

A Guide To Mega-Esophagus
By Jaime Powell, copyright 2011
(permission to forward or repost with credit given)

This article is intended as a primer on the canine disorder mega-esophagus. I am not a veterinarian, nor do I advertise myself as an “expert” on this condition. I am merely an owner of a German Shepherd Dog, named Pieka, with mega-esophagus, who has tried to do her research. I found lots of helpful information – but it was often in different places or in a format that I found hard to review. Because I actively train and compete with my mega-E dog in rally, obedience, tracking and more, I have a wide network of “dog friends” and have received many questions on mega-esophagus. I found myself writing multiple emails and finally realized that it would be easier if I put all the information in one document.

If you believe that your dog may have mega-esophagus, I strongly suggest that you seek veterinary care immediately. I am not licensed to provide veterinary advice and do not intend to do so. The information in this article is based off my own research and experience. Where possible, I have given credit to particular articles that I relied upon in my own research. However, I found many wonderful internet sources of information that are not easily citable. If you have a dog with this condition, I am happy for you to take advantage of the hours I spent reading articles and on the phone with specialists. I hope this article helps you in some way.

1. What is mega-esophagus?

Mega-esophagus (also called mega-E, megaE, or other variations on this term) is a physical deformity of the esophagus. In a healthy dog (or human for that matter), the esophagus is a rather small, muscular tube with sphincters (valves) at each end. When the dog swallows, the healthy esophagus propels the food down the stomach with a series of contractions (peristaltic action). Once the food is in the stomach, the esophageal sphincter closes off, keeping the food and stomach acid in the stomach where it belongs. Canine Digestive Tract Disorders: Polyps Megaesophagus Torsion Bloat (Volvulus) Pancreatic Insufficiency, Lanting (2002).

In a mega-E dog, the esophagus is floppy and distended. It has poor muscle tone – think of it as a balloon that has been blown up to its full extension, then the air allowed to escape. The affected esophagus does not contract efficiently to move the food into the stomach. Often, the valves or muscles at either end do not work well – the dog may have dysphagia (difficulty swallowing). Severe reflux from the stomach into the esophagus, the result of a poorly operating esophageal sphincter, is also common. *See Canine Digestive Tract Disorders, supra; see also Surgical disease of the esophagus, Textbook of Small Animal Surgery, Fingerhuth (1993).*

As a result of these issues, food either doesn’t make it to the stomach or doesn’t stay there. The primary symptom of a megaesophagus is recurrent regurgitation.

Regurgitation is different from vomiting. Vomiting is active. It involves retching and stomach contractions. Regurgitation is much more spontaneous and passive. The dog may belch or drop its head – or simply open its mouth – and the food rolls right out. I have seen my GSD, Pieka, regurgitate while running across our yard, with no real pause in motion. The food is often undigested, but can include bile if reflux is involved or the food has made it to the stomach.

The degree of mega-E can vary. Some dogs are only affected to a minor degree. They require minimal management, regurgitate rarely, and live very normal lives. The most severely affected dogs rarely survive long. Most mega-E dogs are somewhere in the middle. There is no “one size fits all” definition of this disorder.

2. What causes mega-esophagus?

The answer is: we don't always know. There are two types of mega-E, primary and secondary. Secondary mega-E (sometimes called “acquired”) is caused by another condition. Persistent right aortic arch (PRAA), some thyroid disorders, myasthenia gravis, neuromuscular dysfunction, dysautonomia, and some cancers are all primary disorders that may cause mega-E as a secondary disorder. *See* Thyroid Function in Canine Megaesophagus, by W. Jean Dodds, DVM. In many cases, treating the primary disorder will resolve or greatly improve the mega-E.

In contrast, primary mega-E (often called idiopathic or congenital) means that the condition is not “caused” by another disorder. While it may pair up with other problems, diagnostics cannot point to a causative factor. Mega-esophagus is known to have a genetic component. Several breeds (German Shepherd Dogs, Irish Setters, Miniature Schnauzers, for example) are especially well known for carrying this as a congenital disorder. That being said, any breed can be affected.

