

Calories Burned Per Mile

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One figure we runners and walkers need to know is the number of calories our bodies burn while out on-foot. One reason it is important to many of us is the weight-loss factor. If I know that today's run or walk burned more calories than I would intake by drinking a beer or eating a cookie, I shall feel no guilt about consuming a beer or cookie after the exercise.

However, for endurance athletes (including marathoners) the rate of calorie loss is important for another reason. It helps us know what carbs we need to store before and intake during a run, allowing us to better plan our race days.

The answer has always been a bit of a mystery to me, since there are so many calorie calculators on the web and even devices like treadmills tell me how many calories they think I burned. But, amazingly, these different sources of answers frequently disagree with each other. Furthermore, many of those calculators present their answers in an unhelpful way - for example, they will tell me (for my body weight) how many calories I would burn in 30 minutes of exercise running at 8 miles per hour. Unfortunately, I do not run in 30 minute segments and I do not think of running speeds as miles per hour.

But I do know my body weight and I do know the mile pace I run on every outing and I do know how far I go. The calorie-related figure I *really* need to know is how many calories I burn per mile. I decided to pin down that figure for different body weights for the paces we typically run or walk.

There are some good reasons why the calculators and the treadmills do not agree. There is no simple scientific answer to the calorie burn rate. That rate depends on many factors including, but not limited to, amount of skeletal muscle, running efficiency, surface type, incline, resting metabolism, level of fitness, and air temperature.*

However, it is possible to find indicative figures that, based on scientific trials with multiple subjects, can give us a reasonable estimate of reality for our own bodies. The most accepted and quoted trial I have found is the study by Greiwe and Kohrt whose results were published in the *Journal of Sports Medicine and Physical Fitness*.** They measured calorie burn rate in a group of fit young women running and walking on treadmills with zero incline. I took their figures and converted them into the following table, which gives calories per mile figures.***

Calories per Mile for Different Body Weights and Mile Paces

Av. Pace	110 lb	120 lb	130 lb	140 lb	150 lb	160 lb	170 lb	180 lb	190 lb
Running									
7:00	85	91	97	103	109	116	122	128	134
8:00	86	93	100	107	114	121	128	135	142
9:00	87	95	103	110	118	126	134	142	149
11:30	78	85	92	99	106	113	121	128	135
Walking									
15:00	74	80	86	92	99	106	113	119	126
20:00	76	82	88	94	100	107	114	122	130

One observation from this table is that there is very little difference in the calorie burn rates at the different run paces or the different walk paces for any given body weight. Therefore we do not lose much information if we simplify the table to give a single average figure for each of running and walking for a given body weight.

Average Calories per Mile for Different Body Weights

Body Wt.	110 lb	120 lb	130 lb	140 lb	150 lb	160 lb	170 lb	180 lb	190 lb
Running	84	91	98	105	112	119	126	133	140
Walking	75	81	87	93	100	106	113	121	128

So there you have two useful, easily memorized figures for your body weight for running and walking on flat surfaces. Remember that these are not scientifically calculated figures, but are indicative figures that I think many readers will find helpful.

* This list of factors was provided to me by Canadian athlete Ayesha Rollinson.

** *J Sports Med Phys Fitness*, Dec 2000; 40(4), pp 297-302. Results summarized by Maria Adams on Swedish Medical Center website <http://healthlibrary.epnet.com>

*** Figures for some body weights calculated by interpolation.