

BASAL METABOLISM

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Basal Metabolism: A Review of Current Research

Basal metabolism, also known as resting metabolic rate (RMR), is the amount of energy an organism expends at rest to maintain normal physiological functions. It is the energy required to sustain the body's essential functions such as respiration, circulation, and maintenance of body temperature. This process occurs in all animals and is essential for survival. Basal metabolism is regulated by hormones and enzymes and is affected by environmental and physiological factors such as gender, age, body composition, and activity level. This review will discuss the current research on basal metabolism, its regulation, and its importance in health and disease.

Basal metabolism is regulated primarily by hormones, such as thyroxine (T4) and triiodothyronine (T3), which are secreted by the thyroid gland. These hormones increase the rate of metabolism by activating enzymes involved in the breakdown of carbohydrates, fats, and proteins. The hormones also increase the activity of the sympathetic nervous system, resulting in a further increase in metabolic rate. Other hormones, such as epinephrine, norepinephrine, and glucocorticoids, also play a role in regulating basal metabolism.

Basal metabolism is affected by a variety of environmental and physiological factors. Gender can affect basal metabolism, with men typically having a higher basal metabolic rate than women. Age can also influence basal metabolism, with older adults having a lower basal metabolic rate than younger adults. Body composition, such as muscle mass and body fat percentage, can also affect basal metabolism, with leaner individuals having a higher metabolic rate than those with more body fat. Exercise and activity level can also affect basal metabolism, with those who are more active having a higher metabolic rate than those who are more sedentary.

Basal metabolism is important for health and disease. An increased basal metabolic rate can result in weight loss, while a decreased metabolic rate can lead to weight gain. Basal metabolism is also important for maintaining the body's energy balance. An increased basal metabolic rate can result in more energy being expended, while a decreased metabolic rate can lead to less energy being expended. In addition, basal metabolism is important for maintaining normal body temperature, as an increased metabolic rate results in more heat production.

In conclusion, basal metabolism is a complex process that is regulated by hormones and enzymes and is affected by environmental and physiological factors. It is important for health and disease and can affect weight, energy balance, and body temperature. Further research into the regulation of basal metabolism and its effects on health and disease is needed.

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