



# KCAL TO WATTS

ACTIVITY, EXERCISE OR SPORT (1 HOUR)	WATT/HR	130lb	WATT/HR	155lb	WATT/HR	180lb	WATT/HR	205lb
Cycling, mountain bike, bmx	116.6648	502	138.9752	598	161.518	695	183.8284	791
Cycling, <10 mph, leisure bicycling	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Cycling, >20 mph, racing	219.3856	944	261.6824	1126	303.9792	1308	346.0436	1489
Cycling, 10-11.9 mph, light	82.2696	354	98.0728	422	113.876	490	129.6792	558
Cycling, 12-13.9 mph, moderate	109.6928	472	130.8412	563	151.9896	654	173.138	745
Cycling, 14-15.9 mph, vigorous	137.116	590	163.6096	704	189.8708	817	216.3644	931
Cycling, 16-19 mph, very fast, racing	164.5392	708	196.1456	844	227.9844	981	259.5908	1117
Unicycling	68.558	295	81.8048	352	95.0516	409	108.066	465
Stationary cycling, very light	41.1348	177	49.0364	211	56.938	245	64.8396	279
Stationary cycling, light	75.53	325	89.9388	387	104.3476	449	118.9888	512
Stationary cycling, moderate	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Stationary cycling, vigorous	144.088	620	171.7436	739	199.3992	858	227.0548	977
Stationary cycling, very vigorous	171.5112	738	204.512	880	237.5128	1022	270.2812	1163
Calisthenics, vigorous, pushups, situps	109.6928	472	130.8412	563	151.9896	654	173.138	745
Calisthenics, light	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Circuit training, minimal rest	109.6928	472	130.8412	563	151.9896	654	173.138	745
Weight lifting, body building, vigorous	82.2696	354	98.0728	422	113.876	490	129.6792	558
Weight lifting, light workout	41.1348	177	49.0364	211	56.938	245	64.8396	279
Health club exercise	75.53	325	89.9388	387	104.3476	449	118.9888	512
Stair machine	123.4044	531	147.1092	633	170.814	735	194.7512	838
Rowing machine, light	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Rowing machine, moderate	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Rowing machine, vigorous	116.6648	502	138.9752	598	161.518	695	183.8284	791
Rowing machine, very vigorous	164.5392	708	196.1456	844	227.9844	981	259.5908	1117
Ski machine	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Aerobics, low impact	68.558	295	81.8048	352	95.0516	409	108.066	465

ACTIVITY, EXERCISE OR SPORT (1 HOUR)	WATT/HR	130lb	WATT/HR	155lb	WATT/HR	180lb	WATT/HR	205lb
Aerobics, high impact	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Aerobics, step aerobics	116.6648	502	138.9752	598	161.518	695	183.8284	791
Aerobics, general	89.2416	384	106.2068	457	123.4044	531	140.602	605
Jazzercise	82.2696	354	98.0728	422	113.876	490	129.6792	558
Stretching, hatha yoga	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Mild stretching	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Instructing aerobic class	82.2696	354	98.0728	422	113.876	490	129.6792	558
Water aerobics	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Ballet, twist, jazz, tap	61.8184	266	73.6708	317	85.5232	368	97.3756	419
Ballroom dancing, slow	41.1348	177	49.0364	211	56.938	245	64.8396	279
Ballroom dancing, fast	75.53	325	89.9388	387	104.3476	449	118.9888	512
Running, 5 mph (12 minute mile)	109.6928	472	130.8412	563	151.9896	654	173.138	745
Running, 5.2 mph (11.5 min mile)	123.4044	531	147.1092	633	170.814	735	194.7512	838
Running, 6 mph (10 min mile)	137.116	590	163.6096	704	189.8708	817	216.3644	931
Running, 6.7 mph (9 min mile)	150.8276	649	179.8776	774	208.9276	899	237.9776	1024
Running, 7 mph (8.5 min mile)	157.7996	679	188.0116	809	218.456	940	248.668	1070
Running, 7.5mph (8 min mile)	171.5112	738	204.512	880	237.5128	1022	270.2812	1163
Running, 8 mph (7.5 min mile)	185.2228	797	220.78	950	256.3372	1103	291.8944	1256
Running, 8.6 mph (7 min mile)	191.9624	826	228.914	985	265.8656	1144	302.8172	1303
Running, 9 mph (6.5 min mile)	205.674	885	245.4144	1056	284.9224	1226	324.4304	1396
Running, 10 mph (6 min mile)	219.3856	944	261.6824	1126	303.9792	1308	346.0436	1489
Running, 10.9 mph (5.5 min mile)	246.8088	1062	294.4508	1267	341.8604	1471	389.27	1675
Running, cross country	123.4044	531	147.1092	633	170.814	735	194.7512	838
Running, general	109.6928	472	130.8412	563	151.9896	654	173.138	745
Running, on a track, team practice	137.116	590	163.6096	704	189.8708	817	216.3644	931
Running, stairs, up	205.674	885	245.4144	1056	284.9224	1226	324.4304	1396
Track and field (shot, discus)	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Track and field (high jump, pole vault)	82.2696	354	98.0728	422	113.876	490	129.6792	558
Track and field (hurdles)	137.116	590	163.6096	704	189.8708	817	216.3644	931
Archery	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Badminton	61.8184	266	73.6708	317	85.5232	368	97.3756	419
Basketball game, competitive	109.6928	472	130.8412	563	151.9896	654	173.138	745
Playing basketball, non game	82.2696	354	98.0728	422	113.876	490	129.6792	558
Basketball, officiating	95.9812	413	114.5732	493	132.9328	572	151.2924	651

