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*The positive effects of weight carrying and dietary supplementation on young horses!**

A recent study conducted at Michigan State University tested the effects of weight carrying and nutritional supplements on the development of young horse's muscle mass and growth. The study was organized by researchers Brian Nelson, PHD, Cara O' Conner and Hilary Clayton, DVM, who holds the McPhail chair in Equine Sports Medicine at M.S.U.'s college of veterinary medicine.

The horses ranged in age from 18 to 30 months and were divided into three groups: One control group and two weight bearing groups, one of which would also receive a dietary supplement. All of the horses were previously introduced to free-flow automatic walkers for several weeks before the study began.

Over the course of the 78 day study, all three groups were maintained on a diet of alfalfa and timothy hay with no grain. One of the weight bearing groups also received a supplement containing high quality amino acids, vitamins and trace minerals known to aid in muscle development.

For the first few days of the study, the horses walked loose in the automatic walker carrying no additional weight. Those in the weight bearing group were introduced to 10 lbs per week. At day 60, the weight carried by the horses reached 60 lbs. The horses were then introduced to the remaining 40 lbs of weight over the remaining 18 days of the study.

Researchers also gradually increased the exercise demands on the yearlings. During week one, all walked for forty minutes per day. Over the next week, short periods of steady trotting were added to the exercise routine. Trot intervals were lengthened over time, and by the end of the study the horses were walking a total of forty minutes and trotting a total of thirty minutes in alternating ten minute intervals.

At the conclusion of the study, both weight carrying groups had grown taller at the hips and withers. According to Dr. Clayton, "The increase in hip height was the result of greater muscle development of the gluteal muscles on the top of the croup. The increased height at the withers may have resulted from the strengthening of the muscles that sling the chest and body between the legs." The horses receiving the supplement also displayed an increase in forearm and gaskin circumference; further indication of muscle gain. When trotted over a force plate, both weight bearing groups showed higher ground reaction forces than they had prior to the study which Dr. Clayton interprets as "an effect of greater muscle development allowing the limbs to push more forcefully against the ground."

Although these results imply that carrying weight and receiving supplemental dietary protein can enhance young horse's muscle development, Dr. Clayton warns horse owners to proceed cautiously, noting: "We increased the weight very gradually and never increased the weight and exercise demands at the same time."

Researcher Cara O'Conner also suggests that the study's fitness building methods could provide a useful model for horses owners and trainers preparing horses for sales or competition, and also provides a way for young horses to become used to carrying weight before starting them under saddle.



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*compiled from excerpts from "Weight Training Benefits Horses!" Practical Horseman, June 2003