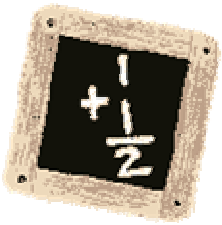
WEIGHT LOSS MATH
Metric Version

Excerpt from WEIGHT CONTROL – Metric Edition by Vince Antonetti, PhD



Weight control researchers have established that to lose one kilogram of body weight requires that we eat 7700 kcalories less than we burn, creating what's called a kcalorie deficit. Thus, if a person's total kcalorie deficit over time is known, their weight loss over time can be calculated.

Example 1: A relatively inactive, 30 year-old woman, 162 cm tall weighs 80 kg and eats approximately 2600 kcalories per day and neither gains nor loses weight.

If she goes on a 1500 kcal per day reducing diet, her daily deficit would be 2600 – 1500 = 1100 kcal. Then, in one week her deficit would be 1100 kcal per day x 7 days = 7700 kcal, and she should lose 7700 / 7700, or one kilo.

This computation technique, however useful, is somewhat crude. Primarily because it does not account for a very important scientific fact: As we lose weight we actually need fewer calories to maintain our lower weight. As a result, if a dieter's calorie intake remains constant over some period of time, their calorie deficit will decrease during their diet and the rate at which they lose weight will also decrease with time. And this effect becomes increasingly important with longer duration diets and as more weight is lost.

Only the Weight Loss Prediction tables in WEIGHT CONTROL and TOTAL FITNESS (both published by NoPaperPress.com) account for this phenomenon. But before we continue we need to discuss Activity Levels.

Activity Levels

As soon as we move about, the physical activity causes our energy output to increase significantly above our basal level. Many experiments have determined the energy used during various activities. Scientists express the results in terms of calories used per pound of body weight per unit of time. To compute our total daily energy expended due to physical activity, therefore, would require that a diary be kept of the amount of time spent at each activity for an entire day. This is fine in a science lab, but in the real world it's impractical.

To overcome this problem, a number of years ago this writer devised a more practical measure of daily physical activity called the Activity-Level method. Essentially, to use the method, you make a judgment as to how active you are using Table 1.

Activity Level	Lifestyle	Description	Equivalent Walking Distance	Equivalent Pedometer Steps
0	Sedentary	Inactive most of day. Stands & walks very little during the day.	Less than 1.6 km	Less than 2,100
1	Relatively Inactive	Seated most of day. Stands & walks at most four hours. Typical of office workers & similar occupations.	1.6 to 3.2 km	2,100 to 4,200
2	Moderately Active	Stands as often as is seated. Typical of teachers, sales clerks, & similar jobs.	4.8 to 8 km	6,300 to 10,500
3	Very Active	Stands & walks most of day. Typical of factory & construction workers, farmers, & similar jobs.	9.6 to 12.8 km	12,600 to 16,800
4	Extremely Active	Very hard physical work. Typical of lumber jacks, athletes in training, etc.	More than 12.8 km	More than 16,800

Table 1: Lifestyle Activity Levels

Admittedly, this method has its own drawbacks but it's the most workable in practical, daily living situations.

Weight Loss Prediction Tables

Scientists have long known that weight loss is a function of age, gender, height, weight, activity level, caloric intake and the duration of the diet. This writer related all these variables in a complex, scientifically based, energy-weight-control equation. The research was summarized in the paper, "The Equations Governing Weight Change in Human Beings" and published in the *American Journal of Clinical Nutrition.* WEIGHT CONTROL and TOTAL FITNESS contain a set of 60 Weight Loss Prediction Tables based on the afore-mentioned energy-weight-control-equation.

Using the Weight Loss Prediction Tables

First determine your Activity Level from Table 1. Then find the Weight Loss Prediction Table that applies to you (from among the 60 tables located in WEIGHT CONTROL and TOTAL FITNESS.

The use of the Weight Loss Prediction Table to determine your specific diet calorie options is best illustrated by an example.

