

## Calories burned in training

Different activities will burn different quantities of calories.

With your Basal Metabolic Rate (BMR) and the Metabolic Equivalent (MET) value for your particular activity, it is possible to estimate the number of calories you will burn whilst participating in that activity.

The calculator is based on MET (Metabolic Equivalent) data for physical activities from "The Compendium of Physical Activities Tracking Guide" by B. E. Ainsworth. Each individual activity within this calculator has a MET value associated with it.

A MET value represents the ratio of energy (i.e. calories) required to perform a particular activity relative to your BMR, where BMR is the amount of energy required to simply sit or lie quietly (while not digesting any food).

Estimation of BMR is based on the widely used and accepted Harris-Benedict equations. The formulas used by this calculator are shown below.

$$\text{Calorie Burn} = (\text{BMR} / 24) \times \text{MET} \times T$$

where

$$\text{For males: BMR} = (13.75 \times \text{WKG}) + (5 \times \text{HC}) - (6.76 \times \text{age}) + 66$$

$$\text{For females: BMR} = (9.56 \times \text{WKG}) + (1.85 \times \text{HC}) - (4.68 \times \text{age}) + 655$$

and

BMR = Basal Metabolic Rate (over 24 hours)

MET = Metabolic Equivalent (for selected activity)

T = Activity duration time (in hours)

HC = Height (in centimetres)

WKG = Weight (in kilograms)

The following are MET value for various running and walking activities from the Ainsworth 2011 Compendium of Physical Activities

CODE	METS	MAJOR HEADING	SPECIFIC ACTIVITIES
12010	6.0	running	jog/walk combination (jogging of less than 10 minutes)
12020	7.0	running	jogging, general
12025	8.0	running	jogging, in place
12027	4.5	running	jogging, on a mini-tramp
12029	6.0	running	Running, 4 mph (13 min/mile)
12030	8.3	running	running, 5 mph (12 min/mile)
12040	9.0	running	running, 5.2 mph (11.5 min/mile)
12050	9.8	running	running, 6 mph (10 min/mile)
12060	10.5	running	running, 6.7 mph (9 min/mile)
12070	11.0	running	running, 7 mph (8.5 min/mile)
12080	11.5	running	running, 7.5 mph (8 min/mile)
12090	11.8	running	running, 8 mph (7.5 min/mile)
12100	12.3	running	running, 8.6 mph (7 min/mile)
12110	12.8	running	running, 9 mph (6.5 min/mile)
12120	14.5	running	running, 10 mph (6 min/mile)
12130	16.0	running	running, 11 mph (5.5 min/mile)
12132	19.0	running	running, 12 mph (5 min/mile)
12134	19.8	running	running, 13 mph (4.6 min/mile)
12135	23.0	running	running, 14 mph (4.3 min/mile)
12140	9.0	running	running, cross country
17010	7.0	walking	backpacking
17012	7.8	walking	backpacking, hiking or organized walking with a daypack
17033	6.3	walking	climbing hills, no load
17110	6.5	walking	race walking

17151	2.0	walking	walking, less than 2.0 mph, level, strolling, very slow
17152	2.8	walking	walking, 2.0 mph, level, slow pace, firm surface
17160	3.5	walking	walking for pleasure
17165	3.0	walking	walking the dog
17170	3.0	walking	walking, 2.5 mph, level, firm surface
17200	4.3	walking	walking, 3.5 mph, brisk, firm surface, walking for exercise
17220	5.0	walking	walking, 4.0 mph, level, firm surface, very brisk pace
17230	7.0	walking	walking, 4.5 mph, level, firm surface, very, very brisk
17231	8.3	walking	walking, 5.0 mph, level, firm surface

So for any fixed period of time the higher the MET of the activity then the more calories you will burn. So running will burn more calories than walking will increase the calories you use.

What matters in terms of running for weight loss is the intensity of your running. If you alternate the duration of your running such as interspersing sprints, or running at a fast pace for 20 minutes, rather than a moderate pace for 45 minutes, your body will burn more calories due to the extra effort.