ACTIVITY, EXERCISE OR SPORT (1 HOUR)	WATT/HR	130lb	WATT/HR	155lb	WATT/HR	180lb	WATT/HR	205lb
Basketball, shooting baskets	61.8184	266	73.6708	317	85.5232	368	97.3756	419
Basketball, wheelchair	89.2416	384	106.2068	457	123.4044	531	140.602	605
Running, training, pushing wheelchair	109.6928	472	130.8412	563	151.9896	654	173.138	745
Billiards	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Bowling	41.1348	177	49.0364	211	56.938	245	64.8396	279
Boxing, in ring	164.5392	708	196.1456	844	227.9844	981	259.5908	1117
Boxing, punching bag	82.2696	354	98.0728	422	113.876	490	129.6792	558
Boxing, sparring	123.4044	531	147.1092	633	170.814	735	194.7512	838
Coaching: football, basketball, soccer	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Cricket (batting, bowling)	68.558	295	81.8048	352	95.0516	409	108.066	465
Croquet	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Curling	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Darts (wall or lawn)	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Fencing	82.2696	354	98.0728	422	113.876	490	129.6792	558
Football, competitive	123.4044	531	147.1092	633	170.814	735	194.7512	838
Football, touch, flag, general	109.6928	472	130.8412	563	151.9896	654	173.138	745
Football or baseball, playing catch	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Frisbee playing, general	41.1348	177	49.0364	211	56.938	245	64.8396	279
Frisbee, ultimate frisbee	109.6928	472	130.8412	563	151.9896	654	173.138	745
Golf, general	61.8184	266	73.6708	317	85.5232	368	97.3756	419
Golf, walking and carrying clubs	61.8184	266	73.6708	317	85.5232	368	97.3756	419
Golf, driving range	41.1348	177	49.0364	211	56.938	245	64.8396	279
Golf, miniature golf	41.1348	177	49.0364	211	56.938	245	64.8396	279
Golf, walking and pulling clubs	59.0296	254	70.4172	303	81.5724	351	92.96	400
Golf, using power cart	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Gymnastics	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Hacky sack	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Handball	164.5392	708	196.1456	844	227.9844	981	259.5908	1117
Handball, team	109.6928	472	130.8412	563	151.9896	654	173.138	745
Hockey, field hockey	109.6928	472	130.8412	563	151.9896	654	173.138	745
Hockey, ice hockey	109.6928	472	130.8412	563	151.9896	654	173.138	745
Riding a horse, general	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Horesback riding, saddling horse	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Horseback riding, grooming horse	48.1068	207	57.1704	246	66.4664	286	75.7624	326

