

It's important to note that REE falls an average of 1% and 0.8% per decade in men and women respectively. This reduction in REE is equivalent to the loss of ~1.5- to 2- pounds of lean body mass per year. While strength training is unlikely to have a clinically significant affect on REE over the short term, it can prevent the ongoing loss of lean body mass, and is likely to prevent much of the typical decline seen in REE as subjects age.

How does Hypothyroidism Impact REE?

Untreated hypothyroidism appears to lower REE by 30% \pm 10%, while subclinical hypothyroidism is estimated to lower REE by 15 \pm 5%.^{11,12,13} Approximately 7.5% and 10% of the population has either subclinical or frank hypothyroidism respectively, with the majority of cases (~80%) occurring in females. About 40% of treated hypothyroid cases may not be properly adjusted, and may still exhibit symptoms of hypothyroidism (e.g. low body temperature, dry skin, hair loss, depression, low REE).¹⁴ An endocrinologist may be better skilled at fine tuning thyroid replacement than a primary care physician.

What You Need to Know to Maximize Your Success:

1. **Physical activity is the only option through which you can increase your metabolism enough to affect your weight.**
2. **Weight training should be part of your activity program.** It's the only avenue to significantly increase your skeletal muscle mass—which is still important. Nothing else can tone and shape your body, provide the strength to continue daily activities without assistance as you age, help you avoid osteoporosis (a problem both men and women need to take seriously). Some research also indicates that for women strength training leads to a higher level of self-confidence/esteem than other forms of physical activity.
3. **There's a wide variation within "normal metabolism" in healthy people (\pm 20%).** However 80% of healthy adults fall \pm 10% of average. The folks who do fall at the low end of the range are not destined to be overweight or obese. However, they clearly have to work a little harder to maintain a lower body weight.

References:

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Measure Your Metabolism!

It's now simple and inexpensive to have your metabolism measured. There are two versions of a small handheld device (MedGem™ and BodyGem™) that when used under appropriate testing conditions (resting, 12 hours fasting/post exercise, no stimulants) produces a highly accurate reading. Ask a health or fitness professional if they offer REE testing. You can also find professionals who offer this testing through www.microlifeusa.com.

Muscle Metabolism Mythology

Where did the idea that adding skeletal muscle will turn you into a "calorie-burning machine" get started? We talked with Dr. Stephen Heymsfield, professor of medicine at Columbia University College of Physicians & Surgeons, a well-known obesity researcher (St. Luke's-Roosevelt Obesity Research Center) who has published over 150 articles, and to Dr. Robert Ross, clinical assistant professor of medicine at Baylor College of Medicine and co-author of the exercise science text, "Understanding Exercise for Health and Fitness."

Dr. Heymsfield actually had the same question we did, and has made some effort to dispel the myth, sharing the same research that he directed us to. Figure 4 is from the scientific text that Dr. Heymsfield referred us to. This text cites numerous references to basic research measuring the metabolic rate of various body tissues. As you can see, (resting) skeletal muscle burns 13 calories per kilogram per day (5.9 calories per pound per day).

Dr. Robert Ross understands the confusion. His exercise science text is in fact an example of what has indirectly contributed to the myth. It correctly states that, "metabolic rate for the fat-free mass (FFM) component of body weight is about 40 kilocalories per kilogram per day." What it does not explain is that while skeletal muscle is part of FFM, its contribution to FFM metabolism is small. Organs, on the other hand, burn 30 to 70 times the calories skeletal muscle burns.

Dr. Ross agrees with this point, noting that, "You would have to *double* your skeletal muscle to increase your RMR by 20%" — this of course is not possible for most mortals. If the reference male (figures 2 and 4) increased his muscle mass by 20% (gaining 5.6 kg, or 12.3-pounds) his RMR would increase by only 5%, which translates to 67-calories a day. That amounts to an extra Oreo!