

Expert information on medicine, behavior, and health in collaboration with a world leader in veterinary medicine

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Popular Dog Names

This survey spans a century

Veterinary company Firstvet sent a research team to the Hartsdale Pet Cemetery in Westchester County, N.Y., the oldest U.S. cemetery for pets, to read tombstones and record pet names from the past 115 years to determine the most popular pet names.

They found the most popular name overall is Princess, with both dogs and cats frequently receiving the name. It is also the most popular dog name, having been in the top 10 names for decades.

Princess was the sixth-most popular name in the 1970s, remaining popular and rising through the 1980s to become the second-most popular in the 1990s. The researchers theorized that this coincides with the rise in popularity of Princess Diana.

The most popular dog names, by decade, are:

- 1930s: Queenie
- 1940s: Tippy
- 1950s: Sandy
- 1960s: Lady
- 1970s: Brandy
- 1980s: Max
- 1990s: Max
- 2000s: Max



The researchers believe Max was the most popular dog name in the 1980s, 1990s, and 2000s due to the Mad Max film series, the first of which was released in theaters in 1979. ■

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DVL2 Gene Defect in Bulldogs

The variant may affect the muzzle, vertebrae, and heart

A recent genetic study at the University of Helsinki found a gene variant associated with a screw tail (a very short, kinked tail). The variant also was shown to result in caudal vertebral anomalies and shortening of the muzzle and may affect the development of the heart.

A previous study at the University of California, Davis, linked screw tail to a variant in the DVL2 gene, which has become entrenched in English Bulldogs, French Bulldogs, and Boston Terriers due to inbreeding. The variant may also contribute to other features typical of these breeds.

English Bulldog puppy with screw tail.



The prevalence of the DVL2 variant varied greatly among breeds. All the English Bulldogs, French Bulldogs, and Boston Terriers in the study were homozygous for the variant, meaning they inherited the variant from both parents and did not carry the normal form of the gene. Both the variant and the normal form of the gene were found in American Staffordshire Terriers, Staffordshire Bull Terriers, Dogues de Bordeaux, English Bulldogs, and American Bulldogs.

To determine the effect of the variant on body shape, the researchers analyzed the skeletal anatomy of American Staffordshire Bull Terriers of different genotypes through computed tomography scans. The results showed that the DVL2 gene defect results in caudal vertebrae anomalies in a homozygous state.

“However, tail abnormalities in the American Staffordshire Terriers were less severe than the screw tails typically seen in English Bulldogs, French Bulldogs, and Boston Terriers,” says veterinarian Vilma Reunanen, one of the researchers.

The study also noted that the gene defect affects muzzle length in varying degrees. In homozygous dogs, the muzzle is significantly shorter than in heterozygous dogs, who only carry one copy of the gene defect. Similarly, heterozygous dogs have shorter muzzles than dogs that don't have any copies of the gene defect.

In addition to the effects on the skeletal system, the researchers found that several dogs homozygous for the DVL2 variant had a congenital heart defect. However, this requires further study. ■

Niskanen, JE, et al. Canine DVL2 variant contributes to brachycephalic phenotype and caudal vertebral anomalies. Human Genetics, 2021; DOI: 10.1007/s00439-021-02261-8. Science Daily.

Supplement Sales Up 21%

Don't buy in to it; save your money

The Los Angeles Times recently investigated why sales of pet supplements jumped 21% in 2020—possibly an effort by pet owners to protect pets from COVID-19— but found experts say there's no reason for it.

In that article, Joseph J. Wakshlag, DVM, PhD, professor of clinical sciences at Cornell University's School of Veterinary Medicine, section chief of nutrition, stated: “Most supplements have little to no evidence that they work. I think people are looking for ways to make their dogs healthier since we perpetuate that dog food is not enough—when in reality it is.” ■



Dr. Wakshlag

Dogs Detecting Prostate Cancer

Double-blinded study validates previous research

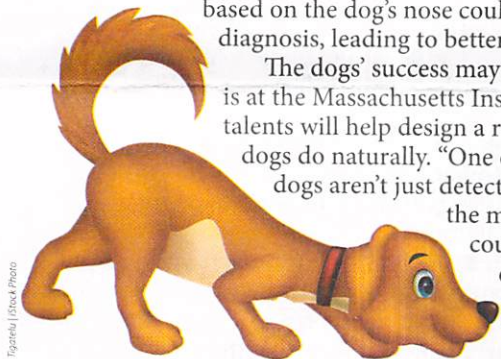
New research has validated that a dog's nose can differentiate between potentially lethal cancers and low-grade, less dangerous cancers. The amazing ability of dogs to detect scents, including cancer, is not new. But this study combined three approaches—canine olfaction detection, artificial intelligence (AI)-assisted chemical analysis of the volatile organic compounds in urine samples, and microbial analysis of the same urine samples of men who underwent biopsy for suspected prostate cancer—and scientifically validated the findings from dogs. This was the first controlled study; both human researchers and dogs were double-blinded.

