

Exercise Prescription for Practising Doctors

By A/Prof Goh Lee Gan

A book launch and hands-on workshop to link theory to practice was jointly organised by the Singapore Sports Council (SSC) and the Singapore Medical Association (SMA). So, one Saturday afternoon on 30 August 2003, a group of some 60 doctors made their way to the National Stadium for this event.

The workshop started with a welcome by Dr Teh Kong Chuan, Director, Sports Medicine and Sports Science, SSC, and the launch of the book "Prescribing exercise: a handbook for medical practitioners." This book is jointly produced by the SSC and the SMA. It is meant to be a manual to help doctors give exercise prescriptions to their patients, both fit and unfit. The two people signing the book were: COL (RET) Kwan Yue Yeong, CEO, SSC, and A/Prof Goh Lee Gan, who represented the SMA.



Launching the exercise prescription book: COL (RET) Kwan Yue Yeong and A/Prof Goh Lee Gan. Looking on is Dr Teh Kong Chuan.

Following the launch was a show-and-tell session on "Benefits of Exercise" (A/Prof Goh Lee Gan), "Guidelines for Exercise" (Dr Teh Kong Chuan), and "Practical Tips on Exercise Prescription" (Dr Crystal Zhao). An active Q & A session followed.

This was also a workshop with a difference: doctors participated in doing the exercises that they can safely prescribe to their patients – a fitness walking programme for beginners. This is walking with moderate intensity. The exercise instructor, Shirley Cheah, took the doctors through the warm-up exercises by walking slowly around the track, followed by stretching exercises and tips on power walking. (See accompanying article on beginning a fitness walking programme.) The walking exercise itself followed. Finally, participants cooled down with more stretching exercises.



Stretch...stretching. Shirley showing our doctors the easy steps to keeping fit.

BEGINNING A FITNESS WALKING PROGRAMME

INTRODUCTION

Walking is easy to do and effective. All you need are a good pair of shoes, comfortable clothing, a desire to be physically active and the persistence to continue.

WALKING PROGRAMMES

There are various walking programmes available. Try them out to see which one suits you best. A set of walking programmes from beginner to advanced, for both male and female adults, is given in the Prescribing Exercise handbook on pages 142-145. Another one is given at <http://www.thewalkingsite.com/beginner.html>.

For physically active walking, you should walk fast enough to reach a heart rate per minute of $50-60\% \times (220 \text{ minus age})$. You should not be gasping for air. After you have formed the habit, you will want to evaluate your programme and goals for more strenuous walking.

If you are walking for general health benefits, try to walk 30 minutes a day, most days of the week, at a "talking" pace. To improve cardiovascular fitness, walk three to four days a week, 20 to 30 minutes at a very fast pace – breathing hard but not gasping for air. If you are walking for weight loss, you should walk a minimum of five days a week, 45 to 60 minutes at a "purposeful/talking" pace.

EACH WALKING SESSION

Each walking session has three parts: warm up, exercise which is walking in this case, and cool down.

Warm Up

Begin your walking session with a warm up exercise and then stretching. Together, they prepare the mind, heart, muscles and joints for the walk. Warming up lowers blood pressure, improves blood flow to the heart, increases muscle temperature and makes muscles more pliable.

Warm up for five minutes at an easy walking pace. Do this before stretching. Never stretch cold muscles or you

risk tearing them. Stretching creates flexibility and can make your walk more comfortable.

Stretch all the major muscle groups used when walking. Slowly apply each stretch listed below; stretch until tension, but not pain, is felt. Hold each stretch for at least 15 seconds. Do not bounce up and down while stretching. Breathe normally. This low-intensity exercise should last from five to 15 minutes. After stretching, you will be ready to embark on your walk at your desired speed.

Walking

Watch your posture. Walk tall. Think of elongating your body. Hold your head up and eyes forward. Your shoulders should be down, back and relaxed. Tighten your abdominal muscles and buttocks and fall into a natural stride.

Cool down

Equally important to your walk is cooling down. After your walk, cooling down helps the body to recover, while reducing the risk of muscle aches and pains. For the final five to 10 minutes of your walk, be sure to move at a slow, easy pace. At the end of your walk, you may want to repeat the stretches you did in the warm up.

STRETCHING EXERCISES

Head Circles

Start with your ear near your shoulder on one side, rotate your head around to the front, ending with your ear near the shoulder on the other side. Roll your head back to the other side. Repeat 10 times.

Arm Circles

Hold arms out at the side of the body, parallel to the floor. Move arm in a forward motion making small circles in the air for a count of 10. Reverse direction, so the arms are making a circle in the opposite direction. Repeat making bigger circles with the arms. Arm circles slowly increase the heart rate as well as stretch the muscles in the arms and upper back.

Hamstring Stretch

Stand with one foot in front of the other and both feet facing forward. Keep both heels on the ground. Bend the back knee and straighten the front leg. Gently bend forward reaching toward the ground with hands. A stretch should be felt in the hamstrings of the straight leg. If a greater stretch is required, the front foot can be flexed by placing the heel on the floor and bringing toes up toward the knee. Hold the stretch for 16 counts. Repeat on the other leg.

Quadricep Stretch

Stand erect, holding onto a wall or post for support. Bend your knee behind you so that you can grasp your foot, holding your heel against your buttock. Stand up straight

and push your knee gently back as far as you can. (Your hand just keeps your heel in place. Some people find it more comfortable to use the opposite hand.) Hold for 15 to 30 seconds, then switch sides.

