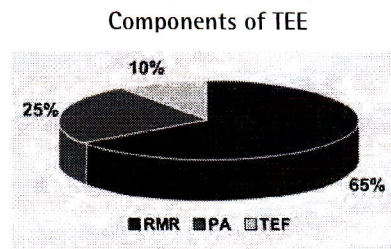


# Estimated Resting Metabolic Rate

## What is Resting Metabolic Rate (RMR)?

Your RMR (kcal/day) represents the minimum energy your body needs to support its basic physiological functions, including heartbeat, breathing, maintaining body temperature, and all of the numerous biochemical reactions required to keep you alive. In essence, it is the amount of energy that the body uses at rest. Your daily Total Energy Expenditure (TEE, kcal/day) consists of three components: *RMR*, *Physical Activity (PA)*, and *Thermic Effect of Food (TEF)*. Of these three, RMR is the largest contributing component of TEE at around 60-70%.

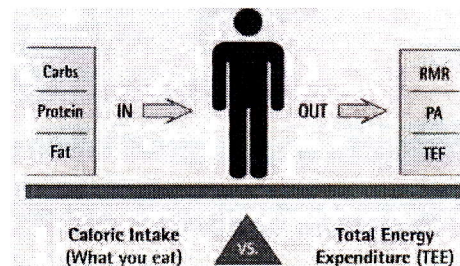


## How can I find out my RMR?

Due to the strict protocol and technical difficulties associated with obtaining an accurate measurement of RMR, prediction equations have been developed to estimate RMR based on parameters more easily measured. Research studies indicate that prediction equations which account for both fat and fat-free mass provide the most accurate estimates of RMR. Therefore, the equation of Nelson et al (*Am J Clin Nutr* 56:848-56, 1992), which includes accurately measured fat-free and fat mass as predictors, will provide a reliable and accurate estimation of your RMR. This equation is also useful in tracking changes in estimated RMR that occur with a change in either fat-free or fat mass.

## Why do I need to know my RMR?

Most of us understand that weight management depends upon the energy balance equation: the amount of energy you put into your body (your caloric intake) versus the amount of energy you expend (your TEE). The way to lose body fat is to maintain a negative energy balance. This is accomplished by reducing caloric intake, increasing TEE or, preferably, a combination of both. Your RMR is dependent primarily on the fat-free part of your body, and accounts for the vast majority of your TEE. So to improve your overall fitness, it is critical to know your RMR.



- ▶ **Changes in estimated RMR can be used to influence changes in your body composition.** If you lose body fat and replace it with muscle, you should see a steady increase in your RMR. Having your RMR monitored throughout a weight management program can help you track improvements in your muscle mass, thus optimizing your fat loss and fitness/nutrition program strategy.
- ▶ **Estimated RMR can be used to provide an estimation of your TEE, which can help manage your daily caloric intake.** While RMR is generally 65% of your TEE, the level of your physical activity can add significant variability to the actual percentage. For this reason, your daily activity level, selected from the activity chart below (*Institute of Medicine, DRI, pp93-206, 2002*), should be used in the estimation of TEE.

$$\text{Estimated TEE (kcal/day)} = \text{Estimated RMR (kcal/day)} \times \text{Daily Activity Level}$$

| DAILY ACTIVITY LEVEL | MALE | FEMALE | DESCRIPTION  |
|----------------------|------|--------|--|
| SEDENTARY            | 1.28 | 1.24   | Mostly seated or standing daily living activities; no exercise or other leisure activities.  |
| LOW ACTIVE           | 1.51 | 1.52   | Light exercise and leisure activities (i.e., walking 50 minutes per day at 3 mph or golfing 40 minutes per day).                             |
| ACTIVE               | 1.74 | 1.74   | Moderate exercise and leisure activities (i.e., cycling moderately 75 minutes per day or playing tennis 90 minutes per day).                 |
| VERY ACTIVE          | 2.08 | 2.07   | Heavy manual labor job or heavy exercise and leisure activities (i.e., jogging 75 minutes per day or playing basketball 60 minutes per day). |

## Who should not use the estimated RMR or TEE?

Estimated RMR or TEE *should not* be used for children < 18 years old, pregnant or lactating women, or individuals in which metabolism may be affected by disease or medication.