

## Denosyl®

Your veterinarian recommends Denosyl, the only S-Adenosylmethionine nutritional supplement used in US published veterinary research studies. Laboratory and clinical studies have shown the compound to be beneficial in the support of various organs and tissues in the body. This brochure highlights Denosyl's effects on the liver.

Ask your veterinarian if Denosyl or other Nutramax Laboratories, Inc. products can help support the health of your pet.

# Denosyl®

From the makers of **COSEQUIN®**

For Support of  
Your Pet's Liver



**Denosyl**  
*from the makers of*  
**Cosequin®**



**nUTRAMAX™**  
LABORATORIES, INC.

2208 Lakeside Boulevard • Edgewood, MD 21040  
nutramaxlabs.com • 1-800-925-5187

## The Liver

The liver is one of the largest organs in the body and performs many life-essential functions. It produces a vast number of hormones, enzymes, proteins, and other substances important for your pet's life and well-being. It also detoxifies and removes waste products in the bloodstream by changing them to a form that can be eliminated. This filtering of waste products is important because toxins can damage the membranes of cells in the liver and other organs. The most important liver "detoxifier" is glutathione, a potent antioxidant and the liver's first line of defense. Glutathione helps protect liver cells (called "hepatocytes") from deterioration.

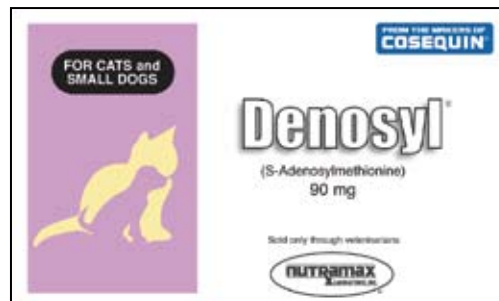
Both dogs and cats make glutathione from S-Adenosylmethionine (S-AdoMet). S-AdoMet is formed naturally by the liver from the amino acid methionine, found in your pet's diet. When the liver is compromised, production of S-AdoMet decreases resulting in less glutathione.<sup>1</sup> This further compromises liver function. A study of dogs and cats with various liver function problems reported that many had low liver glutathione levels.<sup>2</sup>

## Denosyl®

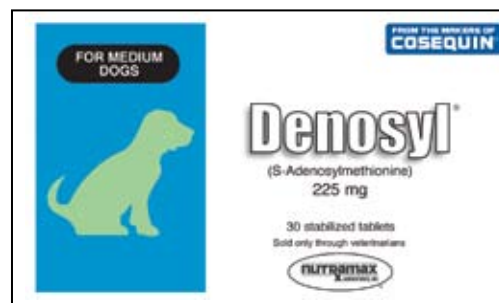
When liver function is compromised, the exact cause can often be difficult to determine. Supporting the liver, regardless of the cause, is essential if function is to be improved. Denosyl has been shown to markedly increase liver glutathione levels in dogs and cats.<sup>3,4</sup> However, Denosyl's activities go far beyond just increasing glutathione levels. It has also been shown to protect liver cells from cell death<sup>5</sup> and may help cell repair.<sup>1</sup>



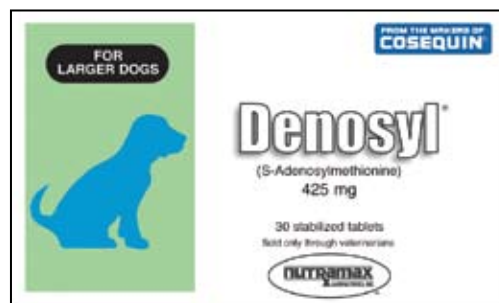
Absorption of Denosyl is decreased when it is given with a meal.<sup>1</sup> For optimal absorption, administer Denosyl at least one hour before feeding your pet.



**FOR CATS and  
SMALL DOGS**  
90 mg enteric-coated  
in cartons of 30 tablets



**FOR MEDIUM DOGS**  
225 mg enteric-coated  
in cartons of 30 tablets



**FOR LARGER DOGS**  
425 mg enteric-coated  
in cartons of 30 tablets

## FELINE AND CANINE DENOSYL® DAILY ADMINISTRATION GUIDE

### For Cats and Small Dogs

Body Weight	90 mg Denosyl
Pounds	One tablet
Up to 12	

### For Medium Dogs

Body Weight	225 mg Denosyl
Pounds	One tablet
13 to 34	

### For Larger Dogs

Body Weight	425 mg Denosyl
Pounds	One tablet
35 to 65	
66 to 120	Two tablets
Over 120	Three tablets

\*The number of tablets can be gradually reduced or increased at any time depending on the pet's needs.

