

Asthma and exercise

What is asthma?

Asthma is a chronic inflammatory disorder of the airways that is associated with recurrent episodes of wheezing, breathlessness, coughing and tightness of the chest. Widespread but variable narrowing of the airways, which obstructs the airflow, is often associated with these episodes. This narrowing can be reversed either spontaneously or with treatment.

Three main factors cause the airways to narrow:

- swelling of the inside lining of the airways (oedema)
- increased mucus production combined with products of inflammation (exudates)
- tightening (spasm) of the muscle around the airways (bronchoconstriction).

The causes of asthma are largely unclear. However, research shows links to both genetics (family history) and the environment. Many factors can contribute to the development of asthma, including allergens (substances that cause allergic reactions), air pollutants and obesity. The severity of attacks ranges from infrequent episodes of breathing discomfort to regular, serious, life-threatening bouts of airway obstruction (1).

How is asthma managed?

People with asthma can lead a full and active life by following an appropriate management program developed by a primary health care provider. An *Asthma action plan* is a written set of instructions developed for each asthma patient that outlines medication requirements, the methods for recognising worsening asthma symptoms, and what to do in the event of an attack (2).

The Global Initiative for Asthma (GINA) categorises asthma medications into two main groups (3):

Controllers: usually taken daily in an effort to reduce the inflammatory processes associated with asthma.

Relievers: effective in relieving bronchoconstriction; should be inhaled only when needed and in the lowest dose necessary.

Preventer medications may also be used daily to reduce both the symptoms and the number of asthma attacks. Preventers can be particularly effective in reducing exercise-induced bronchoconstriction in most patients.

How does exercise benefit people with asthma?

Research indicates that people with asthma tend to limit exercise and physical activity to avoid triggering respiratory symptoms (4, 5). However, well-controlled asthma should not limit or restrict any person's ability to participate in physical activity. Regular exercise greatly benefits people with asthma. The exercise improves aerobic fitness, which means that, at any given level of exercise, the person uses less of the maximum oxygen that be taken in by the body. This decreased use of oxygen reduces the likelihood of an exercise-induced attack (6).

Exercise can also help control asthma and reduce the amount of medication required.



What is important when people with asthma exercise?

Providing adequate guidance to people about the prevention and treatment of exercise-induced asthma is important. However, by using pre-exercise medication, most people with asthma can participate in physical activity equally with people without asthma.

People with asthma should ideally follow an exercise program consisting of a warm-up, a period of aerobic exercise and a warm-down.

The aerobic exercise should begin at low intensity. Gradually increase the intensity as your fitness level improves. Unfit people should start with continuous walking, because this exercise is less likely to trigger an attack and prepares the muscles for future high-intensity exercise. Each session should last between 20 and 60 minutes, and is repeated three to five times per week. **An accredited exercise physiologist can create a suitable exercise program for you.**

While people with asthma can participate in all types of exercise and physical activity (except scuba diving), swimming is one of the best forms of exercise, because it is less likely to trigger an asthma attack. Swimming also develops good breathing techniques and increases lung capacity.

People with severe asthma should focus on strength training (e.g. lifting weights), flexibility training and light (aerobic) physical activity.

Exercise programs recommended for people with asthma

Type of training	Intensity	Frequency (times/week)	Duration
Aerobic (cardio) training	Low	5 or more sessions	At least 30 minutes
	High	3 or more sessions	At least 20 minutes
Strength training	70% of 1 RM*	2 or more sessions	2–3 sets of 8–12 repetitions

*RM = Repetition maximum. For example, 1 RM corresponds to the maximum weight that can be lifted through the entire exercise movement one time.

References and further information

Exercise is Medicine Australia www.exerciseismedicine.org.au

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

Exercise Right www.exerciseright.com.au

Asthma Foundation www.asthmafoundation.org.au

1. Morton AR, Fitch KD. Australian Association for Exercise and Sports Science position statement on exercise and asthma. J Sci Med Sport 2011; 14(4): 312–16.
2. National Asthma Council Australia. (2006). Asthma management handbook 2006. South Melbourne: The National Asthma Council of Australia.
3. Global Initiative for Asthma. (2009). Global strategy for asthma management and prevention. <http://www.ginasthma.org>
4. Chen Y, Dales R, Krewski D. Leisure-time energy expenditure in asthmatics and non-asthmatics. Resp Med 2001; 95(1): 13–18.
5. Malkia E, Impivaara O. Intensity of physical activity and respiratory function in subjects with and without bronchial asthma. Scand J Med Sci Sports 1998; 8(1):27–32.
6. Henriksen JM, Neilsen TT. Effect of physical training on exercise-induced bronchoconstriction. Acta Paediatr Scand 1983; 72(1):31–6.

