



Brisk Business

Aerobic exercise reduces the risk of many conditions, including obesity, heart disease, high blood pressure, type 2 diabetes, stroke and certain types of cancer. Cindy Ng, senior physiotherapist, Singapore General Hospital explains how to get your heart working to the right beat.

The American College of Sports Medicine (ACSM) and American Heart Association (AHA) recommend moderate physical activity five times a week of at least 30 minutes each. Exceeding the minimum can further reduce the risks of sedentary-related chronic conditions as such diabetes and heart disease.

Aerobic exercise works both the heart and lungs and helps promote the flow of oxygen into our blood stream. Brisk walking is the simplest and least expensive of aerobic exercise and beneficial to all cardiac patients. Other examples of aerobic-based exercise include jogging, swimming, cycling, gym workouts on cardio machines, dance or aerobic classes and roller-blading.

An electronic search in the medical database reveals that aerobic exercises can affect high density lipoproteins (HDL). However, a minimum of 120 minutes of aerobic exercise is required per week and that is approximately 900 kcal of energy spent. The increase in HDL is modest. Some of these studies also conclude that the improvement is seen more in those with initial high total cholesterol or low body mass index (BMI). The effects can be seen only after at least six months of regular exercise.

Regular aerobic exercise at 50 to 65 percent of maximum heart rate and a healthy balanced diet are key to maintaining or losing weight, thus keeping our BMI within healthy range (18.5 to 25).

Aerobic exercise can also reduce blood pressure for those with high blood pressure (hypertension) and sedentary adults with normal blood pressure. Systolic blood pressure can reduce by 3.8mmHg and diastolic blood pressure by 2.6mmHg. One study by Tokmakidis & Volaklis found that the favourable biochemical change is lost after three months of de-training. Hence, one needs to exercise regularly throughout one's life to enjoy the health benefits.

Resistance training or muscle strengthening, done twice a week, should also be part of your exercise programme. Anyone over the age of 45, who has not participated in any form of physical activity, should consult a physician before joining a structured exercise programme. Once certified fit, he or she should undergo a sub-maximal exercise test on a stationary bicycle or treadmill to determine his or her fitness level. However, if he or she has a heart or a medical condition, it is best to undergo a comprehensive fitness test with electrocardiogram (ECG), supervised by a cardiologist, to determine the heart rate range to ensure safe exercise. In fact, there are many gadgets that come with transmitters to monitor the heart rate during exercise.

How do we gauge the intensity of our workout?

The simplest way to gauge the intensity is the 'Talk Test'. When exercising at a moderate intensity, one should be able to speak in

full sentences, despite being slightly breathless. But if one is not able to speak a word while exercising, it means the intensity is much too high.

Another way is to use a heart rate monitor to ensure one is exercising at approximately 70 percent of the calculated age predicted maximum heart rate. A common formula used is 220-age.



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You can also gauge the intensity by using a rate of perceived exertion or RPE. There are two versions: a 1 to 10 scale and a 6 to 20 scale. The original scale of 6 to 20 was meant to reflect one's heart rate. Thus if one gives a rate of 12, the heart rate detected is usually about 120 beats per minute.

Rate of Perceived Exertion (RPE) 6 to 20 scale	
6	No exertion at all
7	Extremely light
8	
9	Very light
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard (Heavy)
16	
17	Very hard
18	
19	Extremely hard
20	Maximal exertion
Rate of Perceived Exertion (RPE) 1 to 10 scale	
0	Nothing
0.5	Very, very weak
1	Very weak
2	Weak
3	Moderate
4	Somewhat strong
5	Strong
6	
7	Very strong
8	
9	
10	Very, very strong (Maximal)

References

Kodama S, Tanaka S, Saito K, et al. (2007) Effect of aerobic exercise training on serum levels of high-density lipoprotein cholesterol. A meta-analysis. *Arch. Intern. Med.*, 167, 999-1008

Tokmakidis SP & Volaklis KA. (2003). Training and detraining effects of a combined-strength and aerobic exercise program on blood lipids in patients with coronary artery disease. *J. of cardiopulmonary Rehab*, 23, 193-200.

Whelton SP, Chin A, Xin X & He J. (2002). Effect of erobic exercise on blood pressure: A meta-analysis of randomized, controlled trials. *Ann. Intern. Med.*, 136, 493-503.

Quell KJ, Porcari JP, Franklin BA, et al. (2002). Is brisk walking an adequate aerobic training stimulus for cardiac patients? *Chest*, 122, 1852-1856.

Haskell WL, Lee I-M, Pate RR, et al. Physical activity and public health. Updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. (2007). *Circulation*, 116(9), 1081