ACTIVITY, EXERCISE OR SPORT (1 HOUR)	WATT/HR	130lb	WATT/HR	155lb	WATT/HR	180lb	WATT/HR	205lb
Horseback riding, trotting	89.2416	384	106.2068	457	123.4044	531	140.602	605
Horseback riding, walking	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Horse racing, galloping	109.6928	472	130.8412	563	151.9896	654	173.138	745
Horse grooming, moderate	82.2696	354	98.0728	422	113.876	490	129.6792	558
Horseshoe pitching	41.1348	177	49.0364	211	56.938	245	64.8396	279
Jai alai	164.5392	708	196.1456	844	227.9844	981	259.5908	1117
Martial arts, judo, karate, jujitsu	137.116	590	163.6096	704	189.8708	817	216.3644	931
Martial arts, kick boxing	137.116	590	163.6096	704	189.8708	817	216.3644	931
Martial arts, tae kwan do	137.116	590	163.6096	704	189.8708	817	216.3644	931
Krav maga training	137.116	590	163.6096	704	189.8708	817	216.3644	931
Juggling	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Kickball	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Lacrosse	109.6928	472	130.8412	563	151.9896	654	173.138	745
Orienteering	123.4044	531	147.1092	633	170.814	735	194.7512	838
Playing paddleball	82.2696	354	98.0728	422	113.876	490	129.6792	558
Paddleball, competitive	137.116	590	163.6096	704	189.8708	817	216.3644	931
Polo	109.6928	472	130.8412	563	151.9896	654	173.138	745
Racquetball, competitive	137.116	590	163.6096	704	189.8708	817	216.3644	931
Playing racquetball	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Rock climbing, ascending rock	150.8276	649	179.8776	774	208.9276	899	237.9776	1024
Rock climbing, rappelling	109.6928	472	130.8412	563	151.9896	654	173.138	745
Jumping rope, fast	164.5392	708	196.1456	844	227.9844	981	259.5908	1117
Jumping rope, moderate	137.116	590	163.6096	704	189.8708	817	216.3644	931
Jumping rope, slow	109.6928	472	130.8412	563	151.9896	654	173.138	745
Rugby	137.116	590	163.6096	704	189.8708	817	216.3644	931
Shuffleboard, lawn bowling	41.1348	177	49.0364	211	56.938	245	64.8396	279
Skateboarding	68.558	295	81.8048	352	95.0516	409	108.066	465
Roller skating	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Roller blading, in-line skating	164.5392	708	196.1456	844	227.9844	981	259.5908	1117
Sky diving	41.1348	177	49.0364	211	56.938	245	64.8396	279
Soccer, competitive	137.116	590	163.6096	704	189.8708	817	216.3644	931
Playing soccer	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Softball or baseball	68.558	295	81.8048	352	95.0516	409	108.066	465
Softball, officiating	54.8464	236	65.3044	281	75.9948	327	86.4528	372

ACTIVITY, EXERCISE OR SPORT (1 HOUR)	WATT/HR	130lb	WATT/HR	155lb	WATT/HR	180lb	WATT/HR	205lb
Softball, pitching	82.2696	354	98.0728	422	113.876	490	129.6792	558
Squash	164.5392	708	196.1456	844	227.9844	981	259.5908	1117
Table tennis, ping pong	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Tai chi	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Playing tennis	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Tennis, doubles	82.2696	354	98.0728	422	113.876	490	129.6792	558
Tennis, singles	109.6928	472	130.8412	563	151.9896	654	173.138	745
Trampoline	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Volleyball, competitive	109.6928	472	130.8412	563	151.9896	654	173.138	745
Playing volleyball	41.1348	177	49.0364	211	56.938	245	64.8396	279
Volleyball, beach	109.6928	472	130.8412	563	151.9896	654	173.138	745
Wrestling	82.2696	354	98.0728	422	113.876	490	129.6792	558
Wallyball	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Backpacking, Hiking with pack	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Carrying infant, level ground	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Carrying infant, upstairs	68.558	295	81.8048	352	95.0516	409	108.066	465
Carrying 16 to 24 lbs, upstairs	82.2696	354	98.0728	422	113.876	490	129.6792	558
Carrying 25 to 49 lbs, upstairs	109.6928	472	130.8412	563	151.9896	654	173.138	745
Standing, playing with children, light	38.346	165	45.7828	197	53.2196	229	60.6564	261
Walk/run, playing with children, moderate	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Walk/run, playing with children, vigorous	68.558	295	81.8048	352	95.0516	409	108.066	465
Carrying small children	41.1348	177	49.0364	211	56.938	245	64.8396	279
Loading, unloading car	41.1348	177	49.0364	211	56.938	245	64.8396	279
Climbing hills, carrying up to 9 lbs	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Climbing hills, carrying 10 to 20 lb	102.9532	443	122.7072	528	142.4612	613	162.2152	698
Climbing hills, carrying 21 to 42 lb	109.6928	472	130.8412	563	151.9896	654	173.138	745
Climbing hills, carrying over 42 lb	123.4044	531	147.1092	633	170.814	735	194.7512	838
Walking downstairs	41.1348	177	49.0364	211	56.938	245	64.8396	279
Hiking, cross country	82.2696	354	98.0728	422	113.876	490	129.6792	558
Bird watching	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Marching, rapidly, military	89.2416	384	106.2068	457	123.4044	531	140.602	605
Children's games, hopscotch, dodgeball	68.558	295	81.8048	352	95.0516	409	108.066	465
Pushing stroller or walking with children	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Pushing a wheelchair	54.8464	236	65.3044	281	75.9948	327	86.4528	372

