

# The Role of Carbohydrates in Diet: Benefits, Risks and Dietary Recommendations

Department of Pharmaceutics, Cairo University, Egypt

Carbohydrates are a fundamental macronutrient and a primary source of energy in the diet. This paper explores the role of carbohydrates in nutrition, examining their benefits, potential risks, and dietary recommendations. Carbohydrates are crucial for providing energy, particularly for high-intensity exercise and brain function. They are broken down into glucose, which is used by cells for energy. Dietary carbohydrates are classified into simple sugars, complex carbohydrates, and dietary fiber, each playing distinct roles in health. Fiber, found in fruits, vegetables, and whole grains, aids in digestion, supports gut health, and helps regulate blood sugar levels. Consuming adequate amounts of carbohydrates is associated with positive health outcomes, including improved energy levels and better exercise performance. However, the type and quality of carbohydrates consumed can influence health. Complex carbohydrates and fiber-rich foods are linked to a lower risk of chronic diseases such as cardiovascular disease and Type-2 diabetes, while excessive intake of refined sugars and high-glycemic index foods may contribute to weight gain and metabolic issues.

High consumption of refined carbohydrates and added sugars is associated with various health risks, including obesity, insulin resistance, and increased risk of chronic diseases. Balancing carbohydrate intake with overall dietary patterns is essential for achieving positive health outcomes.

**Keywords:** Carbohydrates; Dietary fiber; Health implications; Refined sugars; Dietary recommendations; Metabolic health

## Introduction

Carbohydrates are one of the three primary macronutrients, alongside proteins and fats, that are essential for maintaining overall health and energy balance [1]. They serve as the body's main source of energy, particularly important for high-intensity physical activities and cognitive functions. Understanding the role of carbohydrates in the diet is crucial for making informed nutritional choices and optimizing health. Carbohydrates are broadly classified into three

Cathy Elhanan, Department of Pharmaceutics, Cairo University, Egypt, E-mail: cathy@elhanan.com

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cardiovascular disease, Type-2 diabetes, and certain types of cancer [8]. Whole grains, fruits, vegetables, and legumes, which are rich in fiber and essential nutrients, contribute to these protective effects.

Complex carbohydrates, found in whole grains, legumes, and