

"Glucose supplementation may be important in limiting fatigue in equine endurance exercise. Endurance time during treadmill running was prolonged by the IV infusion of glucose solution during exercise. Plasma glucose was higher during exercise in the horses receiving glucose, and plasma lactate and body core temperatures were lower at fatigue. Plasma volume decreased more slowly in treated horses. These results suggest that supplemental glucose during exercise prolongs performance time in horses. This increase may be due to increased glucose availability, reduced reliance on anaerobic energy production, lower core temperature, and better maintenance of plasma volume.

Glycogen concentration in skeletal muscle prior to performance is relevant to fatigue during both short-term/intense and prolonged exercise. Depletion of muscle glycogen causes a decrease in anaerobic power generation and capacity for high-intensity exercise. Horses should not be depleted of glycogen before short-term or endurance events. Intense or prolonged exercise depletes the muscle glycogen stores, and it is sensible to allow at least 48 hr for adequate postexercise glycogen resynthesis in horses. No method of glycogen loading using adjustments to normal feeding has been described in horses." (Merck Veterinary Manual)