

## NOTES

1. **Introduction** Joint disease and osteoarthritis (OA) are common causes of impaired performance and economic waste in the equine industry. Traditional therapy often targets symptom modification through the use of either locally or systemically administered agents that control symptoms of pain and impaired function

(corticosteroids and non-steroidal anti-inflammatory drugs [NSAIDs]).<sup>1</sup> Interest has also developed in preventive approaches to joint disease. Some injectable agents, such as hyaluronan products and polysulfated glycosaminoglycan, are frequently used with these goals in mind. Oral nutraceuticals, like glucosamine and chondroitin

Myrtel is a nutraceutical, containing cetyl myristoleate, glucosamine hydrochloride, methylsulfonylmethane, and hydrolyzed collagen, available to veterinarians for use in osteoarthritis (OA) in horses. This study investigated the efficacy of Myrtel to alleviate clinical signs of OA in horses. Thirty-nine horses with OA were used in a randomized, double-blinded, placebo-controlled clinical trial. Each horse was scored using American Association of Equine Practitioners (AAEP) guidelines for lameness severity and 0-10 cm visual analog scales (VAS) for lameness at walk (LAW), lameness at trot (LAT), response to joint flexion (LAF), and quality of life (QOL). Horses were assessed on day 0 and 14, 28, and 42 days after treatment. A responder was defined as improving 1 grade on the AAEP lameness scale or 2 cm on the VAS. Parameter differences between treatment groups were evaluated by repeated-measures analysis of variance. Cross-tabulations of the number of responders versus nonresponders were evaluated by Fisher's exact test. Level of significance was set at  $p = 0.05$ . The Myrtel group improved significantly more than the placebo group in AAEP lameness score ( $p = 0.03$ ), LAW ( $p = 0.02$ ), LAF ( $p = 0.04$ ), LAT ( $p = 0.05$ ) and QOL ( $p = 0.05$ ). The Myrtel group had significantly more responders than the placebo group in one measured parameter (LAT). Oral administration of Myrtel had beneficial clinical effects on horses with naturally occurring OA. Authors' address: C163A Clydesdale Hall, 279 East Campus Drive, Department of Veterinary Medicine and Surgery, College of Veterinary Medicine, University of Missouri, Columbia, MO 65211 (Keegan); Peterson & Smith Equine Hospital, 4747 SW 60th Avenue, Ocala FL 34474 (Hughes); 17200 SE 58th Avenue, Summerfield, FL 34491 (Lane); and Serengeti Consulting, 6880 NW 21st Street, St. Louis, MO 63005 (Buonomo, Downer). e-mail: kbuonomo@att.net © 2007 AAEP.

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## Effects of an Oral Nutraceutical on Clinical Aspects of Joint Disease in a Blinded, Controlled Clinical Trial: 39 Horses



grews toward baseline in LAI on day 42. For both the Myristol and placebo groups, time had a significant impact ( $p = 0.02$  on test results; both groups improved at days 14 and 28 but then regressed toward baseline in LAI on day 42).

Horses in both the Myristol and placebo groups improved significantly in QOL over baseline ( $p < 0.01$ ). Horses in both the Myristol and placebo groups improved significantly in RLF ( $p = 0.04$ ), LAV ( $p = 0.05$ ), and QOL ( $p = 0.05$ ). AAEP lameness score ( $p = 0.03$ ), LAW ( $p = 0.02$ ), and RLF ( $p = 0.05$ ) in the placebo group improved significantly more than horses in the Myristol group. Horses in the Myristol group improved significantly more than horses in the placebo group in all measures of variance. All treatment administrations were completed on time, and all horses consumed treatment and control preparations without hesitation.

### 3. Results

Four horses did not complete the entire study (Table 1). One horse was given away to a new home and did not complete the day 42 evaluation. Two horses were injected with corticosteroids into the affected limbs: one the day before the day 28 evaluation and one the day before the day 42 evaluation. No data was collected from those two horses after the interventions. One other horse could not be evaluated on day 28. All data from horses that did not complete the entire study were retained and used in cross-tabulation analysis but not in the repeated measures analysis of variance. All treatment administrations were completed on time, and all horses consumed treatment and control preparations without hesitation.

Differences in measured parameters between day 0 and subsequent treatment days for treatment and control groups were evaluated by general linear models and repeated measures analysis of variance. (Cross-tabulations of responders versus non-responders for each measured parameter were evaluated for difference between treatment and control groups by Fisher's exact test. Cross-tabulations of numbers of responders and non-responders to 4, 3, 2, and 0 measured parameters were also evaluated. Level of significance was set at 0.05.

This study was performed on a heterogeneous population of horses with a wide variety of naturally occurring OA. Horses from two states (Missouri and Florida) were evaluated by different practitioners in variable weather and surface-hardness conditions. Lack of control of potential confounding variables increased variance and may have made it difficult to find differences in some parameters between Myristol and placebo treatment. The substantial group variance resulting from the natural but highly variable evaluation conditions may explain why cross-tabulation analysis (difference in number of responders) did not show a significant difference in many measured parameters, but analysis of variance (difference in group means) was significantly different between treatments in many parameters. Also, our selections of cutoffs for definition of responder and non-responder were arbitrary (no previous definitions for these parameters exist). It is somewhat confusing that we saw a difference between Myristol and placebo for AAEP subjective lameness score, but we did not see a difference for VAS score of LAI. The VAS should be more sensitive than the more limited AAEP lameness score. Varying interpretations of the VAS for LAI by the different evaluators may have contributed to this result. Prior standardized training in VAS measurement may help to reduce this potential problem in the future. Nevertheless, despite high group variation, we detected significant differences ( $p \leq 0.05$ ) in five of the six variables measured. Therefore, we conclude that oral administration of Myristol had beneficial clinical effects on horses with naturally occurring OA. First, there were significantly more responders in the Myristol group compared with the placebo group in the RLF category. Second, both variables relating to joint flexion were significantly different between the Myristol

One measured parameter, RLF, had significantly more responders in the Myristol group (7 responders and 12 non-responders) compared with the placebo group (1 responder and 19 non-responders).

### 4. Discussion

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Table 1. Estimate (Mean) Means of Lameness and Quality of Life Parameters for Myristol and Placebo-Treated Groups at Days 0, 14, 28, and 42

Overall Mean of Measured Parameter	Placebo		Myristol		p Value
	Day	Day	Day	Day	
AAEP Score	2.6	2.4	2.5	2.7	0.004
Lameness at walk (VAS)	0.8	1.1	0.8	1.7	0.021
Lameness at trot (VAS)	4.7	3.4	4.7	3.1	0.428
Pain to flexion (VAS)	3.4	3.6	4.3	3.2	0.038
Lameness after flexion (VAS)	7.4	6.6	6.9	6.0	0.054
Quality of life (VAS)	2.0	1.7	1.9	1.5	0.054

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and placebo groups. Third, the trends of the mar-RfF parameter were most obviously contrasting. Therefore, we suggest that the most apparent beneficial effects were in parameters related to joint flexion. Reducing pain to passive flexion and lameness after flexion are positive clinical effects for horses with OA.

This study was partially funded by Tryan Enterprises.

References and Footnote

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