

Inactivity and depression in adolescence

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SEDENTARY BEHAVIOUR DURING ADOLESCENCE IS ASSOCIATED WITH AN INCREASED RISK OF depressive symptoms at the age of 18, a UK study has found.¹

The Avon Longitudinal Study of Parents and Children (ALSPAC) has followed up 14,901 children born in the Bristol area between 1991 and 1992. Physical activity was measured at ages 12, 14 and 16 using accelerometers. Activity was classed as sedentary (≤ 199 counts/minute [CPM]; e.g. lying or sitting still), light (200–3,599 CPM; e.g. slow walking) and moderate-vigorous ($\geq 3,600$ CPM; e.g. brisk walking or jogging).

Depressive symptoms (score range 0–21) were measured at age 18 with the self-administered computerised Clinical Interview Schedule-Revised (CIS-R).

There were 4,257 participants with a CIS-R depression score at the age of 18 years. Of these, 2,486 had adequate physical activity measurements at age 12, 1,938 at age 14 and 1,220 at age 16.

The median CIS-R score at 18 years was 2 and 747 participants (17.5%) had 'possible depression' (CIS-R ≥ 7). The results were adjusted for baseline depression at 12 years, IQ, parental psychiatric history and a range of sociodemographic factors.

Throughout adolescence there was a steady increase in sedentary behaviour at the expense of light activity. For every additional hour of sedentary activity per day at age 12, there was an 11.1% increase in the depression score at age 18; incident rate ratio (IRR) 1.111 (95% CI: 1.051–1.176). For each additional hour at ages 14 and 16, there was an 8% and 10.7% increase in the depression score at 18; IRR 1.080 (95% CI: 1.012–1.152) and 1.107 (95% CI: 1.015–1.208) respectively.

Conversely, there was a 9.6%, 7.8% and 11.1% decrease in the depression score at 18 for every additional hour of light activity per day at age 12, 14 and 16, respectively; IRR at age 12, 14 and 16: 0.904 (95% CI: 0.850–0.961), 0.922 (95% CI: 0.857–0.992) and 0.889 (95% CI: 0.809–0.974).

For every additional 15 minutes of moderate-vigorous activity per day at age 12 there was a 9% drop in the depression score at 18; IRR 0.910 (95% CI: 0.857–0.966), but no association was found at ages 14 and 16.

The relationship between physical activity and depression is likely to be bidirectional.² Physical inactivity is a symptom of depression, and the prospective longitudinal design of the present study suggests that inactivity can lead to depression. This is consistent with the results of a small randomised trial which found that an increase in sedentary behaviour

was associated with increased emotional distress.³

The authors suggest that the lack of association between moderate-vigorous activity at ages 14 and 16, and depressive symptoms at age 18 may be a type 2 error resulting from the tiny proportion of participants who were engaging in moderate-vigorous activity.

They also acknowledge that there may have been residual confounding factors such as screen time: spending more time on social media rather than sitting down per se may increase the risk of depression.

The CIS-R depression score is the sum of the depression, fatigue, concentration, sleep and depressive thoughts symptom scores. The association

between sedentary behaviour and higher depression symptom scores does not necessarily equate to an increased risk of depression.

Exercise is known to improve sleep⁴ and lack of sleep is associated with fatigue and impaired concentration. So the trial findings may simply reflect the fact that adolescents who are more active sleep better.

The authors conclude that 'interventions focused around light activity could be a practical method of reducing sedentary behaviour and risk of depression in young people.' A simple measure would be the provision of standing desks in schools. They also suggest that encouraging children to spend 2 hours less per day sitting down could be an effective intervention for subthreshold depression.

NICE recommends that health practitioners should 'ensure that parents and carers are aware of government advice on how much physical activity children and young people should be doing (i.e. at least 60 minutes of moderate-vigorous activity per day).'⁵ Adolescents should be routinely asked about physical activity and sedentary behaviour levels,⁶ and every opportunity taken to emphasise the mental health benefits of physical activity.

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