

# Physical activity and depression

Depression, in combination with anxiety, is the number one non-fatal disease affecting Australians. It is the second most common cause of lost healthy life years in our community, ranking only after ischaemic heart disease.<sup>1</sup>

Accumulating evidence suggests that regular physical activity is effective in preventing and managing depression as well as other chronic diseases including cardiovascular disease and diabetes.<sup>2</sup> However, a significant majority of Australians are not active enough for health benefits.<sup>1</sup>

The amount of physical activity recommended for health benefits is at least 30 minutes of moderate-intensity physical activity (produces a noticeable increase in breathing depth and rate but still allows person to talk comfortably) on most, if not all, days of the week. This activity dose can be accumulated in shorter bouts, such as three 10-minute walks.<sup>3</sup>



[www.heartfoundation.org.au](http://www.heartfoundation.org.au)  
For heart health information  
call 1300 36 27 87

Depression is one of the four most common problems managed in general practice.<sup>1</sup> In the most recent Australian Mental Health Survey, 4% of adults reported a depressive disorder in the past month,<sup>4</sup> but this figure may underestimate the true prevalence of depression.<sup>5</sup> Patients with depression presenting to general practice typically report prolonged fatigue, sleep disturbance and musculoskeletal aches and pains together with mood, anxiety or neurocognitive symptoms. Mixed anxiety and depression is commonly seen.<sup>6</sup>

The onset and recurrence of depression have been linked to a wide range of risk factors including genetic, developmental, family, social and current environmental factors.<sup>7</sup> It is important to assess the psychosocial health of people with other chronic disease conditions, because comorbid depression is very common and frequently overlooked.<sup>4</sup> Accordingly, some experts now call for depression screening in primary care.<sup>8</sup>

## Physical inactivity and depression

Physical inactivity is now understood to be a modifiable risk factor for depression and other chronic diseases, in addition to its better-known links with cardiovascular disease, hypertension, diabetes mellitus and obesity.<sup>2</sup> Epidemiological evidence, including Australian data, supports the hypothesis that the risk of depression is inversely associated with physical activity.<sup>9</sup>

Regular participation in physical activity improves short- and long-term psychosocial wellbeing by reducing feelings of stress, anxiety and depression.<sup>1,2</sup> Reviews of intervention

- Physical activity is an effective, low-cost and generally safe component of depression management.
- Health experts advise people with depression to try to increase physical activity for its physical and psychosocial benefits.
- Consider cardiovascular risk assessment in people with depression, given the evidence that depression, social isolation and a lack of quality social support are independent risk factors for heart disease.
- It can be difficult for people with severe depression to increase their physical activity, but help is available from the Heart Foundation and health organisations and professionals.

studies conclude that the evidence supports the beneficial effects of physical activity on depression.<sup>2,10-17</sup> A physically active lifestyle has also been associated with good psychological health in the elderly, along with intellectual stimulation, avoidance of smoking and healthy eating.<sup>18</sup>

Groups at risk for depression overlap with those among whom inactive lifestyles are most common. According to Australian Institute of Health and Welfare data, our most socioeconomically disadvantaged communities show high rates of inactive lifestyles, smoking, and high-risk alcohol consumption in males. The proportion of adults reporting psychological and behavioural problems is also significantly higher among the most socioeconomically disadvantaged groups.<sup>19</sup>

## Physical activity as a component of treatment

There is emerging interest in the role of physical activity in the management of depression, following early evidence consistently showing that physical activity is effective in reducing mild-to-moderate unipolar depression. The onset of an antidepressant effect has been observed as early as 2 weeks after increasing activity.<sup>20</sup>

A recent Australian systematic review of published evidence undertaken by the Centre for Mental Health Research concluded that available evidence supports the use of exercise (structured, planned physical activity such as jogging, running, walking, progressive resistance training or bicycling) as therapy for people with depression.<sup>16,17</sup> Clinical trials indicate that physical activity interventions significantly reduce symptoms of depression compared with standard treatment or no treatment.<sup>17,21</sup> The effect size is similar to that achieved with cognitive therapy.<sup>21</sup>

Encouraging low-intensity physical activity is a long-established component of evidence-based psychological approaches to the management of depression. Deliberate scheduling of ordinary activities of daily living (e.g. going to shops, walking to letter box) is commonly recommended to patients with depression as a strategy for overcoming the fatigue and lack of motivation that can make it difficult for people to perform even simple tasks like getting dressed. Achievable

