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Research

Thomsen, P. T. (2015). **Short communication: Efficacy of copper sulfate hoof baths against digital dermatitis-Where is the evidence?** *Journal of Dairy Science*. Advance online publication. doi: 10.3168/jds.2014-9135

BACKGROUND: Copper sulfate has been one of the most popular compounds used in hoof baths, and it is widely reported to be effective and considered to be the industry gold standard. However, several authors have stated that in general there is too much anecdotal evidence and a lack of controlled clinical trials when it comes to the treatment and prevention of lameness in general and the efficacy of hoof-care products used in hoof baths in particular.

PURPOSE: The objective was to evaluate the existing scientific literature to determine whether the efficacy of copper sulfate used in hoof baths against digital dermatitis (DD) has in fact been demonstrated and described in well-documented, peer-reviewed scientific journal articles.

RESULTS: A systematic literature search identified 7 peer-reviewed journal articles describing the efficacy of copper sulfate in hoof baths as treatment or prevention of bovine digital dermatitis. Only 2 of the 7 studies compared copper sulfate to a negative control; most studies were relatively small, and often no clear positive effect of copper sulfate was demonstrated. Only one peer-reviewed article found a positive effect of copper sulfate compared with a negative control.

CONCLUSIONS: The authors concluded that the frequent claim that copper sulfate is widely reported to be effective is supported by little scientific evidence. Well-designed clinical trials evaluating the effect of copper sulfate against DD compared with a negative control are needed. Until such studies have been conducted, the efficacy of copper sulfate in hoof baths against DD remains largely unproven.

[ACCESS THE ARTICLE...](#)

Kissell, L. W., Leavens, T. L., Baynes, R. E., Riviere, J. E., & Smith, G. W. (2015). **Comparison of pharmacokinetics and milk elimination of flunixin in healthy cows and cows with mastitis.** *Journal of the American Veterinary Medical Association*, 246(1), 118-125. doi:

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10.2460/javma.246.1.118

BACKGROUND: Since 2005, the USDA Food Safety Inspection Service has reported an increasing number of flunixin residue violations in meat from dairy cattle. This increase in the number of violations attributable to flunixin residues has led to flunixin becoming the second most common residue violation (behind only penicillin) in cull dairy cattle. These residue violations in meat have primarily been attributed to extralabel use of flunixin. However, delayed plasma clearance caused by a disease process may result in a prolongation of residues in meat and could contribute to the high number of flunixin violations in edible tissues.

PURPOSE: The objective was to determine whether plasma pharmacokinetics and elimination of flunixin and 5-hydroxy flunixin in milk would differ between healthy cows and cows with clinical mastitis.

RESULTS: Ten cows with clinical mastitis were compared to 10 healthy control cows. For flunixin in plasma samples, differences in area under the concentration-time curve and clearance were detected between groups. Differences in flunixin and 5-hydroxy flunixin concentrations in milk were detected at various time points. At 36 hours after flunixin administration (milk withdrawal time), 8 cows with mastitis had 5-hydroxy flunixin concentrations higher than the tolerance limit (i.e., residues). Flunixin residues persisted in milk up to 60 hours after administration in 3 of 10 mastitic cows.

CONCLUSIONS: Pharmacokinetics and elimination of flunixin and 5-hydroxy flunixin in milk differed between mastitic and healthy cows, resulting in violative residues. This may partially explain the high number of flunixin residues reported in beef and dairy cattle. This study also raised questions as to whether healthy animals should be used when determining withdrawal times for meat and milk.

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Cook, V. L., & Blikslager, A. T. (2014). **The use of nonsteroidal anti-inflammatory drugs in critically ill horses.** *Journal of Veterinary Emergency and Critical Care*. Advance online publication. doi: 10.1111/vec.12271

BACKGROUND: The use of nonsteroidal anti-inflammatory drugs (NSAIDs) in critically ill horses is controversial. NSAIDs have significant side effects, primarily on the gastrointestinal mucosa and kidneys. These side effects may be exacerbated in hospitalized horses that have gastrointestinal injury or are volume depleted. There are at least 3 isoforms of COX: COX-1, COX-2, and COX-3. Most of the traditional NSAIDs are nonselective inhibitors of COX-1 and COX-2.

PURPOSE: To review the physiology of the cyclooxygenase (COX) enzymes with reference to the beneficial effects of nonsteroidal anti-inflammatory drugs (NSAIDs) related to their analgesic and antiendotoxic properties as well as the mechanisms responsible for adverse gastrointestinal, renal, and coagulation effects.

CONCLUSIONS: Side effects from NSAIDs can be exacerbated in critically ill horses that have gastrointestinal injury and/or hypovolemia. Presently there are no alternatives to their use in such cases for management of pain and endotoxemia. Therefore, clinicians should minimize the risk of these side effects by utilizing the appropriate dose, correcting hypovolemia prior to administering an NSAID, and monitoring cases for renal function. Recommendations for the use of NSAIDs in people are to take to lowest effective dose for the shortest time necessary to control symptoms. Application of this practice by clinicians can only be beneficial for critically ill horses.

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Gibbins, J. D., & MacMahon, K. (2015). **Workplace safety and health for the veterinary health care team.** *Veterinary Clinics: Small Animal*

Practice. Advance online publication. doi: 10.1016/j.cvsm.2014.11.006

BACKGROUND: Veterinary practice is associated with a large number of potential chemical, biological, physical, and psychological hazards that vary with the workplace setting and the type of tasks performed. Veterinary employers are responsible for ensuring that workplace hazards are identified and evaluated, from animal-related hazards to chemical exposures.

KEY POINTS:

Employers should develop and implement a comprehensive safety and health program, including written standard operating procedures, that address occupational safety and health risks that are specific to their clinic. This program should be consistent with national, regional, state, and other applicable standards and regulations.

A written infection control plan is an important component of a comprehensive veterinary clinic safety and health program.

Management commitment, employee involvement, and initial and refresher training for staff on all aspects of the program are keys to success.

Many resources are available to help employers develop clinic guidelines to prevent occupational injuries and illnesses from bites and scratches, sharps, and hazardous drugs, as well as other hazards commonly encountered in veterinary medicine. Some of these resources are provided at the end of this article.

This article will be published in the forthcoming March, 2015 issue of *Veterinary Clinics: Small Animal Practice* which focuses on "Infection Control". Dr. Jason Stull, Assistant Professor within VPM, is a co-editor for this edition.

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Calendar



A full calendar of all upcoming events and continuing education opportunities offered by the College of Veterinary Medicine is available on the website at <http://vet.osu.edu/>

[Ohio Dairy Health and Management Certificate Program](#)

Module 4 – Advanced Dairy Cattle Nutrition
March 19-21, 2015

[OEFFA Conference 2015](#)

February 13, 2015 – Pre-Conference
Full scholarships available for practicing veterinarians.

Join veterinarians Dr. Päivi Rajala-Schultz and Dr. Luciana da Costa from the Department of Veterinary Preventive Medicine and Organic Valley Cooperative staff veterinarian Dr. Guy Jodarski to learn the basic requirements for good udder health, strategies for managing clinical mastitis, and more.

The *Ohio Veterinary Newsletter* began in October of 1974 as a way for Veterinary Extension to relay relevant information to practicing veterinarians in Ohio. The aim is to communicate pertinent news from the Veterinary Extension Unit; unbiased, research-based information with practical

relevance for veterinary practitioners working in food animal, equine, and shelter medicine; and a calendar of upcoming opportunities. Please feel free to provide your feedback and let us know what information is most helpful to you and your practice.

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