking, cycling, swimming or dancing
- for children and young people, these will be activities that are enjoyable, offer opportunities for success, involve interaction with others and the possibility of mastering new skills
- for adults and older people, these will be activities that are relaxing, enjoyable, social and those that stress health benefits in the widest sense that can be gained.

Practical opportunities

A range of practical contexts have been identified as being particularly conducive to promoting mental health by physical activity:

- **Primary healthcare** is a setting where significant numbers seek help for a range of mental health problems. The setting has seen the development of *'exercise counselling'* and *'exercise referral'* schemes that specifically seek to promote mental health via physical activity.
- The **school** setting has a profound effect on the well-being of young people. Various initiatives have brought together work that seeks to promote positive mental and social well-being and physical activities; for example, within physical education lessons, in relation to class-based work that involves movement (e.g. *The Class Moves* – an initiative that offers playful relaxation exercises for primary school children from P1–P7) and in relation to travel to and from school (*safer routes to school*).
- The **workplace** setting is recognised as important in relation to mental health. Various physical activity interventions in the setting seek to increase levels of activity and promote well-being; for example, policies that promote flexibility in working hours to accommodate activity including extended lunch breaks, attractive working environments that are conducive to activity and various workplace specific recreational events. Scotland's Health at Work programme now offers *Mental Health in the Workplace Training* and has a special commendation award for mental health work in the workplace.
- The **community** setting offers the broadest context for such work. Various examples of work that seek to promote inclusion within communities, regenerate communities, develop community places for physical activity and can be linked to the promotion of mental health via physical activity.

Promoting physical activity for people with mental illnesses

Building on the theory identifying links between physical activity and the promotion of mental well-being and the alleviation of some symptoms of mental illness, it is now possible to look at what this means in practice.

Jones & O'Beney note that 'despite the potential health benefits, the systematic prescription of therapeutic exercise is rare in mental health settings'. A range of barriers have been identified in offering physical activity opportunities to people with an existing mental health condition, for example:

- **within providers** there are low levels of awareness of the possible benefits of physical activity which is often seen as a matter of personal choice or a means of distraction, rather than a positive and constructive intervention
- **with people with mental health problems** – individuals with poor mental health can find it especially difficult to be motivated to be active and be socially isolated; there are also often safety concerns about the effects of medications whilst exercising (Biddle and Mutrie, 2001). Furthermore, weight gain associated with some medications can lead to poor body image and a reluctance to be active.

However, the predominant theme is one of optimism. Biddle and Mutrie state emphatically that, 'patients in almost all categories of disease and disability could benefit from exercise…*there are few contraindications*' and go on to establish this point in relation to those with mental illnesses:

> *'practitioners (GPs, psychologists, psychiatrists, care workers, therapists, community mental health workers) should attempt to incorporate regular physical activity into the lives of all patients….physical activity/exercise should be advocated as part of the treatment of institutionalised patients especially where activity and fitness levels are low'*

It is also recognised that key professionals and practitioners within the NHS and local authorities (e.g. GPs, psychologists, teachers) have a responsibility to act as role models in actively cultivating the notion of promoting mental health by physical activity.

A range of guidelines for developing physical activity opportunities with this group are offered:

- Interventions need to be tailored to the needs of the individual; for example in age, gender, activity preference, level of fitness and ability.
- On this basis, there is a tendency to favour one-to-one as opposed to group interventions.
- It is preferable for individuals to set and monitor their own physical activity goals.
- Generic mental health service providers need to integrate physical activity into their practice and into the day-to-day lives of their clients.

Summary points

- Physical activity can promote mental well-being, prevent mental health problems and improve the quality of life of those experiencing mental health problems and illnesses.
- Physical activity is specifically associated with improvements in perceptions of well-being: self esteem, cognitive function, sleep and the reduction of stress and anxiety.
- Physical activity can be effective as a treatment of mild, moderate and severe clinical depression and help people with other mental illnesses, for example schizophrenia.
- Regular *moderate* intensity physical activities of 20–60 minute duration such as walking, cycling, swimming or dancing have the greatest potential to promote mental health.
- Opportunities for such work exists in a range of settings – schools, workplaces, communities as well as general and mental health service in-patient contexts.