## What can physical activity achieve and who might benefit?

- Physical activity can be an effective supplement to treatment in mild and moderate depression,<sup>27</sup> achieves a short-term reduction in anxiety,<sup>20</sup> and may also help prevent relapse of depression.<sup>17</sup> Physical activity should not replace standard treatment, particularly for those with severe depression.<sup>21</sup>
- Different types of physical activity appear to be equally effective in managing depression.<sup>21</sup> Even if a person is unable to achieve the standard physical activity 'dose' associated with health benefits, any increase in physical activity may reduce depression through a placebo effect.<sup>28</sup>
- For older people with depression, exercise (planned, structured physical activity) is among the most effective treatments,<sup>29</sup> and is now considered a suitable alternative to antidepressants in this group. Although antidepressants may achieve a more rapid onset of therapeutic effect, physical activity provides an equivalent benefit after 16 weeks<sup>30</sup> and has the added benefit of improving physical functioning.<sup>31</sup>
- Limited evidence suggests that physical activity may reduce postnatal depression.<sup>32</sup>

physical activity goals are among the standard behavioural interventions used in cognitive-behavioural therapy (CBT) for depressed people.<sup>22</sup>

Royal Australian and New Zealand College of Psychiatry guidelines for the management of depression recommend physical activity, along with other sleep hygiene components in the treatment of insomnia, as preferable to prescribing additional medication.<sup>4</sup> Advice to increase physical activity is an important component of standard recommendations for people with depression and/or anxiety by leading mental health organisations

such as beyondblue: the national depression initiative,<sup>23</sup> the Centre for Mental Health Research at the Australian National University (CMHR),<sup>24</sup> the Clinical Research Unit for Anxiety and Depression at the University of New South Wales.<sup>25</sup>

A physical activity program for a person with depression should be individualised to include forms of activity that the person is most likely to do, understanding that initially these activities may not be as enjoyable as usual. The aim is to achieve at least 30 minutes of moderate-intensity physical activity on most or all days of the week, which can be accumulated in

## Heart Foundation programs and services

- **Website** – [www.heartfoundation.org.au](http://www.heartfoundation.org.au)
- **Heart Foundation Walking program** – refer your patient to a community walking group (NSW): call 1300 36 27 87 (local call cost)
- **Heart Health Information Service** – information for you and your patients on healthy eating, physical activity, blood pressure, blood cholesterol, smoking cessation, etc: call 1300 36 27 87 (local call cost)
- **Heartmoves** – refer your patient to the award-winning safe, low- to moderate-intensity exercise class suitable for every fitness level (especially suitable for patients with existing chronic conditions such as diabetes, cardiovascular disease or arthritis). Delivered by trained and accredited fitness leaders, exercise physiologists and physiotherapists: call **Heart Health Information Service** 1300 36 27 87 (local call cost)



## Getting started

- For inactive people, negotiate small achievable goals and schedule early review to reinforce the person's achievement and gradually increase.
- Help the person find a form of physical activity that suits them. Walking, swimming, jogging, weightlifting, resistance training (pulling or pushing weights with arms or legs, e.g. using gym equipment) and stationary bicycling have all been shown to benefit people with depression. Other activities, such as dancing, tai chi, Pilates or yoga may appeal to some individuals.
- Advise planning ahead to do some physical activity each morning and late afternoon – even if just walking around the block.
- At first, planning simple activities like shopping, gardening or housework can help increase physical activity levels.
- Build up to at least 30 minutes of moderate-intensity physical activity on most or all days of the week.

## What people with depression need to know<sup>23,24</sup>

- Explain to people with depression that “the less you do, the worse you feel” and that regular physical activity can help relieve mental tension and muscular tension and may lift mood.
- Planning activities with other people can help lift motivation.
- At first, activities may not be as enjoyable as usual, but this will improve with time.

## Possible mechanisms for benefits of physical activity in people with depression or anxiety<sup>17,20,27,40</sup>

- Distraction from negative and dysfunctional thoughts
- Social interaction
- Interruption of the spiral of fatigue–inactivity–loss of fitness
- Release of endorphins (during strenuous exercise)
- Neurogenesis
- Cardiovascular and muscular effects that correct the physiological effects of anxiety
- Improved sleep quality
- Positive social feedback from peers through participation in an activity considered healthy
- Improved self-image through participation in a ‘normal’ activity
- Normalises experience of high pulse rate in people with panic and anxiety symptoms.

shorter bouts, such as three 10-minute walks. Inactive people can begin with short sessions of low-intensity activity and gradually increase to moderate-intensity activity for longer sessions, or start with fewer sessions and gradually increase frequency.

Physical activity should be prescribed within comprehensive care involving evidence-based treatment appropriate to the severity of depression, including the following:<sup>4,26</sup>

- Suicide risk assessment
- Referral for specialist psychiatric assessment in severe depression
- Supportive clinical care with psychoeducation, supplemented by teaching problem-solving skills or by supportive counselling, or antidepressant drug treatment in mild depression
- In moderate depression, antidepressants, CBT or interpersonal therapy delivered by a health professional
- In severe depression, antidepressants with follow-up psychological treatment
- Working closely with the person to encourage continuation of treatment.

