

## **Know your METs for Prevention/Recurrence of Disease**

When it comes to reducing cancer risk, exercise is increasingly looking like the right choice. Over the past few years, studies have found that exercise reduces an individual's risk of developing cancer. Furthermore, in individuals who have already been diagnosed with the disease, exercise reduces the chance of a cancer recurrence as well as improves quality of life.

These studies have probably encouraged a number of people to get off the couch and start walking or running—which is great. But to reap all the benefits that exercise can provide, you need to be sure that your fitness routine is providing you with the right number of metabolic equivalents or METS.

### **What Are METs?**

Exercise produces heat, which is why we get hot and sweaty while running or walking or doing other types of exercise. The amount of heat produced is directly proportional to the rate of energy expended; which is measured in METs. In addition, METs are a measurement of the body's capacity to utilize oxygen for a given workload.

No matter how much you weigh or how fit you are; you use 3.5 millilitres of oxygen per kilogram of body weight per minute to keep your vital organs working while you are sitting or lying down. This is written as 3.5 ml/kg/min, and it is equivalent to the rate of energy expenditure of one MET. In other words, 3.5 ml/kg/min = 1 MET.

Once you start moving, though, your fitness level has a direct impact on how many METs you expend per minute. For example, let's say you and your friend go for a three-mile walk. If your friend is able to process more oxygen than you in that distance your friend can sustain higher METs and can complete the three miles faster than you. However, if you can process more oxygen, you can sustain higher METS and walk each mile faster.

## **Know Your METs**

If you don't know your METs, you won't know if you are getting the right level of exercise you need to reduce your risk of cancer or a cancer recurrence.

The first step to understanding METs is to learn what your weight is in kilograms. You can do this by taking your weight in pounds and dividing it by 2.2 or go to this website: [www.manuelsweb.com/kg\\_lbs.htm](http://www.manuelsweb.com/kg_lbs.htm)

The next step is to figure out how many METs you are currently getting, and how many more METs you need to achieve your fitness goal. A total of 15–20 MET hours a week are needed to reduce your risk of cancer and other diseases. To achieve this goal, you need to exercise for at least 30 minutes five days a week. Furthermore, while you are exercising, you will need to raise your metabolism 3-4 MET/hour.

Let's break it down by getting back to walking. Let's say you and your friend get together with a group for a one-mile walk. Each of you accomplishes the goal, regardless of your fitness level. But the individuals in the group who are the most fit will be able to walk that distance faster, which means they are acquiring more METs during the walk.

Let's say it took you 18 minutes to complete the distance. Walking at 18 minutes a mile is equivalent to raising your metabolism to 4 MET/hour. If you walk this pace five days a week for 30 minutes each day, you will accumulate a total of 10 MET/hours by the end of the week. [Here's the math: 4 METs x 5 days a week = 20 MET/hrs/wk. But since you are only walking for 30 minutes, you need to divide 20 by 2, which give you 10 MET/hrs/wk.]

Now let's say it took your friend 13 minutes to complete the distance. Walking at 13 minutes a mile is equivalent to raising your metabolism to 5 MET/hour. If your friend walks this pace five days a week for 30 minutes each day, he/she will accumulate a total of 12.5 MET/hour by the end of the week [Here's the math: 5 METs x 5 days a week = 25 MET/hrs/wk, divided by 2 = 12.5 MET/hrs/wk.]

To get enough exercise to reduce disease risk, you need to have 15-20 MET/hours a week. How can you and your friend get the added METs? There are three options. You could walk for an hour each day instead of 30 minutes. You could walk 7 days a week instead of 5. Or, you could walk at a faster pace. To walk faster will require you to get fitter. But that's the pay off. The more fit you are, the less time it will take you to achieve the required MET/hours you need.

On the chart below, you will find additional information about how many METs you will acquire during a 30, 45 and 60 minute walk, based on how long it takes you to go the mile, and how many days a week you exercise.

I hope you'll start exercising today. You have nothing to lose—and METs to gain!

**(METs) 30 minutes walking**

| ml/kg/min     | METS/hr | Mins./Mile | 3 Days | 4 Days | 5 Days | 6 Days | 7 Days |
|---------------|---------|------------|--------|--------|--------|--------|--------|
| 12 ml/kg/mins | 3.4     | 24:00      | 5      | 7      | 8      | 10     | 12     |
| 13 ml/kg/mins | 3.8     | 20:00      | 6      | 7      | 9      | 11     | 13     |
| 15 ml/kg/mins | 4.2     | 17:00      | 6      | 8      | 10     | 12     | 14     |
| 16 ml/kg/mins | 4.6     | 15:00      | 7      | 9      | 11     | 14     | 16     |
| 18 ml/kg/mins | 5.3     | 12:00      | 8      | 11     | 13     | 16     | 18     |

**(METs) 45 minutes walking**

| ml/kg/min         | METS/hr | Mins./Mile | 3 Days | 4 Days | 5 Days | 6 Days | 7 Days |
|-------------------|---------|------------|--------|--------|--------|--------|--------|
| 12<br>ml/kg/mins. | 3.4     | 24:00      | 8      | 10     | 13     | 15     | 18     |
| 13<br>ml/kg/mins. | 3.8     | 20:00      | 9      | 11     | 14     | 17     | 20     |
| 15<br>ml/kg/mins. | 4.2     | 17:00      | 9      | 13     | 16     | 19     | 22     |
| 16<br>ml/kg/mins. | 4.6     | 15:00      | 10     | 14     | 17     | 21     | 24     |
| 18<br>ml/kg/mins. | 5.3     | 12:00      | 12     | 16     | 20     | 24     | 28     |

**(METs) 60 minutes walking**

| ml/kg/min         | METS/hr | Mins./Mile | 3 Days | 4 Days | 5 Days | 6 Days | 7 Days |
|-------------------|---------|------------|--------|--------|--------|--------|--------|
| 12<br>ml/kg/mins. | 3.4     | 24:00      | 10     | 14     | 17     | 20     | 24     |
| 13<br>ml/kg/mins. | 3.8     | 20:00      | 11     | 15     | 19     | 23     | 27     |
| 15<br>ml/kg/mins. | 4.2     | 17:08      | 13     | 17     | 21     | 25     | 29     |
| 16<br>ml/kg/mins. | 4.6     | 15:00      | 14     | 18     | 23     | 28     | 32     |
| 18<br>ml/kg/mins. | 5.3     | 12:00      | 16     | 21     | 26     | 32     | 37     |