Florin, a 4-year-old Labrador Retriever, and Midas, a 7-year-old Wirehaired Vizsla, correctly identified positive (Gleason 9) samples (71%) and ignored negative samples (76%). This compares favorably to the most commonly used prostate screening tool, the prostate antigen assay (PSA) blood test, and demonstrates how a new screening tool based on the dog's nose could support the PSA test and improve early diagnosis, leading to better health outcomes and saving lives.

The dogs' success may lead to their replacement, though. Florin is at the Massachusetts Institute of Technology where her nasal talents will help design a robotic nose that can come close to what dogs do naturally. "One of the main points of this work is that the dogs aren't just detecting prostate cancer, they are detecting the most lethal prostate cancers. Results could now lead to the future development of a more sensitive and specific prostate cancer diagnostic beyond the current PSA test," said Jonathan W. Simons, MD, study co-author. "With compelling evidence of this approach, we are planning

larger-scale studies using canine olfaction, urinary VOCs and urinary microbiota profiling to develop a machine olfaction diagnostic tool, a 'robotic nose' if you will, that may ultimately take the form of a smartphone app of the future." ■

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0245530>



Figures | iStock Photo

Pet Ownership Surge and Overworked Veterinarians

COVID-19's impact has increased veterinary services demand

Chris Roth, DVM, writes on a PetsBest blog that COVID-19 has caused pet ownership to surge by 10%. This has left veterinarians overworked and stressed by COVID-19 restrictions while owners find it difficult to get services.

It stands to reason that veterinarians in states with relatively few veterinary professionals may be unable to keep up with the growing demand for their services. New Jersey has the lowest concentration of veterinarians in the United States. The 15 states with the lowest concentration of veterinarians are:

15. West Virginia (.91x concentration)
14. New Mexico (.90x concentration)
13. Massachusetts (.88x concentration)
12. Mississippi (.88x concentration)
11. Rhode Island (.86x concentration)
10. Illinois (.84x concentration)
9. California (.84x concentration)
8. New York (.80x concentration)
7. South Carolina (.80x concentration)
6. Utah (.76x concentration)
5. Hawaii (.76x concentration)
4. Texas (.76x concentration)
3. Nevada (.75x concentration)
2. Arkansas (.73x concentration)
1. New Jersey (.68x concentration) ■



Chris Roth | iStock Photo



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Bumpy-Toe Inflammation

Infected hair follicles may create painful lumps

Interdigital furunculosis is a condition in which a hair follicle becomes damaged or inflamed, resulting in one or more angry-looking bumps on your dog's feet. Frequently mistakenly called "interdigital cysts," there's nothing cystic about these bumps. They can be caused by excessive licking, allergies, mites, or bacterial infection.

"A furuncle is a ruptured hair follicle," says William Miller, VMD, DACVD, Professor Emeritus of Medicine, Section of Dermatology at the Cornell University College of Veterinary Medicine. "With rupture, the hair shaft and skin cells get dumped into the dermis and act as foreign bodies."

Inflammatory Causes

"The more common cause of furunculosis is follicular inflammation. The hair follicle that fills with bacteria, fungal elements, demodex mites, etc. becomes inflamed. The inflammatory cells weaken the follicular epithelium and follicular rupture follows. When the infected follicle ruptures, the infection is pushed into the deeper tissues and becomes more serious," says Dr. Miller.

The most common culprits are demodex mites and staphylococcal ("staph") bacteria. Demodex mites are normal inhabitants of your dog's skin, but can get out of control if your dog has a weakened immune system or if his skin is damaged. Allergies and the resulting paw-licking can provide the perfect opportunity for both demodex and staph infections to develop.

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If you notice persistent licking, find out why before the damage worsens.

Mechanical Trauma

"Hair follicles can be ruptured by mechanical trauma like excessive licking," says Dr. Miller. The dog may lick his paws vigorously, or lick gently too much and too often. "The moisture from the saliva can weaken the surface and follicular epithelium and make it easier for the dog's tongue to push the hair shaft through the follicle wall. This type of furunculosis typically is a problem for short, bristly coated dogs with fat feet like those on Bulldogs."

