

**E233\_2   Sport and exercise psychology: a case study approach**

**Exercise and mental health**

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## Introduction

Physical activity can have a positive effect on aspects of mental health and psychological well-being, such as depression, mood and cognitive function. In this course we will examine the effects that exercise can have on different aspects of our mental health. We will use the case study of Malcolm.

We will begin by defining what is meant by the term ‘mental health’. Corbin et al. (2008, p.5) define mental health and wellness as the absence of mental illness, such as depression, and the ability to cope with daily challenges in a positive, optimistic and constructive manner. Using this definition there are potentially two ways in which exercise can benefit mental health. First, exercise can prevent or reduce the extent of mental illnesses such as depression. Second, exercise can enhance mood and reduce stress levels, thus allowing us to tackle daily challenges in a more positive, optimistic and constructive way.

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## Learning outcomes

After studying this course, you should be able to:

* demonstrate an awareness of the links between physical activity and mental health
* understand some of the proposed theories of why exercise benefits mental health.

## 1 Exercise and mental health

Start of Activity

**Activity 1 The psychological benefits of exercise**

Allow about 30 minutes

Start of Question

View the [Mental Health Foundations’s guide on ‘How to look after your mental health using exercise’.](https://www.mentalhealth.org.uk/publications/how-to-using-exercise)

Make a list of the key psychological benefits potentially associated with participating in physical activity and some of the research studies that support these beenfits.

End of Question

[View comment - Activity 1 The psychological benefits of exercise](" \l "Session1_Discussion1)

End of Activity

Start of Activity

**Activity 2 Evidence to support the link between physical activity and mental health**

Allow about 30 minutes

Start of Question

In the previous activity you examined some of the evidence that links participation in physical activity with improved mental health. In this activity you will examine the importance of such research and the types of research evidence that exist.

Listen to Track 1, ‘Physical activity and mental health: what’s the evidence?’, and complete the tasks below. In this clip you will hear Dr Gaynor Parfitt and Professor Adrian Taylor discussing the evidence that exists to support the notion that there is a link between physical activity and mental health. Dr Parfitt and Professor Taylor are exercise psychologists at the University of Exeter, specialising in this field of research.

Start of Media Content

Audio content is not available in this format.

Physical activity and mental health: what's the evidence?

[View transcript - Physical activity and mental health: what's the evidence?](" \l "Session1_Transcript1)

End of Media Content

1. Make a list of the types of research they discuss (e.g. epidemiological research). Search for definitions of these types of research using the internet.)
2. Why is it important to provide research evidence of the link between exercise and mental health?
3. What is said about the quality of some of the research that exists?

End of Question

[View comment - Activity 2 Evidence to support the link between physical activity and mental hea ...](" \l "Session1_Discussion2)

End of Activity

## 2 The role of exercise in reducing anxiety and depression

It has been suggested that one in six adults in Great Britain suffers from a mental health condition, such as depression or anxiety (Cooper and Bebbington, 2006), which makes the effective treatment of these conditions an issue of great importance. Anti-depression medication is often prescribed to treat depression, but compliance with taking these medications is often poor and they can have negative side effects (Lawlor and Hopker, 2001). Exercise has been suggested as an alternative or additional treatment to medication and other treatments.

Start of Activity

**Activity 3 Fit to fight depression**

Allow about 20 minutes

Start of Question

View the video titled ‘Fit to fight depression’. This video outlines the work of universities in the south-west of England investigating the role of exercise in reducing depression. What are the benefits of using exercise to treat depression as opposed to anti-depression medication?

If you are reading this course as an ebook, you can access this video here: [Fit to Fight Depression](https://www.youtube.com/watch?v=8G19oeJD8Nc)

End of Question

[View comment - Activity 3 Fit to fight depression](" \l "Session2_Discussion1)

End of Activity

Start of Box

**Case study: Malcolm**

Malcolm has been having a difficult time recently. Six months ago his brother died after a long illness. He was very close to his brother and has found it difficult to come to terms with the loss. Malcolm has gradually become more and more withdrawn and depressed. Some mornings he simply can’t face leaving the house and going to work and often spends the day in bed feeling low and unhappy.

Malcolm’s doctor has told him that he is suffering from depression. The doctor is reluctant to prescribe anti-depression medication to Malcolm, so instead recommends exercise. However, Malcolm is a little sceptical that exercise can help him.

