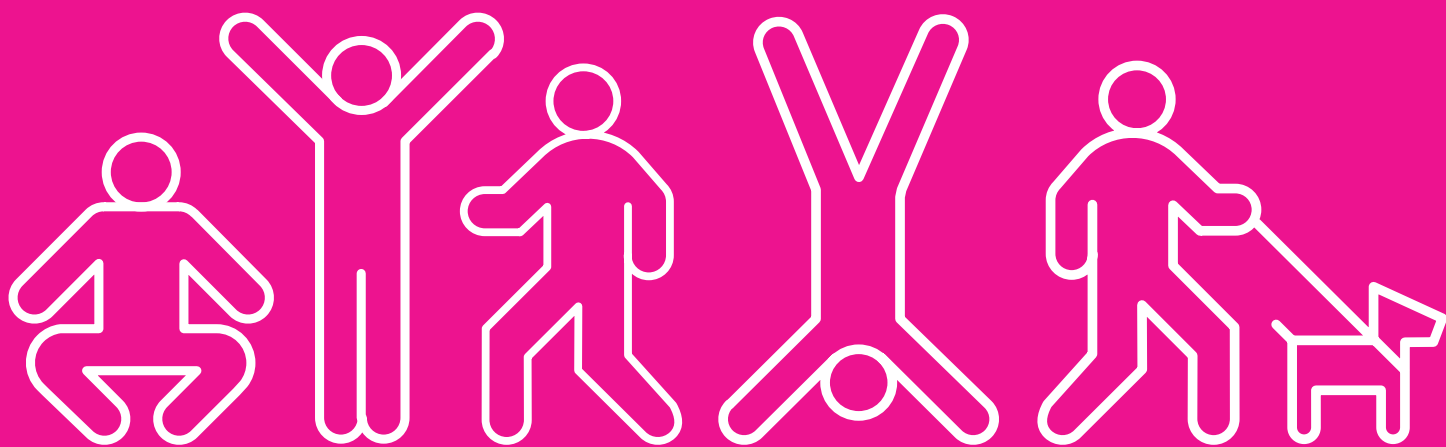


Let's Get Physical

The impact of physical
activity on wellbeing

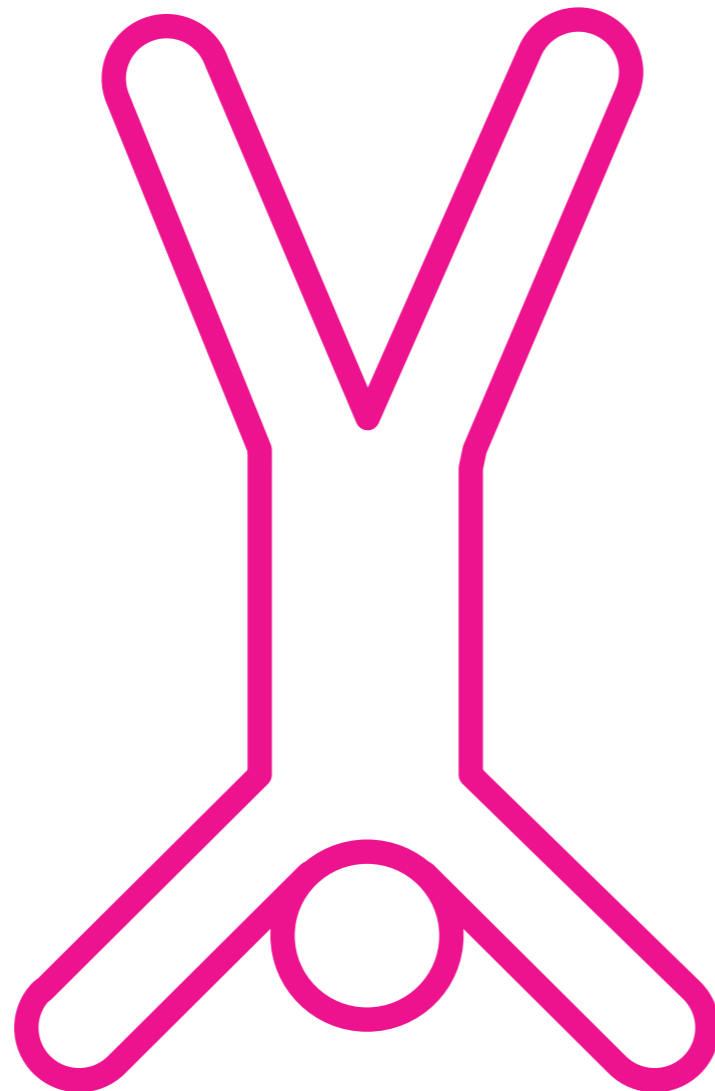
Mental Health
Awareness Week 2013



mental
health
foundation

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Introduction

It is impossible to read a newspaper or turn on the television without hearing about the health benefits of physical activity. The messages have been clear that being active is important in terms of managing weight and preventing chronic illness (such as Type 2 diabetes).

Despite this growing interest in the role of physical activity in managing health and reducing obesity, there has been relatively little corresponding change in people's activity levels. National surveys show that currently only one-third of the population meet UK physical activity guidelines. In part, this may be a result of being told that we should increase our activity levels to 'fix' our health deficits leaving us feeling negative about ourselves and guilty when we do not do more. Within this report we aim to examine physical activity through a different lens and consider the role it can play in enhancing our psychological wellbeing and mental health. We aim to make the case that physical activity does not need to be a chore, but can instead be something that we do to enhance wellbeing. Perhaps may even be something we might come to see as fun that we look forward to.

The primary aim of this report is to ask that we reconsider the way that we view physical activity in the UK: from a behaviour which we do because we 'have to', 'should do' or 'ought to do' for our health, to something that we feel improves our lives. In other words: to view physical activity 'as a pleasure and not a chore'. Furthermore we aim to make the case that physical activity is something that can protect mental health. We are living in times where there seems so much to worry about. The difficult financial climate, environmental challenges, welfare reform, terrorist threats, public health scares – the list is endless and it can feel as though much of life is outside of our individual control, leaving people feeling stressed and unsure how to best to cope. However, within this report we will make the case that taking steps to become more active is something that we personally can do to help us deal with the stress brought about by uncertainty and to feel positive about ourselves and our lives.

Nietzsche

“All truly great thoughts are conceived while walking.”

If we are going to change our attitude to physical activity then it needs to become a natural and important part of our lives, not something else for us to find the time to do. For some people this will mean heading to the gym, but for others it may include taking the stairs at the train station or department store (rather than the lift or escalator) and walking or cycling to work or to the shops. For children it will be more about play. As our lives have become more sedentary, many of us find we do not have to walk much in our daily lives and even our jobs have become more desk-based. Safety concerns about our children have also meant that children do not go out to play as often as they did 20 or 30 years ago, and gaming has become a key form of entertainment and interaction for young people. We now need to rethink our relationship with physical activity and find ways to do more each day. Many forms of physical activity can be built into our everyday lives and become part of our regular routine. In this way we can regularly gain the wellbeing benefits of physical activity.

Some people may prefer to participate in more regular and structured forms of physical activity such as going out for a run or playing sport and these are, of course, great ways to enhance wellbeing and mental health. There are so many ways to become more active, indeed the possibilities are limitless from gardening through to dancing or skateboarding. Deciding to become more active brings with it the potential to try lots of new experiences and meet new people.

Regardless of what activity fits you best, the evidence is clear that doing any physical activity is better than doing none in terms of wellbeing and mental health. So, getting started is the most important thing. There will be many reasons why we might want to put off getting started; perhaps you have not exercised in a while, do not know how to get started or are worried about the cost, but even small increases in levels of activity can make a real positive difference, bringing about a cycle of positive reinforcement and motivation to continue.

There is extensive research that shows that good social relationships and networks promote and are a protective factor for wellbeing and mental health.



What is Wellbeing?

The UK government recently defined wellbeing as ‘a positive physical and social and mental state’.¹

This report focuses on mental wellbeing. Mental wellbeing includes factors such as individuals’ ability to develop their potential, work productively and creatively, build strong and positive relationships with others and contribute to their community’.^{2 p.1} It also involves areas of life such as feelings of satisfaction, optimism, self-esteem, having some control over one’s life, having a purpose in life and a sense of belonging and support.³ However, for someone to have sustainable wellbeing it is not required that they feel good all of the time. Experiences of painful emotions such as failure, disappointment and grief are part of normal life. However, mental wellbeing is reduced when these emotions are very frequent, long lasting or very intense and interfere with a person’s ability to function in their daily life.

The term ‘mental health problem’ is often used to describe a difficulty with our mental health that causes concern, or interrupts our ability to go about our daily lives in the way in which we would want. Mental illness refers to clinically identifiable illnesses or conditions that affect our cognitive and emotional functioning. In recent years many researchers have shifted from a focus on how to alleviate, or prevent, mental illness and distress to a focus on promoting mental wellbeing and positive mental health. This approach recognises that mental wellbeing is more than simply the absence of symptoms of a diagnosed mental illness. For example, a person may have a diagnosis of mental illness (e.g. bipolar disorder) but be living a fulfilling, happy and productive life much of the time.

One way to enhance our mental wellbeing and protect our mental health is through participating in physical activity. Physical activity has been shown to have a strong and positive influence on mental wellbeing and some mental illnesses. In the remainder of the report the term ‘wellbeing’ is used to mean ‘mental wellbeing’.

Buddha

“To keep the body in good health is a duty...otherwise we shall not be able to keep our mind strong and clear.”

What is Physical Activity?

An all-encompassing definition of physical activity is ‘any bodily movement produced by skeletal muscles that requires energy expenditure’.⁴ Here we explain some of the different aspects of physical activity which are relevant to understanding the physical activity and wellbeing relationship.

Intensity

Physical activity intensity varies along a continuum from sedentary (physically inactive) to vigorous (high intensity activity).

Moderate intensity physical activity sits in-between sedentary and vigorous intensity physical activity on the continuum. It requires a reasonable amount of effort and noticeably accelerates the heart rate and breathing rate but you should be able to hold a conversation. Examples include brisk walking, housework, gardening, dancing and walking the dog.

Vigorous intensity physical activity requires a large amount of effort, causes rapid breathing and a substantial increase in heart rate, e.g. running, aerobics, sports such as football or hockey and walking or climbing briskly up a hill. When taking part in vigorous intensity physical activity it will be difficult to talk without pausing for a breath every few words.