Getting a Diagnosis

"As in all skin cases, the history is most important," says Dr. Miller. "Did the dog lick and then the bumps appeared or were the bumps there first?" This information can help your veterinarian determine the cause of your dog's interdigital furunculosis or if the bumps on his paws are due to something else, such as insect bites or a reaction to your new carpet cleaner.

Usually, a veterinarian will start with a skin scrape of the bump to grab skin cells to examine under a microscope. Demodex, bacteria, and fungus can all be seen on a skin scrape, and the state of the skin cells themselves and any white blood cells that are present can also provide clues. Depending on the results of the skin scrape, your veterinarian may recommend doing a culture and sensitivity to identify the bacteria or fungus responsible and determine the best medication to clear the infection.

Dr. Miller cautions that furuncles can

be very painful, so your dog may need to be sedated while testing is performed.

Treatment

Treatment will depend on the underlying cause of the furuncle and any secondary infections that are present. For example, if a Boxer with ragweed allergies has been licking his paws and now has furuncles with a demodex infection, he will need both a medication to kill the mites as well as treatment to relieve his allergy symptoms so he will stop licking his feet.

The severity of the condition will also impact treatment. "Furunculosis can be variable in its severity," says Dr. Miller. "The bigger the bump and the darker red-to-purple the color, the more severe the condition. With deep disease, the adjacent follicles are easily involved potentially leading to a vicious cycle."

And just because the surface of the paw looks healthy again doesn't mean the problem has completely resolved. "The surface of the skin improves many days to weeks before the deep tissues are healed. If treatments are stopped when the skin's surface looks normal, the process is almost assuredly going to rear its ugly head again," Dr. Miller says. Expect to treat for several weeks, up to six weeks or more if a staph infection is involved.

In addition to topical and systemic medications to address the cause of the interdigital furuncles, soaking the affected foot or feet can be helpful in some cases, but wait for your veterinarian's go-ahead. "If there is drainage from the furuncle, soaking the foot once or twice can be beneficial. If there is no drainage, soaking will do very little and actually may make things worse by weakening the skin's surface," says Dr. Miller. ■

What You Can Do

- ▶ Put the breaks on constant licking.
- ▶ Make a veterinary appointment at the first sign of a lump.
- ▶ Follow medication and treatment recommendations closely.
- ▶ Bandage the foot or use an Elizabethan collar so the dog cannot continue licking that area.
- ▶ Put a waterproof cover over the bandage for trips outside.

A Prostate Can Cause Big Problems

For most dogs, this gland is more of a pain than a plus

As the discussion continues over what age to neuter our pets, if we neuter at all, statistics rise for the incidence of medical problems associated with either option. Among them for intact dogs is this from the Oklahoma State University College of Veterinary Medicine: "About 50 percent of intact male dogs experience age-related prostatic changes by the time they're 4 years old."

The prostate produces fluids found in semen and helps ensure semen is pressed into the urethra, which passes through the prostate, to be expelled during ejaculation. The prostate is solely a reproductive organ. Its growth is regulated by testosterone, a hormone produced by the testicles. Sometimes, however, testosterone production increases and the prostate becomes large and painful.

Canine prostates tend to have four problems: benign prostatic hyperplasia (BPH), prostatitis, cysts, and cancer.

BPH

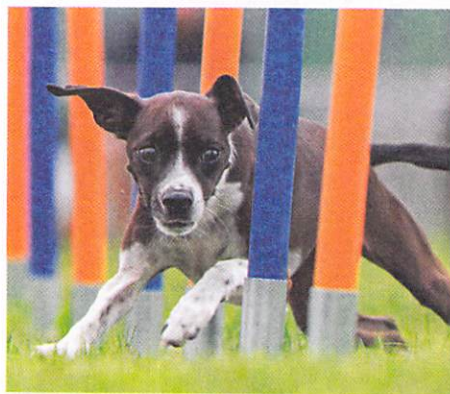
Benign prostate hyperplasia (BPH) is overgrowth of the prostate. It is the most common prostate problem, usually seen at age 5 or older. Symptoms include:

- ▶ Bloody urine
- ▶ Dribbling urination
- ▶ Small, thin stools
- ▶ Straining to defecate or urinate.

If a male dog is used for breeding, abnormal discharge into the semen, including blood, may be noticed. Over time, fertility and libido problems may appear. A few dogs show a wide-based gait in the rear due to discomfort from the swollen gland.

