

## Exercise training and physical activity

**30%** of heart disease is caused by physical inactivity 

Source: World Health Organisation. (2010). Global recommendations on physical activity for health.

### Aims of module

To ensure CR participants are given:

- An individualised exercise assessment.
- A tailored exercise program of increasing intensity, frequency or duration. This program should be tailored based on diagnosis, outcome of assessment, risk factors and participant preferences.
- Education on increasing physical activity and reducing sedentary behaviours.

### Logic

There is a very high level of evidence that exercise training, as part of CR, decreases mortality and morbidity.<sup>1</sup> As a result, all international CR guidelines recommend exercise training.

In addition, increasing physical activity and reducing sedentary behaviour is beneficial for the primary and secondary prevention of cardiovascular disease.<sup>2,3</sup>

### Exercise training and physical activity Best Practice Statement 1

Give CR participants a tailored, progressive and supervised exercise training program.

NHMRC level of evidence: Level I



**By increasing adherence to exercise**

we can **reduce hospital admissions** and increase **health-related quality of life**



Source: Anderson, L., & Taylor, R. S. (2014). Cardiac rehabilitation for people with heart disease: an overview of Cochrane systematic reviews.

**Example content:**

- **Aim:** CR participants should aim for adherence, using an individualised exercise program tailored to diagnosis, assessment, functional capability, risk factors and exercise preferences.<sup>4</sup>
- **Mode of exercise:** Aerobic exercise involving large muscle groups (such as circuit training and walking with incorporation of stretching and flexibility). Incorporate resistance training if possible.
- **Exercise frequency, intensity and session duration:** Exercise prescription should be tailored to the participant’s baseline fitness, severity of cardiac disease and comorbid conditions. The desired intensity should be at least a minimum of 55%HR<sub>max</sub> or 11–14 on a 6–20 Borg rating of perceived exertion (RPE) scale. Recent evidence suggests that there are benefits of exercise with a Borg RPE score down to 9.

There is emerging evidence of the benefits of high intensity/vigorous activity in CVD patients. However, a gradual build-up to vigorous/high intensity activity should occur in consultation with medical staff and under close supervision.

Aerobic exercise sessions should last a minimum of 30 minutes, but if combined with resistance training, balance training or stretching, should last longer. Formal exercise sessions should be scheduled at least 1–3 times per week, but some form of physical activity on most days is advised.

- **Monitoring:** Monitor heart rate regularly, and blood pressure and oxygen saturation as required. Use a Borg RPE scale or other similar validated tool.
- **Adherence:** Home-based session adherence should be checked regularly.
- **Supervision:** While all participants should commence CR with at least one supervised exercise session, supervision may be periodic if exercise is not conducted in a centre-based setting. Give CR participants an ongoing exercise prescription at discharge from the program or refer to maintenance programs if available.

**Rationale:** Exercise training decreases mortality and morbidity in CHD patients.<sup>1</sup> As part of a comprehensive CR program, exercise training reduces hospital admissions and increases health-related quality of life.<sup>5</sup> These results demonstrate that exercise-based CR is a safe and effective therapy that can be used in the management of clinically stable cardiac populations.

All national and international CR clinical practice documents and guidelines recommend exercise training, but vary in their guidance (particularly with respect to frequency, intensity and program duration). Nonetheless, adherence to some form of exercise is critical and exercise must be tailored to the CR participant's preferences and needs, with less emphasis on dose-duration, number of sessions or intensity of exercise<sup>4</sup>.

### Exercise training and physical activity Best Practice Statement 2

Educate CR participants about strategies to increase general physical activity and reduce sedentary behaviour

**NHMRC level of evidence:** Level I

#### Example content:

- Provide information about Australian physical activity goals – 150 minutes (2.5 hours) of moderate-intensity physical activity per week.<sup>6</sup>
- Discuss ways to incorporate more activity and less sitting each day, such as:
  - using active transport modes (walking to public transport)
  - joining a Heart Foundation walking group
  - being aware of screen time and breaking it up with other activities like gardening and walking.

**Rationale:** Physical activity is critical for both primary and secondary prevention of cardiovascular disease and significantly decreases all-cause mortality.<sup>7</sup> Specifically, physical inactivity is estimated to be the cause of approximately 30% of ischaemic heart disease.<sup>8</sup> Physical inactivity also has implications for other diseases such as diabetes and cancer, and for associated risk factors such as hypertension, hyperglycaemia, increased weight and depression.<sup>8</sup>

### Resources

#### Exercise training

- Norton K, Norton L, Sadgrove D. [Position statement on physical activity and exercise intensity terminology. Journal of Science and Medicine in Sport. 2010 Sep 1;13\(5\):496-502.](#)
- Exercise Right, a useful blog from Exercise & Sports Science Australia including information about how to find a qualified exercise professional <http://exerciseright.com.au/>
- International guidelines – American College of Sports Medicine’s Exercise Testing and Prescription: <https://www.acsm.org/read-research/books/acsm-guidelines-for-exercise-testing-and-prescription>