Type

There are a huge number of different types of physical activity. Walking is a type of physical activity which many people find practical and accessible; it can be done at low, moderate or vigorous intensity. Other examples are dance, gardening, following keep fit videos at home, badminton, martial arts and rock climbing to name just a few.

These different types of physical activity can have a number of different physical outcomes:

- Many types of physical activity increase aerobic fitness, or stamina; for example, running and cycling.
- Some types of physical activity increase muscle strength; for example, weight training, or using resistance bands.
- Some types of physical activity increase flexibility and balance; for example, yoga and stretching exercises.

The different types of physical activity are sometimes grouped under the following headings:

- ‘Sport’ - structured and competitive physical activity
- ‘Exercise’ - planned and purposive physical activity to improve fitness, health or performance
- ‘Play’ - unstructured physical activity, done for fun and enjoyment
- ‘Daily physical activity’ – physical activity which is done as part of one’s daily routine.

Each of these four types of physical activity can be done at both moderate and vigorous intensity depending on what it is and how it is performed.

Dance, gardening, following keep fit videos at home, badminton, martial arts and rock climbing are just a few examples of physical activity.

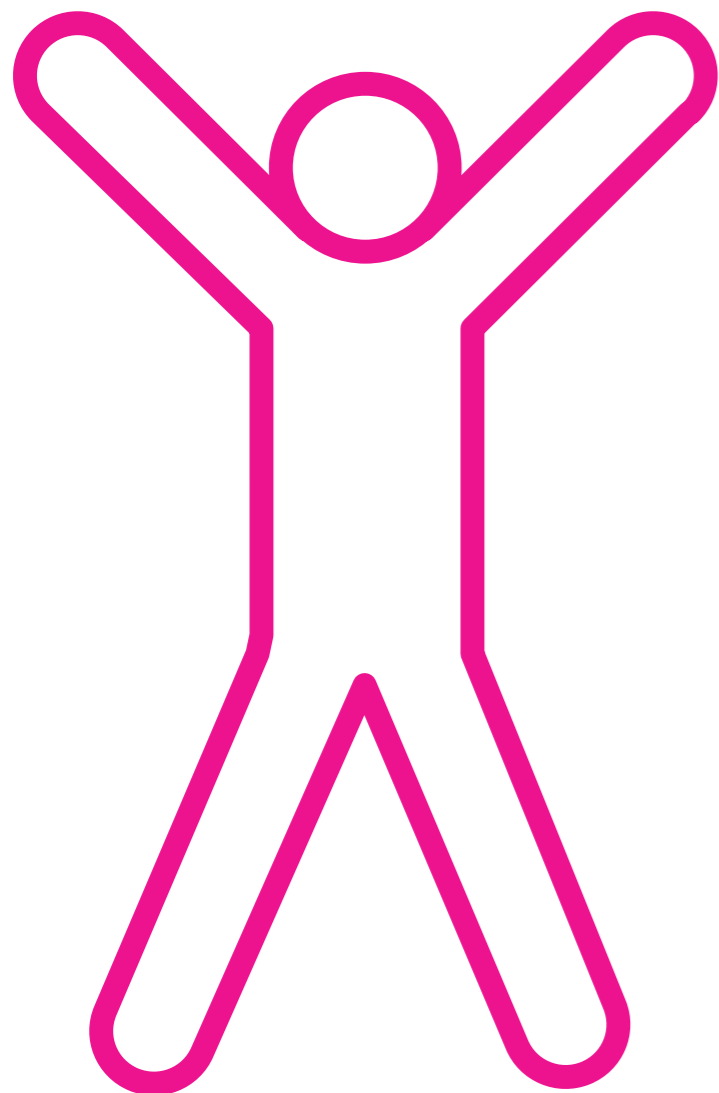
Danish Proverb

“Fresh air
impoverishes
the doctor.”



What impact does physical activity have on wellbeing?

Physical activity has a huge potential to enhance wellbeing in our population. It is known that even a short burst of 10 minutes brisk walking increases mental alertness, energy and positive mood states.



4.1. Positive Moods

The mood we are in has an impact on how we experience day-to-day situations. As Thayer.^{5 p3} wrote: “Even an unpleasant social situation can be tolerable if our mood is positive. On the other hand, if we are in a bad mood, an activity that usually is very pleasant, one that otherwise gives us great enjoyment, can be boring and uninteresting. When our mood is low, even the most positive events become meaningless”. Therefore people generally try to regulate their moods to be on the whole positive and use a variety of strategies to do so. Example strategies are: eating a nice meal, speaking to a good friend, watching comedy on TV, and going for a brisk walk.

There is accumulating evidence that walking, and physical activity more generally, can be an effective way to enhance positive moods. For example, people with high levels of regular physical activity have been shown to have higher levels of positive emotions such as interest, excitement, enthusiasm and alertness compared to people with moderate and low levels of physical activity.⁶

A review of studies which have investigated the impact of exercise interventions on positive moods has shown that regular aerobic exercise results in moderate increases in positive moods.⁷ more specifically they found that exercise interventions increased feelings of activation (how energised a person feels) and pleasant feelings. People who experienced lower energy and more unpleasant feelings at baseline showed greater increases in these factors. The review also found that higher exercise frequency and lower exercise intensity were associated with more pleasant feelings and higher activation. Overall the results indicated that low intensity aerobic exercise, for 30–35 min, on 3–5 days per week for 10–12 weeks was optimal for improving positive moods.

The impact of physical activity on day-to-day moods has been investigated in more detail; people rated their mood immediately after periods of physical activity (e.g. going for a walk or doing housework) and periods of inactivity (e.g. reading a book or watching television).⁸ Participants reported feeling more content, more awake and calmer directly after being physically active compared to periods of inactivity. They also found that the largest beneficial effect of physical activity on mood (i.e. greatest change in mood score) occurred when mood was initially low. An earlier study found that walking for 10–15 minutes was sufficient to have an impact on mood states.⁹ Participants rated their energy levels and pleasant feelings as higher whilst walking compared to beforehand. Following a 10–15 minute period of rest, participants' moods returned towards calmness and relaxation. These findings are encouraging as they suggest physical activity could be used as a strategy to regulate mood during the day; walking is practical to do in short bursts, available to most people and free.

Allowing people to choose their preferred physical activity intensity seems to lead to more favourable changes in positive mood than imposed-intensity physical activity (e.g. walking at one's own pace rather than walking at the pace set by an exercise instructor).¹⁰

Participation in regular physical activity can increase self-esteem and reduce stress and anxiety. Physical activity can help play a role in preventing mental health problems and improve the quality of life of those experiencing it. For example, there is an approximately 20–30% lower risk for depression and dementia, for adults participating in daily physical activity.⁴

4.2 Stress

A recent survey published by the Mental Health Foundation¹¹ found that 59% of British adults felt their life was more stressful than it was five years ago. 47% of all survey respondents said they felt stressed every day and a further 24% said they felt stressed every few days. The Health and Social Care Information Centre¹² also recently published data which showed hospital admissions for stress have risen by 7% in just 12 months, and the Health and Safety Executive¹³ recently published figures which indicate a rise in sick days due to work-related stress.

Stress causes the body to produce more of the so-called 'fight or flight' chemicals which prepare it for an emergency. Adrenaline and noradrenaline raise blood pressure, and increase heart rate and perspiration. They can also reduce blood flow to the skin and reduce stomach activity. The body produces cortisol which in turn causes fat and sugar to be released into the bloodstream (but also reduces the efficiency of the immune system). All these changes are the body's way of making it easier to fight or run away. Unfortunately these changes are less helpful for individuals stuck in a busy office or on an overcrowded train. They cannot fight and cannot run away. Because of this, they cannot use up the chemicals their own bodies have produced to protect them. Over time these chemicals and the changes they produce can cause serious damage to health. For example, people suffering from stress may start to experience headaches, nausea and indigestion. They may breathe more quickly, perspire more, have palpitations or suffer from various aches and pains. Longer term stress can lead to feelings of strain, worry, insomnia and exhaustion, and increased risk for health problems such as heart attacks and strokes.

The Mental Health Foundation survey¹¹ found that 18% of people found drinking alcohol helpful for stress and 10% found smoking helpful, while only 6% would consider visiting a GP. This is worrying because in the long run alcohol and smoking can make mental and physical health problems worse.

Physical activity may offer an alternative approach to reducing or managing stress. Cross-sectional studies on adults who are employed have found that highly active individuals tend to have lower stress rates compared to low active individuals.^{14,15} Several mechanisms have been suggested to explain how physical activity may reduce the harmful effects of stress. As summarised by Gerber and Puhse¹⁶ these include that physical activity reduces arousal (i.e. enhances mood due to distraction from worries or biochemical changes) or increases positive health behaviours during periods of stress (i.e. decreased smoking and healthier eating habits). It has also been suggested that the higher levels of fitness brought about by physical activity result in a more efficient stress regulation (i.e. reduced secretion of hormones, lowered blood pressure) or enhanced recovery from stress. These effects are referred to as stress-buffering.

However, research testing the stress-buffering effect of physical activity shows mixed results. A review of 31 studies found 16 reported physical activity did have a stress-buffering effect whereas 15 found it did not.¹⁶ After considering the evidence from the 31 studies in depth, the authors were confident to advertise physical activity as a stress-management strategy. Furthermore, they found that even though physical activity may not always reduce stress, there was no evidence that engaging in physical activity during periods of high stress increased stress levels, and that physical activity had direct health benefits. Further efforts are required to understand what dose and intensity of physical activity is optimal for triggering stress-buffering effects and whether the effect is moderated by the exercise environment.



Case study: Kim
I would like to highlight to people the enormous benefit of getting to work by foot or bike!

About a year ago my husband and I moved house and ended up much closer to our places of work. Since then we have both run or cycled to work. My husband has a three mile journey and mine is seven miles. Some people would consider this too far but it's only a 40 minute cycle and, in rush hour traffic, the car journey can easily be half an hour. Luckily my office has a shower so I can arrive at my desk fully refreshed.

Since swapping the car for my bike I have noticed a marked improvement in my energy levels and mood. I arrive at my desk far more awake than if I'd been sat in traffic, when I get home I have more energy to pursue hobbies or go for a walk, whereas before I would fall onto the sofa and hardly move until bed time! I have also made acquaintances from the number of regular cyclists, postmen and dog walkers I see each morning and there is a real community feeling among people who are travelling about without their cars in the morning.

