

# GETTING ACTIVE

Exercise as a treatment for depression in young people

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*Depression is affecting an increasing number of adolescents and its impact can be devastating. Can exercise help? Dr Tim Carter, Assistant Professor in Mental Health at the University of Nottingham, has carried out extensive research.*

Treatments for depression in young people typically fall into two camps – psychological and pharmacological. The latter is usually reserved for more severe depression and introduced only when the former is not having an impact (NICE [CG28], 2013). However, young people are increasingly being prescribed anti-depressant medications, the side effects of which can be severe. Much of the evidence points towards a combination of psychological and pharmacological treatments being the most effective approach (Cox et al, 2012; March et al, 2004) – not ideal considering these side effects. Is there an alternative to help alleviate depression that could be used alongside psychological therapy and minimise the use of medication, an effective approach with minimal side effects? How about exercise?

Research into exercise and its effects on mental health can be traced back to pioneering work by William Morgan, who found that the fitness levels of psychiatric inpatients were lower than non-hospitalised controls (Morgan 1968). More recently, numerous randomised controlled trials have compared exercise to other treatments and generally, when synthesised, the evidence suggests exercise may be as effective as other forms of treatment (Cooney et al, 2013).

The evidence base for exercise as a treatment for depression in young people is less established, but it is there and is growing. A recent systematic review included all randomised controlled trials that tested exercise as a treatment for depression in young people aged 13-17 years. It found that exercise reduced depression symptoms at a similar rate as other forms of treatment (Carter et al, 2016a). We could take from this that, if exercise is only as good as other treatments, why is it needed? Alternatively, if exercise potentially leads to similar results as other treatments, whilst being free from adverse side effects and bringing physical health benefits, that argument quickly disappears!

Moreover, it has been shown that exercise for young people with depression leads to a host of positive changes alongside the reduction of the depressive symptoms. A study of young people receiving treatment for depression who also engaged in a six-week exercise class found that exercise led to improved sleep and increased energy levels, improved mood, and increased motivation and confidence to engage in leisure and school activities (Carter et al. 2016b). Importantly, many participants reported that these positive changes were connected. For instance, one young person noticed their sleep improved, so they had more energy the next day. Subsequently they were able to concentrate better at school which led to another successful day. This put them in a good mood so they felt motivated to spend time with their family in the evening. The young person said this cycle continued and stemmed from one good night’s sleep.

So what underpins the relationship between exercise and depression? There doesn’t seem to be one simple explanation but lots of potential reasons. The first and most popular theory is that exercise leads to the release of endorphins, the body’s natural pain relief. This is commonly referred to as ‘runner’s high’ as it produces a feeling of improved mood following a bout of aerobic exercise. A similar explanation is the monoamine hypothesis, which states that exercise results in an increased amount of monoamines (dopamine, norepinephrine, epinephrine, and serotonin) in the brain – chemicals reduced in those with depression. Interestingly, increasing the availability of serotonin is how most anti-depressants work too. These theories could explain the relationship between exercise and depression but are unlikely to explain it fully. Depression is a multifaceted, complex disorder and so it would seem improbable that occasional boosts in endorphins, and subsequently mood, could lead to change in depression, especially considering that low mood is just one symptom.

There are many theories and ideas to explain the exercise–depression relationship from a psychological and social perspective. The distraction hypothesis (Bahrke and Morgan 1978) suggests that physical activity serves as a distraction from worries and depressing thoughts and therefore diverts attention from rumination and unhelpful thinking. The mastery hypothesis (Greist et al, 1979), suggests that exercise offers a person the means to gain control in an area of their life (Biddle and Mutrie, 2008). The theory of learned helplessness suggests that people with depression tend to feel there is no action they can take to alleviate their problems. This develops over time, from a variety of situations, and leads to individuals feeling they have little control over their lives (Biddle and Mutrie, 2008); when people develop a course of action, follow a plan and meet a desired outcome in the face of challenging circumstances (eg engage in consistent exercise) they are likely to feel a sense of achievement not typically experienced by those with depression. Consistent engagement in exercise can also lead to increased opportunities for social interaction and pleasurable experiences, and re-establishment of routine, all of which are thought helpful in the alleviation of depression. Finally, exercise can lead to positive changes in sleep and energy levels, and is unique in its ability to do so. Changes in these vital symptoms can have profound knock-on effects to other areas of a young person’s life and this is perhaps one of the key ways in which exercise can help lift depression.

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