Many pets are maintained long-term on every-other-day or every-third-day administration.

#### REFERENCES

1. Center SA. Proceedings of the 18th ACVIM, Seattle, WA, 2000; 550-552.
2. Center SA. Proceedings of TNAVC, Orlando, FL 2001; 218-219.
3. Center SA, Warner K, Hoffman WE, et al. Am J Vet Res 2005;66(2):330-341.
4. Center SA, Randolph JF, Warner K, et al. Proceedings of the 18th ACVIM, Seattle, WA, 2000; 734.
5. Webster CRL, Boria PA, Usechak P, Anwer MS. Vet Therapeutics 2002;3(4):474-484.
6. Westfall DS, Twedt DC, Steyn PF, et al. J Vet Intern Med 2001;15(5):467-470.
7. Graham JP, Lipman AH, Newell SM, Roberts GD. Am J Vet Res 2000;61(6):655-657.
8. Roundtable discussion Part I. Vet Forum 2000 Nov:40-45.
9. Roundtable discussion Part II. Vet Forum 2000 Dec:44-49.
10. Roundtable discussion. Vet Forum 2005;22(5A):1-20.

For owners who find it difficult to administer tablets to their pets, Denosyl® tablet(s) may be disguised in a small bite of moist food. It is not necessary to withhold water from your pet when giving Denosyl. In cats, studies<sup>6,7</sup> have shown that tablets or capsules can “stick” in the throat instead of passing into the stomach. Therefore, cat owners should gently administer a small amount of water (ask your veterinarian for details) immediately following tablet administration to aid swallowing. Denosyl tablets should not be broken as the enteric coating of the Denosyl tablet protects the active ingredient from destruction while in the stomach. The outstanding safety margin<sup>1,3,4</sup> of Denosyl allows veterinarians to round up to the next whole tablet when the pet's calculated amount falls between tablet sizes, without danger of over-administration.



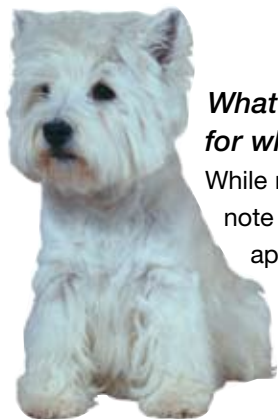
## Questions You May Have About Denosyl

### How much Denosyl should I give my pet?

Your veterinarian will advise you as to the amount to initially administer. Depending on your pet's response and status, your veterinarian may eventually adjust this amount to meet your pet's individual needs.

Remember, Denosyl tablets should not be broken. When increasing or decreasing the administration, adjustments should be done in full tablet increments. Some pets are given Denosyl only for a short period of time, while Denosyl may be used longer in other animals.





***What should I look for when I give Denosyl?***

While response varies, owners may note an improvement in their pet's appetite, activity, and attitude.<sup>8</sup>

***How will my veterinarian monitor my pet's response while on Denosyl?***

Your veterinarian will discuss this with you, but he or she will likely recommend follow-up exams including bloodwork and possibly a liver biopsy.

***Are there any side effects?***

Denosyl<sup>®</sup> has been shown to be well-tolerated by both dogs and cats with a wide margin of safety.<sup>1,3,4,9</sup>

***Can Denosyl be used with other products?***

Yes, your veterinarian may recommend combining Denosyl with other products and/or dietary modifications. One such product is called Marin<sup>®</sup>, which can be administered with Denosyl for additional liver support. There are no known adverse interactions of Denosyl with drugs. Denosyl may even protect against negative effects on the liver caused by some medications, such as steroids, nonsteroidal anti-inflammatory drugs, and anticonvulsants.<sup>3,8,9,10</sup>

Nutramax Laboratories, Inc.  
has customer service representatives  
to assist you. Please call 1-800-925-5187  
between the hours of  
8:30 am and 5:00 pm, Eastern Time,  
Monday through Friday.

***Are other brands the equivalent to Denosyl?***

While other S-Adenosylmethionine products for humans are available in health food stores and over-the-counter in pharmacies, there can be a significant variance in product quality and activity levels of SAME.<sup>10</sup> Denosyl is the only brand shown to be safe and effective for pets in published US veterinary research studies. Denosyl is a nutritional product produced under manufacturing standards similar to those used by the pharmaceutical industry.

***Since S-Adenosylmethionine is made from methionine, should I give my pet methionine?***

Administration of methionine is not recommended.

Providing high levels of methionine to pets with liver compromise may not increase the production of natural S-Adenosylmethionine and has been shown in some cases to increase liver damage.