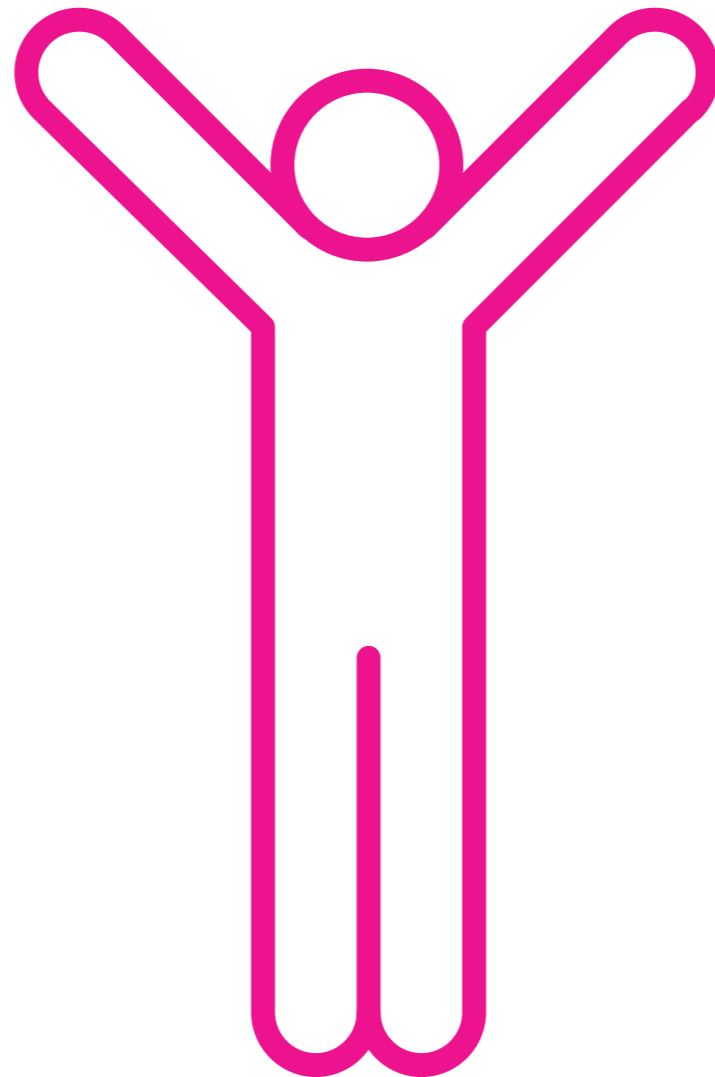
Another welcome side effect is that I tend to be eating healthily but am also able to have extra snacks without worrying about putting on weight, as my cycling burns hundreds of calories every day!

I hope more and more people will choose to ditch their cars for their commutes... if you are physically well, a journey of less than two miles is often quicker by bike.

Case Study: Kelly

I've always been involved in sport and exercise from a young age. Throughout all the endless doses of medication, group therapy sessions, one-to-one chats with professionals and general health related interventions, exercise has been the one constant thing that has kept me feeling sane and safe.

With all the ups and downs I've had in my life, taking me through depression, alcohol and drug abuse, anorexia, anxiety and finally being diagnosed with bipolar in 2009, I've always found myself involved in some form of exercise, whether it be playing rugby, running or training in the gym. To put it simply, exercise is the BEST form of medication I have found to help me cope with mental illness.



Exercise really helps me to channel my emotions and keep me focused. I'm extremely grateful that I am able to exercise to the extent I can, as mental illness can be so utterly debilitating at times. From just a bipolar point of view, if I'm feeling high, exercise can help exhaust the nervous, uncontrollable rush of energy I would otherwise not know how to contain. If I'm feeling low, the exercise can really enhance my mood and alter my outlook on my day as a whole.

4.3 Self-esteem

Self-esteem is a key indicator of psychological wellbeing. People with high self-esteem tend to have high life satisfaction, resilience and greater achievement in education and work. On the other hand low self-esteem tends to be associated with mental illness, anxiety and hopelessness.

Self-esteem can be defined as the sum of a person's perceptions of their competence in several areas of their life; for example, academic, emotional, social and physical areas.¹⁷ Of these areas the physical aspect of self-esteem (i.e. one's competence regarding stamina, strength, sport ability and body attractiveness) has been shown to have a strong influence on overall self-esteem.¹⁸

Physical activity is a behaviour which has a strong influence on physical self-esteem and a smaller but significant influence on overall self-esteem. Studies have found that people who participate in physical activity typically have greater physical and overall self-esteem. This relationship has been found in children, adolescents, young adults, adults and older people, and across both males and females.¹⁹

A review of 113 physical activity intervention studies 20 found three factors that influenced how much impact physical activity interventions have on a person's self-esteem. The greatest gains in self-esteem occurred for people who initially had low self-esteem, those whose fitness increased during the intervention, and those who were active on more days per week. All types of physical activity were equally effective at increasing self-esteem. Overall the researchers concluded from their review that physical activity interventions which aim to increase self-esteem should include physical activity which is moderately demanding, and last for 12 weeks or more. As all types of physical activity have been found to be equally effective, people should choose a type of physical activity based on what they enjoy doing.

Another important factor to consider when using physical activity to enhance self-esteem is that physical activity should provide opportunities to experience feelings of accomplishment. Physical activity goals should be set so that they are achievable and result in feelings of success. For this to be achieved the duration, type, intensity and frequency of physical activity in any programme should be set in relation to an individual's physical fitness and previous physical activity experience.

4.4 Depression

Depression varies in severity from mild to severe, and between 8% and 12% of the British population experience depression in any year.²¹ In recent years prescription rates for antidepressant medication have increased steeply. However, antidepressants are not equally effective for all people.²² and many people are reluctant to take antidepressants for long periods, often due to their side effects, which can lead to non-compliance with medication or not seeking treatment. Psychological therapies (e.g. cognitive behavioural therapy; CBT) have become more widely available but there are still waiting lists for free and low cost services.

Physical activity can be an alternative treatment approach for depression. It can be used as a stand-alone treatment approach or in combination with medication and/or psychological therapy. It has very few side effects and does not have the stigma that some people perceive to be attached to taking antidepressants or attending counselling. In addition physical activity is available to all, has few costs attached and is an empowering approach that can support self-management.

The evidence for the benefits of physical activity for depression is not universal e.g. Chalder et al.²³ but a recent review of 30 randomised controlled trials²⁴ concluded that exercise improved depressive symptoms in people with a diagnosis of depression (including mild to severe clinical symptoms) when compared with no treatment or a control intervention (e.g. sedentary social activity). A further review of thirteen randomised trials looked the effect of physical activity for people with clinical depression only.²⁵ The effect of exercise on depression was significant but weaker than in the above review suggesting the effectiveness of physical activity as a treatment for depression may vary according to the severity of the depression a person has.

Researchers have also compared the effectiveness of physical activity interventions with the effectiveness of medication and psychological therapy and found similar effects. Rimer et al.²⁴ summarised the findings from three trials that compared exercise with antidepressant medication, and reported there was no significant difference in the effect of the two treatment approaches on depression. They found six trials that compared exercise with cognitive therapy and again the data showed no significant difference between the two interventions in terms of their impact on depression. A further review of the literature on exercise and depression concluded that exercise is effective when used independently and in combination with other treatments such as medication or CBT.²⁶

Researchers have also looked into the question of what 'dose' of physical activity is most effective at alleviating the symptoms of depression. One study compared four different 'doses' of aerobic physical activity and found a dose roughly equivalent to the public health guidelines (see section 6) was significantly more effective than a low dose (less than public health guidelines) and a control condition in reducing depression.²⁷ A recent study compared different doses of physical activity for people whose depression had not remitted after a course of antidepressant medication.²⁸ Again, a high dose of physical activity was more effective than a low dose (28% and 15% remission respectively).

The majority of published trials which have found a positive outcome for physical activity in treating depression have used aerobic physical activity and were supervised.²⁶ Furthermore, all modes of physical activity and locations (e.g. home or gym) were equally effective, although it is noteworthy here that outdoor locations were not studied as these provide access to sunlight and green open spaces. Effective intervention programmes were supervised but whether the supervisor was an exercise professional or from some other professional background did not have an impact on their effectiveness. Both group and individual physical activity programmes were found to be equally effective.

Implications of the above studies are that meeting the recommended public health guidelines for physical activity seems to offer greater benefits compared to lower levels of physical activity. Individuals' preferences about physical activity type (e.g. swimming, dancing, football) can and should be accommodated into physical activity programmes. Personal preferences of participants with regard to physical activity location and whether to be active in groups or individually should also be considered. Furthermore research suggests that exercising at preferred intensity results in greater reductions in depression compared to exercising at a prescribed intensity.²⁹ In other words, when people are given choice and control over the physical activity, they do report greater benefits to their mental health.

Physical activity can be an alternative treatment approach for depression.

4.5 Anxiety

Anxiety symptoms vary from mild to severe. Feeling anxious is sometimes perfectly normal. However, people with generalised anxiety disorder find it hard to control their worries; their feelings of anxiety are more constant and often affect their daily life. Generalised anxiety disorder affects about 1 in 20 adults in Britain.³⁰ Other conditions where anxiety is the main symptom include panic disorder, phobias and post-traumatic stress disorder. Anxiety often occurs alongside depression, i.e. people often experience both mental health problems at the same time. Treatments for anxiety include anxiolytic medication and psychological therapy. Limitations to the use of medication and psychological therapy in the treatment of anxiety are similar to the limitations to their use to treat depression. Also similar to the treatment of depression, there is mounting evidence that physical activity is beneficial as a treatment for people with both mild and severe (clinical) anxiety.

A review of 19 intervention studies, which had investigated the effect of physical activity on healthy adults, found that increasing physical activity in this group resulted in reduced anxiety.³¹ Further analyses of these studies revealed that interventions were most effective when: participants engaged in moderate or high intensity physical activity; physical activity was supervised; the intervention was delivered to individuals (rather than group based); and when participants were encouraged to continue exercising at a fitness centre following the intervention (rather than at home).

A further review of 49 randomised controlled trials that have investigated the effect of physical activity interventions on anxiety in non-clinical and clinical populations found physical activity significantly reduced anxiety compared to no-treatment control groups.³² However, the majority of the studies in this review included participants with non-clinical levels of anxiety. Analysis of the dose response relationship between physical activity and anxiety was limited by the fact that the majority of the physical activity interventions reviewed has used the same dose: aerobic exercise with a frequency of 3–4 times per week. Further studies using a greater range of physical activity types and intensities are needed to understand this relationship in more detail.

