

GLYCOGEN CONCENTRATION IN THE GLUTEUS MEDIUS IN HORSES FED VARYING LEVELS OF STARCH

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Horses doing short duration, high intensity types of exercise rely heavily on muscle glycogen as the primary source of energy for muscular contraction. Recent evidence has shown a direct correlation between starch content of the diet and muscle glycogen concentrations in sedentary horses and in horses subjected to glycogen loading. However, since starch is one of the more dangerous energy sources in feedstuffs, information regarding the amount of dietary starch necessary to maintain normal muscle glycogen concentrations under conditions of a constant daily workload is needed.

Eight mature geldings are currently being studied in a Latin square design experiment to test the effect of 15, 25, 35 or 45 percent starch in the diet on glycogen concentration of the gluteus medius muscle. Each experimental period lasts three weeks during which geldings are galloped three miles daily at a rate of four minutes per mile. Digestion trials are conducted during the last seven days and muscle biopsies for glycogen analysis and blood samples for analyses of glucose and free fatty acids are taken at 0, 2, 4, 8, 12 and 24 hours after feeding on the last day of each period. It is expected that this research coupled with future projects investigating the effect of duration and intensity of exercise will help provide a sound base for decisions on energy nutrition of the exercising horse.

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