What You Can Do

- ▶ Tell your veterinarian if you see straining or dribbling when your dog urinates.
- ▶ Don't dismiss changes in your dog's gait, especially in the rear limbs.
- ▶ Report straining while defecating or abnormal, thin, ribbon-like stools.
- ▶ Watch for swelling around the rectal area (harder in long hair dogs!).



The neuter-or-not dilemma is far from over, but prostate growth can sometimes be the deciding factor.

Your veterinarian may be able to diagnose BPH through a rectal exam, palpating the prostate through the rectal wall, although this can be difficult in very large and small dogs. With BPH, the gland may still feel smooth and symmetrical, which is normal, but it will be enlarged. Rarely, on its own, will BPH be painful.

Urinalysis and prostatic fluid evaluation help make the diagnosis. An ultrasound may be ordered. The problem with these diagnostic methods is that the dog must already have significant prostate changes for them to be apparent. A fine needle aspirate or biopsy could also be done, but these more invasive procedures are usually reserved for cancer concerns.

The Canine Prostatic Specific Esterase (CPSE) blood test is gaining strength as a screening test to detect prostate overgrowth in dogs. It is similar to the human prostate-specific antigen test (PSA). However, CPSE does not yet differentiate among BPH, prostatitis, and prostatic cancers.

Neutering is a routine treatment for BPH, since the prostate gland will shrink with the removal of testosterone. For owners who prefer not to neuter or who have breeding plans for their male dog, there are medicines, such as megestrol acetate, that can be used short-term. However, it can have side effects such as changes in tissue type that might predispose the dog to cancer.

Finasteride (Proscar) is a human medication that has been used off-label for BPH in dogs. Because finasteride

can affect fetuses, veterinarians often recommend taking the male off this medication at breeding time and then putting him back on after. Flutamide, an anti-androgens drug used to treat human prostate cancer, can also be used off-label in dogs. Both Finasteride and flutamide are quite expensive.

Prostatitis

Prostatitis is an infection of the prostate. Bacteria can get into the prostate by traveling up the urethra or down the ureter from the kidney or from the bladder. Common bacteria include *E. coli.*, *Staphylococcus*, and *Streptococcus*. Dogs with BPH are slightly more susceptible to bacterial infections and abscesses. Symptoms include:

- ▶ Abnormal wide rear stance
- ▶ Acute pain if prostate is palpated
- ▶ Bloody or murky urine
- ▶ Fever (with abscess or infection)
- ▶ Painful abdomen or back.

With severe infections, the dogs can stop eating and show signs of depression and pain. Peritonitis, a painful infection of the peritoneum (the lining of the abdomen and/or abdominal organs), is also possible. Dogs can have acute or chronic prostatic infections.

Diagnosis starts with a urinalysis and culture. To try to distinguish a prostatic infection from a bladder infection, your veterinarian may drain your dog's bladder with a catheter, then massage the prostate and take another collection, hoping to gather prostatic fluid for examination under a microscope.

Treatment requires specific antibiotics, such as enrofloxacin and trimethoprim-sulfamethoxazole, for four to six weeks, with follow-up testing to see if the infection has cleared. Many dogs with prostatitis also have BPH, which should be addressed to help prevent recurring infections.

Prostatic abscesses are difficult to treat. Since the bacteria are walled off, the abscess needs to be drained, which means surgery with a drain placed to empty out via an incision in the abdomen. This condition can be acutely life-threatening with some dogs developing septicemia. Many veterinarians recommend neutering at the time of surgery to stop hormonal influence.

Prostatic Cysts

Cysts in the prostate ducts are often associated with BPH, and they occur most often in older intact dogs.

There are two types: prostatic cysts, which occur from blocked ducts that move fluid from the prostate to the urethra, and paraprostatic cysts, which are found next to the prostate, often connected by a stalk(s). Paraprostatic cysts are rare but often large and have been found in perineal hernias (see sidebar). Paraprostatic cysts were thought to have developed from embryonic remnants, but now many experts think they are due to blocked ducts. They can grow to the size of the bladder.

Prostate cysts are often not detected unless they begin causing abdominal distention or put pressure on adjacent organs, such as when you see the dog straining to defecate or urinate. Urine may be bloody or cloudy. Infected cysts can cause lethargy, decreased appetite, abdominal pain, and fever.

Your veterinarian will likely do urinalysis, blood tests, and abdominal x-rays and/or ultrasound. Fine needle aspiration can be done to extract cells for examination. Unfortunately, sometimes exploratory surgery is needed to make the final diagnosis.