## Depression and cardiovascular disease

Psychosocial and cardiovascular health are closely linked. Depression, social isolation and lack of social support are significant risk factors for coronary heart disease (CHD), independent of conventional risk factors such as smoking, hypercholesterolaemia and hypertension and are of similar magnitude to these conventional risk factors.<sup>33,34</sup> Accordingly, people with depression need a careful cardiovascular risk assessment.

Major depression is common among people recovering from a myocardial infarction (MI).<sup>35</sup> People with CHD should be assessed for comorbid depression and receive treatment if needed. Psychosocial assessment and management of depression are now recommended as important components of cardiopulmonary rehabilitation programs and heart failure management.<sup>36,37</sup>

Regular physical activity, combined with conventional medical management, improves psychosocial health in depressed and socially isolated people

recovering from MI, as well as its cardiovascular benefits in this group.<sup>38</sup> Unless contraindicated, all people with well-compensated clinically stable cardiovascular disease should progress over time to the recommended physical activity dose. Survivors of recent cardiovascular events should be offered participation in supervised cardiopulmonary rehabilitation where available.<sup>39</sup> For more information on physical activity in people with cardiovascular disease, including contraindications, see *Physical activity in patients with cardiovascular disease: management algorithm and information for general practice* (available at [www.heartfoundation.org.au](http://www.heartfoundation.org.au)).

## Reliable evidence-based information on depression

- beyondblue ([www.beyondblue.org.au](http://www.beyondblue.org.au))
- BluePages ([bluepages.anu.edu.au](http://bluepages.anu.edu.au))
- Clinical Research Unit for Anxiety and Depression ([www.crufad.org](http://www.crufad.org))
- InfraPsych ([www.infrapsych.com](http://www.infrapsych.com))

Content checked and list compiled by: Centre for Mental Health Research (ANU)<sup>41</sup>