End of Box

## 3 Why does exercise improve mental health?

So far, we have seen lots of evidence to show that exercise can have a positive impact on mental health, but why is this the case? What is it about engaging in physical activity that leads to enhanced mental health? In the next activity we will attempt to answer this question.

Start of Activity

**Activity 4 Why does exercise benefit mental health?**

Allow about 35 minutes

Start of Question

Make a list of the reasons you think might explain why exercise improves mental health.

Now listen to Track 2, ‘Physical activity and mental health: why does it work?’. In this clip, Dr Gaynor Parfitt and Professor Adrian Taylor discuss some of the proposed theories about why exercise enhances mental health.

Start of Media Content

Audio content is not available in this format.

Physical activity and mental health: why does it work?

[View transcript - Physical activity and mental health: why does it work?](" \l "Session3_Transcript1)

End of Media Content

How do your explanations compare with those outlined in the extracts you have read or listened to? You may wish to use the Comments section below to share your thoughts about which explanations seem most plausible to you, and comment on other postings from members of your group.

End of Question

[View comment - Activity 4 Why does exercise benefit mental health?](" \l "Session3_Discussion1)

End of Activity

Start of Figure



Inga Spence/Alamy

Figure 1 Exercise can make us feel better and improve our mood

End of Figure

It has been shown that exercise has a positive effect on mental health, but in practice it can be difficult to pinpoint the exact reasons why. This may be because a combination of factors is leading to improvements in mental health, rather than one factor alone. Also, because people differ greatly, explanations for improvements to mental health may vary according to the person concerned.

## Conclusion

This free course provided an introduction to studying Education, Child and Youth Qualifications. It took you through a series of exercises designed to develop your approach to study and learning at a distance and helped to improve your confidence as an independent learner.

Start of Box

This resource is part of the ‘[Wellbeing and Mental Health Collection](https://www.open.edu/openlearn/health-sports-psychology/openlearn-cymru/health-and-wellbeing-collection-english)’ collated by The Open University in Wales. You can find out more and discover other courses, articles and interactives on the [collection homepage](https://www.open.edu/openlearn/health-sports-psychology/openlearn-cymru/health-and-wellbeing-collection-english).

End of Box

## References

Cooper, C. and Bebbington, P. (2006) ‘Mental health’ in Bajekal, M., Osborne, V., Yar, M. and Meltzer, H. (eds) Focus on Health, Basingstoke, Palgrave Macmillan.

Corbin, C.B., Welk, G.J., Corbin, W.R. and Welk, K.A. (2008) Concepts of Physical Fitness: Active Lifestyles for Wellness (14th edn), London, McGraw-Hill.

Lawlor, D.A. and Hopker, S.W. (2001) ‘The effectiveness of exercise as an intervention in the management of depression: systematic review and meta-regression analysis of randomised controlled trials’, British Medical Journal (Clinical Research edn), vol. 322, no. 7289, pp. 763–7.

## Acknowledgements

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**Figure 1**: © Inga Spence/Alamy

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## Solutions

## Activity 1 The psychological benefits of exercise

#### Comment

The key benefits noted within the guide are:

1. Exercise is associated with increased mental alertness.
2. Exercise can lead to an increase in energy and positive mood.
3. Exercise can lead to an increase in self-esteem.
4. Exercise results in the reduction of stress and anxiety.
5. Exercise can prevent the development of mental health problems.
6. Exercise can improve the quality of life of those who are experiences mental health problems.

[Back to - Activity 1 The psychological benefits of exercise](" \l "Session1_Activity1)

## Activity 2 Evidence to support the link between physical activity and mental health

#### Comment

1. Dr Parfitt and Professor Taylor discuss two main types of research:
   * **Dose–response research**. As the name suggests, dose–response studies involve participants being given a dose of something, after which their response is measured. In this case, participants would be given a ‘dose’ of physical activity and the impact on their mental health (response) measured.
   * **Epidemiological research**. Epidemiology is the study of the incidence, prevalence and control of health and disease across a population. In the context of this activity, epidemiological research would therefore be interested in patterns of mental health and physical activity across a population.
2. Professor Taylor suggests that the more evidence there is for a positive link between physical activity and mental health, the more likely it is that healthcare services will be directed towards providing exercise as a treatment for mental health conditions. Unless evidence can be provided, the government will not invest in exercise as a treatment for such conditions.
3. Professor Taylor suggests that although most people believe that exercise makes you feel better, the quality of research examining exercise and mental health is not always as good as it could be. This is often because it can be difficult to control physical activity.

