

METABOLISM - REV UP YOUR BODY'S ENGINE!

Metabolism is the process by which your body converts food into energy ('burns calories'). It is a biochemical process where calories that you consume from carbohydrates, fats, and proteins are combined with oxygen to release the energy your body needs to function. That is why food is often referred to as the body's 'fuel'. We must eat to produce energy. The number of calories the body burns each day is called *total energy expenditure (TEE)*.

WHAT CONTRIBUTES TO TEE?

1. Basal Metabolic Rate: Even at rest, your body requires energy for breathing, circulating blood, adjusting hormone levels, and growing and repairing cells. Calories burned to cover these basic functions make up your basal metabolic rate (BMR). Typically, a person's BMR is the largest portion of energy use, and the energy needed for these basic functions stays fairly consistent and is not easily changed.

For example; here's how a 150-pound man burns calories while resting in bed.

Brain – 365 cal/day	Liver – 560 cal/day
Heart – 180 cal/day	Lung – 160 cal/day
Kidney – 120 cal/day	Other tissues – 370 cal/day

For a total of 1755 cal/day

If you do not provide your body with at least the minimum number of calories (energy) it requires to function just to survive, your metabolism will slow down and your body will begin to hold onto/store the food you consume. The necessary calories can also be "pulled" from the organs if you're not eating enough. This is why eating small, frequent meals and snacks are recommended for optimal health, weight loss/maintenance and increased energy.

2. Food Processing: Digesting, absorbing, transporting and storing food consumed also burns calories. This accounts for about 10 percent of the calories used each day (mayoclinic 2008).

3. Physical Activity: This accounts for the remainder of calories used. You can control the number of calories burned depending on the frequency, duration and intensity of your activities.

Weight is dependent on the balance of total calories consumed (from food) versus total calories burned (TEE). In other words *Energy in vs. Energy Out*. When more calories are consumed than the body needs, weight is gained. When fewer calories are taken in, weight is lost. Metabolism has to do with the engine that burns these calories. Here are some healthy ways to boost your metabolism, burn more calories, and have more energy to get through your day.

Ways to Boost Metabolism

1. Always Eat Breakfast: Your body runs on energy, and you need energy from the moment you get up. While you are sleeping your body is using up some energy while renewing and repairing your cells. Therefore if you don't eat breakfast, you slow down your metabolism and send the body into "hoard mode," thinking it's starving because you're going a long period of time, 8 to 10 hours or more, without food.

2. Don't starve: Dropping calorie intakes below 1,000 calories a day will signal to the body to go into starvation mode, and will slow down metabolism to preserve energy.

3. Eat smaller meals more frequently: Studies show that people who eat six times a day have faster resting metabolic rates than those who eat just three meals a day.

Eating five to six times a day creates a "metabolic environment" that supports energy and muscle metabolism, while helping burn fat. Smaller, more frequent meals also keeps blood sugar levels stable and decreases the likelihood of overeating later in the evening.

4. Eat the majority of your food earlier in the day: Breakfast should be one of the biggest meals of the day. If you have trouble eating right when you get up, try having something small and then having a larger mid-morning snack. Dinner should be a lighter meal, and some experts recommend you don't eat anything after 8 p.m., or any later than 3 to 4 hours before bedtime (mayoclinic, 2008).

5. Choose foods wisely:

a) Carbohydrates: Low glycemic carbohydrates are best (whole grains, oats, vegetables, fruits) and try to stay away from high sugar processed foods (candies, pastries, muffins, white pastas). When the body has an excess amount of glucose (from high sugar foods) it can be converted into triglycerides which is the most common fat found in the body, leading to weight gain.

b) Protein: Getting enough protein is essential for building and maintaining muscle mass. The best sources are lean meats, fish, and legumes.

c) Fat: Try including fat from flaxseed, olive oils, salmon and nuts. These fats allow the body to release stored fats, increase cellular energy, help stabilize sugars in the body, and protect lean muscle tissue. Including these fats in your diet is essential for achieving successful weight loss.

6. Increase your Muscle Mass: For every extra pound of muscle you put on, your body expends an extra 50 calories a day. In a recent study, researchers found that regular weight training boosts basal metabolic rates by about 15%. This is because muscle is 'metabolically active' and burns more calories than other body tissue even when you're not moving. After a weight training session muscles have been found to continue burning calories for as long as up to 24-48 hours after. Training with weights just 3 times a week for 20 minutes is enough to build muscle.

7. Aerobic Exercise: As well as the actual amount of calories burned during aerobic exercise – studies have shown that sustained, *high-intensity* exercise makes you burn more calories for several hours afterwards. At rest you burn about 1.5 calories per minute and about 15 calories

per minute *when exercising at maximum intensity* – training as hard as you can. But, you can only exercise at that intensity for one or two minutes at most. When you become fit, you'll be able to exercise for an hour or more at 70-80% of your maximum effort and burn about 10-12 calories a minute. At that rate you'll burn a pound of fat for every 290-350 minutes of exercise.

8. Water, Water, Water! : Water is an essential component in metabolic reactions. If you do not get enough water, you will not burn as many calories, it is that simple. Therefore, make sure you are getting your 8 8-ounce glasses of water every day!

Other Tidbits...

How many calories should I be eating each day?

Depending on your activity level and weight here's a quick formula to figure out **approximately** how many calories you should be eating each day.

Note:

Your resting (basal) metabolic rate is ***approximately*** your weight ____ lbs X 10 = ____ cal/day.

Sedentary Lifestyle - ***approximately*** your weight ____ lbs X 11 = ____ calories/day.

Moderately Active Lifestyle - ***approximately*** your weight ____ lbs X 12 = ____ calories/day.

Very Active Lifestyle - ***approximately*** your weight ____ lbs X 13 = ____ calories/day.

Where should these calories come from?

The majority of your calories should come from fibrous vegetables, whole grains, high quality lean proteins, healthy fats (EFA's - fish, nuts, seeds) and low fat milk products.

We will get into this topic in much more detail in week's 5, 6 and 7.

How do I lose a pound a week?

One pound of fat is equal to 3500 calories. Therefore, in order to lose one pound every 7 days you need to reduce your calorie intake and increase physical activity by a total of 500 calories each day. For example; you could cut 250 calories out of your diet and burn 250 calories through physical activity. It all comes down to these 3 simple facts

- If you put in more calories than you expend, you will gain weight! A body that consumes 2000 calories a day and only burns 1500 calories a day will gain weight.
- If you expend more calories than you put in, you will lose weight! A body that burns 2000 calories a day and consumes 1500 calories a day will lose weight.
- If your input is equal to your output/expenditure, your weight will remain the same! A body that consumes 2000 calories a day and burns 2000 calories a day will stay the same weight.

**This doesn't mean if you consume 2000 calories, you have to burn more to lose weight! Remember, your BMR accounts for 60% of your total caloric expenditure.



Pedometer Log Sheet

Using your pedometer, log the total number of steps you complete each day.

Week	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Total
#2 Daily Goal _____								
#3 Daily Goal _____								
#4 Daily Goal _____								
#5 Daily Goal _____								
#6 Daily Goal _____								
#7 Daily Goal _____								

Daily Goal: Each week try to increase the number of steps you take each day.