Prostatic cysts do not respond well to medication. Although castration will be recommended, surgery with drainage of the cyst is the only effective treatment.

Prostatic Cancer

Overall, prostatic cancer is rare in dogs, however, the cancer may be adenocarcinoma, a particularly aggressive form of cancer. Metastasis is common by the time of diagnosis (70 to 80%), usually to the lungs and bones. It is generally seen in medium to large dogs with most over 10 years old.

Neutered dogs have twice the risk of developing prostate cancer, according to the Veterinary Society of Surgical Oncologists, explaining, "Castration may result in progression of prostatic tumors toward a more aggressive, androgen-independent state, and increase metastatic capacity compared to male intact dogs." Still, the average time from castration to cancer is 7 years.

This statistic does not mean neutering is bad. A study looking at the dangers of castration in dogs stated: "On the basis of the data provided by the currently available scientific literature, elective gonadectomy of adult male dogs under 6 years of age cannot be excluded from the daily veterinary practice due to concern of causing prostatic neoplasia until clear and strong evidence is available."

Symptoms of prostatic cancer are similar to those for other prostate problems, such as straining to urinate and blood in the urine, depression, and a lack of appetite. If there is metastasis to the spine, neurologic signs will be present such as rear-limb weakness. Some dogs will be totally obstructed and unable to pass urine.

On radiographs or ultrasound, the prostate is usually enlarged, often irregular, and may have mineralized patches. Abnormal cells may be detected after a prostatic massage and wash. CPSE tests will be elevated but are not specific for cancer. Total acid phosphatase, prostatic acid phosphatase, and non-prostatic acid phosphatase are significantly higher in dogs with prostatic

carcinoma compared to normal dogs or dogs with BPH. A biopsy is the only truly definitive diagnostic tool.

Treatment options are limited. Surgical removal is almost guaranteed to lead to incontinence. Radiation and chemotherapy may provide palliative relief but aren't highly successful. Photodynamic therapy, a treatment that uses a photosensitizer drug with light to kill cancer cells, may be considered as a possible treatment for localized tumors (no metastasis).

Quality of life may be improved with the placement of a stent or a transurethral resection to allow urine to pass for dogs who are blocked. These surgeries aren't cures, however, and prognosis is guarded for dogs with prostate cancer. ■

The Appearance of Perineal Hernias

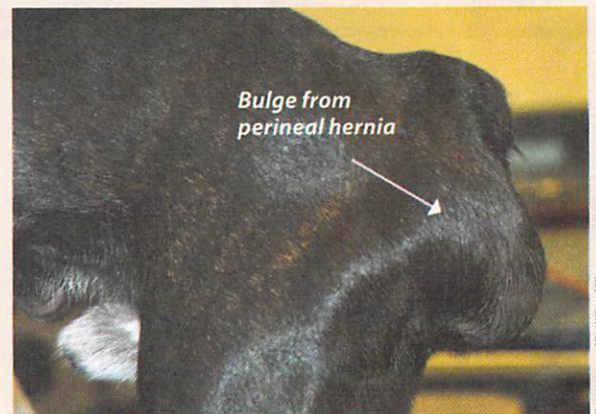
Perineal hernias develop when tissues in the rectal area soften and allow other organs or tissues to protrude. Intact male dogs have an increased risk of these hernias. Since intact dogs are also more prone to an enlarged prostate, they may exert more pressure when urinating and defecating, causing the tissues around the rectum to eventually stretch, weaken, and tear, which results in a perineal hernia. You cannot prevent perineal hernias, according to the American College of Veterinary Surgeons.

Signs can vary with what tissues are trapped in the hernia, ranging from fat to the bladder. Owners may notice a swelling in the rectal area along with straining to defecate and/or constipation. They may notice an altered tail carriage, a lack of appetite, and depression. Diagnosis is generally done on physical examination through a rectal palpation with urinalysis and bloodwork. An ultrasound can help determine if a prostate problem is an underlying cause.

Medical management can be tried for mild cases and includes stool softeners and a high-fiber diet, but this is not a cure. The hernia may worsen, so surgery is generally recommended. Emergency surgery is indicated for pets with signs of abdominal pain, inability to urinate, or a strangulated loop of small intestine.

Most veterinarians will refer a dog with a perineal hernia to a board-certified surgeon, as this is an unusual surgery. The defect may require repair with a muscle flap or surgical mesh to reinforce the weakened area. Neutering is recommended at the time of repair as recurrence is common.

