

## HOW MANY METS DID YOU DO TODAY?

There are at least as many reasons to run as there are runners. But if health were your only motivation to work out, would it matter if you ran hard, or could you get the same benefits solely with more moderate exercise? Likewise have you ever wondered what your total week was like from an energy expenditure view-point? It is theoretically possible to boil it down to a single number which could be compared week to week. There is a physiological measure that expresses the energy cost of physical activities which basically relates to your metabolic rate and can be compared to a reference rate.

The measure is known as the Metabolic Equivalent of Task or MET. One MET is defined as the energy produced per unit surface area of an average person sitting quietly (the surface area of an average person is 1.8 m<sup>2</sup>) and is regarded as the resting metabolic rate (RMR).

*Since the RMR of a person depends mainly on lean body mass (not total weight) and other factors such as physical fitness level, cardiovascular health, sex and age, etc., actual RMR and therefore -METs may vary significantly and the energy cost of the same activity will be different for different individuals.*

MET values of activities range from 0.9 (sleeping) to 23 (running at 22.5 km/h or a 4:17 mile pace) with one MET being the energy expended at rest. Two METs indicates the energy expended is twice that at rest. Three METs is triple the resting energy expenditure, etc. Thus, the METs per hour score is a measure of the intensity of a physical activity. (METs can be roughly converted to kilocalories consumed per minute: kcal/min = METs x body weight in kilograms ÷ 60.)

| <b>METS PER HOUR OF ACTIVITY</b>         |            |
|--|------------|
| <b>Activity</b>                          | <b>MET</b> |
| Sleeping                                 | 0.9        |
| <b>Sitting quietly</b>                   | <b>1.0</b> |
| Standing                                 | 1.3        |
| Desk work                                | 1.8        |
| Washing a car, mopping, vacuuming        | 3.0        |
| Walking - 11 minutes/kilometre           | 3.6        |
| Gardening                                | 4.0        |
| Vigorous gardening – digging etc.        | 5.0        |
| Walking - 8 minutes 20 seconds/kilometre | 7.0        |
| Walking - 7 minutes 30 seconds/kilometre | 8.3        |
| Walking - 6 minutes 13 seconds/kilometre | 9.8        |
| Jumping rope                             | 10         |
| Cycling 24 kilometres/hour               | 10.0       |
| Walking - 6 minutes/kilometre            | 10.5       |
| Walking - 5 minutes 33 seconds/kilometre | 11.0       |
| Running - 5 minutes/kilometre            | 11.8       |
| Cycling 28 kilometres/hour               | 12.0       |
| Running - 4 minutes 20 seconds/kilometre | 12.3       |
| Running - 4 minutes/kilometre            | 12.8       |
| Running - 3 minutes 45 seconds/kilometre | 14.5       |
| Running - 3 minutes 25 seconds/kilometre | 16.0       |
| Running - 3 minutes 6 seconds/kilometre  | 19.0       |

Obviously varying walking/running speeds between those shown will give approximate METs.

Because of the explanations in the box above, MET values for various activities are approximations and there may be considerable individual variation also because of environmental conditions (especially temperature and humidity). Hence, differences in energy expenditure for the same activity at different times and for different people can be large.

To get weekly MET scores, multiply MET value for each activity by minutes expended in that activity each time, then add all weekly activities. Most health guidelines call for adults to get a minimum of 500 to 1,000 MET minutes per week.

Compare activities as follows: Walking at 7 min 12 sec/km pace for 15 minutes with a MET value of 9 accounts for about 135 MET-minutes ( $15 \times 9$ ) and is the equivalent to running at 4 min/km pace for 10 minutes 33 seconds with a MET value of 12.8 (i.e. 135 divided by 12.8).

Many other Met values for different activities and sports can be found on the web with the best site being: Ainsworth BE, Haskell WL, Herrmann SD, Meckes N, Bassett Jr DR, Tudor-Locke C, Greer JL, Vezina J, Whitt-Glover MC, Leon AS. The Compendium of Physical Activities Tracking Guide.

<https://sites.google.com/site/compendiumofphysicalactivities/>

**George H White**