



HARMONY
NUTRITION

Your Ultimate Guide to

Nutrition and Metabolism



What's Inside

one

What is
Metabolism?

two

Categories of
Metabolism

three

How We Produce
Energy

four

How to Support
Metabolism

What is Metabolism?

Metabolism is the sum of chemical reactions that take place within each cell of a living organism and that provide energy for vital processes and for the synthesis of new organic material.

Calories derived from food and drink are coupled with oxygen to create and release energy for bodily functions that keep us alive. Metabolism plays a critical role in human health and disease and is modulated by intrinsic and extrinsic factors.

What Factors Influence Metabolism?



- Sex
- Age
- Body Composition
- Muscle Mass
- Physical Activity
- Thermogenesis

Factors that Influence Metabolism

Sex

Differences between body fat and muscle between men and women equate to different caloric burn. (i.e., A man who has less body fat and more muscle than a woman of the same age/weight/height would likely have a higher resting metabolic rate.)

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Age

As you age, your metabolic rate and muscle composition gradually decrease, suppressing overall calorie needs.

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Body Composition

Men and women who are larger in size (specifically, taller or larger frame) or have more muscle (or lower body fat percentage), tend to burn more calories, even at rest.



Factors that Influence Metabolism



Muscle Mass

The greater a person's muscle mass, the more calories burned. The amount of muscle a person has is directly associated with the overall metabolic rate as muscle significantly increases the number of calories a person utilizes at rest.

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Physical Activity

Exercise and physical activity require energy and are an important constituent in determining total daily caloric need in individuals.

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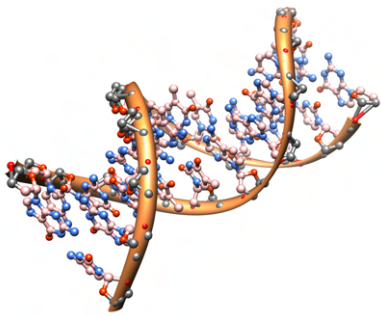
Thermogenesis

Calories (energy) are required to complete innate processes including digestion, absorption, transportation, and storage of the protein, carbohydrates, and fat from the food/beverages you consume.

Factors that Influence Metabolism

Metabolic rate is a very bio-individual process and varies between people from birth. That said, genetics likely plays a role in these differences.

In addition to genetics, metabolism can be affected by hormonal imbalances, environmental toxins, and endocrine disruptors.



Metabolism is often associated with weight management goals. A common misconception is the prized weight loss equation “calories in + calories out” - this couldn’t be further from the truth. Metabolism is a complicated process.



Categories of Metabolism

- 1 Basal metabolic rate (BMR)
- 2 Resting metabolic rate (RMR)
- 3 Thermic effect of food (TEF)
- 4 Thermic effect of exercise (TEE)
- 5 Non-exercise activity thermogenesis (NEAT)

Categories of Metabolism

- **Basal metabolic rate (BMR):** BMR refers to your metabolic rate when you sleep (or during deep rest) and includes basic physiological functions including brain function, body temperature regulation, digestion, and breathing.
- **Resting metabolic rate (RMR):** RMR accounts for up to 50-75% of total caloric expenditure and is the minimum metabolic rate required to stay alive and functioning, even at rest.
- **Thermic effect of food (TEF):** TEF refers to the number of calories burned during the digestion and processing of food/beverage.
- **Thermic effect of exercise (TEE):** TEE is the increase in calories burned during exercise.
- **Non-exercise activity thermogenesis (NEAT):** NEAT refers to the number of calories required for activities other than intentional exercise. Examples of NEAT activity include fidgeting, walking around your home, doing dishes, doing laundry, or light activities such as gardening, mopping, or sweeping.

How We Produce Energy

Food encompasses the macronutrients (protein, carbohydrates, fat) and micronutrients (vitamins, minerals) required to carry out essential bodily chemical reactions.

protein

carbs

fat



Each nutrient is broken down by digestive enzymes and then is carried to the cells where it is utilized as energy (or “fuel”) to carry out life. Essentially, the body either utilizes these substances immediately for required energy or it stores them in adipose (fat) tissue, muscle tissue, or in the liver.

How to Support Optimal Metabolism

how to support metabolism

Nutrition and Metabolism



Choose a balance of macronutrients



Make smart protein choices



Select key metabolism-supporting foods and drinks



Drink water



Exercise regularly including high-intensity interval training (HIIT) and strength training



Sleep well (quantity and quality)



Limit/avoid endocrine-disrupting chemicals

How to Support Optimal Metabolism

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Choose a balance of macronutrients.
Compared to carbs and fat, protein causes the greatest rise in TEF (thermic effect of food).

Macronutrients increase metabolic rate by:

protein

15-30%

carbs

5-10%

fat

0-3%

Make smart protein choices.

Legumes like beans and lentils are high in fiber, protein, and certain amino acids which are thought to have metabolism-supporting properties.



Nutrition and Metabolism

How to Support Optimal Metabolism

how to support metabolism

Select metabolism-supporting food and drinks.

More research is needed in this area of study.

Our overall way of eating influences metabolism more than any one single nutrient or food.



Drink water.

Adequate water intake supports an increase in total calories burned (water-induced thermogenesis).



Nutrition and Metabolism

How to Support Optimal Metabolism

how to support metabolism

Exercise regularly.

The higher the rate of physical activity, the higher metabolic rate and energy required.

HIIT (high-intensity interval training) and strength training support favorable metabolism.



Sleep well.

Inadequate sleep has been shown to slow metabolic rate and increase the risk for obesity.



Nutrition and Metabolism

How to Support Optimal Metabolism

how to support metabolism

Limit/avoid endocrine disruptors.

Endocrine disruptors are found in many everyday items including personal care products.



Support metabolism with lifestyle strategies.

Be wary of dietary supplements that promise caloric burn or weight loss.



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