



SAFETY TOPIC: BONK? WHAT DOES THAT MEAN?

The term "bonk" for cycling fatigue is presumably derived from the original meaning "to hit", and dates back at least half a century. A recent DVD issued by the British Transport Films Collection contains several old films, one of which entitled "Cyclists Special", a color film produced in 1955, tells the story of a party of cyclists touring the English countryside. At one point they stop for refreshments and the film's commentator states that if they didn't rest and eat they would get "the bonk". Source: "See Britain by Train", British Transport Films Collection 2005, Volume Two, Disc One, Track Three.

The term can be used both as a noun ("hitting the bonk") and a verb ("to bonk halfway through the race"). This condition is also known to long-distance (marathon) runners, who usually refer to it as "**hitting the wall**". It is also referred to as the "green grass" as pupil dilation causes vivid hues to appear.

Effects

Such fatigue can become seriously debilitating; for example in cycling, due to the support provided by the bicycle, exhaustion can reach the point where the cyclist is unable to stand. Whenever athletes are engaged in exercise over a long period of time, their bodies produce energy via two mechanisms:

- via fat metabolism and
- via breakdown of glycogen into glucose, followed by glycolysis.

How much energy comes from either source depends on the intensity of the exercise. During intense exercise which approaches one's VO₂ max, most of the energy required comes from glycogen.

The average human body usually stores enough glycogen to generate 1500 to 2000 kcal of energy. Intense cycling or running can easily consume 600-800 or more kcal per hour. Unless glycogen stores are replenished during exercise, after 2 hours of continuous cycling or 15 to 20 miles (24 to 32 km) of running, glycogen stores will be depleted. Symptoms of depletion include general weakness, fatigue, and manifestations of hypoglycemia, such as dizziness and even hallucinations. Symptoms will not be relieved by short periods of rest. This condition is potentially dangerous and should be avoided.

Avoidance

There are several approaches to prevent glycogen depletion:

1. Carbohydrate loading is used to ensure that the initial glycogen levels are maximized, thus prolonging the exercise. This technique amounts to increasing complex carbohydrate intake during the last few days before the event.
2. Consuming food or drinks containing carbohydrates during the exercise. This is an absolute must for very long distances; it's estimated that Tour de France competitors receive up to 50% of their daily caloric intake from on-the-bike supplements.
3. Lowering the intensity of the exercise to the so-called 'fat loss' level (heart rate of 130 bpm for a 30-year-old athlete) will lower both the energy requirements per unit of distance and the fraction of the energy that comes from glycogen.