



## **Know Your METS: Using Exercise to Reduce Your Risk of Developing Breast Cancer or Experiencing a Breast Cancer Recurrence**

By Marie Murphy

When it comes to reducing breast cancer risk, exercise is increasingly looking like a good bet. Over the past few years, studies have found that exercise appears to reduce a woman's risk of developing breast cancer. Furthermore, in women already diagnosed with the disease, exercise appears to reduce the chance of a breast cancer recurrence as well as improve quality of life.

These studies have probably encouraged a number of women to get off the couch and to 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 milliliters 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 Mary go for a three-mile walk. If Mary is able to process more oxygen than you in that distance, Mary 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 the 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 breast cancer or a cancer recurrence.

The first step to understanding METS is to learn what your weight is in kilograms. You can do that **here** [http://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 risk of breast 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 METS/hour.

Let's break it down by getting back to walking. Let's say you and Mary join a group of friends for a one-mile walk. Each of you accomplishes the goal, regardless of your fitness level. But the women 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 20 minutes to complete the distance. Walking at 20 minutes a mile is equivalent to raising your metabolism to 3.3 METS/hour. If you walk this pace five days a week for 30 minutes each day, you will accumulate a total of 8.25 MET/hours by the end of the week. [Here's the math: 3.3 METS x 5 days a week = 16.5 METS/hours. But since you are only walking for 30 minutes, you need to divide 16.5 by 2, which gives you 8.25 MET/hours.]

Now, let's say it took Mary 15 minutes to complete the distance. Walking at 15 minutes a mile is equivalent to raising your metabolism to 4 METS/hour. If Mary walks this pace five days a week for 30 minutes each day, she 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 METS/hours, divided by 2 = 10 MET/hours.]

To get enough exercise to reduce disease risk, you need to have 15-20 MET/hours a week. How can you and Mary 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 more fit. 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 minute run or walk, based on how long it takes you to go a 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 Running / 30 minute workout									
ml.kg.mins	METS/hour	Mins./Mile	M.P.H.	m.min	METS 3 Days	METS 4 Days	METS 5 Days	METS 6 Days	METS 7 Days
25.0 ml.	7	15:00	4.00	107	10.5	14	17.5	21	24.5
28.2 ml.	8	13:00	4.61	123	12	16	20	24	28
31.5 ml.	9	11:30	5.20	139	13.5	18	22.5	27	31.5
35.5 ml.	10	10:00	6.00	160	15	20	25	30	35
39.0 ml.	11	9:00	6.70	179	16.5	22	27.5	33	38.5
42.5 ml.	12	8:15	7.30	195	18	24	30	36	42
45.0 ml.	13	7:45	7.74	207	19.5	26	32.5	39	45.5
49.5 ml.	14	7:00	8.60	230	21	28	35	42	49
52.0 ml.	15	6:30	9.00	241	22.5	30	37.5	45	105
57.0 ml.	16	6:00	10.00	268	24	32	40	48	56
59.5 ml.	17	5:45	10.43	279	25.5	34	42.5	51	59.5
62.0 ml.	18	5:30	10.90	292	27	36	45	54	63
68.0 ml.	19	5:00	12.00	321	28.5	38	47.5	57	66.5
METS Walking / 60 minute workout									
ml.kg.mins.	METS/hour	Mins./Mile	M.P.H.	meters/min	METS 3 Days	METS 4 Days	METS 5 Days	METS 6 Days	METS 7 Days
7.5 ml/kg/min	1.5	40:00.	1.5 mph	40	4.5	6	7.5	9	10.5
8.9 ml/kg/min	2.5	30:00	2.0 mph	53.6	7.5	10	12.5	15	17.5
10.2 ml/kg/min	3	24:00	2.5 mph	67	9	12	15	18	21
11.5 ml/kg/min	3.3	20:00	3.0 mph	80.4	10	13.2	16.5	20	23
13.0 ml/kg/min	3.7	17:08	3.5 mph	93.5	11	14.8	18.5	22	25.9
14.0 ml/kg/min	4	15:00	4.0 mph	107	12	16	20	24	28
METS Walking / 30 minute workout									
ml.kg.mins.	METS/hour	Mins./Mile	M.P.H.	meters/min	METS 3 Days	METS 4 Days	METS 5 Days	METS 6 Days	METS 7 Days
7.5 ml/kg/min	1.5	40:00.	1.5 mph	40	2.25	3	3.7	4.5	5.2
8.9 ml/kg/min	2.5	30:00	2.0 mph	53.6	3.75	5	6.2	7.5	8.7
10.2 ml/kg/min	3	24:00	2.5 mph	67	4.5	6	7.5	9	10.5
11.5 ml/kg/min	3.3	20:00	3.0 mph	80.4	5	6.6	8.2	10	11.5
13.0 ml/kg/min	3.7	17:08	3.5 mph	93.5	5.5	7.4	9.2	11	13
14.0 ml/kg/min	4	15:00	4.0 mph	107	6	8	10	12	14