

CU SPORTS MEDICINE

## Estimating Energy Expenditure

To estimate how many calories you'll burn during exercise, you need to know *your weight* and the *MET level* of an activity. (You can get the MET level of an activity from the table below). MET means metabolic equivalent and is the amount of energy you expend and oxygen you consume. One MET is the amount of energy you expend while sitting. When you exercise, your MET level increases because your working muscles need more energy and oxygen. Use the following formula to calculate how many calories per minute you will burn during the activity. Then multiply that number by your total exercise minutes.

$$\text{Energy expenditure (calories/minute)} = .0175 \times \text{MET (from chart)} \times \text{weight (in kilograms)}$$

(To find out your weight in kilograms, simply divide your weight in pounds by 2.2.)

To get a more accurate idea of how fast you'll burn calories to lose weight:

- Figure out what you would have burned if you were just sitting around, instead of exercising, for the same time period. (The MET for sitting is 1.0.)
- Subtract these calories from your exercise calories.

This is your energy deficit, or the amount of calories you can count on for fat loss. You will notice that vigorous intensity exercise gives faster results.

<b>METS</b>	<b>Activity</b>	<b>Description</b>
1.0	Sitting	Resting metabolic rate
4.0	Bicycling	<10 mph, general leisure
6.0	Bicycling	10-11.9 mph, leisure, slow, light effort
8.0	Bicycling	12-13.9 mph, leisure, moderate effort
10.0	Bicycling	14-15.9 mph, racing, fast, vigorous effort
12.0	Bicycling	16-19 mph, racing/not drafting or >19 mph drafting, very fast
16.0	Bicycling	>20 mph, racing, not drafting
3.0	Cycling (stationary)	50 watts, very light effort
5.5	Cycling (stationary)	100 watts, light effort
7.0	Cycling (stationary)	150 watts, moderate effort
10.5	Cycling (stationary)	200 watts, vigorous effort
12.5	Cycling (stationary)	250 watts, very vigorous effort
4.5	Calisthenics	home exercise, light or moderate effort
8.0	Calisthenics	vigorous effort (pushups, pull-ups, sit-ups)
6.0	Dancing	aerobic, ballet or modem
5.0	Dancing	low impact aerobic
7.0	Dancing	high impact aerobic
1.0	Inactivity	Sitting quietly, watching TV., reading, talking on phone, riding in a car
1.2	Inactivity	Standing quietly
8.0	Running	5 mph (12 min mile)

<b>METS</b>	<b>Activity</b>	<b>Description</b>
9.0	Running	5.2 mph (11.5 min mile)
10.0	Running	6 mph (10 min mile)
11	Running	6.7 mph (9 min m mile)
11.5	Running	7 mph (8.5 min mile)
12.5	Running	7.5 mph (8 min mile)
13.5	Running	8 mph (7.5 min mile)
14.0	Running	8.6 mph (7 min mile)
15.0	Running	9 mph (6.5 min mile)
16.0	Running	10 mph (6 min mile)
18.0	Running	10.9 mph (5.5 min mile)
15.0	Running	Running stairs
8.5	Rowing machine	150 watts, vigorous effort
12.0	Rowing machine	200 watts, very vigorous effort
7.0	Skiing, X-country	2.5 mph, slow or light effort, ski walking
8.0	Skiing, X-country	4.0-4.9 mph, moderate speed and effort
9.0	Skiing, X-country	5.0-7.9 mph, brisk speed, vigorous effort
14.0	Skiing, X-country	>8 mph, racing
16.5	Skiing, X-country	hard snow, uphill, maximum effort
5.0	Skiing, downhill	light effort
6.0	Skiing, downhill	moderate effort
8.0	Skiing, downhill	vigorous effort, racing
4.2 & 4.4	Stairmaster 4000PT & 4400 PT	manual program level 2 (number of lights)
5.8 & 6.5	Stairmaster 4000PT & 4400 PT	manual program level 4 (number of lights)
7.3 & 8.6	Stairmaster 4000PT & 4400 PT	manual program level 6 (number of lights)
8.9 & 10.7	Stairmaster 4000PT & 4400 PT	manual program level 8 (number of lights)
10.4 & 12.7	Stairmaster 4000PT & 4400 PT	manual program level 10 (number of lights)
12.1 & 14.8	Stairmaster 4000PT & 4400 PT	manual program level 12 (number of lights)
13.6 & 16.9	Stairmaster 4000PT & 4400 PT	manual program level 14 (number of lights)
5.0	Stairmaster Stepmill 7000 PT	exercise stage 2
7.0	Stairmaster Stepmill 7000 PT	exercise stage 4
9.0	Stairmaster Stepmill 7000 PT	exercise stage 6
11.0	Stairmaster Stepmill 7000 PT	exercise stage 8
13.0	Stairmaster Stepmill 7000 PT	exercise stage 10
15.0	Stairmaster Stepmill 7000 PT	exercise stage 12
17.0	Stairmaster Stepmill 7000 PT	exercise stage 14
6.0	Swimming	leisurely, not lap swimming
8.0	Swimming	Backstroke, general
10.0	Swimming	Breaststroke, general
11.0	Swimming	Butterfly, general
2.5	Walking	2 mph, level slow pace, firm surface
3.0	Walking	2.5 mph, firm surface
3.5	Walking	3 mph, level, moderate pace, firm surface
4.0	Walking	3.5 - 4 mph, level, brisk, firm surface
4.5	Walking	4.5 mph, level, firm surface, very very brisk
6.5	Walking	race walking