

Dyslipidaemia and exercise

What is Dyslipidaemia?

Dyslipidaemia refers to abnormal levels of blood fats (lipids) or 'lipoproteins', the carriers that move fat around the body. The most common dyslipidaemias are high blood cholesterol and triglyceride levels (hyperlipidaemia), high levels of low-density lipoprotein cholesterol (LDL-c, the 'bad' cholesterol) and low levels of high-density lipoprotein cholesterol (HDL-c, the 'good' cholesterol). A blood test called a lipid profile is used to diagnose the condition. Management of dyslipidaemia is important for people with, or at risk of, heart and blood vessel (cardiovascular) disease. A poor lipid profile is a significant risk factor for blood vessel damage. The risk of heart problems also increases with high triglyceride or LDL-c levels, or with low HDL-c levels (1, 2). Observations of nearly 200,000 Australians who visited a GP during 2004-2009 suggest that approximately 55% of these adults showed elevated LDL-c and approximately 35% showed suboptimal HDL-c levels (3).

How does exercise help?

Management of dyslipidaemia aims to reduce the risk of cardiovascular 'events' (i.e. serious problems such as heart attacks) that may occur within the next 5-10 years — this is called the absolute cardiovascular risk. Any lowering of LDL-c and triglycerides, or raising of HDL-c, is likely to reduce this risk. However, recommended targets for maximal benefit focus on LDL-c rather than total cholesterol. This is because most cholesterol is transported as LDL-c. The targets are:

- less than 2.5 mmol/L* for LDL-c in healthy people;
- less than 1.8 mmol/L for LDL-c in people with existing heart disease;
- greater than 1.0 mmol/L for HDL-c; and
- less than 2.0 mmol/L for triglycerides (1, 2).

Management of cardiovascular risk should centre on lifestyle changes, including taking regular exercise, improving the diet and, ideally reducing weight, especially body fat. All people, including those at high risk, should aim for these changes (1, 2). Exercise is a low-cost, readily available treatment with proven benefits for lipid and lipoprotein levels (4, 5). In addition, regular exercise and physical fitness lower the risk of heart disease associated with being overweight or obese, or having high blood pressure (6, 7). Physical fitness and regular exercise considerably reduce the absolute cardiovascular risk and death rate (8, 9). Studies also show that weight loss is best achieved by combining an improved diet with regular exercise, rather than either of these measures alone (10). However, there is no clear evidence that exercise therapy without weight loss can improve LDL-c or total cholesterol levels.

What types and intensities of exercise are recommended?

People with dyslipidaemia should undertake aerobic exercise for at least 30 minutes on most, if not all, days of the week to improve their lipid profiles and reduce their cardiovascular risk. This amount can be accumulated in shorter bouts of 10 minutes duration and can be built up over time. Aerobic exercises that use the large muscle groups are appropriate and effective, such as brisk walking, jogging, cycling, swimming, dancing, skiing, playing ball games or other sporting activities. Studies show that regular aerobic exercise can: (a) increase HDL-c by 3–10% (up to 0.16 mmol/L); and (b) reduce triglycerides by about 11% (up to 0.34 mmol/L) (4, 5). Benefits may be greater than these figures with the current exercise recommendations. Vigorous aerobic exercise improves HDL-c more than less-intense exercise (4).

* mmol/L = millimoles per litre (the units used to measure blood lipids)



A simple rule of thumb for moderate-intensity aerobic exercise is to exercise at a level that increases your breathing and heart rate but still allows you to maintain a conversation. More vigorous aerobic exercise is described as a 'very hard' effort.

Progressive high-intensity resistance training (i.e. weight training) alone improves HDL-c (11). Do 2–3 sets of 8–10 different exercises, at a load that can be performed for 8–15 repetitions of each exercise, at least twice a week. Warm up first with 5–10 minutes of light aerobic activities, and always use correct exercise technique to minimise the risk of injury.

However, self-directed vigorous aerobic or resistance training may not be appropriate for all people with dyslipidaemia. People who should have their exercise programs structured and delivered by a qualified exercise physiologist, under the supervision of a medical practitioner include:

- people with known or suspected cardiovascular disease, metabolic syndrome or diabetes;
- people with a family history of heart attacks;
- people with high blood pressure;
- smokers;
- men aged over 45 years or women aged over 55 years; and
- people who have not been doing regular exercise.

Research shows that only giving advice and information about therapeutic lifestyle changes rarely produces long-term changes in behaviour. Therefore, strategies that improve adherence to programs should be adopted, including personalising goals to adopt regular exercise, self-monitoring, regular re-assessment and frequent contact with a healthcare professional (6, 7).

Related information and references

Exercise is Medicine Australia www.exerciseismedicine.org.au

Find an Accredited Exercise Physiologist www.essa.org.au

Exercise Right www.exerciseright.com.au

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