Case studies

The Health Scotland document *Mental Health Improvement: Evidence and practice – Scottish Case Studies (2004)* aims to 'identify and collate examples of current practice in mental health improvement in Scotland, with a focus on case studies of work that is evidence-based, follows good practice guidelines and gives indications of effectiveness' and offers a comprehensive range of practical case study examples. The particular cases of Ardeer Walking Group, Health Connect PACE (Physical Activity for Confidence and Esteem) and South Ayrshire Class Diamonds involve physical activity in their mental health improvement work.

See www.healthscotland.com/uploads/documents/FinalReport200304RE041.pdf

A further two case studies are offered.

Liberton Primary School – a whole-school approach to physical activity

The school has embraced any opportunity to involve children in curricular physical education, extra curricular clubs at school and those within their local community. The school offers break dance, fitness classes, football, relaxation, basketball, capoeira and rugby. The football and basketball are completely self-sustaining and all other activities are provided by local sports clubs, Active Schools or have a clear community / development pathway.

The whole school has an understanding of the link between good health and a positive classroom experience. The school actively promotes 'a class moves' programme that involves children in small bursts of activity throughout the day. Teachers are also encouraged to continually develop their knowledge of sport and physical activity through training courses that equip them with at least a basic understanding of a particular sport.

The school has actively piloted some very important programmes within the school. A group of primary 7 children are taking part in a pilot relaxation group that aims to build self-esteem, confidence and allows them to express themselves through alternative physical activity. The group takes part in yoga, relaxation and also records their private thoughts in specially created folders. The school has invested in a mentor for these children and it has been an enlightening experience for all involved.

All the activities cited above give a flavour of a school that is keen to promote good health and physical activities for all its pupils and include parents and carers as much as possible.

Ormlie Housing Estate, Thurso

In 1997 the residents of Ormlie reformed the Ormlie Community Association (OCA) as a registered charity to address the issues of speeding cars and the dangerous condition of the existing play areas within their housing estate.

The Ormlie estate faced many social issues – there were very high levels of unemployment, a high percentage of single parents, a large number of families with young children but with a serious lack of facilities for children and young people and few families owning cars, Ormlie suffered many of the same problems that other run-down housing estates face.

In 1997 a child was knocked down crossing the road to get to one of the dilapidated play spaces. This prompted residents to undertake a door-to-door consultation to ascertain people's concerns and whilst there were many issues raised, the neglected and dangerous state of the existing play equipment was considered a priority. In 1999 they set up a community office, appointed a coordinator and administrator and fund-raising began in earnest for the new play area. The run-down estate was designated as a Social Inclusion Area and as a pilot area for the Community Partners Programme set up by Save the Children (one of only four areas in Scotland) to work with 9–15 year olds. In 2000, the Scottish Executive also selected Ormlie as a pilot 'Home Zone'.

Central to the design and implementation of the play area was the involvement of the children and young people in Ormlie. Discussions commenced with architects and The Highland Council on plans for the play area and a green space in the centre of the estate was chosen. In May 2002 the group secured funding of £206,000 for the project from a wide range of agencies and organisations both national and local: The Community Fund – Fresh Futures, Comic Relief, The Highland Council, Rural Challenge Fund and Highlands & Islands Enterprise.

Jupiter Play worked in conjunction with OCA (consulting arboriculturalists), the young people in the community and Pentarq Architects to produce the final design. The proposed plans were exhibited in the community office and local shop for feedback. The new play area was a major milestone in the Ormlie Regeneration Project and included Caithness' first skateboard area, a multi-sports arena, play facilities for all ages (including many dynamic and challenging items) and seating for all members of the community. A competition was also organised for children to design a logo for the park signs and the winning designs were utilised on the contemporary signage situated at the entrance to the park and on the lighting columns installed for the multi-sports area.

The official opening took place in December 2002 and subsequently young people have extensively used the facilities. Key to the success of the play area was the community participation with children and young people involved throughout the consultation and planning process.