[Back to - Activity 2 Evidence to support the link between physical activity and mental health](" \l "Session1_Activity2)

## Activity 3 Fit to fight depression

#### Comment

The video gives an interesting account of depression in the UK in general and the work of the universities involved in the project. The researchers in the video suggest that exercise may be a better form of treatment than medication, because it can give people a sense of control and self-management and has minimal side effects.

[Back to - Activity 3 Fit to fight depression](" \l "Session2_Activity1)

## Activity 4 Why does exercise benefit mental health?

#### Comment

There is no one theory or hypothesis that has been universally accepted to explain the link between exercise and mental health. Instead, several different hypotheses have been proposed. These can be split into two categories: (1) physical or bio-physical and (2) psychological or psychosocial.

[Back to - Activity 4 Why does exercise benefit mental health?](" \l "Session3_Activity1)

# Physical activity and mental health: what's the evidence?

## Transcript

Prof. Adrian Taylor - Exercise Psychologist, Exeter University:

When I speak to students and people involved in exercise programmes, there's hardly anybody I ever meet that says that exercise doesn't make you feel better. So, obviously, people continue doing exercise, [and because] they feel better, they continue doing it. When it comes to looking at the scientific evidence for whether physical activity improves mental health, it becomes a very different challenge. Why is that question important? Because it might lead to extra resources within healthcare services being directed into exercise programmes for treating people with mental health problems. So accumulation of scientific evidence is paramount in an evidence-based health service. So what evidence is there for exercise improving mental health for different conditions? Let me first start by looking at exercise and the treatment for depression. Many studies have been conducted on the effects of physical activity and depression, not quite so many on people with defined clinical levels of depression, but in those studies that have, there is a general consensus that exercise does help reduce depression.

Dr Gaynor Parfitt - Exercise Psychologist, Exeter University:

One of, perhaps, the most robust [proofs] is [evidence] from some epidemiological research that's actually showing that, if certain criteria are met for a health problem that's being treated by a certain intervention, if there's consistency of data across gender, for example, if there's coherence across nations for the effect size – how big a change occurs. For all of those things, depression certainly has been shown to be improved [as a result of] physical exercise.

Prof. Adrian Taylor - Exercise Psychologist, Exeter University:

Not always, and if you look at the more rigorous trials, a more recent review that came out in 2009, by Mead, identified that the most rigorous trials actually don't support the very strong benefit of exercise compared with nothing. Exercise does help, compared with cognitive behavioural therapy; the benefits are similar. So overall, it becomes really difficult to say, does exercise work or not? The jury may still be out. If you conduct studies, for example, where the people who are assessing depression are not aware of whether the person is doing exercise or not, then those studies don't show as strong an effect.

Dr Gaynor Parfitt - Exercise Psychologist, Exeter University:

There's also been some dose response research that's shown that, if we measure people and their levels of psychological health that are exercisers, versus those that aren't, they've actually identified that exercising and accumulating a certain amount of physical activity over a week does have a protective effect against future depression.

Prof. Adrian Taylor - Exercise Psychologist, Exeter University:

So there are problems with some of the research that has been done over a period of 30 years. Maybe the standard – the level of scientific evidence – isn't quite as strong as it might be, say, for a drug trial with double randomised blind effects, and so on. So the jury may be out. Although if you ask most people, they would say that exercise makes you feel better.

Dr Gaynor Parfitt - Exercise Psychologist, Exeter University:

Depression has the strongest relationship [with exercise]; for anxiety and self-esteem, the effect sizes aren't as strong. And typically, we look at exercise as an adjunct treatment rather than, potentially, as just a stand-alone. So when we use it with psychotherapy, or with drug therapy, then it certainly has been shown to provide an additional benefit.