ACTIVITY, EXERCISE OR SPORT (1 HOUR)	WATT/HR	130lb	WATT/HR	155lb	WATT/HR	180lb	WATT/HR	205lb
Race walking	89.2416	384	106.2068	457	123.4044	531	140.602	605
Rock climbing, mountain climbing	109.6928	472	130.8412	563	151.9896	654	173.138	745
Walking using crutches	68.558	295	81.8048	352	95.0516	409	108.066	465
Walking the dog	41.1348	177	49.0364	211	56.938	245	64.8396	279
Walking, under 2.0 mph, very slow	27.4232	118	32.7684	141	37.8812	163	43.2264	186
Walking 2.0 mph, slow	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Walking 2.5 mph	41.1348	177	49.0364	211	56.938	245	64.8396	279
Walking 3.0 mph, moderate	45.318	195	53.9168	232	62.748	270	71.3468	307
Walking 3.5 mph, brisk pace	52.0576	224	62.0508	267	72.2764	311	82.2696	354
Walking 3.5 mph, uphill	82.2696	354	98.0728	422	113.876	490	129.6792	558
Walking 4.0 mph, very brisk	68.558	295	81.8048	352	95.0516	409	108.066	465
Walking 4.5 mph	86.4528	372	102.9532	443	119.686	515	136.1864	586
Walking 5.0 mph	109.6928	472	130.8412	563	151.9896	654	173.138	745
Boating, power, speed boat	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Canoeing, camping trip	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Canoeing, rowing, light	41.1348	177	49.0364	211	56.938	245	64.8396	279
Canoeing, rowing, moderate	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Canoeing, rowing, vigorous	164.5392	708	196.1456	844	227.9844	981	259.5908	1117
Crew, sculling, rowing, competition	164.5392	708	196.1456	844	227.9844	981	259.5908	1117
Kayaking	68.558	295	81.8048	352	95.0516	409	108.066	465
Paddle boat	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Windsurfing, sailing	41.1348	177	49.0364	211	56.938	245	64.8396	279
Sailing, competition	68.558	295	81.8048	352	95.0516	409	108.066	465
Sailing, yachting, ocean sailing	41.1348	177	49.0364	211	56.938	245	64.8396	279
Skiing, water skiing	82.2696	354	98.0728	422	113.876	490	129.6792	558
Ski mobiling	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Skin diving, fast	219.3856	944	261.6824	1126	303.9792	1308	346.0436	1489
Skin diving, moderate	171.5112	738	204.512	880	237.5128	1022	270.2812	1163
Skin diving, scuba diving	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Snorkeling	68.558	295	81.8048	352	95.0516	409	108.066	465
Surfing, body surfing or board surfing	41.1348	177	49.0364	211	56.938	245	64.8396	279
Whitewater rafting, kayaking, canoeing	68.558	295	81.8048	352	95.0516	409	108.066	465
Swimming laps, freestyle, fast	137.116	590	163.6096	704	189.8708	817	216.3644	931
Swimming laps, freestyle, slow	95.9812	413	114.5732	493	132.9328	572	151.2924	651