Cases of using physical activity with people with mental health problems

I. Faulkner & Sparkes draw upon data from an ethnographic study of three individuals with schizophrenia to explore the use of exercise as an adjunct therapy for schizophrenia. A 10-week exercise programme of twice-weekly sessions was implemented. Participant observation and interviews with participants and their assigned key-workers were the primary sources of data collection used. The influence of exercise on the lives of participants and their mental health and the underlying mechanisms of change were explored. Our findings indicate that exercise has the potential to help reduce participants' perceptions of auditory hallucinations, raise self-esteem, and improve sleep patterns and general behaviour. The process of exercising, via the provision of distraction and social interaction rather than the exercise itself, was very influential in providing these benefits. In conclusion, we strongly recommend the inclusion of exercise as an adjunct treatment in psychiatric rehabilitation.

See Faulkner G. & Sparkes A. (1999) Exercise as therapy for schizophrenia: An ethnographic study Journal of Sport and Exercise Psychology Vol. 21; 52–69.

II. Daley also reports on an individual case referred to her as a psychiatrist: Lucy is a 38-year-old female who was diagnosed with clinical depression. Prior to this, Lucy had experienced a period of hospitalisation, having threatened to commit suicide. She also had a long-term history of emotional abuse and neglect and had been receiving weekly out-patient services from a clinical psychologist for 12 months prior to the start of the exercise therapy treatment. Lucy is married and has an 11-year-old son. During psychological therapy sessions with the clinical psychologist, Lucy had continually referred to her weight as being a major contributory factor to her depressive feelings and she blamed her medications as the cause for her excess body weight gain in recent years.

Given this, Lucy was keen to explore ways in which she might reduce her body fat and become more active, both physically and mentally. Lucy's participation in exercise in the past had been sporadic and while she had been physically active as a child, she had not been able to maintain regular physical exercise in recent years and had become very inactive over the past five. As Lucy's son has become older, she wants to become more actively involved in his life by improving her physical fitness and health so that she can 'keep up with him'. Prior to commencing the exercise therapy, it was considered important for Lucy and the exercise therapist to discuss the therapy in conjunction with the clinical psychologist. Consequently, sessions were organised in successive weeks so they could get to know each other. Each exercise therapy session lasted 60 minutes and local amenities and facilities (e.g. leisure centres and parks) were used to try and 'normalise' the exercise sessions. Lucy was encouraged to participate in a range of physical activities (e.g. swimming and brisk walking) and to exercise at moderate intensity for 30–40 minutes, twice per week for 10 weeks. An important feature of each session was exercise and lifestyle counselling, which was based on the underlying principles of Carl Rogers' theory of person-centred therapy. During the counselling component, the exercise therapist introduced a variety of cognitive-behavioural techniques (e.g. consciousness raising, finding social support and goal setting) with the aim of moving Lucy towards sustained, independent and regular exercise behaviour as well as improved general health (e.g. improved diet and hydration).

At baseline, Lucy recorded a Beck Depression Inventory (BDI; Beck, 1987) score of 39 and by week five this had reduced to 34. Lucy reported a BDI score of 33 post-intervention, indicating a 15.3% reduction in her BDI score from pre- to post-exercise therapy. Lucy's adherence rate was excellent as she only missed two (out of 20) exercise therapy sessions over the 10-week intervention period. This study highlights a successful case where a clinician and researcher/practitioner were able to work together to understand how an alternative intervention treatment might be beneficial in reducing clinical depression. Such findings indicate that exercise therapy might be a worthwhile adjunctive intervention strategy that clinicians might want to promote with their patients.

See Daley A. (2002) Exercise therapy and mental health in clinical populations: Is exercise therapy a worthwhile intervention? Advances in Psychiatric Treatment Vol. 8; 262–270.

Academic publications and resources

Biddle S. & Mutrie N. (2001) *Psychology of Physical Activity: Determinants, well-being and interventions* Routledge, London.

Biddle S., Fox K., Boutcher S. (eds.) (2000) *Physical Activity and Psychological Well-being* Routledge, London.

Faulkner G. & Taylor A. (2005) *Exercise, Health and Mental Health: Emerging relationships* Routledge, London.

