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## PURINA Pro Club

# Great Dane Update

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### Parent Club Takes Steps to Prevent Surgical Deaths in Danes

**T**wo years ago when the Great Dane Club of America (GDCA) completed its health survey of the breed, officials were alarmed by the number of deaths due to complications following routine surgeries. As a result, the parent club recommended creating a set of surgical guidelines in hopes it would help to avoid unnecessary deaths in the giant breed.

"Most of the post-surgical deaths were seen in young, healthy dogs undergoing elective procedures such as spays, neuters or Cesarean sections," says Mary Anne Zanetos, chairwoman of the GDCA Health Survey Committee. "There was no recognized underlying disease in most of the dogs that would have caused their death. That is what is remarkable. Many of these dogs probably would not have died if they had the best possible pre- and post-surgical veterinary care for giant breeds."

The health survey, completed in June 2003, included 1,565 AKC-registered Great Danes from 519 households. Post-surgical complications, including shock, blood clot disorders such as DIC, and stroke, accounted for 3 percent of 452 deaths reported.<sup>1</sup> Disseminated intravascular coagulopathy (DIC), a clotting disorder that occurs more commonly in giant-breed dogs, can cause a dog to bleed to death either during or after surgery.

#### Revised Surgical Guidelines

Great Dane breeder Sue Cates, a licensed veterinary technician in Las Vegas, drafted the surgical guidelines, which were endorsed by Leanne Heidke, D.V.M., of Boulder Animal Hospital in Boulder City, Nevada. The guidelines emphasize the importance of conducting a thorough presurgical workup,

including laboratory tests to reveal unrecognized infection, liver or kidney disease, anemia or clotting abnormalities; proper hydration; administration of appropriate anesthesia in proper doses; and prevention of hypothermia (below-normal body temperatures) during and after surgery. Although many of the recommendations are

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common standard of practices for all breeds, due to the post-surgical deaths in Danes, the guidelines serve as important reminders.

"I took it upon myself to write these guidelines as I became aware of an alarming number of deaths in Great Danes, especially due to DIC, following surgeries," Cates says. "This was an effort to try to avoid these deaths through anesthetic protocol."

Cates, who has been breeding Great Danes for more than 40 years, developed the guidelines based on 30 years' experience as a veterinary technician. "A veterinary technician wears many hats, and one of them is as an anesthesiologist," she says. "The problem of Great Danes dying after surgery has

been going on for a long time and I suspect it happens in other giant breeds as well. We've lost a lot of Great Danes to DIC or other surgical complications."

"On Internet forums, I discovered many more cases. It was shocking — I would get 20 to 30 e-mails about it," Cates says. "These dogs die after minor surgery for neutering or spaying or after major surgery. With these surgical guidelines, we want to try to help alleviate some of the problems."

Cates had two of her own Great Danes affected by DIC after surgery. One was saved, but one was not. "'Fancy' died from DIC following bloat surgery," Cates says. "By evening, she wasn't getting around well, collapsed and died from internal bleeding. It happens so fast and is so devastating. 'Caprice' was saved because of a blood transfusion. She had been a blood donor at the animal hospital so we knew her blood type and could do blood transfusions."

#### Preventing Hypothermia

Avoiding hypothermia following surgery is an important and frequently overlooked aspect of post-surgical care in Danes, Cates says. Hypothermia, or low body temperature, interferes with the processes that enable blood to coagulate properly, which can lead to DIC. It also adversely affects the cardiovascular system, delays recovery from anesthesia, slows wound healing, and contributes to increased risk of wound infections.

"When I spoke at the Great Dane National last year about the new patient guidelines, I asked audience members what they remember about having surgery," she says. "Most said they remember freezing when they woke up. This same effect can occur in dogs."

Because of Great Danes' size, they and other giant and large breeds are at higher risk for hypothermia during and after surgery. Jessica Todia, D.V.M., of A to Z Veterinary Clinic in Midland, Texas, says, "Dogs lose a lot of heat during surgery. It's important to

#### Surgical Guidelines Available Online

**T**he recently revised surgical guidelines for Great Danes, developed by the Health and Welfare Committee of the Great Dane Club of America, may be accessed online at: [www.gdca.org/health/surgery.htm](http://www.gdca.org/health/surgery.htm). Great Dane owners are encouraged to print out the guidelines and discuss them with their veterinarian prior to a surgical procedure.

*Continued on page 2*

## Preventing Deaths

continued from page 1

monitor their temperature while they're under anesthesia and throughout recovery. Their temperature should be maintained at no less than 98 degrees Fahrenheit but no more than 101 degrees."

