

Annual Review of Nutrition

Energy Expenditure in Humans: Principles, Methods, and Changes Throughout the Life Course

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Annu. Rev. Nutr. 2024. 44:13.1–13.26

The *Annual Review of Nutrition* is online at nutr.annualreviews.org

<https://doi.org/10.1146/annurev-nutr-062122-031443>

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Keywords

indirect calorimetry, doubly labeled water, body composition, direct calorimetry, energy balance, thermogenesis

Abstract

Humans require energy to sustain their daily activities throughout their lives. This narrative review aims to (a) summarize principles and methods for studying human energy expenditure, (b) discuss the main determinants of energy expenditure, and (c) discuss the changes in energy expenditure throughout the human life course. Total daily energy expenditure is mainly composed of resting energy expenditure, physical activity energy expenditure, and the thermic effect of food. Total daily energy expenditure and its components are estimated using variations of the indirect calorimetry method. The relative contributions of organs and tissues determine the energy expenditure under different physiological conditions. Evidence shows that energy expenditure varies along the human life course, at least