It is not full understood how megaesophagus is genetically transmitted. (Megaesophagus in the GSD, GSDCA Review (LaGrave 2002)). Some researchers believe that it could be a simple autosomal recessive that is variable in expression. *See* Canine Digestive Tract Disorders, supra. Dr. Leigh Anne Clark at Clemson University is currently studying the genetic inheritance of congenital megaesophagus in the dog. Pieka is participating in this study, having provided DNA cheek swabs. I have heard anecdotal reports that her research indicates that the gene for mega-E is actually dominant, with incomplete penetration.

As of this time, there is no reliable genetic test for determining whether a dog is a genetic carrier of the disorder. Further, there is still a tendency to sweep this disorder under the rug. Affected puppies are often culled and never reported. If an affected dog lives to adulthood, breeders rarely report the occurrence in their lines and may even go on to breed siblings of affected dogs, virtually ensuring that mega-esophagus will be passed along from generation to generation.

As the owner of a dog with this condition and a strong supporter of ethical breeding practices, I encourage breeders to make responsible choices when it comes to mega-E. Obviously, a dog affected by mega-E should never be bred. Careful thought should be given before breeding that dog's full siblings, as those dogs are likely to carry the gene in some way. Likewise, it is advisable to remove a dog known to produce mega-esophagus from the breeding pool. While one mega-E puppy may pop up from time to time, multiple occurrences indicate that a serious problem exists. Finally, full disclosure of the occurrence of mega-esophagus to puppy buyers and owners of stud dogs/bitches is crucial to both ethical breeding practices and helping eliminate this condition.

3. How is mega-esophagus diagnosed?

This depends on the severity of the condition. In severely affected dogs, a regular x-ray will reveal the distended esophagus. Some dogs require a barium x-ray. In some cases, x-rays are not determinative, yet the dog's persistent symptoms result in a mega-E diagnosis.

Once a dog is diagnosed with mega-E, it is essential to do other diagnostic procedures to determine whether the mega-E is primary or secondary. The dog's thyroid levels should be tested. The x-rays should be examined for potential PRAA. Strong consideration should be given to testing for myasthenia gravis. Note, however, that the test for myasthenia gravis is quite expensive and this is a very serious disease in and of itself. Treating some of these primary disorders can lessen or even resolve mega-esophagus entirely.

Dogs with primary mega-E often have other secondary conditions as well. For example, Pieka also has secondary Addison's disease, which was diagnosed via an ACTH stimulation test. From veterinarians I have talked to, there is mounting evidence that secondary Addison's disease and mega-E often occur together. Secondary Addison's is a relatively obscure disease, however, so many vets may not think to test for it.

4. A word about veterinarians and mega-esophagus

Most veterinary schools still teach students that mega-E is a death sentence and that affected dogs should be euthanized immediately. As a result, very few veterinarians have treated mega-E dogs...or at least, not for long. It is true that mega-E is a very serious diagnosis. Most dogs with the disorder have a shortened lifespan. Each owner of a dog with mega-E needs to make their own decision, considering their ability to care for the dog and the dog's quality of life. It is a difficult decision to make and I certainly will not look down upon any individual who decides that the right decision is to give their (likely very ill) dog peace. But owners need to be aware that it is possible to manage the disorder successfully and provide a good quality of life for many affected dogs.

My dog, Pieka, is active and relatively healthy. She has several rally obedience titles and one traditional obedience title. We hope to get her BH soon. We train in tracking and nosework. We may dabble in agility and I have heard of another mega-E dog who does

very well in agility. If I would have euthanized her immediately upon diagnosis, I would have missed out on these opportunities.

If your dog is diagnosed with mega-E and your veterinarian is reluctant to consider a management protocol, please find a new veterinarian. There is help and support out there.