Less is known about the effect of exercise on specific severe types of anxiety, such as panic attacks, social anxiety disorder, generalised anxiety disorder or post-traumatic stress disorder. However, data do show there are lower rates of clinical anxiety amongst people who are active than people who are not³³ and intervention studies have shown exercise holds promise for reducing symptoms of clinical anxiety. For example, one study compared patients with various types of clinical anxiety who were randomly assigned to CBT plus home-based walking, or CBT plus additional education sessions.³⁴ Patients in the home-based walking group reported significantly greater reductions in anxiety, depression and stress following treatment compared to those receiving CBT without exercise. Several other small scale studies have focused on a particular type of anxiety (e.g. panic disorder or post-traumatic stress disorder) and shown positive effects for exercise in reducing anxiety symptoms in these groups of patients.³⁵

4.6 Dementia and Cognitive decline in older people

Improvements in healthcare have led to increasing life expectancy and a growing population of people over 65 years. Alongside this increase in life expectancy has been a rise in the number of people living with dementia and cognitive decline. The main symptom of dementia is memory loss; it is a progressive disease which results in people gradually becoming more impaired over time. Despite encouraging research developments, a cure for dementia has not yet been found. Cognitive decline also occurs with ageing in people who do not go on to develop dementia; for example, attention, memory and concentration decline and become slower and less efficient. Although they are not as disabling as dementia, these declines in cognitive functioning lead to decreased quality of life.

Dementia

Physical activity during the lifespan seems to have a positive effect on cognition and a protective effect against developing dementia.³⁶ Evidence to date suggests that all types of physical activity are equally beneficial. Higher levels of physical activity seem to be more protective than lower levels. It seems that physical activity needs to be performed at least twice a week and that three or more times a week is probably more beneficial.³⁷ The impact of physical activity intensity is less well understood. One study found that the higher the intensity of physical activity the greater the protective effect; however, a more recent study found that moderate intensity physical activity had a protective effect, but very light intensity and vigorous intensity physical activity did not.³⁸

For individuals who have developed dementia, physical activity has been shown to be effective in delaying and reducing the severity of symptoms. For example, physical activity has been shown to improve cognition or slow its deterioration, improve symptoms such as depression or agitation, and improve physical functioning such as endurance, strength, balance, mobility, gait and flexibility.³⁶

Cognitive decline

Researchers have investigated whether being physically active can reduce and even reverse cognitive decline which occurs with aging in people without dementia. A review of 15 studies which had followed individuals over 1 to 12 years found that being physically active at the start of the study was a significant protective factor against developing cognitive decline during the follow up period.³⁹ People who participated in high levels of physical activity at baseline had a 38% lower risk of experiencing cognitive decline than people who were sedentary. The protective effect of physical activity was similar (35%) for people who participated in low to moderate intensity physical activity compared to those who were sedentary. The effect seemed to be stronger in women than in men.

However, although data from observational cohort studies are fairly strong with respect to physical activity reducing risk for cognitive decline, evidence from intervention trials is weaker. An expert panel recently concluded that although there were some positive studies, there was insufficient evidence to determine whether physical activity interventions improved cognition in older adults.⁴⁰ Observational studies tend to occur over longer time periods than intervention trials and the expert panel recommended that intervention studies lasting for one or more years should be run to see whether the results of long-term observational studies can be replicated in these longer-duration intervention studies.

Physical activity during the lifespan seems to have a positive effect on cognition and a protective effect against developing dementia.

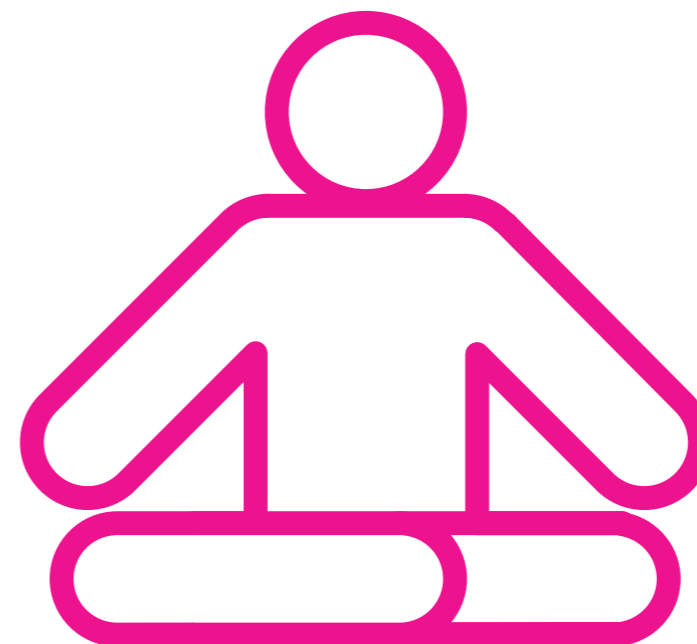
4.7 Physical activity and quality of life for people with severe mental health problems

Physical activity has the potential to improve the quality of life of people with severe mental health problems, such as schizophrenia and bipolar disorder, through improvements in physical and mental health. People with these conditions have the same physical health needs as the general population, but are more likely to be sedentary and have high rates of obesity, confounded by the side effects of medication. Consequently, this group is at high risk for chronic medical conditions associated with inactivity, such as cardiovascular disease, diabetes and obesity.⁴¹

For people with severe mental health problems participating in physical activity may lead to improvements in quality of life. A review of 16 studies which included a physical activity intervention for people with severe mental illness found physical activity can contribute to improved quality of life through social interaction, meaningful use of time, purposeful activity and empowerment.⁴² Several studies have focused specifically on people with schizophrenia and a review of three such randomised controlled physical activity interventions⁴³ found exercise improves negative symptoms of schizophrenia compared to standard care. Yoga showed potential as a beneficial form of physical activity. However, Bonsakseni and Lerdal⁴⁴ found no relationship between physical activity and quality of life for 18 hospitalised patients with severe mental illness.

Physical activity levels in people with severe mental illness tend to be very low, and were described as hazardously low following a recent survey.⁴⁵ So, even small increases in physical activity could have important physical health benefits, as well as enhancing quality of life.

Even small increases in physical activity could have important physical health benefits, as well as enhancing quality of life.



Case Study: David

I have been attending Kingsgate, an activity centre, for nearly 10 years now and I don't know where I'd be without it. Kilburn Older Voices (www.kove.org.uk) are also based there and I have appeared in their film about wellbeing.

Ten years ago I had a nervous breakdown and my doctor recommended the centre to me and I've been going ever since. I'm very mobile and physically fit and, at the age of 77 I definitely can't complain!

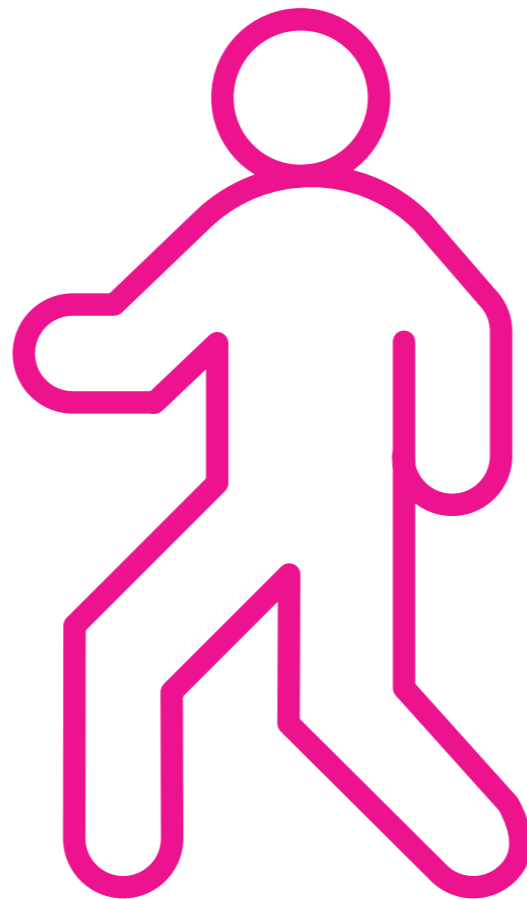
I currently go four days a week; on Tuesday's I do a sitting yoga class and the pensioners there really like it. It's pretty easy for me although everyone there does really well we are always happy when we leave. On a Thursday it's Tai Chi and I love it. Last week I even took the class in the teacher's absence which came very naturally to me after a decade of practise. I also play pool every Friday which is very good for the spine and balance as you're bending over to pot the balls.

The centre is fantastic and I've made some great friends there. The exercise really helps with my general wellbeing, keeps me in good spirits and I'm so grateful for what Mother Nature has given me – she's wonderful.

Case Study: Jamie

I was diagnosed with anxiety during a difficult chapter in my life. I was drinking heavily and the alcohol softened the anxiety but when I allowed myself to soberly reflect on my life, I was full of fear and experienced panic attacks. Due to my drinking I was not eligible for any help and I convinced myself that I didn't need any. Four years after my original diagnosis and the loss of my father I attempted suicide and, while sitting in the Accident & Emergency waiting room staring down at a bandaged arm, I finally realised myself. I was assigned a psychiatrist and together we established that I had never really faced anything.

I started running short distances which at first were to distract me but I began to feel good when I added another half mile to my runs. It had been a long time since I had felt good without the intake of alcohol. The anxiety was fading, and the more I pushed myself the more I felt the depression lose its grip on me. Those short runs at the beginning of my recovery were to become the foundations of who I am now.



The hardest part is taking those first few steps, be it putting on a pair of running shoes or signing up to a sports club, but once you have done that you will never look back. I am now running three times a week, have signed up to run the High Wycombe marathon to raise money for the Mental Health Foundation, and it is only 10 months since I sat in that waiting room staring down at my bandaged arm feeling completely helpless.

I see no better way of doing this than with the easily accessible method that rewards you with endorphins, improves your overall health and teaches you that you do have control over your mind: exercise. Use today as a time to achieve something that challenges you, I have learnt that it is the only rite of passage in to a brighter tomorrow.

4.8 Negative effects of physical activity

For the vast majority of people, physical activity is beneficial for wellbeing and mental health, and these relationships have been described above. However, physical activity can have a negative effect for some individuals who participate in very high levels of physical activity.

Overtraining can result in a range of short-lived negative effects, such as fatigue, low mood and irritability. Often this can be rectified by resting or changing exercise patterns, such as reducing intensity levels or altering the type of activity to one that uses different muscle groups.⁴⁶ However, overtraining may reflect a more unhealthy relationship with physical activity where there is a shift from the person choosing to take part in physical activity as part of a healthy lifestyle, to feeling compelled to take part even when the benefits are outweighed by adverse consequences.⁴⁷ The problems that can emerge from this compulsion include planning your life around exercise to the exclusion of other domains of daily life that previously brought joy.