Aftercare is critical. Straining must be reduced. Stool softeners are used, and owners must keep the area clean to prevent secondary infections. Approximately 10 to 15% of perineal hernias will recur, so vigilance is important.



Dogs with a perineal hernia often display a swelling or bulge in the rectal area.

Socialize Your Puppy

Ensure your puppy becomes a happy, confident dog

Puppies are fun! No doubt about it! They're ready to learn about the world around them, exploring, and just having a good time. But they need direction, and part of that involves socializing your puppy. A properly socialized puppy becomes a confident adult dog. A puppy who is not socialized may grow up with behavior problems.

Opportune Time

Pamela J. Perry, DVM, PhD, behavior resident at the Cornell University College of Veterinary Medicine, says the sensitive period for socialization in puppies is from about 3 weeks to about 14 weeks of age (see The ENS Program sidebar).

What your puppy needs to be exposed to will vary depending on her lifestyle. For example, a country pup should be exposed to livestock and learn that she is not to chase or harass other animals. A city pup may need to experience public transportation and city noises.

Don't overwhelm your puppy. "Expose your puppy to people, animals, situations, and environments that she will encounter throughout life. It is crucial, however, to ensure that these experiences are pleasant. Stay within the limits of what your puppy can tolerate to avoid triggering fear responses," says Dr. Perry.

New Sights and Sounds

Your pup should be exposed to a variety of things, but she doesn't need to get up close and personal with all other living creatures. Watching other dogs play while she is safely in your arms is fine. A group of other dogs can be very intimidating.

Greeting people who admire her

What You Should Do

Three good starts from Dr. Perry:

1 Expose your puppy to a variety of people, including different genders, sizes, ages, and ethnicities. Ask each person she meets to offer a treat.

2 Take your puppy to new environments and expose her to a variety of stimuli, such as a garbage can and the vacuum cleaner.

3 Introduce your puppy to other dogs and animals, particularly those she will encounter regularly as an adult.

is OK, even giving her a treat, but she doesn't need to be picked up or petted by everyone. Puppies can be overwhelmed by a swarm of other people. It should be one person at a time. If your puppy's body language says she's not happy or comfortable, say she is tired and move on.

Special dog CDs are designed to expose puppies to a wide range of sounds from buses to roosters to sirens. Many breeders play these at a low volume for their puppies so they learn to ignore background noises.

Life Skills

Now's the time to help your pup develop useful life skills. She should start crate training, as it is the safest way to ride in a car, and it helps with house training. It can also be a useful skill if she ever needs to be boarded or stay overnight at the veterinary clinic.

Practice holding her daily, so she is used to being gently restrained, and begin to brush her. Check her ears, touch her feet and nails, and look at her mouth (though if she is teething and her mouth is painful, skip this for a bit).

Use common sense when choosing your outings. A puppy should not go to a dog park for many reasons, both physical and mentally. However, walking on a leash on a quiet trail gives her an opportunity to sniff and explore safely. If you have a friend with an adult dog who is tolerant of puppy bouncing, walking together is perfect.

Consider puppy class! The American Veterinary Society of Animal Behavior advises that a properly run puppy training class is safe even before pup's full set of vaccinations. Ask about health requirements and check out cleaning procedures between classes. Many veterinary clinics have puppy classes they recommend. The American Kennel Club offers the Puppy STAR program (Socialization, Training, Activity, and Responsibility), which is designed to help both puppies and new owners.

Socializing your puppy is fun! It just takes a little common sense to help her develop into a confident dog. ■

The ENS Program

Exposure to new things brings stress with it, and stress is part of every living being's life. Some breeders begin to expose puppies to gentle stress starting at day 3 through 16 of their lives, using Early Neurological Stimulation (ENS).

This program consists of five easy exercises designed to expose puppies to mild stresses. Each exercise is done for *only* 3 to 5 seconds. The goal is to have puppies learn that a little stress is no big deal, helping them prepare to face the world. The ENS exercises are:

- ▶ tickling a paw with a cotton swab
- ▶ holding the puppy with his head erect
- ▶ holding the puppy with his head down
- ▶ holding the puppy on its back
- ▶ placing the puppy on a cold, damp cloth.

Listen to Your Puppy—Never Use Force



Crouching, tucking tail, showing the whites of her eyes, pulling away, and/or refusing a treat are signs of fear. If your puppy displays even one of these behaviors, move her away from the object immediately. On another day, approach the scary thing from a greater distance, only moving closer if she is confident.