## References

1. Australian Institute of Health and Welfare 2006. Australia's health 2006. AIHW cat. no. AUS 73. Canberra: AIHW.
2. Warburton DE, Nicol CW, Bredin SS. Health benefits of physical activity: the evidence. *CMAJ* 2006; 174: 801–809.
3. Australian Government Department of Health and Aged Care. National Physical Activity Guidelines for Adults. Canberra; Australian Government, 1999.
4. Ellis P, Royal Australian and New Zealand College of Psychiatrists Clinical Practice Guidelines Team for Depression. Australian and New Zealand clinical practice guidelines for the treatment of depression. *Australian and New Zealand Journal of Psychiatry* 2004; 38: 389–407.
5. Goldney R, Hawthorne G, Fisher L. Is the Australian National Survey of Mental Health and Wellbeing a reliable guide for health planners? A methodological note on the prevalence of depression. *Aust NZ J Psychiatry* 2004; 38: 635–8.
6. Hickie I. Primary care psychiatry is not specialist psychiatry. *MJA* 1999; 170: 171–173.
7. Hickie IB. Preventing depression: a challenge for the Australian community. *Med J Aust* 2002; 177: S85–S86.
8. Hickie IB, Davenport T, Ricci Cristina S. Screening for depression in general practice and related medical settings. *Med J Aust* 2002; 177: S111–S115.
9. Cassidy K, Kotynia-English R, Acres J, et al. Association between lifestyle factors and mental health measures among community-dwelling older women. *Aust N Z J Psychiatry* 2004; 38: 940–7.
10. O'Neal H, Dunn AL, Martinsen EW. Depression and Exercise. *Int J Sport Psychol* 2000; 31: 110–135.
11. Paluska SA, Schwenk TL. Physical activity and mental health. *Sports Med* 2000; 29: 167–180.
12. Brosse AL, Sheets ES, Lett HS, Blumenthal JA. Exercise and the treatment of clinical depression in adults. *Sports Med* 2002; 32, 741–760.
13. Craft LL, Perna FM. The benefits of exercise for the clinically depressed. *J Clin Psychiatry* 2004; 6: 104–113.
14. Penedo FJ, Dahn JR. Exercise and well-being: a review of mental and physical benefits associated with physical activity. *Curr Opin Psychiatr* 2005; 18: 189–193.
15. Saxena S, Ommeren MV, Tang KC, Armstrong TP. Mental health benefits of physical activity. *J Ment Health* 2005; 15: 445–451.
16. Jorm A, Christensen H, Griffiths K, et al. Help for depression: what works (and what doesn't). Canberra: Centre for Mental Health Research, 2001.
17. Jorm AF, Christensen H, Griffiths KM, Rodgers B. Effectiveness of complementary and self-help treatments for depression *MJA* 2002; 176 (10 Suppl): S84–S95.
18. Flicker L, Lautenschlager NT, Almeida OP. Healthy mental ageing. *J Br Menopause Soc* 2006; 12: 92–6.
19. Australian Institute of Health and Welfare. Chronic diseases and associated risk factors in Australia, 2006. Catalogue number PHE 81. Canberra, AIHW: 2006.
20. Sallis JF, Owen N. Physical activity and behavioural medicine. California, Sage, 1999.
21. Lawlor DA, Hopker SW. The effectiveness of exercise as an intervention in the management of depression: systematic review and meta-regression analysis of randomised controlled trials. *BMJ* 2001; 322: 1–8.
22. Blashki G, Hickie IB, Davenport TA. Providing psychological treatments in general practice: how will it work? *Med J Aust*; 179: 23–25.
23. beyondblue the national depression initiative. (<http://www.beyondblue.org.au>): Fact sheet 8, Fact sheet 14. Accessed September 2007.
24. Centre for Mental Health Research What works for depression (and what doesn't). [http://bluepages.anu.edu.au/treatments/what\\_works/](http://bluepages.anu.edu.au/treatments/what_works/). Accessed September 2007.
25. Andrews G (Ed). What is normal depression? Clinical Research Unit for Anxiety and Depression at the University of New South Wales. <http://www.crufad.com/site2007/selfhelp/shdepressed01.html>. Accessed September 2007.
26. Ellis PM and Smith DAR. beyondblue guidelines for treating depression in primary care. *MJA* 2002; 176(10 Suppl): S77–S83.
27. Pedersen BK, Saltin B. Evidence for prescribing exercise as therapy in chronic disease. *Scand Med Sci Sports* 2006; 16(Suppl 1): 3–63.
28. Dunn AL, Trivedi MH, Kampert JB, Clark CG, Chambliss HO. Exercise treatment for depression: efficacy and dose response. *Am J Prev Med* 2005; 28: 1–8.
29. Frazer CJ, Christensen H, Griffiths KM. Effectiveness of treatments for depression in older people. *Med J Aust* 2005; 182: 627–32.
30. Blumenthal JA, Babyak MA, Moore KA, et al. Effects of exercise training on older patients with major depression. *Arch Intern Med* 1999; 159: 2349–56.
31. Brenes GA, Williamson JD, Messier SP, et al. Treatment of minor depression in older adults: a pilot study comparing sertraline and exercise. *Aging Ment Health* 2007; 11: 61–8.
32. Daley AJ, Macarthur C, Winter H. The role of exercise in treating postpartum depression: a review of the literature. *J Midwifery Womens Health* 2007; 52: 56–62.
33. Bunker SJ, Colquhoun DM, Murray DE, et al. "Stress" and coronary heart disease: psychosocial risk factors. National Heart Foundation of Australia position statement update. *MJA* 2003; 178: 272–276.
34. National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand. Reducing risk in heart disease 2004. A summary guide for preventing cardiovascular events in people with coronary heart disease, 2004.
35. Bush DE, Ziegelstein RC, Patel UV, et al. Post-Myocardial Infarction Depression. Evidence Report/Technology Assessment No. 123. (Prepared by the Johns Hopkins University Evidence-based Practice Center under Contract No. 290-02-0018.) AHRQ Publication No. 05-E018-2. Rockville, MD: Agency for Healthcare Research and Quality. May 2005.
36. National Heart Foundation of Australia and the Cardiac Society of Australia and New Zealand (Chronic Heart Failure Guidelines Expert Writing Panel). Guidelines for the prevention, detection and management of chronic heart failure in Australia, 2006.
37. National Heart Foundation of Australia and Australian Cardiac Rehabilitation Association. Recommended framework for cardiac rehabilitation '04. 2004.
38. Blumenthal JA, Babyak MA, Carney RM, et al. Exercise, depression, and mortality after myocardial infarction in the ENRICH trial. *Med Sci Sports Exerc* 2004; 36: 746–55.
39. Brieffa T, Maiorana A, Allan R, et al. On behalf of the Executive Working Group and National Forum Participants. National Heart Foundation of Australia physical activity recommendations for people with cardiovascular disease. Sydney: National Heart Foundation of Australia, January 2006.
40. Ernst C, Olson AK, Pintel JP, Lam RW, Christie BR. Antidepressant effects of exercise: evidence for an adult-neurogenesis hypothesis? *J Psychiatry Neurosci* 2006; 31: 84–92.
41. Griffiths KM, Christensen H. The quality and accessibility of Australian depression sites on the World Wide Web. *Med J Aust* 2002; 176 (10 Suppl): S97–S104.