Calf Stretch

Stand with one foot in front of the other and both feet facing forward, hip width apart. Keep both heels on the ground. Bend the front knee – a stretch should be felt in the back of the lower straight leg. If a stretch cannot be felt, the back foot should be moved further backwards. Hands can be placed above the head or rested in front on a wall. Hold stretch for 16 counts. Repeat with the other leg.

Achilles Stretch

From the calf stretch position, bend your back knee so that the angle is changed to stretch the Achilles tendon. Keep your heel down. Hold 15 to 30 seconds, then switch legs.

IMPORTANT RULES FOR STRETCHING:

1. Always warm up prior to stretching.
2. Do not bounce. A stretch should be a gentle movement. Slowly go to the point where you feel tension in the muscle.
3. A good stretch should not hurt. If you are stretching to the point of pain, you are stretching too hard.
4. To lengthen the muscle, hold the stretch for 30 to 40 seconds.

WALKING GEAR

- Shoes – These should fit comfortably, have a flexible sole and plenty of toe room.
- Socks – Choose thicker socks rather than the standard cotton sock.
- Clothing – Wear what is comfortable for you.

Water – Be sure to drink plenty of water. If walking around the block, drink some water before you head out and more when you return. If walking for longer than 30 minutes, take your water along. Be sure to drink every 20 minutes. There are many convenient water carriers – from waist packs to shoulder carriers. Choose what works best for you.

Heart rate monitor – The serious walker may want to invest in a heart rate monitor. This is the easiest way to measure exertion. Wireless types are best because they give an accurate readout and are comfortable to wear. They comprise a belt worn around the chest and a wristwatch display.

WALKING DON'TS

1. Do not over stride.
2. Do not use too vigorous arm movements.
3. Do not look at the ground.
4. Do not hunch your shoulders.
5. Do not carry hand weights or place weights on your ankles.

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FITNESS WALKING (ALSO CALLED POWER WALKING)

Fitness/power/health walking incorporates the muscles of the upper body, making it an aerobic activity. It burns approximately the same calories as a running programme, yet it is much easier on the body. Because more muscles are used, fitness walking will burn calories much quicker than less aggressive walking. It also tones muscles in the buttocks, thighs, hips, shoulders, upper back and abs. Most fitness walkers cover a mile in about 12 to 15 minutes.

Tips for fitness walking

1. Walk tall. Use good posture. Look forward, not at the ground. Gaze about 20 feet ahead. Your chin should be level and your head up.
2. Shoulders down, back and relaxed. Chest forward.
3. Tighten your abdominal muscles and buttocks. Flatten your back. Walk along an imaginary straight line.
4. Bend your arms in slightly less than a 90 degree angle. Cup your hands gently. Swing arms front to back (not side to side – arms should not cross your body). Do not swing elbows higher than your sternum (breast bone). Swing your arms faster and your feet will follow.
5. Push off with your toes. Concentrate on striking with the heel, rolling through the step and pushing off with your toes. Use the natural spring of your calf muscles to propel you.
6. Resist the urge to elongate your steps. To go faster – take smaller, faster steps.
7. Breathe naturally. As you walk, take deep, rhythmic breaths, to get the maximum amount of oxygen through your system.

TARGET HEART RATE

You should know your Maximum Heart Rate and your correct training zone to know if you are training at the right pace. To find out your target heart rate, subtract your age from 220 (226 for women) to calculate your Maximum Heart Rate (mhr). Find your training zone below and multiply that number times your maximum rate.

Training Zones

Healthy Heart Zone (Warm up) – 50-60% of maximum heart rate: The easiest zone and probably the best zone for people just starting a fitness programme. It can also be used as a warm up for more serious walkers. This zone has

been shown to help decrease body fat, blood pressure and cholesterol. It also decreases the risk of degenerative diseases and has a low risk of injury. 85% of calories burned in this zone are fats!

Fitness Zone (Fat Burning) – 60-70% of maximum heart rate: This zone provides the same benefits as the healthy heart zone, but is more intense and burns more total calories. The percent of fat calories is still 85%.

Aerobic Zone (Endurance Training) – 70-80% of maximum heart rate: The aerobic zone will improve your cardiovascular and respiratory system AND increase the size and strength of your heart. This is the preferred zone if you are training for an endurance event. More calories are burned with 50% from fat.

Anaerobic Zone (Performance Training) – 80-90% of maximum heart rate: Benefits of this zone include an improved VO₂ maximum (the highest amount of oxygen one can consume during exercise) and thus an improved cardiorespiratory system, and a higher lactate tolerance ability which means your endurance will improve and you'll be able to fight fatigue better. This is a high intensity zone burning more calories, 15% from fat.

Red Line (Maximum Effort) – 90-100% of maximum heart rate: Although this zone burns the highest number of calories, it is very intense. Most people can only stay in this zone for short periods. You should only train in this zone if you are in very good shape and have been cleared to do so. ■

References

1. Zhao et al. *Prescribing Exercise – A Handbook for Medical Practitioners*. Joint Publication of SMA & Singapore Sports Council, 2003.
2. *Beginning a fitness walking programme*. Source: <http://www.thewalkingsite.com/beginner.html>
3. *Warm up exercises*. Source: <http://www.tourismvictoria.com/Content/EN/297.asp>

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FOR MEDICAL PRACTITIONERS?**

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