5. Managing mega-esophagus: feeding and the physical environment (bailey chairs and more)

Primary mega-E cannot be cured via surgery or medicine. It can often be managed in a way that greatly decreases the amount of regurgitation that occurs. Management of mega-E can be taken to what some people would consider as extreme. Some people even go so far as to install a PEG tube (a feeding tube) to minimize the chance for regurgitation. My personal goal is to control the regurgitation as best I can, while still providing my dog excellent quality of life and the opportunity to “be a dog.” The advice in this section is geared towards that mindset. Every owner of a mega-E dog, however, needs to consider what they will and won’t do.

The first key to management is the type of food given to the dog. The goal is small, frequent meals. Young dogs or small dogs may need 4-6 meals per day. Older dogs, with slower metabolisms, may do well on 3 meals per day.

Food needs to be nutritionally dense to reduce volume– the most “bang for the buck” so to speak.¹ Some mega-E dogs do well on a slurry of kibble soaked for several hours in water, then blended into a pudding or milkshake consistency. Other dogs – who do not chew their food much - do well on “meatballs” formed from canned food and cooked oatmeal, that are blended then “firmed” in the freezer or refrigerator. The owners will “pop” the meatballs into the dog’s mouth and they’ll go right down the throat. Depending on the caloric needs of the dog, a home cooked diet can be processed into the ideal consistency for an individual dog. My dog, Pieka, is currently doing very well on canned food with water added, pureed in the food processor to form a smooth, thick consistency. I would encourage mega-E owners to add a good digestive supplement (probiotics and enzymes) to their dogs’ meals. Anything that supports a healthy digestive tract can only help.

For most mega-E dogs, particles are bad – they tend to get caught in the throat. Likewise, dry and crunchy food rarely works well. I advise caution before feeding a raw diet to a mega-E dog. As discussed below, aspiration of food is a constant risk. Likewise, most veterinary professionals agree that mega-E dogs are immuno-compromised and may not tolerate the bacteria load in raw food. From a purely practical perspective, most home owners might also be concerned with having a dog regurgitate raw meat on their furniture or carpets!

¹ For dogs in real distress, Canine Caviar makes a food consisting of canned beaver. It is very high in calories and can be quite helpful for a mega-E dog going through a bad spell. It is very high in fat, however, and I would not personally recommend it for a dog’s entire diet.

The second key to management of mega-E is the physical position of the dog. Generally speaking, the more time a dog spends in an elevated position, the better. At a minimum, dogs should be fed in a position that is as close to vertical as possible, then kept in that position for 15-45 minutes after feeding. I call this “propping up.” Many people construct a “Bailey Chair” (see “Other Resources” below) for their large breed mega-E dog. Those with smaller dogs can be more creative. Some use baby slings (Bjorn-style), high chairs packed with pillows, or simply hold the dog upright with its back to the owner’s chest.

Whatever position you choose, it should be comfortable for the dog and chosen with the long term in mind – dogs become very comfortable with this routine. My dog eats her food with her front feet on the top run of a step stool, then goes to sit on the arm of our couch, with her front feet hooked over the back of the couch.

Keep in mind that, like any new behavior, a dog will need to be trained and praised for compliance with this new protocol. Some dogs are perfectly happy to spend an hour being carried around, upright, in a baby sling. Others don’t take to it nearly so well. Please be patient with your mega-E dog.

Successful management of mega-E goes well beyond the feeding protocols. For example, owners must carefully monitor what treats their dogs receive. Feeding the dog regular biscuits or treats does cause more regurgitation. Some owners of mega-E dogs have eliminated treats from their dogs’ diets altogether. Because I actively train and compete with my dog, feeding treats for training is a risk I have been willing to take. I do find that soft, malleable treats work best (cheese, beef). Baby food works very well for us too. I try to train right before meals, so that I can use her regular meal and propping up to help wash everything down. I no longer give Pieka marrow bones, however, as they cause significant regurgitation that lasts for days.

Most mega-E dogs will also regurgitate if they are salivating heavily – from heat, chewing on a toy, etc. Salivation cannot be avoided of course, but owners of mega-E dogs should take special care to avoid over-heating and perhaps to intervene if their dog is getting too worked up over a new toy. Some owners do not give their dogs chew toys at all- as always, I think that part of quality of life is “being a dog.” My girl has almost constant access to nylabones and other safe rubber toys. If she is having a particularly bad day, we might pick up all the toys for a few hours.

