

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.
- 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:** 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.



METABOLISM AND WEIGHT LOSS

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 YOUR METABOLISM

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.

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.

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

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).

WHAT you eat is important!

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.

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

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.



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 rate 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.



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.

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!



Healthy Snacks for a Healthy Body!

When it comes to healthy snacking many people think they don't have time or do not want to consume 'extra calories' from snacks, so they skip out on important meals. But the fact of the matter is snacking can help boost your metabolism while helping you meet your body's nutritional needs.

How does snacking boost metabolism?

Your metabolic rate is the pace at which your body burns fat and food for energy. The more frequently you eat, the more your body is at work burning energy hence keeping your metabolism going. Therefore eating more frequently allows you to burn fat more efficiently.

How often should you be snacking?

One should consume small portions of food every 2-3 hours (5-6 small meals) during the day. Studies show that people who add snacks to their diet (eat six times a day), have a faster resting metabolic rate than those who just eat three meals a day.

What happens when you skip meals or snacks?

If you are skipping breakfast, having a small lunch and then over-eating in the evenings, your body begins to feel deprived in the day and will hold onto the food consumed later in the day as a safety mechanism. It will start to shunt consumed calories to the adipose (fat) tissue for storage because the body "knows" it won't be fed for another 6-7 hours, and will start 'holding' onto the ingested food. Therefore, by ensuring you are eating six small meals each day, your body will begin to burn the calories you are taking in for energy right away. If the body "knows" it will be fed again in a couple of hours, storage won't happen. This, in turn, burns fat and calories more efficiently!

Healthy Snack Choices

Nutrient dense snacks are crucial for keeping your appetite regulated and your metabolism going. Meaning, you want to choose foods that will leave you feeling satisfied and that provide your body with the nutrients it needs for proper functioning. Let's look at two snacks, and compare the nutrient density.

Snack 1	Calories (kcal)	Saturated Fat (g)	Fibre (g)	Vitamin C (mg)	Calcium (mg)
Blueberry Muffin	160	1	1	50	<1
Butter (1 tbsp)	108	6	0	0	4
Snack 1 Total	268	7	1	50	4
Snack 2					
4 whole wheat crackers	86	1	2	0	0
Low fat cheddar cheese (1 1/2 ounces)	74	2	0	0	176
Apple	72	0	3	6	8
Snack 2 Total	232	3	5	6	184

As you can see, snack #2 contains a similar amount of calories, but has more fibre and calcium and less fat than snack #1. Snack #2 also contains three different food groups: a grain, a dairy, and a fruit. These make it a more nutrient dense choice. This gives your body more nutrients and will fill you up for a longer period of time.

Example Snacks with Proper Portion Sizes:

✓ Yogurt parfait (3/4 cup)	✓ Oatmeal (3/4 cup)	✓ Almonds (1/4 cup)	✓ Whole Grain Crackers and Cheese (4 crackers, 50g cheese)
✓ Skim Milk (1 cup)	✓ Fig Bars (1 bar)	✓ Fruit (1 medium sized or 1/2 cup)	✓ Dried Fruit Trail Mix (1/4 cup)
✓ Plain Popcorn (2 cups)	✓ Applesauce (1/2 cup)	✓ Cottage Cheese and Pineapple (1/2 cup)	✓ Veggies and Low Fat Dressing/Dip (2 tbsp of dip, 1 cup of veggies)
✓ Boiled Egg (1)	✓ Granola bar	✓ Cereal with fruit (30g)	✓ Bagel with peanut butter (1/2 bagel, 2 tbsp of peanut butter)

Guide to Healthy and Balanced Eating



Remember vegetables should be the main focus of the meal, taking up half of the plate, then add a protein or a healthy fat and a grain to balance the meal.

Carbohydrates

Best Picks	Select Moderately	Select Least Often
Beans	Corn bread	Brown sugar
Barley	Corn Tortillas	Confectioners' sugar
Brown or Wild Rice	Couscous	Corn syrup
Bulgur (cracked wheat)	Crackers	Dextrose
Corn	Flour Tortillas	Glucose
CEREALS: Kashi Go-Lean	Grits	High-fructose corn syrup
All-Bran	Macaroni	Honey
Fibre First	Most ready-to-eat cereals	Maltodextrin
Oat Bran	Noodles	Malt syrup
Oatmeal	Pitas	Molasses
Whole-grain bread	Pretzels	Raw sugar
Whole-grain cornmeal	Spaghetti	
Whole rye	White Bread	
Whole Grain Crackers	White Rice	
Whole Wheat Pasta	White sandwich buns and rolls	
Whole Wheat Tortillas		

Fruits provide carbohydrate and they are great sources of fibre.

Protein

Best Picks	Select Moderately	Select Least Often
Beans	Lean cuts of beef/pork	Bacon
Chicken Breast (no skin)	Low fat luncheon meats	Chicken (with skin)
Turkey breast (no skin)	Mixed nuts	Chicken wings
Egg Whites	Peanut butter	Fatty, beef, lamb, pork
Halibut	Reduced-fat and part skim cheese	Fatty lunch meats
Low-fat/fat-free cottage cheese	Shrimp	Fried chicken or fish
Low-fat/fat-free milk	Texturized vegetable protein	Liver
Low-fat/fat-free yogurt	Turkey Bacon	Ribs
Salmon	Whole Eggs	Sausage
Snapper (red or blue)		Turkey (with skin)
Soy milk		Whole milk
Tilapia		Whole-milk cheese
Tofu		

Fat

Best Picks	Select Moderately	Select Least Often
Avocado	Egg yolks	Animal fat
Fish oil	Margarine (without trans fats)	Butter
Flax oil	Vegetable oil	Coconut oil
Mixed nuts		Cream
Olive oil		Fried foods
Olives		Ice cream
Soybean oil		Lard/Shortening
Sunflower oil		Sour cream
Walnut oil		Whole-fat dairy products



Metabolism Worksheet



	Top 10 Ways to Boost Metabolism	Top 10 Foods to Boost Metabolism	Top 5 Foods that Sabotage Metabolism
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

