



Macronutrients

Carbohydrates, Proteins, & Fats

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Introduction

The proper nutrition strategy has the ability to hasten the results from the stimulus of exercise, improve health and athletic performance, reduce the risk of disease and illness, increase energy levels and favorably alter body composition. The fact is that we eat too much overall, as well as we eat not enough of the nutrient-dense foods, and we move too little. That combination is deadly!

Carbohydrates

Carbohydrates are compounds containing carbon, hydrogen, and oxygen and are generally classified as sugars (simple), starches (complex), and fiber.

Carbohydrates are a chief source of energy for all body functions and muscular exertion. This leads to rapid depletion of available and stored carbohydrate and creates a continual craving for this macronutrient. Carbohydrates also help to regulate digestion and utilization of protein and fat.

Carbohydrate provides 4 calories per gram.

Protein

The primary function of protein is to build and repair body tissues and structures. Proteins are made up of amino acids linked together by peptide bonds. The body uses approximately 20 amino acids to build its many different proteins. These are broken down into two general classes: *essential and non-essential*. Essential amino acids cannot be manufactured in the body; thus, they must be obtained from our food supply. The non-essential amino acids can be manufactured by the body.

If protein intake exceeds the need for synthesis and energy needs are met, then amino acids from dietary protein are deaminated and their carbon fragments may be stored as fat. Among Americans, protein and caloric intakes are typically well above requirements, allowing protein to contribute significantly to individuals' fat stores.

Protein has 4 calories per gram.

Fats

Fats are the most concentrated source of energy in the diet. One gram of fat yields approximately nine calories when oxidized, furnishing more than twice the calories per gram of carbohydrates or proteins. In addition to providing energy, fats act as carriers for the fat-soluble vitamins A, D, E, and K. Vitamin D aids in the absorption of calcium, making it available to body tissues, particularly to the bones and teeth. Fats are also important for the conversion of carotene to Vitamin A. Fats also promote testosterone, protein does not.