ACTIVITY, EXERCISE OR SPORT (1 HOUR)	WATT/HR	130lb	WATT/HR	155lb	WATT/HR	180lb	WATT/HR	205lb
Swimming backstroke	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Swimming breaststroke	137.116	590	163.6096	704	189.8708	817	216.3644	931
Swimming butterfly	150.8276	649	179.8776	774	208.9276	899	237.9776	1024
Swimming leisurely, not laps	82.2696	354	98.0728	422	113.876	490	129.6792	558
Swimming sidestroke	109.6928	472	130.8412	563	151.9896	654	173.138	745
Swimming synchronized	109.6928	472	130.8412	563	151.9896	654	173.138	745
Swimming, treading water, fast, vigorous	137.116	590	163.6096	704	189.8708	817	216.3644	931
Swimming, treading water, moderate	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Water aerobics, water calisthenics	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Water polo	137.116	590	163.6096	704	189.8708	817	216.3644	931
Water volleyball	41.1348	177	49.0364	211	56.938	245	64.8396	279
Water jogging	109.6928	472	130.8412	563	151.9896	654	173.138	745
Diving, springboard or platform	41.1348	177	49.0364	211	56.938	245	64.8396	279
Ice skating, < 9 mph	75.53	325	89.9388	387	104.3476	449	118.9888	512
Ice skating, average speed	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Ice skating, rapidly	123.4044	531	147.1092	633	170.814	735	194.7512	838
Speed skating, ice, competitive	205.674	885	245.4144	1056	284.9224	1226	324.4304	1396
Cross country snow skiing, slow	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Cross country skiing, moderate	109.6928	472	130.8412	563	151.9896	654	173.138	745
Cross country skiing, vigorous	123.4044	531	147.1092	633	170.814	735	194.7512	838
Cross country skiing, racing	191.9624	826	228.914	985	265.8656	1144	302.8172	1303
Cross country skiing, uphill	226.3576	974	269.8164	1161	313.2752	1348	356.9664	1536
Snow skiing, downhill skiing, light	68.558	295	81.8048	352	95.0516	409	108.066	465
Downhill snow skiing, moderate	82.2696	354	98.0728	422	113.876	490	129.6792	558
Downhill snow skiing, racing	109.6928	472	130.8412	563	151.9896	654	173.138	745
Sledding, tobogganing, luge	95.9812	413	114.5732	493	132.9328	572	151.2924	651
Snow shoeing	109.6928	472	130.8412	563	151.9896	654	173.138	745
Snowmobiling	48.1068	207	57.1704	246	66.4664	286	75.7624	326
General housework	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Cleaning gutters	68.558	295	81.8048	352	95.0516	409	108.066	465
Painting	61.8184	266	73.6708	317	85.5232	368	97.3756	419
Sit, playing with animals	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Walk / run, playing with animals	54.8464	236	65.3044	281	75.9948	327	86.4528	372

ACTIVITY, EXERCISE OR SPORT (1 HOUR)	WATT/HR	130lb	WATT/HR	155lb	WATT/HR	180lb	WATT/HR	205lb
Bathing dog	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Mowing lawn, walk, power mower	75.53	325	89.9388	387	104.3476	449	118.9888	512
Mowing lawn, riding mower	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Walking, snow blower	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Riding, snow blower	41.1348	177	49.0364	211	56.938	245	64.8396	279
Shoveling snow by hand	82.2696	354	98.0728	422	113.876	490	129.6792	558
Raking lawn	59.0296	254	70.4172	303	81.5724	351	92.96	400
Gardening, general	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Bagging grass, leaves	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Watering lawn or garden	20.6836	89	24.6344	106	28.5852	123	32.536	140
Weeding, cultivating garden	61.8184	266	73.6708	317	85.5232	368	97.3756	419
Carpentry, general	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Carrying heavy loads	109.6928	472	130.8412	563	151.9896	654	173.138	745
Carrying moderate loads upstairs	109.6928	472	130.8412	563	151.9896	654	173.138	745
General cleaning	48.1068	207	57.1704	246	66.4664	286	75.7624	326
Cleaning, dusting	34.3952	148	40.9024	176	47.4096	204	54.1492	233
Taking out trash	41.1348	177	49.0364	211	56.938	245	64.8396	279
Walking, pushing a wheelchair	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Teach physical education, exercise class	54.8464	236	65.3044	281	75.9948	327	86.4528	372
Teach exercise classes & participate	89.2416	384	106.2068	457	123.4044	531	140.602	605