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Glycemic Index: An Educational Tool for Health and Fitness Professionals?

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Learning Objective

The reader will learn about the current concept of Glycemic Index (GI) and its significance on performance before, during, and after endurance exercise.

Key words: *Carbohydrates, Glycemic Index, Blood Glucose, Exercise, Glycogen.*

Introduction

Carbohydrate (CHO) is an important fuel source in exercise. It has been suggested that the total energy intake of an athlete's diet should be composed of at least 60% CHO. Apart from total CHO intake, does it matter what kind of CHO is consumed? Are certain CHO more suitable for dietary preparation for exercise performance than others? Are there any differences in types of CHO in promoting recovery from exercise? The concept of glycemic index (GI), which was introduced by Jenkins and his colleagues in 1981 (1), may provide insight to these questions. Basically, the GI is a method with which CHO-rich foods can be ranked according to their glycemic responses. Foods are classified by their actual postprandial blood glucose responses compared to a reference food, which is either glucose or white bread. The rate of digestion and absorption is reflected by the GI ranking of a particular food. Thus, a CHO food with a higher GI can be digested and absorbed at a faster rate. The purpose of this article, therefore, is to introduce the current concept of GI and to summarize the research findings in this relatively new area of sports nutrition.

Simple Versus Complex Carbohydrates

Foods that are consumed by athletes usually contain a mixture of CHO types and different nutrients. The traditional classification of CHO into "simple" (containing mono-, di-, oligo-saccharides) or "complex" (containing polysaccharides or starches) groups according to the chemical structure is now considered to be over-simplified and erroneous. Many people mistakenly perceive that simple CHO are foods such as sweets, sugar, honey, soft drinks, etc.; whereas complex CHO are bread, pasta, rice, and pancakes. Simple CHO usually cause large and rapid changes in blood glucose level and insulin response and are generally considered as nutritionally poor food choices. Complex CHO, however, are regarded as nutritious and can be digested and absorbed more slowly, thereby producing a more sustained blood glucose and insulin response. F1

Although this CHO classification system is easy to understand, it is an inaccurate view of CHO nutrition. Assessing the "healthfulness" of a certain food based on this classification scheme seems to be invalid. Simple CHO

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