Many mega-E dogs regurgitate frequently at night. For that reason, it is advisable to elevate the front of their crate by a few inches to help maintain an elevated position, train the dog to sleep with its head and shoulders raised on a pillow, or some people create a “pillow collar” to keep the dog from lying its head all the way down. I have some orthopedic concerns with the pillow collars – I cannot help but think they must give dogs a terrible crick in the neck! We elevate the front of Pieka’s crate by 4 inches or so. On nights that she is regurgitating frequently, I will get up with her in the night, prop her up for 20 minutes or so, and this usually lessens the regurgitation. We have encouraged her

to nap with her head and shoulders on the arm of our couch – it was something she did naturally and she seems very comfortable. Every bit of elevation helps.

If you own a mega-E dog, go ahead and buy stock in paper towels. We basically fill the back of our SUV with paper towels once a month at the store. You *will* be cleaning a lot. I prefer BioKleen's Bac-Out as a cleaning product – it gets rid of the odor quickly and does a great job on carpet, plus it is non toxic. I would also recommend purchasing a spot cleaner for carpets. Now is probably not a good time to purchase those hand-dyed silk rugs that are intended to be priceless heirlooms.

No matter how well you manage your mega-E dog, regurgitation is a fact of life. On a good day, my dog regurgitates at least once or twice. On a bad day...well, let's just say it's well into the double digits and leave it at that. You will be regurgitated on. You will step in regurgitation. Your car is going to smell at some point – gift certificates for car detailing make great presents for the mega-E owner. You will develop a cast iron stomach and the ability to get up, clean, and fall back asleep within 5 minutes. You will, hopefully, develop a sense of humor about the situation.

6. An emphasis on water

Owners of mega-E dogs must become vigilant when it comes to water intake. Dogs need a minimum of 1 ounce of water per pound of body weight, per day. So, a 50 pound dog needs 50 ounces of water per day, or 6.25 cups. If the dog is exercising or hot, it will need more.

Water can be especially tricky for mega-E dogs. My dog has a much harder time keeping thin liquids down than thicker foods. Our goal is to get as much of the daily water intake via meals as possible. Let's use Pieka as an example. She weighs around 58 lbs, thus she needs 7.25 cups of water per day. She eats 3 cans of food per day – we assume that 50 % of that is absorbable moisture (that may be a conservative estimate, but conservative is usually best). That means she gets 1.5 cans, which is equal to roughly 3 cups of water, from her food alone. We add another 2 cups of water via the food processor each day, bringing her total to 5 cups.

Given that she's a very active dog, we try to get another 3-4 cups of water down her every day. We do this in two ways. First, we make "chicken jelly" – using ½ cup low sodium chicken broth, 1 ½ cups water, and the product Thick It to turn the mixture into a soupy, heavier consistency. Thick It is designed for humans with dysphasia and is sold in most pharmacies. We feed this to her two to three a day, just like a meal – she drinks it in an elevated position and props up for 20-30 minutes afterwards. Yes, this does mean that she spends quite a bit of time propped up during the day.

We have also made "chicken jello" using chicken broth, water, and plain gelatin. This "jello" can be taken on walks, fed as a treat, and is a great way to supplement the liquid intake. Some small dog owners rely on jello for the bulk of their dogs' liquid intake.

You will find that if you are proactive about managing alternative liquid sources, your mega-E dog will not beg at the water bowl too frequently. We do allow Pieka to drink a little “regular” water. If we are going to be gone for a long period of time during the day, I insist on leaving a few cups of water in a crate bucket. While it will likely cause regurgitation, providing access to clean, fresh water is a legal requirement under the animal cruelty laws in most states – and for good reason. Denying water to a thirsty dog is cruel. I miss the days when I simply filled up the water bowl in the morning and left it on the floor without a second thought!