#### Physical Activity and Sedentary Behaviour

- Australian Government Physical Activity Guidelines for adults brochure: [http://www.health.gov.au/internet/main/publishing.nsf/content/F01F92328EDADA5BCA257BF0001E720D/\\$File/brochure%20PA%20Guidelines\\_A5\\_18-64yrs.pdf](http://www.health.gov.au/internet/main/publishing.nsf/content/F01F92328EDADA5BCA257BF0001E720D/$File/brochure%20PA%20Guidelines_A5_18-64yrs.pdf)
- Australian Government “Choose Health: be Active: A physical activity guide for older Australian”: [https://www1.health.gov.au/internet/main/publishing.nsf/content/3244D38BBEBD284CA257BF0001FA1A7/\\$File/choosehealth-brochure.pdf](https://www1.health.gov.au/internet/main/publishing.nsf/content/3244D38BBEBD284CA257BF0001FA1A7/$File/choosehealth-brochure.pdf)
- Heart Foundation Walking Groups: <http://walking.heartfoundation.org.au/>
- Physical Activity and Heart Failure booklet: [http://www.heartonline.org.au/media/DRL/Physical\\_activity\\_and\\_heart\\_failure\\_booklet.pdf](http://www.heartonline.org.au/media/DRL/Physical_activity_and_heart_failure_booklet.pdf)

### Is there an app for that?

#### Heart Foundation Walking App

<https://walking.heartfoundation.org.au/terms-and-conditions/walking-mobile-app/>



## References

1. Anderson L, Thompson DR, Oldridge N, Zwisler A-D, Rees K, Martin N, et al. Exercise-based cardiac rehabilitation for coronary heart disease. *Cochrane Database of Systematic Reviews*. 2016 Jan 5;(1):Art. No.: CD001800.
2. Briffa TG, Maiorana A, Sheerin NJ, Stubbs AG, et al. Physical activity for people with cardiovascular disease: recommendations of the National Heart Foundation of Australia. *Medical Journal of Australia*; Pyrmont. 2006 Jan 16;184(2):71–5.
3. Warburton DER, Nicol CW, Bredin SSD. Health benefits of physical activity: the evidence. *CMAJ*. 2006 Mar 14;174(6):801–9.
4. Abell B, Glasziou P, Hoffmann T. The Contribution of Individual Exercise Training Components to Clinical Outcomes in Randomised Controlled Trials of Cardiac Rehabilitation: A Systematic Review and Meta-regression. *Sports Medicine - Open*. 2017 May 5;3:19.
5. Anderson L, Taylor RS. Cardiac rehabilitation for people with heart disease: an overview of Cochrane systematic reviews. In: *The Cochrane Library* (Internet). John Wiley & Sons, Ltd; 2014 (cited 2018 Apr 11). Available from: <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD011273.pub2/abstract>
6. Australian Government, Department of Health. Australia's physical activity and sedentary behaviour guidelines (adults). (Internet). 2014. Available from: [http://www.health.gov.au/internet/main/publishing.nsf/content/F01F92328EDADA5BCA257BF0001E720D/\\$File/brochure%20PA%20Guidelines\\_A5\\_18-64yrs.pdf](http://www.health.gov.au/internet/main/publishing.nsf/content/F01F92328EDADA5BCA257BF0001E720D/$File/brochure%20PA%20Guidelines_A5_18-64yrs.pdf)
7. Löllgen H, Böckenhoff A, Knapp G. Physical activity and all-cause mortality: an updated meta-analysis with different intensity categories. *International journal of sports medicine*. 2009;30(03):213–224.
8. World Health Organisation. Global recommendations on physical activity for health (Internet). 2010. Available from: <https://www.who.int/dietphysicalactivity/publications/9789241599979/en/>

**Terms of use:** This material has been produced by the National Heart Foundation of Australia (Heart Foundation) for the information of health professionals. The Heart Foundation does not accept any liability, including for any loss or damage, resulting from the reliance on the content, or its accuracy, currency or completeness. Please refer to the Heart Foundation website at [www.heartfoundation.org.au](http://www.heartfoundation.org.au) for Terms of Use.

©2019 National Heart Foundation of Australia ABN 98 008 419 761



This guide was developed jointly by the Heart Foundation and Institute for Physical Activity and Nutrition (IPAN) at Deakin University as part of the Development of Standardised Curriculum for Cardiac Rehabilitation project, funded by Safer Care Victoria.

Funded by

This resource was developed in collaboration with