A challenging question in this area is how to distinguish healthy exercise from exercise dependence. Seven diagnostic criteria have been suggested to assess exercise dependence: tolerance of increasing amounts of exercise; withdrawal symptoms from not exercising; lack of control over exercise; consistently doing more exercise than was intended; spending a lot of time exercising; reduction in other activities; and continuing to exercise despite physical, psychological and interpersonal problems.⁴⁸ The actual volume of exercise may be less important than the motives underlying this behaviour, and it has been suggested that the likelihood of an addiction increases for those who exercise with the goal of escaping unpleasant feelings⁴⁹ or transforming their appearance to improve self-esteem as compared to those who exercise with the goal of improving performance and fitness.

However, the extent to which exercise dependence is an addictive behaviour in its own right or is secondary to other disorders is a continuing debate.⁵⁰ Eating disorders are the most common disorders to co-occur with exercise dependence, approximately 39–48% of people suffering from an eating disorder also suffer from exercise dependence, and there is strong evidence of a relationship between exercise dependence and body image concerns.⁵¹ An issue with this comorbidity is that often only the eating disorder is treated.⁵²

Movement is medicine for creating change in a person's physical, emotional, and mental states.

There is accumulating evidence that walking, and physical activity more generally, can be an effective way to enhance positive moods.



How does physical activity impact on wellbeing?

The mechanisms underpinning the relationships between physical activity, wellbeing and mental health are complex and multifaceted. Physical activity influences numerous interconnected systems.

These systems act at: a physiological level e.g. influencing the release and uptake of chemicals in the brain and the development of new neural pathways; a psychological level e.g. influencing feelings of mastery; and a social level e.g. influencing social connections and interpersonal relationships. In this section we give a brief overview of some key mechanisms at each of these three levels.

5.1 Physiological adaptations

Many people believe that the biological explanation for experiencing enhanced mood and wellbeing following exercise is that exercise causes the brain to release endorphins. Endorphins are naturally produced chemicals which have similar properties to heroin and morphine, hence the term 'endorphin high' is sometimes used. In a recent review paper Dishman and O'Connor⁵³ explain that this mechanism was first proposed about 30 years ago, when research linked endorphins with disorders of mood and personality. Further research found changes in endorphin-receptors in the brains of rats following exercise, and that in people endorphin levels increased in the blood following exercise. However, no evidence was found for a direct link between exercise-induced changes in mood and endorphin levels measured in either the blood or the brain. The review concludes that the hypothesis that endorphins are responsible for the changes in moods during and after exercise remains possible, but has been perpetuated based on little evidence.

With developments in neuroscience and increased understanding of how the brain functions, it has become clear that changes in states of mind (such as the changes in mood that occur following exercise) will involve complex interactions of many neural circuits and the release and uptake of many chemicals in the brain (e.g. acetylcholine and dopamine).⁵³ Advances in brain imaging techniques are opening up new avenues for exploration, and may soon lead to a fuller understanding of the biological mechanisms underpinning the relationship between exercise and mood.

Despite there still being uncertainty as to the biological reasons for enhanced mood following exercise, there have been recent advances in understanding the impact of physical activity on overall brain health. For example, it has been shown that physical activity can improve brain plasticity, or the capacity of the brain to develop new neural pathways and for new neurons to grow during adulthood. This effect seems to be particularly strong in the hippocampus (an area of the brain involved in memory) and frontal cortex (involved in movement, decision-making, problem solving, and planning). Increased brain plasticity has been suggested as a mechanism by which physical activity enhances brain functioning, especially in later life, and protects against neurodegenerative diseases, such as dementia. For an accessible and recent review of this area see Erickson et al.⁵⁴

5.2 Improvements in sleep

The importance of sleep for mental wellbeing was highlighted in a recent report by the Mental Health Foundation.⁵⁵ This report also highlighted that up to one-third of the population may suffer from insomnia (lack of sleep or poor quality sleep). Insomnia can negatively affect mood, energy and concentration levels, relationships, and people's ability to stay awake and function during the day.

Physical activity may enhance sleep quality which in turn improves wellbeing. A recent survey collected objective physical activity data and responses to questions on sleep from 3081 adults and found that higher levels of physical activity were associated with fewer reports of feeling overly sleepy during the day and less difficulty concentrating when tired.⁵⁶

Research with people who have long-term difficulties with initiating and maintaining sleep (chronic primary insomnia) has found physical activity can be used as an intervention to enhance sleep quality and improve quality of life. A single session of 50 minutes moderate intensity aerobic exercise was found to reduce pre-sleep anxiety and improve sleep in patients with chronic primary insomnia.⁵⁷ A 6-month physical activity intervention (50 minutes moderate intensity exercise, 3 times per week) resulted in improved sleep, greater quality of life and reduced negative moods, such as tension, depression and anger.⁵⁸

5.3. Mastery experiences

At a psychological level, physical activity can lead to greater feelings of mastery, or the belief that one is able to influence his or her environment and bring about desired outcomes, which in turn leads to greater wellbeing. For example, completing an exercise session that was previously thought impossible, or running a 5km race for the first time, may enhance feelings of confidence and self-esteem. It has been suggested that as exercisers become more confident and gain mastery of their physical skills, they may take this feeling of control and success into their everyday lives.⁵⁹ A controlled study with 19 women with depression found that involvement in a 9-week exercise programme provided a meaningful mastery experience through which confidence in their ability to engage in a variety of coping responses was increased and level of depression decreased.⁶⁰ It has also been suggested that mastery experiences from exercise-related successes may counteract negative thinking styles of anxious individuals.³⁵ Therefore it is suggested that physical activity interventions emphasise opportunities for participants to experience mastery and success, and provide positive feedback.

5.4 Increased social interaction

A further mechanism by which physical activity has a positive impact on wellbeing and mental health is by providing opportunities for social contact and social interaction. Where physical activity is done as part of a group, or brings one into contact with other people, there is an opportunity for individuals to increase their social networks and make friends. There is extensive research that shows that good social relationships and networks promote and are a protective factor for wellbeing and mental health.⁶¹

This social relationship may come from being part of a team (e.g. football, rugby, volleyball) or taking part in an activity that requires more than one person (salsa dancing, squash, fencing). It could also come from taking part in physical activity that takes you to places where you meet others who are doing the same physical activity, or have a similar interest (dog walking, hill walking, paragliding).

The wellbeing and mental health benefits of the social aspects of physical activity are applicable to all age groups throughout the life course. They can be important in terms of making friends, developing social skills (such as negotiating, working as a team, learning to deal with competition, sharing etc.) and expanding social networks. The social aspect can be of a particular benefit to those who are isolated, as building social relationships can help people develop social skills that they did not have before, which can aid social inclusion by improving people's confidence and competence in interacting with others. This can lead to the development of friendships and supportive peer relationships, which may be particularly important for older people given that about 3.8 million older people in the UK live alone.

Plato

“The part can never be well unless the whole is well.”

Physical activity: getting started and keeping up the habit

We know from national surveys that only 40% of men and 28% of women in the UK currently meet recommended physical activity guidelines of moderate intensity activity for at least 150 minutes each week, which could be broken down to 30 minutes five days a week.⁶²

6.1. Individuals Setting your own pace

One of the biggest barriers to being or becoming physically active for some people is the fear of failure. The thought of trying to incorporate 30 minutes of physical activity into each day can be so daunting to some people that they put it off and are not physically active at all. Organisations like the Royal College of Psychiatrists recognise that the most important thing is that people feel able to start being more physically active regardless of the duration or intensity of the physical activity in the first instance.

The biggest gain in terms of health benefits from physical activity comes from people who are inactive starting to do some physical activity (even if this is below the national physical activity guidelines). So the most important thing is to get started at a level which feels comfortable and build up the duration and intensity of physical activity gradually. For example, a short period (e.g. 10 minutes) of brisk walking each day is one way to begin.

Motivational theory and research has shown that having choice and control over your physical activity (i.e. what type of activity you do, how frequently and at what intensity) is associated with greater persistence and greater enjoyment of the activity. In addition, feeling a sense of competence as a result of physical activity enhances motivation as does feeling that physical activity offers the opportunity for meaningful relationships with other people.

A little help from a friend

Social support for physical activity can be very helpful for overcoming initial apprehension about being active, and it can also act as a motivator to continue to be active. Having someone to accompany you to a first visit to a new club or class, or when you are taking up a new activity for the first time, can help overcome any fears about trying something new. Having a friend with whom you exercise or who encourages you to be active can add to the enjoyment of being active. So can being a member of a club or an online social network of people who are also interested in the same form of physical activity or increasing their physical activity behaviour.

Fitting physical activity into your daily life
Lack of time is a very common barrier to people taking up physical activity. However, physical activity does not have to mean a two hour trip to a gym or other exercise facility. It can be incorporated into daily life by, for example, walking short trips rather than taking the car or bus, walking up stairs rather than taking the lift or escalator. Some activities in the home, such as housework and gardening, also count as moderate intensity physical activity, depending on the intensity at which they are done. Incorporating physical activity into one's day, rather than using an exercise facility, has the added benefit of little financial cost.

Making physical activity accessible and achievable for everyone
A common barrier for people being physically active is a belief that it is not accessible financially, physically, or geographically.

Financially

When many people think about physical activity they think of attending gyms or sports that require equipment or kit that can be expensive. Therefore, the belief that being physically active is expensive can be prohibitive. However, there are many types of physical activity that can be virtually free, many of which can be built into daily life. For example:

- Brisk walking to/from work or in lunch hour
- Outdoors gyms
- Volunteering
- Football, rounders or Frisbee in the park
- Dancing at home
- Gardening, housework, walking the dog
- Stair climbing

However, if you are interested in going to the gym or taking part in classes, local councils or local authorities may have schemes set up to offer discounts to access leisure facilities. Adult learning programmes through local councils often provide activities for a fraction of the price, as they run in terms and you buy a block of sessions.

'Exercise on prescription' schemes are available in some areas. These are where GPs can refer patients to a free exercise programme in the same way they refer patients for other forms of treatment, such as counselling. The exercise programmes are generally run by local gyms or exercise facilities. A patient will receive an initial consultation with an exercise professional, and a 10–12 week exercise programme tailored to their needs, plus continuing monitoring and support.