Example 2: A 28-year-old woman, who is 1.56 meters tall and weighs 70 kilograms, has essentially a sedentary job as a computer programmer and spends most of her free time in front of a TV set. How long will it take her to lose 8 kilos?

Considering her job and leisure-time pursuits, from Table 1 she decides on Activity Level 1. Next she consults her personal Weight Loss Prediction table (for women 18 to 35 yrs, 150 to 165 cm, Activity Level 1) - a portion of the table is shown here as Table 2, on the next page.

To use Table 2, our dieter would scan the far left of the table and locate her weight loss goal of 8 kilos. She finds four different diet options of 900, 1200, 1500 and 1800 kcalories. From this point, she runs a finger horizontally (to the right) until it intersects the vertical column headed by her present weight of 70 kilograms. The four numbers in the highlighted box at the intersection are the time in days to lose 8 kilos, depending on the diet calories consumed. Specifically, to lose 8 kilos our fictional female's diet kcalorie options are:

- **900 kcalories per day for 50 days.**
- **1200 kcalories per day for 64 days.**
- **1500 kcalories per day for 90 days.**
- **1800 kcalories per day for 149 days.**

WEIGHT LOSS PREDICTION FOR WOMEN Ages: 18 to 35 yrs.

Height: 150 to 165 cm Activity Level 1

Weight Loss	Diet kcalories	Present Weight (kg.)							
		50	55	60	65	70	80	90	100
2	900	17	15	14	13	12	11	9	9
2	1200	25	21	19	17	15	13	11	10
2	1500	43	34	28	24	21	17	14	12
2	1800	178	82	54	41	33	24	19	15
4	900	35	31	29	26	24	21	19	17
4	1200	51	44	38	34	30	26	23	20
4	1500	92	70	58	49	43	34	29	25
4	1800		186	117	86	68	49	38	31
6	900		48	44	40	37	32	29	26
6	1200		67	59	52	47	40	35	31
6	1500		111	90	76	67	52	44	37
6	1800			191	136	107	75	58	48
8	900		66	60	54	50	44	39	35
8	1200		93	81	72	64	54	47	41
8	1500		157	125	108	90	71	59	51
8	1800			283	194	149	103	80	65
10	900			76	69	64	55	49	44
10	1200			104	92	82	69	59	52
10	1500			164	135	116	91	75	64

Table 2. Weight Loss Prediction

Which alternative should she choose? Health professionals recommend a gradual weight loss of one one-half to one kilo per week. The reason for the relatively slow weight loss is that you want to be on the diet long enough to understand and learn how much to eat, and how to eat properly. In this case, at one kilo per week her diet should last 8 weeks or 56 days, and at one-half kilo per week her diet should take 16 weeks or 112 days.

To comply with accepted weight loss guidelines, therefore, she should choose a diet calorie level that will result in her losing the 8 kilos over a 56 to 112 day period - pointing to the 1200 or 1500-kcalorie options. In the end, it comes down to deciding between the shorter term 1200-kcalorie diet or a longer duration somewhat higher 1500-kcalorie option.

Exercise and Lose Weight Faster

Better still would be for this woman to increase her activity level by taking a brisk 5-kilometer walk everyday, and qualifying for Activity Level 2, the moderately active category. The weight loss prediction table for this case is not shown here but would result in the following shorter-duration diet options:

- **900 kcalories per day for 43 days.**
- **1200 kcalories per day for 53 days.**
- **1500 kcalories per day for 69 days.**
- **1800 kcalories per day for 99 days.**

Hence, by increasing her activity level, our dieter could decrease the time to lose the 8 kilos by 14 to 32 percent – depending on the diet-calorie level she chooses.

The preceding excerpt is from:

WEIGHT CONTROL – Metric Edition by Vince Antonetti, Ph.D.

Readers in the U.S. would probably prefer the following U.S. edition eBook also published by NoPaperPress:

WEIGHT CONTROL – U.S. Edition by Vince Antonetti, Ph.D.