

Dr. Gabe Mirkin's Fitness and Health E-Zine

Comparing Cycling With Running

Which burns more calories, running or cycling? The standard comparison is that one mile of running equals four miles of cycling, but that's lousy science. Although running requires the same amount of energy per mile at any speed (110 calories per mile), riding is affected by wind resistance so the faster you ride, the more energy you use. So you have to compare running and cycling at different cycling speeds.

Dr. Edward Coyle of The University of Texas in Austin determined average values of oxygen consumption by cyclists to develop a table to estimate the approximate caloric equivalence between running and cycling. He found that if you ride 20 miles at 15 mph, you burn 620 calories (20 miles X 31 calories per mile = 620 calories). Take the 620 calories and divide them by 110 calories per mile for running and you get 5.63 miles to burn the same number of calories. So riding a bicycle 20 miles at 15 miles per hour is equal to running 5.6 miles at any speed.

Dr. Coyle made the calculations easy by providing conversion factors for different riding speeds: 10MPH=4.2, 15MPH=3.5, 20MPH=2.9, 25MPH=2.3, and 30MPH=1.9. Divide the number of miles ridden by the conversion factor for your riding speed to tell you the equivalent miles of running at any speed. Thus, for 20 miles ridden at 10MPH, divide 20 miles by 4.2 which tells you that your ride is equivalent to 4.8 miles of running. This formula is for an average-size adult (approximately 155 pounds). A larger cyclist would divide by a slightly higher number; a smaller cyclist, by a slightly lower one. Wind and hills are not accounted for in the table; nor is drafting (riding behind another cyclist), which can reduce your energy expenditure by up to one-third.