Participation in physical activity declines significantly with age for both men and women, and people in lower socio-economic groups are on average less active.

Working with what you've got

Some people may also feel that physical activity is not accessible to them as they feel limited by a physical condition, for example, asthma, heart conditions, diabetes or arthritis. However, it is widely known that being physically active is important in helping people self-manage their condition and look after their mental health. Guidance on how to incorporate physical activity safely is available from third sector organisations dealing with specific physical conditions, e.g. British Heart Foundation (www.bhf.org.uk/heart-health/prevention/staying-active.aspx) and Diabetes UK (www.diabetes.org.uk/Guide-to-diabetes/Healthy_lifestyle/Keeping_active), as well as from the NHS.

Body Image

Body image can act as a barrier to participating in physical activity. People who are anxious about how their body will look to others while they are exercising may avoid exercise as a result. The fact that the body tends to be on show whilst exercising, e.g. through wearing tight fitting clothing, shorts, or a swimming costume, heightens this anxiety. Anxiety about how others will perceive one's body is called 'social physique anxiety'. In general greater social physique anxiety is associated with lower levels of physical activity. This anxiety tends to be higher in women than in men and younger age groups.⁶³

Although it is likely to be hard to get started, participating in physical activity intervention programmes has been shown to reduce social physique anxiety.⁶³ For women, attending a female only exercise class or a ladies only swimming session may help to overcome anxiety as a barrier to initially starting to exercise. Exercising with a companion can also help to reduce social physique anxiety and may be particularly helpful during the first few exercise sessions. The environment can influence how one feels too; gyms with mirrored walls tend to heighten anxiety, as does exercising near a window or other space where one feels 'on show'. CBT may also help through challenging the unhelpful thinking patterns which are leading to the anxiety.

Geographical accessibility and feeling safe

Other ways in which people may not find being physically active accessible is if they have to travel far to access facilities or services. This may have a cost and time implication which may be prohibitive. In addition, public transport networks may not be available, regular or fit in with opening times of facilities or groups. Choosing to be physically active in your own neighbourhood can be a solution to some of these barriers; however, not everyone may feel safe to do so, particularly in areas or high crime or after dark. It is possible to be active within the home (e.g. exercise DVDs etc.) but local authorities should consider how they can improve accessibility to leisure facilities and spaces through coordinated transport plans and community safety initiatives (see section on policy makers p.40).

Be active outdoors

Some research suggests that doing physical activity in nature, i.e. an outdoor 'green' environment, has greater positive effects on wellbeing compared to physical activity in an indoor or outdoor built up 'grey' environment. A review of research found that compared to exercising indoors, exercising in natural environments was associated with greater feelings of revitalisation and positive engagement, decreases in tension, confusion, anger, and depression, and increased energy.⁶⁴ Greater satisfaction and enjoyment were reported following outdoor activity, along with a stronger intent to repeat the activity again at another time. The interaction between being in nature and being physically active seems to have synergistic positive effects.

Examples of organisations which promote outdoor physical activity include:

- Outdoor gyms where some gym equipment is provided in outside spaces for people to use for free e.g. nationally through the Great Outdoor Gym Company <http://www.tgogc.com/> and through some local authorities e.g. outdoor gyms in Camden <http://www.camden.gov.uk/ccm/content/leisure/sports-and-activities/outdoor-gyms>.
- Green gyms provide guided environmentally focused physical activity in the outdoors and can be found throughout the United Kingdom <http://www.tcv.org.uk/greengym/find-green-gym>. A national evaluation of Green Gyms found that 100% of participants agreed that taking part in a Green Gym has had a positive benefit on their mental health, as it has boosted their self-esteem and confidence through learning new skills and completing tasks.
- Blue gyms encourage people to be active in and around water outdoors e.g. canals, rivers, lakes and the sea. Research is being undertaken into the wellbeing benefits of doing so: <http://www.bluegym.org.uk>
- National Trust volunteering in the outdoors: <http://www.nationaltrust.org.uk/get-involved/volunteer/>
- Branching Out – outdoor physical activity for adults who use mental health services within Greater Glasgow and Clyde area <http://www.forestry.gov.uk/branchingout>

The interaction between being in nature and being physically active seems to have synergistic positive effects.

Choosing how you want to be physically active

Our personalities may influence what types of physical activity we enjoy. For example, someone who likes routine and structure may prefer a regular, structured exercise routine such as running, whereas someone who likes change and gets bored easily may prefer an exercise routine with more variety, such as circuit training or dance. Some people prefer to exercise alone and others prefer team or group activities. A website developed by sport psychologists at Loughborough University provides a short personality test and skills test and gives suggestions of what types of exercise and sport you might enjoy as a result <http://www.nhs.uk/Tools/Pages/olympics-sport.aspx>.

However you decide to become physically active it should: be enjoyable; help increase your confidence and perhaps skills; and feel like a positive choice you are making for yourself.

The NHS Choices website also has a number of tools to help people get started with physical activity, including exercises for older people, strength and flexibility videos, advice on taking up new sports, advice on getting started walking. The tools are available here: <http://www.nhs.uk/Tools/Pages/Toolslibrary.aspx?Tag=Fitness&Page=1>.

Keeping going Setting realistic goals

Statistics show that a large proportion of people who take up physical activity drop out again within the first 3 months. Setting physical activity goals can be a helpful way of maintaining motivation and the exercise habit. The acronym SMART can be used to set effective goals:

- Specific – Choose one goal to focus on at a time.
- Measureable – How will you know you've achieved your goal.
- Achievable – Make sure that you give yourself enough time to reach your desired goal or target.
- Realistic – Choose something that works to your strengths. Make it something small to begin with and build from there.
- Timed – Setting a realistic deadline can be a good motivator.

Pedometers can be very helpful for monitoring physical activity goals and maintaining motivation to be active each day. These are small, lightweight, devices which be used to measure your daily physical activity by recording and displaying the number of steps you walk. 10,000 steps per day is a good target for health, and equates to approximately 30 minutes of walking. Pedometers vary in cost, a reasonable quality one will cost around £15; they are widely available and can be bought online (e.g. www.pedometers.co.uk). Some smartphones include an inbuilt pedometer function.

Raising money for charity through sponsorship for participating in a physical activity challenge is another type of goal. Runs of various distances are a popular way of doing this. There are organised treks and other physical activity challenges such as cycle rides etc. as well, see <http://www.charitychallenge.com/index.html> for some further ideas. Altruism – or doing something good for others – provides a sense of wellbeing, see 2012's Mental Health Awareness Week report.⁶⁵ So raising money to do a physical challenge provides two to wellbeing – raising money for others and also wellbeing benefits of exercise when you are training for and carrying out the challenge itself.

Employers

On average individuals spend a third of their waking time and over 40 years of their lives at work. The increasingly sedentary nature of work means that for many people much of this time is spent being physically inactive. Evidence is accumulating to show that it is cost effective for employers to promote employee physical activity, as this has a range of positive outcomes for employees themselves and knock on business benefits. For example, physically active employees take on average 27% fewer sick days,⁶⁶ are less likely to suffer from major health problems, and less likely to have an accident at work.⁶⁷ Physically active employees have also been shown to have lower levels of presenteeism; this is when employees are at work but not fully engaged or productive. Physically active employees tend to have greater job satisfaction, greater mental alertness and greater self-confidence.⁶⁸ Indirect benefits have also been reported, such as enhanced company reputation⁶⁹ and improved team working.⁷⁰

Workplace physical activity interventions can encourage physical activity by providing opportunities to be active during the work day. Examples here include encouraging employees to use the stairs rather than the lift (posters stating the wellbeing benefits of stair-walking placed at the foot of the stairs can be effective prompts), or scheduling an appointment to meet a colleague for a walk rather than in a meeting room and have the meeting whilst walking. Clearly this would not be suitable for all meetings but it can be surprisingly productive.

Employers can also encourage employees to be active during their breaks and before and after work. For example, many employers provide an on-site gym or discount at a local leisure facility, or offer employees reductions on the cost of bicycles through the government's Cycle to Work scheme. Setting up lunchtime walking groups, a group pedometer challenge, or other group activities such as yoga can also increase activity levels. It has been shown that nominating one or two workplace Physical Activity Champion(s) can be an effective way of encouraging staff to take up and maintain physical activity. These individuals take on the role of motivating other employees to be active, act as a local source of information about physical activity opportunities, and help to create social networks around physical activity in the workplace.

Environmental changes such as providing safe bicycle storage and shower and changing facilities can support employees to take up physical activity. An important contributing factor to the success of workplace physical activity programmes is management support as this helps to create a workplace culture which is supportive of physical activity.

The British Heart Foundation 'Health at Work' website provides further suggestions and some resources to get started promoting physical activity at work <http://www.bhf.org.uk/healthatwork>.

- Other useful websites include:
- <http://www.mentalhealth.org.uk/help-information/mental-health-a-z/E/exercise-mental-health>
 - Cycle to Work Scheme: <http://www.cyclescheme.co.uk>
 - Paths for All: <http://www.pathsforall.org.uk>
 - Promoting physical activity in the workplace (NICE guidelines) <http://www.nice.org.uk/PH13>

However you decide to become physically active it should: be enjoyable; help increase your confidence and perhaps skills; and feel like a positive choice you are making for yourself.

