

# Noncaloric Benefits of Carbohydrates

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Carbohydrates are a major source of nutrients for human beings. Noncaloric benefits of carbohydrates are due to the presence of dietary fibers, which are a heterogeneous group of natural food sources and form an important component of a healthy diet (table 1). The average daily consumption of carbohydrates is about 300 g (range 250–800 g) and more than 50% of the daily calories are provided by carbohydrates. Most of the digestible carbohydrates are converted to carbon dioxide, water and energy. However, the diet also contains low-digestible or nondigestible carbohydrates, which are mainly derived from plant sources and constitute the dietary fibers; they are capable of undergoing partial or complete fermentation in the large intestine [1]. Dietary fibers differ in physicochemical properties such as solubility, fermentability and viscosity [2]. They have a wide range of physiological effects resulting in gastrointestinal and systemic benefits. These include appetite, satiety, bowel transit time and function, production of short-chain fatty acids [3] and certain vitamins, effects on gut microbiota, immunity and inflammation, as well as improved mineral absorption. They also help to control the glycemic status and serum lipid levels, which result in decreased incidence rates of atherosclerosis, hypertension, stroke and cardiovascular diseases.

**Table 1.** Noncaloric benefits of carbohydrates

Gastrointestinal benefits	Systemic benefits
Transit time	Appetite and satiety
Constipation	Weight control
Diarrhea	Glycemic control
Prebiotics and microflora	Hyperlipidemia
Short-chain fatty acids	Cardiovascular disease
Inflammatory bowel disease	
Irritable bowel syndrome	
Gastrointestinal cancer	

## References

- 1 Caspary WF: Physiology and pathophysiology of intestinal absorption. *Am J Clin Nutr* 1992;55:299S–308S.
- 2 Klosterbuer A, Roughead ZF, Slavin J: Benefits of dietary fiber in clinical nutrition. *Nutr Clin Pract* 2011;26:5:625–635.
- 3 Cummings JH, Englyst HN: Gastrointestinal effects of food carbohydrates. *Am J Clin Nutr* 1995;61(suppl):938S–945S.