Biddle S. & Mutrie N. (1991) *Psychology of Physical Activity and Exercise* Springer-Verlag, London.

Scully D., Kremer J., Meade M., Graham R., Dudgeon K. (1998) *Physical exercise and psychological well-being: A review* British Journal of Sports Medicine Vol. 32; 111–120.

Schmitz N., Kruse J. & Kugler J. (2004) *The association between physical exercises and health-related quality of life in subjects with mental disorders: Results from a cross-sectional survey* Preventative Medicine Vol. 39; 1200–1207.

Faulkner G. & Sparkes A. (1999) *Exercise as therapy for schizophrenia: An ethnographic study* Journal of Sport and Exercise Psychology Vol. 21; 52–69.

Richardson C., Faulkner G., McDevitt J., Skrinar G., Hutchinson D. & Piette J. (2005) *Integrating Physical Activity Into Mental Health Services for Persons with Serious Mental Illnesses* Psychiatric Services Vol.56 (3); 324–331.

Jones M. & O'Beney C. (2004) *Promoting mental health through physical activity: Examples from practice* Journal of Mental Health Promotion Vol.3 (1); 39–47.

Policy documents

Support for mental health improvement in general

The Scottish Executive (1999) *Towards a Healthier Scotland: A white paper on health*
www.scotland.gov.uk/library/documents-w7/tahs-00.htm
The Scottish Executive (2000) *Our National Health: A plan for action, a plan for change*
www.scotland.gov.uk/library3/health/onh.pdf
The Scottish Executive (2003) *Partnership for Care: Scotland's health white paper*
www.scotland.gov.uk/Resource/Doc/47032/0013897.pdf

These documents established mental health as a priority for the NHS in Scotland and increasingly stressed the significance of the promotion of mental well-being.

The Scottish Executive (2003) *Improving Health in Scotland – The challenge*
www.scotland.gov.uk/Resource/Doc/47034/0013854.pdf

This paper included mental health and well-being as a special focus programme and committed the Scottish Executive to establish a three-year action plan for the National Programme for Improving Mental Health and Well-being between 2003 and 2006.

The Scottish Executive (2003) *National Programme for Improving Mental Health and Well-being: Action plan 2003–2006*
www.scotland.gov.uk/Publications/2003/09/18193/26506

The plan sets out how the major aims and priority areas around mental health action will be taken forward by the National Programme.

The Scottish Executive (2005) *The Mental Health of Children and Young People: A framework for promotion, prevention and care*
www.scotland.gov.uk/Resource/Doc/77843/0018686.pdf

This Framework expands on the *Framework for Mental Health Services in Scotland* and contributes to delivery of the National Programme for Improving Mental Health and Well-being Action Plan. It is intended to be used by local agencies as a planning and audit tool, to identify goals and milestones for continuous improvement in the delivery of services and approaches to support and improve the mental health of children and young people in Scotland.

The Scottish Parliament (2000) *The Local Government Act 2000*
www.opsi.gov.uk/ACTS/acts2000/00022--b.htm

This Act establishes the promotion or improvement of the social well-being of their area as a fundamental function of local government.

NHS Health Scotland & the Scottish Executive (2005) *Mental Health Improvement: An appraisal of Scottish policy*
www.healthscotland.com/uploads/documents/mental_health_improvement.pdf

This report reviews of Scottish policy with respect to mental health improvement. It mapped out the key policy areas in Scotland, gathering key policy documents from these areas to identify references to mental health improvement, and assessing the degree to which current policy and the research evidence are aligned.

The Scottish Executive (2004) *A Curriculum for Excellence*
www.scotland.gov.uk/Resource/Doc/26800/0023690.pdf

The Scottish Executive Education Department (2004) *Report of the Physical Education Review Group*
www.scotland.gov.uk/Resource/Doc/47251/0023740.pdf

The Scottish Executive Education Department (2006) *Progress Towards the Recommendations of the Physical Education Review Group*
www.scotland.gov.uk/Resource/Doc/933/0019904.pdf

These documents highlight the prospect of linking good mental health to physical activity.