Anesthesia used during surgery depresses the heart and respiration rates, thus increasing the need for oxygen. Shivering uses more oxygen so a cold dog will take longer to recover after surgery. If the dog gets too cold, he may not recover because of the drain on available oxygen.<sup>2</sup>

The revised Great Dane surgical guidelines suggest that veterinarians take these steps to avoid hypothermia:

- Warm IV fluids
- Place a dog on a heated pad following surgery
- Cover the body and extremities with warm blankets, towels, bubble wrap or other protective coverings after surgery

### Avoiding Anesthesia Problems

When Todia started her practice six years ago, she developed her own surgical guidelines. She believes many of the post-surgical deaths in large and giant breeds are due to effects from anesthesia more than surgical problems. "In my first jobs out of veterinary school, I saw dogs having seizures and vomiting after surgery due to anesthesia," she says. "I told myself then that I would do things differently in my practice."

Before surgery, Todia performs pre-anesthetic testing and a complete blood count to ensure there are no abnormalities that could cause problems. In sighthounds and Great Danes, she uses gas anesthesia as opposed to injectable anesthesia to help prevent complications. Though gas anesthesia is considered the safest and most effective anesthetic agent,

it is more expensive and less available. The GDCA surgical guidelines discourage the use of drugs such as acepromazine, rompun and thiopental due to variations in giant breed physiology.

Giant breeds have a slower metabolism, lower blood pressure and thus are more prone to vascular insult. Veterinarians should monitor the heart and take great care in selecting anesthesia agents for giant breeds. Many agents affect blood pressure and

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heart rate. Temperature regulation is important because giant breeds are more sensitive; in surgical situations, it can become a potentially critical factor. This is why warming a patient to prevent hypothermia is necessary.

During surgery, Todia also administers anti-inflammatory medication so dogs will be in less pain when they wake up and can rest more comfortably. When possible, she connects dogs to an electrocardiogram (EKG) during surgery to help monitor the electrical function of the heart. EKG monitoring tells how well a dog is tolerating surgery and anesthesia. "It's important to monitor dogs through surgery so we can address issues as we go along," she says.

One of the biggest — and most dangerous — misconceptions is that

the bigger the dog, the more anesthesia that is needed, Todia says. "Just the opposite is true," she explains. "Bigger dogs have much slower metabolisms so it takes longer for them to rid the anesthesia from their bodies. I never use the full amount of anesthesia for big dogs. It's too much for them and often causes seizures and vomiting."

Large amounts of anesthesia combined with unrecognized congenital heart problems can be an unsafe combination, Todia cautions. Large breeds generally require less anesthesia per pound of body weight because of differences in their metabolic rate. Surface area should be used as the indication of the dose rather than body weight. For example, sighthound breeds can have a problem with barbiturate anesthetics because their ratio of bone to body weight is higher than other breeds.<sup>3</sup>

### A Positive Impact

Though the revised Great Dane surgical guidelines have been out less than a year, Cates is pleased with the results. Are they getting used? "Oh, yes," she says. "I haven't heard of Great Danes bleeding to death for quite a while now."

The surgical guidelines have been distributed through the Great Dane Club of America's bulletin and Web site, through affiliate clubs, Great Dane mentors, and Dane-related Web sites and chat lists. Great Dane owners are urged to print out the guidelines and discuss them with their veterinarian prior to surgical procedures, Zanetos says.

The only downside is that surgery may be more expensive. "If people are price shopping for care, they may be putting their dogs at risk," Cates says. Following the surgical guidelines is not cheap. Every single step of the surgical guidelines must be taken to protect your dog."

"With these guidelines, we'll save lives," she continues. "I hope I don't get any more e-mails about people losing their Great Danes after routine surgery. It's a devastating, heartbreaking thing. I've been through it, and I hate to hear it from others." ■

## How to Protect Your Great Dane

Here are steps you can take to help ensure your dog has a safer surgical experience.

- Find a veterinarian experienced with surgeries on giant breeds.
- Make an appointment with the veterinarian well ahead of the surgery and bring a copy of the Great Dane Club of America's surgical guidelines to discuss. Ask the veterinarian what his/her thoughts are about the guidelines and whether he/she can provide the recommended anesthesia and monitoring for your dog.
- Make sure your veterinarian is aware of any health concerns you have about your dog before surgery.
- Ask for presurgical blood work that includes a clotting profile, complete blood count and blood chemistry panel to screen for anemia and kidney and liver function. The dog also should have a complete physical examination.
- Discuss appropriate pain control for your dog.
- Be tactful but offer to assist with the recovery of your dog. Bring blankets, towels or bubble wrap to contain heat around the dog after surgery.

<sup>1</sup> Great Dane Club of America Health Survey. [www.gdca.org](http://www.gdca.org).

<sup>2</sup> Jepp H. Anaesthesia, Anaesthetics and Sedatives. [www.inkabijou.co.uk/anaes.htm](http://www.inkabijou.co.uk/anaes.htm).

<sup>3</sup> Wolfhound and Anaesthetics. [www.irishwolfhounds.org/anaesthesia.htm](http://www.irishwolfhounds.org/anaesthesia.htm).