Prof. Adrian Taylor - Exercise Psychologist, Exeter University:

In terms of other mental health conditions, we might think about stress and anxiety. And, again, there is evidence that exercise reduces general levels of anxiety over time and, also, … – on a transient level from each exercise session – there may be reductions in anxiety and, perhaps, also reactivity to stress. So, for example, to put that last statement into practical terms, if you exercise just before an interview with your boss or a stressful moment, it may be that your blood pressure and your reactivity to that stress aren’t as great after a single bout of activity. So there is evidence that exercise does reduce our general levels of anxiety and arousal, including blood pressure and so on. In terms of other mental health conditions, the typical ones that we think about that have been most reported in the literature might be more severe mental illnesses, such as schizophrenia. The evidence there really is that it's not going to change your medical condition. It may improve some of the symptoms, some of the feelings of mood and worthlessness, but it's not going to change [you]. It's not going to be a total treatment for a psychotic illness, but it certainly would improve quality of life and, again, there is an evidence base that's improving there. For example, somebody with severe mental illness, often due to side-effects of medication, [may] put on large amounts of weight, so exercise could be used as part of that weight management programme, which, in turn, improves people's self-esteem, and so on.

[Back to - Physical activity and mental health: what's the evidence?](" \l "Session1_MediaContent1)

# Physical activity and mental health: why does it work?

## Transcript

Dr Gaynor Parfitt - Exercise Psychologist, Exeter University:

Physical exercise’s impact on mental health ought to be able to work for everybody, basically because of the potential underlying mechanisms that are thought to explain why physical activity would impact. And those mechanisms range from very specific impacts of physical activity on neuro-transmitters in the brain through to the effect that just going for some physical activity exercise has as a time out, as a distraction from your day-to-day worries. Each of those theories – whether we're talking about a neuro-transmitter explanation or an endorphin explanation, or we're talking about the mastery, the confidence that you may get from exercise – all have some strengths, and they all have some weaknesses.

Prof. Adrian Taylor - Exercise Psychologist, Exeter University:

We can talk about bio-physical processes or psychosocial processes....It's useful to look at psycho-social processes. We call it the 'three C's' in terms of how people feel in terms of their competence, how much control they have over their behaviour and how it impacts on their health and, also, how much companionship and relatedness that they have with other people. Those three things seem to be quite important for mental health. If we feel competent about what we do, we tend to feel better about ourselves and have better mental health. If we feel in control, we can control what we do, we have choice, autonomy over what we do, and we feel that it actually makes a difference to how we are. And if we feel that other people are interested and we can relate to other people, then that also helps us feel better about ourselves, and our mental health tends to be better.

Dr Gaynor Parfitt - Exercise Psychologist, Exeter University:

Some people will not appreciate that and will not accept that they're physically becoming more in control in their lives, or that they're physically becoming fitter, potentially because of their other mental health problems. And so for them, it might not work from a mastery perspective as successfully. But that doesn't mean to say that the other neuro-psychological changes aren't occurring.

Prof. Adrian Taylor - Exercise Psychologist, Exeter University:

People have been interested in the link between physical activity and mental health through bio-physical processes. Bio-physical processes could include several things, one that there is a temperature change, as you exercise you become warmer, which has been associated with feeling better. So those might be some temporary changes. But in terms of longer term changes through a prolonged period of activity, what might some of the changes be? One of them might be reductions in muscle tension, so you feel less aroused and less stressed, if you like, so there are physical changes in muscle relaxation.

Dr Gaynor Parfitt - Exercise Psychologist, Exeter University:

The neuro-transmitter explanations and the endorphin explanations and the thermagenic, which is that muscle-warming, muscle relaxation, they have problems in that as soon as I start to exercise there's more oxygen circulating, that triggers endorphins and neuro-transmitters and relaxes muscles, so all of the systems are being activated and, therefore, to be able to say it's this one that's having the effect is unlikely to occur. And so we now talk much more about having a synergy, having a combination of those mechanisms to actually explain why it works.

Prof. Adrian Taylor - Exercise Psychologist, Exeter University:

Other ones might include changes in the way the brain functions. Increasingly, people are interested in development of Alzheimer's and dementia in older people, and whether physical activity influences that through some kind of regeneration of brain tissue associated with cognitive functioning. So there is some evidence that exercise may influence how we process information, which is related to changes in the brain. Other people often talk about reductions in depression related to endorphins. Endorphins are quite complicated molecules, it may not be quite as simple as simply increasing endorphins, there might be other things such as dopamine, which is more important and linked to mood states and reduction in depression. So several ways, several bio-physical ways in which exercise might improve mental health.

[Back to - Physical activity and mental health: why does it work?](" \l "Session3_MediaContent1)