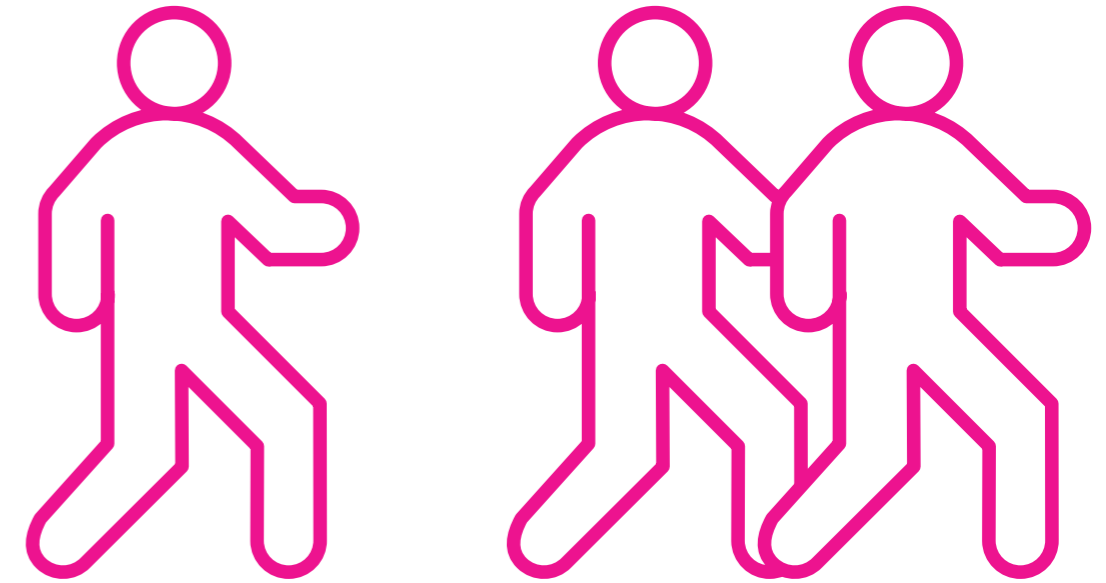
Policy makers

Policy makers at all levels need to understand and act on the benefits of physical activity outlined in this report – less stress, greater productivity, fewer days off work, increased social and community contact, protection against dementia, a reduced risk of people developing mental health problems, and an improvement in people who have mental health problems. It is therefore important that policy makers facilitate opportunities for individuals, families and local communities to undertake physical activity. That means both assessing the impact of policies on physical activity (for example, when building new housing estates or cycle paths, or developing local open spaces like parks) and providing incentives for people to get physically active (for example, free gym passes and club memberships, and easy access to information about exercise opportunities).

UK Physical activity guidelines for adults (Department of Health, 2011)

- Adults should aim to be active daily. Over a week, activity should add up to at least 150 minutes (2½ hours) of moderate intensity activity in bouts of 10 minutes or more – one way to approach this is to do 30 minutes on at least 5 days a week.
- Alternatively, comparable benefits can be achieved through 75 minutes of vigorous intensity activity spread across the week or combinations of moderate and vigorous intensity activity.
- Adults should also undertake physical activity to improve muscle strength on at least two days a week.
- All adults should minimise the amount of time spent being sedentary (sitting) for extended periods.

Separate guidelines exist for children and people over 65 years. See <https://www.gov.uk/government/publications/uk-physical-activity-guidelines> for details.



There are many different reasons why people do not participate in physical activity. Some of the common reasons include financial barriers, lack of time, feeling limited by a physical health condition, low confidence, lack of exercise facilities.

Case Study: James Kwist, Itmsoil Technical Support Manager

“At itmsoil, our employees have a history of doing great things to raise money for charity, and last September we chose the Mental Health Foundation as our charity of the year. The partnership was well thought out, as itmsoil places great importance on the mental health and wellbeing of its employees and is always looking for ways to help people deal better with stress and pressures at work.

After completing the Gran Paradiso climb last year, we decided to organise a challenge which would stretch us beyond our limits. Running the Paris Marathon was a huge goal to set and it was overwhelming to see the tremendous response it had, not only from those wanting to take part but from our CEO and colleagues wanting to support us in achieving our goal. Being given the financial support and time off to complete what was essentially a personal challenge was very humbling, and management were very quick to see the benefits the marathon would have on team building and our wellbeing.

The 14 marathon runners, despite being split across two offices in London and Uckfield, really shared a collaborative team spirit and we discussed training tips by email to keep motivated and on track. We arranged taking part in the Brighton 10km and the Eastbourne Half Marathon, as well as a social gathering in London as a means of getting people together. Having that chance to meet colleagues who you don't usually work with and connect over a different topic helped generate much better relationships through the separate offices.

On a personal level my work life is, by choice, very busy and the first thing I found quite difficult was setting aside time for training. This did condense my working hours, which was a really good thing, as I found running helped empty my mind and was an outlet to deal with the stresses daily life can bring. It has definitely been a coping mechanism for certain people and we've connected over that fact. Now I'm saying to myself I'd love to go for a run to help on all levels.

Completing the marathon gave us all a huge sense of achievement and, even though we completed it only five weeks ago, we're already looking for the next marathon to complete. Here's to the next challenge.

Thoreau

“An early-morning walk is a blessing for the whole day.”



Recommendations

We present here a number of recommendations to promote wellbeing and mental health through physical activity. These recommendations have been developed to be practical and achievable, but they do require commitment.

General public

- To recognise that being physically active can promote psychological wellbeing.
- To see physical activity as a fundamental and desirable part of our daily lives, not an add-on. There are lots of ways to be physically active so it is about finding what works for you.
- To find at least one way in which you could build increased physical activity into your daily life (e.g. taking the stairs rather than the lift, walking rather than taking the bus or tube, cycling to work or school).

Employers

- To develop a workplace culture and environment that supports and motivates employees to be physically active.

Health practitioners

- All health practitioners should be fully informed about the benefits of physical activity for both physical and psychological wellbeing. Staff working in the field of mental health need to understand, and act on, the benefits that physical activity can bring to people with mental health problems, and support them in undertaking physical activity. Furthermore, all health practitioners should be encouraged to become physically active themselves, both for their personal self-care and as role models.

Policymakers and local services

- Create physical environments which motivate people to build physical activity into their daily lives e.g. by improving street lighting and street safety, and providing safe cycling routes and open spaces for children to play.
- Promote social environments (for example, in town centres, schools, workplaces, residential homes) where physical activity is perceived as a normal and valued part of people's everyday lives.
- Tackle the financial barriers many people face by promoting types of physical activity that are free or cheap to access.
- Provide accessible information to raise awareness of opportunities for physical activity, in particular, to capture the attention of those who currently undertake minimal physical activity.
- Train sport and exercise providers in the psychological aspects of physical activity, to enable them to engage clients in a positive way, so that they build exercise confidence and self-esteem, and overcome these as barriers.
- Invest in research to explore further the links between physical activity wellbeing and mental health.

Summary

In this report we have provided an overview of the many ways in which physical activity can enhance our wellbeing.

These include enhancing our day-to-day moods, reducing the impact of stress and enhancing self-esteem. Physical activity can also reduce the likelihood of developing depression and anxiety and ameliorate symptoms in people with these conditions. With an ageing population, dementia and cognitive decline are becoming an increasing public health issue and physical activity has a role to play here as well, by reducing likelihood of developing dementia and slowing the progression of the disease.

The mechanisms by which physical activity has these positive effects are complex and multifaceted. They include physiological systems, such as neurotransmitters in the brain, and regeneration of brain neurons. At a psychological level, participating in physical activity can lead to increased confidence which has knock on positive effects on self-esteem. It can also provide a 'time out' from day-to-day worries and anxieties.

Even small amounts of physical activity are sufficient to begin gaining the wellbeing benefits of physical activity. For example, for someone who has not exercised for long time a brisk 10-minute walk every day, or every other day, would be one way to begin. Many people feel that lack of time is a barrier to being physically active; incorporating physical activity into daily routines, such getting to work and the shops, may be more practical for some than finding the time to travel to and attend a regular exercise class. We include examples of different way to be physically active and links to some useful websites with further suggestions and guidance.

We hope that this report has raised awareness of the many benefits physical activity has on wellbeing and inspired people to use physical activity to enhance their daily lives.