7. Other veterinary protocols – medications and holistic treatment

Mega-E cannot be cured, but it can be managed. There are some treatments or products available that can help. First, there has been some success with the use of Reglan, a human gastric motility drug – it helps the stomach empty faster. While many report that Reglan made no impact on their dogs regurgitation, I did find that it helped Pieka at first. We have discontinued the Reglan, however, as it also caused increasingly loose stools and there are some concerns with long term use side effects. Other people report good effects using Cisapride, another motility drug. Cisapride is no longer commercially available for humans, due to the long term side effects, but is often given to rabbits.

Carafate or Sulfracate can also be very helpful in dogs with esophageal ulcers from the regurgitation. It will coat the esophagus, preventing the damaging acid from wreaking such havoc. Some dogs with recurrent problems are prescribed acid inhibitors.

Some homeopathic veterinarians report great success using a combination of Chinese herbs and acupuncture. Herbal remedies were helpful at first for Pieka, but their efficacy seemed to wear off. Pieka reacted very poorly to acupuncture. I would certainly encourage owners of mega-E dogs to explore the alternative treatments available to them – just because these treatments didn’t work for Pieka, that doesn’t mean they won’t help someone else.

Finally, Pieka gets regular massage and craniosacral therapy. While I am not sure that either decreased the amount of regurgitation, Pieka seems to find them both (especially the craniosacral therapy) relaxing and enjoyable. In fact, the first time I ever saw her voluntarily take a nap while out of her crate was during her first craniosacral therapy session. She rarely regurgitates in the night after a session. My view is that anything that relaxes the dog and increases its overall well-being is a good thing.

8. Medical concerns: aspiration pneumonia, pelican pouches, immune disorders, etc.

The simple fact is that mega-E dogs are medically compromised. This is a very serious condition that cannot be taken lightly. There are two medical problems that regularly seem to cause problems for mega-E dogs. The primary concern is aspiration pneumonia. The management protocols described above are designed to limit regurgitation and prevent aspiration pneumonia. When a mega-E dog regurgitates, it’s easy for them to aspirate food or bile into the lungs. This can result in a serious infection. Aspiration

pneumonia can hit quickly – Pieka’s first serious bout occurred within hours of her playing with a doggy friend and acting fine. She went to bed at 10pm, then woke up at 5:00 a.m, very ill. She spent three days hospitalized with that bout and has had several less serious bouts of aspiration pneumonia since then. The symptoms of aspiration pneumonia include fever, cough, general lethargy, perhaps the sound of fluid in the lungs. My general advice: if your mega-E dog is acting listless and you think something is wrong, go to the vet. They should start antibiotics immediately. According to a veterinarian I spoke with at The Ohio State University, pneumonia may not show up on x-rays for a full 48 hours after the initial symptoms occur. Aspiration pneumonia can kill dogs quickly, so it’s important to act fast.

The second common problem is the formation of a “pelican pouch.” As the mega-E dog grows older, food will continue to stretch the esophagus. This can result in the “food bolus....simply staying in a pouch just in front of the entrance to the stomach. In time, the muscles become weaker and even less able to squeeze the food ball, and even liquid food remains in a hanging “pelican pouch” forward of the stomach entrance and below it.” *Gastrointestinal Disorders in the GSD and Several Other Breeds* (Lanting, 1990). This food can become toxic if it stays in the pouch for an extended period of time.

Finally, mega-E dogs are widely considered to be immuno-compromised. My veterinarians (including the several specialists I consulted with) did not recommend subjecting Pieka to any vaccinations that were not absolutely necessary. Likewise, she may be at greater risk for other immune disorders. Anesthesia can be risky for mega-E dogs. I would encourage other mega-E owners to take these concerns into consideration when making appropriate health care decisions for their dogs.

While mega-E dogs do not need to be treated as invalids – and should not be – their owners must be aware of the potential risks and keep a close eye on their dogs’ health. Any concerns should be discussed with a veterinarian.

9. Other resources

There are other wonderful resources on mega-esophagus. One of the best is the megaesophagus group on Yahoo. You will find files of information, a messageboard full of support – you can even get the inventors of the “Bailey Chair” to send you instructions on building your own chair! It’s a truly good place.

Best of luck to you and your dogs!