Limb Amputations in Dogs

Most dogs adjust to life with three legs very well

Making the decision to have one of your dog's legs amputated requires careful consideration, especially about the dog's prognosis, as discussed last month in "Osteosarcoma Amputation." But you may face amputation for more reasons than cancer. The decision should be made by the family, primary care veterinarian, and/or a veterinary specialist, working together.

"When I am involved in this decision process, it is often to help determine the prognosis for a patient recovering from amputation that is also suffering from other orthopedic or neurological disease in the remaining limbs. I am also involved when a prosthesis is being considered," says Chris Frye, DVM, DACVSMR, CVA, Assistant Clinical Professor, Sports Medicine and Rehabilitation at the Cornell University Hospital for Animals.

Reasons to Amputate

"Amputation is typically recommended when the limb is compromised beyond repair or management by surgical or medical intervention. Common situations may involve trauma, malformations, certain infections, and some cancers," Dr. Frye says.

"The patient's potential for function, comfort, and quality of life after amputation must be considered," says Dr. Frye. "Most patients adjust to amputation fairly well; however, we know that patients compromised by other musculoskeletal disease and larger patients have a tougher time recovering and require more nursing care from the family and veterinary team. These patients and their families benefit from a well-formulated plan with clear goals and expectations over time."

Front-limb amputations can take a little longer to adjust to because your dog normally supports 60 percent of her body weight with her front legs, but most dogs quickly learn how to adjust their posture to make up for the missing limb.

Other orthopedic conditions, such as healing fractures in another leg, osteoarthritis, a history of torn cranial cruciate ligaments, hip dysplasia, or elbow dysplasia, can all make life on three legs more difficult. After amputation, each of your dog's remaining legs will



It can be tempting to place human emotions on your dog. Don't. Most dogs do just fine with three legs.

be bearing more weight than they used to, which can exacerbate any existing injuries or conditions. Neurological disorders/deficits that interfere with your dog's balance and ability to place her feet correctly when walking will also make life after an amputation more difficult.

"We know from studies that amputees must compensate their movements by redistributing weight and adjusting their posture and gait," says Dr. Frye. "Therefore, in general, the opposite limb must accommodate a lot more force when moving, the spine has been shown to undergo twisting and flexion changes for standing and movement along its length, and other limbs must be repositioned for balance. Such adjustments can create unnatural loads and compensatory stresses that can result in disease over time (depending on a patient's health status, age, activity level, and size)."

The extent of the amputation must also be considered. In most cases in veterinary medicine, the entire limb is amputated. If a stump is left, it can be vulnerable to injury. The exception to this is if a prosthesis is being considered.

Recovery and Beyond

The American College of Veterinary Surgeons says that most dogs go home within a week of amputation surgery (even the following day). She can be back to normal activity after four weeks of short leash walks while the incision heals and she gets used to her new balance and stride requirements.

You will need to keep her away from stairs and slippery surfaces such as wood or tile floors for several weeks while she adjusts to the amputation. Strategic placement of throw rugs or yoga mats can be beneficial long-term to provide good footing for your dog.

One of the most important things that you can do to help your tripod dog is to keep her at a lean body weight. Excess weight puts excess stress on her joints, making movement more difficult and predisposing her to a variety of orthopedic conditions and injuries. Maintaining a healthy body weight is critical for all dogs that have undergone a limb amputation.

Depending on your dog's age, which limb was removed, and any other conditions that she has, she may require assistive devices. Slings to help support her weight are beneficial during the recovery period and may be needed to help her navigate stairs or get up from naps long-term. Assistive harnesses, carts, and wheelchairs can help.

Consultation with a sports medicine or rehabilitation specialist can be beneficial. At Cornell, Dr. Frye often sees amputation patients who have other conditions that they are trying to manage. Dr. Frye says: "Mostly I promote movement that strengthens the body in a controlled fashion, maintains range of motion, promotes balance and spatial awareness, and counters redundant compensatory movements. Some targeted therapy may also be needed if the patient suffered from specific orthopedic or neurological disease in the remaining limbs or spine. I often help improve function through specific physiotherapy, pain management, assistive devices (harnesses and wheelchairs, etc.) and, when indicated, the application and use of prosthetics."

Thankfully, dogs are happy to work with the three legs they have and move on, living long, happy lives. ■

Getting a Prosthetic Leg

A prosthetic requires owner diligence. You must closely monitor your dog's stump for signs of wear or abrasion. Expect several appointments for fitting the prosthesis, along with frequent follow-ups. Your dog will also likely need more than one prosthesis as the original gets worn out, so you should factor that into your decision.

