



Canadian  
Malnutrition  
Task Force

le Groupe de  
travail canadien  
sur la malnutrition

## **Why NPO\* is not a healthy diet order for hospitalized patients**

Although we all fast between meals and when we are asleep at night, our tissues and especially our brain needs glucose to provide energy to function properly. During fasting the required glucose comes from carbohydrate that is stored in the liver; it is called glycogen. Glycogen breaks down during fasting to release glucose in the bloodstream. When the stores of glycogen become depleted after about 18 to 24 hours of fasting (starvation), the liver converts amino acids, derived from the breakdown of muscle protein, to make glucose. This process continues for 3-4 days at which time there is a rapid breakdown of muscle so that the liver can continue to provide much needed glucose to the brain.

Weight loss during the initial period of starvation can be as much as 0.9 kg/day, which is due to a change in the levels of two hormones: insulin, which falls and glucagon, which rises. This alteration in hormones markedly increases sodium and water excretion by the kidney accounting for most of the lost weight. The change in insulin and glucagon levels also increases muscle breakdown with the release of amino acids that are converted by the liver to glucose. During the first 3 days the body loses about 10 g of nitrogen, or 62.5 g of protein, or 169 g of muscle per day, which is close to ½ a kilogram of muscle mass. During the first 3 days, fat loss is minimal, and the major losses are a depleted liver store of glycogen (energy), sodium with water and about 500 g of muscle.

Clinically, this presents itself as a drop in blood pressure and blood sugar causing episodes of dizziness and muscle weakness. The consequence of muscle and weight loss is decreased energy and capacity to work affecting energy and capacity to work. This causes an increased need to sleep, feelings of fatigue and a slower return to normal function. When this happens to a hospitalized patient, where there is the additional stress of disease, the need for glucose is significantly increased. The increased glucose requirement accelerates wasting, resulting in a slower recovery from the acute disease state, longer hospital stay and more complications.

For these reasons it is imperative that patients not be kept NPO for any longer than is necessary. A component of excellent nutrition care practice is to ensure that patients' diet

orders are changed to receive high energy, high protein fluids and/or food as soon as possible. This is a responsibility of all health care professionals and should be advocated by institutions as a whole!

\*NPO is the acronym for the Latin term, nil per os. Nil per os means no food or fluids are to be consumed orally.

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