

Energy Balance and Weight Control

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Energy balance is the balance between nutrients provided to the body and energy expenditure. Finding the right balance of intake and expenditure over time allows you to achieve and maintain a healthy body weight.

All changes that take place in the Universe are accompanied by a flow of energy. Energy is the ability to do work and it exists in many forms-as heat, chemical, electrical, mechanical, radiant energy.

One way heat energy is measured, is in units called calories. One calorie of heat energy is the amount of energy needed to raise the temperature of 1g of water by 1 degree Celsius. Food energy is measured in kilocalories (kcal).These are units of 1000 calories. When referring to energy in food, most people use the term “calorie”. In fact, kilocalorie is the correct scientific term [1].

In food, calories are energy locked inside three nutrients: carbohydrate (57%), fat (30%) and protein (13%) [2]. These nutrients are released from food during digestion, then absorbed into the bloodstream and converted to glucose, or blood sugar.

In your body, food energy in glucose finally gets released into trillions of body cells where it's used to power all your body's work-from your heartbeat, to push-ups, to the smile that spreads across your face.

Energy from food you don't need can be stored as body fat or perhaps as glycogen, a form of carbohydrate .The body uses these energy stores later.

Energy or calories isn't the same as feeling energetic or have that feeling of vitality, however there is a connection. A sense of vitality is psychological, as well as physical. And it relates to your overall health and well-being (being rested, able to control stress, physically active, well-nourished).

Human body's need for energy, or fuel never stops. From the moment you were conceived to the time of death, your body needs a constant supply of energy to stay alive. How much? Energy needs vary from person to person. Even your own energy needs change at different ages and stages of life. Your age, basal metabolic rate, body size and composition, physical condition, and activity level all contribute to how much energy you need.

Your body needs enough calories for 3 main processes:

- Normal bodily functions such as respiration, blood circulation and body temperature maintenance;
- Digestion and absorption of food;
- Any movement or physical activity of the body [3].

Carefully planned nutrition must provide an energy balance and a nutrient balance. There is nothing magical about providing energy balance and controlling weight.

Overweight and underweight both result from unbalanced energy budgets. The overweight person has consumed food energy in excess of expenditures and has banked the surplus in body fat . The underweight person has not consumed enough food energy , and so has depleted body fat stores and possibly lean tissues as well. Energy itself doesn't weight anything and can't be seen , but when it exists in the form of chemical bonds in nutrients or body fat, the material that it holds together is bulky , heavy, and visible.

Most of us maintain a steady energy balance over time. You may eat a little more or a little less on any given day, and your weight may go up or down a pound or two, but for the most part, you maintain a balance. When the balance shifts, your weight changes.

So, we have to be precautions on this topic, we need calories to gain energy and vitality, but in excess we risk to have different health's problems as obesity, diabete and heart diseases.

Bibliography:

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2. Mehas K., Sharon R., *Food Science and you*, USA, 1989.
3. Institute of Medicine, *Food and Nutrition Board*. Washington DC , 2002 (The National Academies Press)