Aggression When Puppy Grows Up

Changes indicate the need for a veterinary checkup

Q I have a 3-year-old female English Bulldog who seems to be very territorial. I previously had a male who passed away, and he didn't care about other dogs. He would walk right by a barking dog as if it didn't exist. Gisele, on the other hand, goes crazy if she sees another dog when on leash or in the car. She has been socialized at a friend's day care and she seems to do very well there. She is familiar with the other dogs and behaves in that setting.

My problem is we decided to get another puppy. She was fine with him as a puppy and accepted him. Now that he is approaching adulthood, she is less tolerant. She doesn't allow him to sit near us when we are having dinner. She assumes her usual spot near us. We don't feed them any table scraps, she just wants to be near us.

And if he is anywhere close to us, she will attack him. Not viciously, but she wants him away. Bentley, the puppy, now 1 year old, has learned and has exiled himself far away when we are having our dinner. He looks very sad, and I feel bad that he is not able or comfortable with "the pack".

We have tried to remove her when this happens, by putting her outside, but this behavior keeps happening. Do you have any suggestions on how we might handle this situation?

A Inter-dog aggression between dogs in the same household, more informally known as sibling rivalry, is very common. I always urge owners to be sure that there is no underlying medical problem causing a behavior problem and, because these are bulldogs, there are many, many problems that could cause your older bulldog to be less friendly.

She may have orthopedic problems, respiratory problems, or dermatological problems. Bulldogs have such great personalities, but the anatomy that makes them so cute can make them miserable.

Your female Gisele was, as you noted, forgiving of your second dog when he was a puppy, but now is growling at him. She is guarding a scarce resource—you and the dinner table. She will probably begin to guard other things as well: toys, food, her place on the couch.

She is teaching him that she is the dominant dog. Dogs do have hierarchies but probably do not include us as part of that hierarchy, despite what some dog trainers claim. As Bentley continues to

mature, there will be more and more situations in which she may feel she has to exert her dominance.

There are two approaches and I recommend doing both:

1) Make sure that there is nothing over which they compete. That means picking up every toy, bone, and rawhide and giving them to the dogs only when they are in their crates—if they have crates—or separated.

Be sure to feed them separately and by separate I don't mean the width of the kitchen apart. I mean separated by a closed door, which should remain closed until the slower eater is finished.

At your dinner time, you could put the younger dog in another room with a long-lasting treat or to be more egalitarian both dogs could be removed from the dining room and given treats in separate areas.

2) Avoid situations that lead to dog fights. Those situations include, in addition to access to food and toys, passage through doorways or narrow halls or the entrance to the car.

You should ask both dogs to sit and stay and then you decide who goes out first and who comes in first so that they don't decide among themselves.

The other situation that often leads

to aggression is visitors. The dogs may rush to the door, barking aggressively at intruder, and then displace their aggression to each other. You can train the dogs to sit and stay well away from the door when visitors come or take the easy way out and ask guests to text you when they have arrived so you can put the dogs away separately and then let the company inside. ■



The dynamics between your puppy and older dog could change as the puppy grows.

Do You Have a Behavior Concern?

Send your behavior questions to Cornell's renowned behavior expert Katherine Houpt, VMD, Ph.D., shown here with Yuki, her West Highland White Terrier. Email to dogwatcheditor@cornell.edu or send by regular mail to DogWatch, 535 Connecticut Ave., Norwalk, CT 06854-1713.



Coming Up ...

- ▶ What to Do With Injured Tails
- ▶ Solutions to Urinary Dribbling
- ▶ Warmups and Stretches for Weekend Work
- ▶ Handling the Fearful Dog

© HAPPENING NOW ...

Award Winner—DogWatch earned the best Canine or All-Animal Newspapers or Newsletters award at the 2021 Dog Writers Association of America contest.

Heart Balloon—Veterinary cardiologist Gabrielle Wallace recently performed a balloon valvuloplasty on a 10-month-old Chihuahua with a heart murmur caused by malformed valves. The procedure was performed in the University of

Illinois Veterinary Teaching Hospital's new interventional radiology suite, says SmartBriefs.

Possible New State Pet—The Kentucky Senate is considering a bill passed by the state House that would make rescued animals the official state pet. The bill is the brainchild of 8-year-old Ethan Branscum, who has been lobbying legislators for a year to pass it, according to WLEX-TV. ■