Relevant resources

MIND (2004) *The MIND Guide to Physical Activity*
www.mind.org.uk/NR/rdonlyres/12B4F1AE-CCE7-40E9-829E-4034A79980CC/0/MindGuidetophysicalactiv.pdf

Health Scotland (2004) *Mental health improvement: Evidence and practice - Scottish case studies*
www.healthscotland.com/uploads/documents/FinalReport200304RE041.pdf

Department of Health (2004) *At least five a week: Evidence on the impact of physical activity and its relationship to health* Department of Health, London.
www.dh.gov.uk/assetRoot/04/08/09/81/04080981.pdf

Tabbush P. & O'Brien L. (2003) *Health and Well-being: Trees, woodlands and natural spaces*
The Forestry Commission, Edinburgh.
www.forestry.gov.uk/pdf/health_wellbeing.pdf/$FILE/health_wellbeing.pdf#search=%22Health%20and%20Well-being%3A%20Trees%2C%20Woodlands%20and%20Natural%20Spaces%20%22

Scottish Natural Heritage (2004) *Making the links: Greenspace and quality of life* Scottish Natural Heritage, Inverness.
www.snh.org.uk/pdfs/publications/commissioned_reports/F03AB01.pdf

O'Brien L. (2004) *A Sort of Magical Place: Peoples experience of woodlands in northwest and southeast* Forestry Commission, Edinburgh.
www.forestry.gov.uk/pdf/fr0305_magical_place.pdf/$FILE/fr0305_magical_place.pdf#search=%22A%20Sort%20of%20Magical%20Place%22

The Children's Play Council (2006) *Play Naturally: A review of children's play* The Children's Play Council, London.
www.playday.org.uk/Upload/1193125_play-naturally-playday-2006.pdf

The Countryside Recreation Network (2005) *A Countryside for Health and Well-being: The physical and mental health benefits of green exercise* The Countryside Recreation Network, Sheffield.
www.countrysiderecreation.org.uk/pdf/CRN%20exec%20summary.pdf#search=%22A%20Countryside%20for%20Health%20and%20Wellbeing%3A%20The%20Physical%20and%20Mental%20Health%20Benefits%20of%20Green%20Exercise%20%22

Forestry Commission (2006) *Growing Adventure* Forestry Commission, Cambridge.
www.forestry.gov.uk/pdf/fce-growing-adventure-report.pdf/$FILE/fce-growing-adventure-report.pdf#search=%22growing%20adventure%20%22

Supporting agencies and websites

The National Programme for Improving Mental Health and Well-being
www.scotland.gov.uk/Resource/Doc/47176/0013801.pdf

Health Scotland's mental health improvement work
www.healthscotland.com/mental-health-work.aspx

wellscotland
www.wellscotland.info/index.html

seemescotland
www.seemescotland.org.uk

Scotland's Mental Health First Aid
www.healthscotland.org.uk/smhfa

Mental Health and Well-being Indicators for Scotland
www.healthscotland.com/understanding/population/mental-health-indicators.aspx

Paths to Health
www.pathsforall.org.uk

Scottish Centre for Healthy Working Lives
www.healthscotland.com/hwl

Scottish Health Promoting Schools Unit
www.healthpromotingschools.co.uk/index.asp

Scottish Public Health Observatory Health, well-being and disease site
www.scotpho.org.uk/web/site/home/Healthwell-beinganddisease/MentalHealth/mental_keypoints.asp

HeadsUpScotland
www.headsupscotland.co.uk/index.html

Living Streets
Walking Back to Happiness – an article by Tom Franklin on the mental health benefits of walking and a good street environment
www.livingstreets.org.uk/news_and_info/feature_articles.php?id=504

Scottish Natural Heritage Greenspace for Communities Initiative
www.snh.org.uk/about/initiatives/ab-init04.asp

Greenspacescotland
www.greenspacescotland.org.uk/default.asp?page=5

The Physical Activity and Health Alliance
www.paha.org.uk

Scottish Executive Health Department Physical Activity and Health Web pages
www.scotland.gov.uk/Topics/Health/health/Introduction/Introduction

The Scottish Physical Activity Research Collaboration (SPARColl)
www.sparcoll.org.uk

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