References

1. Department of Health (2010). *Healthy Lives, Healthy People: Our strategy for public health in England*. London: The Stationery Office.
2. Beddington J, Cooper CL, Field J, Goswami U, Huppert FA, Jenkins R, et al. (2008). The mental wealth of nations. *Nature*, 455(7216) p. 1057-60.
3. The Scottish Government (2012). *Mental Health Strategy for Scotland 2012-15*. Edinburgh.
4. Department of Health PA, Health Improvement and Protection, (2011). *Start Active, Stay Active: A report on physical activity from the four home countries' Chief Medical Officers*. London: Department of Health.
5. Thayer RE (1996). *The Origin of Everyday Moods*. New York: Oxford University Press.
6. Pasco JA, Jacka FN, Williams LJ, Brennan SL, Leslie E & Berk M (2011). Don't worry, be active: positive affect and habitual physical activity. *Australian and New Zealand Journal of Psychiatry*, 45(12) p. 1047-52.
7. Reed J & Buck S (2009). The effect of regular aerobic exercise on positive-activated affect: A meta-analysis. *Psychology of Sport and Exercise*, 10(6) p. 581-94.
8. Kanning M & Schlicht W (2010). Be Active and Become Happy: An Ecological Momentary Assessment of Physical Activity and Mood. *Journal of Sport & Exercise Psychology*, 32(2) p. 253-61.
9. Ekkekakis P, Hall EE, VanLanduyt LM & Petruzzello SJ (2000). Walking in (affective) circles: Can short walks enhance affect? *Journal of Behavioral Medicine*, 23(3) p. 245-75.
10. Ekkekakis P, Parfitt G & Petruzzello S (2011). The Pleasure and Displeasure People Feel When they Exercise at Different Intensities. *Sports Medicine*, 41(8) p. 641-71.
11. Mental Health Foundation (2013). *How to manage and reduce stress*. London.
12. Health and Social Care Information Centre (2012). *Hospital admissions for stress rise by seven per cent in 12 months*. [cited 26/04/2013]; Available from: <http://www.hscic.gov.uk/article/2233/Hospital-admissions-for-stress-rise-by-seven-per-cent-in-12-months>.
13. Health and Safety Executive (2012). *At a glance guide to Health and Safety Statistics 2011/12*.
14. Aldana SG, Sutton LD, Jacobson BH & Quirk MG (1996). Relationships between leisure time physical activity and perceived stress. *Perceptual and Motor Skills*, 82(1) p. 315-21.
15. Kouvonen A, Kivimaki M, Elovainio M, Virtanen M, Linna A & Vahtera J (2005). Job strain and leisure-time physical activity in female and male public sector employees. *Preventive Medicine*, 41(2) p. 532-9.
16. Gerber M & Puhse U (2009). Do exercise and fitness protect against stress-induced health complaints? A review of the literature. *Scandinavian Journal of Public Health*, 37(8) p. 801-19.
17. Harter S (1985). *The self perception profile for children (manual)*. Denver CO: University of Denver.
18. Fox KR (1997). Let's get physical. In: Fox KR, editor. *The physical self: from motivation to well-being*. Leeds: Human Kinetics.
19. Lindwall M & Aççi FH (in press). Physical Activity and Self-Esteem. In: Clow A, Edmunds S, editors. *Physical activity and mental health*. Champaign, IL: Human Kinetics.
20. Spence JC, McGannon KR & Poon P (2005). The effect of exercise on global self-esteem: A quantitative review. *Journal of Sport & Exercise Psychology*, 27(3) p. 311-34.
21. Singleton N, Bumpstead R, O'Brien M, Lee A & Meltzer H (2001). *Psychiatric Morbidity Among Adults Living In Private Households 2000*. London: The Stationery Office.
22. Kirsch I, Deacon BJ, Huedo-Medina TB, Scoboria A, Moore TJ & Johnson BT (2008). Initial Severity and Antidepressant Benefits: A Meta-Analysis of Data Submitted to the Food and Drug Administration. *PLoS Medicine*, 5(2) p. e45.
23. Chalder M, Wiles NJ, Campbell J, Hollinghurst SP, Haase AM, Taylor AH, et al. (2012). Facilitated physical activity as a treatment for depressed adults: randomised controlled trial. *BMJ*, 344 p.
24. Rimer J, Dwan K, Lawlor D, Greig C, McMurdo M, Morley W, et al. (2012). Exercise for depression. *Contract No.: Art. No.: CD004366*.
25. Krogh J, Nordentoft M, Sterne JA & Lawlor DA (2011). The effect of exercise in clinically depressed adults: systematic review and meta-analysis of randomized controlled trials. *Journal of Clinical Psychiatry*, 72(4) p. 529-38. Epub 2010/11/03.
26. Perraton LG, Kumar S & Machotka Z (2010). Exercise parameters in the treatment of clinical depression: a systematic review of randomized controlled trials. *Journal of Evaluation in Clinical Practice*, 16(3) p. 597-604.
27. Dunn AL, Trivedi MH, Kampert JB, Clark CG & Chambliss HO (2005). Exercise treatment for depression - Efficacy and dose response. *American Journal of Preventive Medicine*, 28(1) p. 1-8.
28. Trivedi MH, Greer TL, Church TS, Carmody TJ, Grannemann BD, Galper DJ, et al. (2011). Exercise as an augmentation treatment for nonremitted major depressive disorder: a randomized, parallel dose comparison. *Journal of Clinical Psychiatry*, 72(5) p. 677-84. Epub 2011/06/11.
29. Callaghan P, Khalil E, Morris I & Carter T (2011). Pragmatic randomised controlled trial of preferred intensity exercise in women living with depression. *BMC Public Health*, 11(1) p. 465.
30. NHS Choices (2012). *Generalised anxiety disorder*. Available from: <http://www.nhs.uk/Conditions/Anxiety/Pages/Introduction.aspx>.
31. Conn VS (2010). Anxiety outcomes after physical activity interventions: meta-analysis findings. *Nursing Research*, 59(3) p. 224-31.
32. Wipfli BM, Rethorst CD & Landers DM (2008). The anxiolytic effects of exercise: a meta-analysis of randomized trials and dose-response analysis. *J Sport Exerc Psychol*, 30(4) p. 392-410. Epub 2008/08/30.
33. Goodwin RD (2003). Association between physical activity and mental disorders among adults in the United States. *Preventive Medicine*, 36(6) p. 698-703.
34. Merom D, Phongsavan P, Wagner R, Chey T, Marnane C, Steel Z, et al. (2008). Promoting walking as an adjunct intervention to group cognitive behavioral therapy for anxiety disorders—A pilot group randomized trial. *Journal of Anxiety Disorders*, 22(6) p. 959-68.
35. Asmundson GJG, Fetzner MG, DeBoer LB, Powers MB, Otto MW & Smits JAJ (2013). Let's get physical: a contemporary review of the anxiolytic effects of exercise for anxiety and its disorders. *Depression and Anxiety*, p. n/a-n/a.
36. Martinez JT (in press). *Dementia and Alzheimer's Disease*. In: Clow A, Edmunds S, editors. *Physical activity and mental health*. Champaign, IL: Human Kinetics.
37. Larson EB, Wang L, Bowen JD, McCormick WC, Teri L, Crane P, et al. (2006). Exercise is associated with reduced risk for incident dementia among persons 65 years of age and older. *Annals of Internal Medicine*, 144(2) p. 73-81. Epub 2006/01/19.
38. Geda Ye RROKDS & et al. (2010). Physical exercise, aging, and mild cognitive impairment: A population-based study. *Archives of Neurology*, 67(1) p. 80-6.
39. Sofi F, Valecchi D, Bacci D, Abbate R, Gensini GF, Casini A, et al. (2011). Physical activity and risk of cognitive decline: a meta-analysis of prospective studies. *Journal of Internal Medicine*, 269(1) p. 107-17.
40. Snowden M, Steinman L, Mochan K, Grodstein F, Prohaska TR, Thurman DJ, et al. (2011). Effect of exercise on cognitive performance in community-dwelling older adults: review of intervention trials and recommendations for public health practice and research. *Journal of the American Geriatrics Society*, 59(4) p. 704-16. Epub 2011/03/29.
41. Davidson S, Judd F, Jolley D, Hocking B, Thompson S & Hyland B (2001). Cardiovascular Risk Factors for People with Mental Illness. *Australian and New Zealand Journal of Psychiatry*, 35(2) p. 196-202.
42. Alexandratos K, Barnett F & Thomas Y (2012). The impact of exercise on the mental health and quality of life of people with severe mental illness: a critical review. *British Journal of Occupational Therapy*, 75(2) p. 48-60.
43. Gorczyński P & Faulkner G (2010). Exercise therapy for schizophrenia. *Cochrane Database Systematic Reviews*, 12(5) p. CD004412.
44. Bonsakseni T & Lerdal A (2012). Relationships between physical activity, symptoms and quality of life among inpatients with severe mental illness. *British Journal of Occupational Therapy*, 75(2) p. 69-75.
45. Nyboe L & Lund H (2013). Low levels of physical activity in patients with severe mental illness. *Nordic Journal of Psychiatry*, 67(1) p. 43-6.
46. Quinn M (2011). *Overtraining Syndrome and Athletes*. Learn the signs and symptoms of overtraining syndrome in athletes. [cited 26/04/2013]; Available from: <http://sportsmedicine.about.com/cs/overtraining/a/aa062499a.htm>.
47. Costin C (1999). *The eating disorder sourcebook: a comprehensive guide to the causes, treatment and prevention of eating disorders*. Lincolnwood, IL: Lowell House.
48. Hausenblas HA & Downs DS (2002). How much is too much? The development and validation of the exercise dependence scale. *Psychology & Health*, 17(4) p. 387-404.
49. Gapin J, Etnier JL & Tucker D (2009). The relationship between frontal brain asymmetry and exercise addiction. *Journal of Psychophysiology*, 23(3) p. 135-42.
50. Johnston O, Reilly J & Kremer J (2011). Excessive exercise: From quantitative categorisation to a qualitative continuum approach. *European Eating Disorders Review*, 19(3) p. 237-48.
51. Davis C (2000). Exercise abuse. *International Journal of Sport Psychology*, 31(2) p. 278-89.
52. Freimuth M, Moniz S & Kim SR (2011). Clarifying Exercise Addiction: Differential Diagnosis, Co-occurring Disorders, and Phases of Addiction. *International Journal of Environmental Research and Public Health*, 8(10) p. 4069-81.
53. Dishman RK & O'Connor PJ (2009). Lessons in exercise neurobiology: The case of endorphins. *Mental Health and Physical Activity*, 2(1) p. 4-9.
54. Erickson KI, Gildengers AG & Butters MA (2013). Physical activity and brain plasticity in late adulthood. *Dialogues in clinical neuroscience*, 15(1) p. 99.
55. Robotham D, Chakkalackal L & Cyhlarova E (2011). Sleep Matters. The impact of sleep on health and wellbeing. London: Mental Health Foundation.
56. Loprinzi PD & Cardinal BJ (2011). Association between objectively-measured physical activity and sleep, NHANES 2005–2006. *Mental Health and Physical Activity*, 4(2) p. 65-9.
57. Passos GS, Poyares D, Santana MG, Garbuio SA, Tufik S & Mello MT (2010). Effect of acute physical exercise on patients with chronic primary insomnia. *Journal of clinical sleep medicine : JCSM : official publication of the American Academy of Sleep Medicine*, 6(3) p. 270-5.
58. Passos GS, Poyares D, Santana MG, D'Aurea CVR, Youngstedt SD, Tufik S, et al. (2011). Effects of moderate aerobic exercise training on chronic primary insomnia. *Sleep Medicine*, 12(10) p. 1018-27.
59. Paluska SA & Schwenk TL (2000). Physical activity and mental health - Current concepts. *Sports Medicine*, 29(3) p. 167-80.
60. Craft LL (2005). Exercise and clinical depression: examining two psychological mechanisms. *Psychology of Sport and Exercise*, 6(2) p. 151-71.
61. Heaney CA & Israel BA (2008). Social networks and social support. In: Glanz K, Rimer BK, Viswanath K, editors. *Health behavior and health education: theory, research, and practice*. 4th ed. San Francisco: Jossey-Bass. p. 189-210.
62. Craig R, Mindell J & Hirani V (2008). *Health survey for England - 2008: Physical activity and fitness. Summary of key findings.: The NHS Information Centre*; [cited 23 February 2011]; Available from: <http://www.ic.nhs.uk/pubs/hse08physicalactivity>.
63. Hausenblas HA, Brewer BW & Van Raalte JL (2004). Self-Presentation and Exercise. *Journal of Applied Sport Psychology*, 16(1) p. 3-18.
64. Thompson Coon J, Boddy K, Stein K, Wear R, Barton J & Depledge MH (2011). Does Participating in Physical Activity in Outdoor Natural Environments Have a Greater Effect on Physical and Mental Wellbeing than Physical Activity Indoors? A Systematic Review. *Environmental Science & Technology*, 45(5) p. 1761-72.
65. Mental Health Foundation (2012). *Doing good. Altruism and wellbeing in an age of austerity*. London: Mental Health Foundation.
66. Black C (2008). *Working for a healthier tomorrow: Dame Carol Black's Review of the health of Britain's working age population*. London: The Stationery Office.
67. Dishman RK, Oldenburg B, O'Neal H & Shephard RJ (1998). Worksite physical activity interventions. *American Journal of Preventive Medicine*, 15(4) p. 344-61.
68. Ackland T, Braham R, Bussau V, Smith K, Grove R & Dawson B (2005). *Workplace Health and Physical Activity Program Review - Report*. Perth, Western Australia: Department of Sport and Recreation, Western Australian Government.
69. Pricewaterhouse Coopers (2008). *Building the case for wellness*. London: Pricewaterhouse Coopers.
70. British Heart Foundation (2008). *Well@Work: a summary report and calls to action*. London: British Heart Foundation.



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