

Mastiff Testing and Contacts

Test	Prelim Age	Permanent Age	Link	CHIC Requirement	Fee (Does NOT include vet visit costs)	Notes
Hips	under 24 months	24 months	http://www.ofa.org/pdf/hdedapp_bw.pdf	Yes (OFA)	Fee to list on OFA Database (as of 3/31/15) Hip dysplasia database only \$5.00	
Elbows	under 24 months	24 months	http://www.ofa.org/pdf/hdedapp_bw.pdf	Yes (OFA)	Hips plus elbows (together) \$40.00 Elbow dysplasia database only \$35.00	
PennHip	N/A	16 weeks - 3 years Preferred - 1 year	http://www.vsrp.net/content/Penn_Hip_form.pdf		The total fee for a PennHIP evaluation is determined by the veterinarian providing the service. Submit results to OFA for \$15.00	
Congenital Cardiac Database	under 12 months (not eligible for OFA #)	12 months	http://www.ofa.org/pdf/cardapp_bw.pdf	Yes	Fee to list on OFA Database (as of 6/21/18) Animals Over 12 Months \$15.00	A breed registry number will be issued for any dog found to be normal for congenital cardiac disease at 12 months of age or older. The exam must include auscultation. The breed registry number will indicate the age at evaluation and the type of examiner (C-cardiologist, S-specialist, and P-practitioner)
Advanced Cardiac Database	under 12 months (not eligible for OFA #)	12 months	https://www.ofa.org/diseases/other-diseases/cardiac-disease		Fee to list on OFA Database (as of 6/21/18) Animals Over 12 Months \$15.00	Must be examined and classified by a veterinary cardiologist Two-tiered clearance for normal dogs: congenital cardiac disease and adult-onset cardiac disease. 1) Congenital clearances are considered permanent at 12 months or older. 2) Adult-onset clearances are valid for one year from the date of the exam.
DM	DNA Test - No Minimum Age	DNA Test - No Minimum Age	http://www.ofa.org/dnatesting/dm.html		\$65.00/Dog. Includes the test kit, laboratory processing, and subsequent registration in the OFA databases.	
Cystinuria DNA Marker Test	DNA Test - No Minimum Age	DNA Test - No Minimum Age	http://www.vet.upenn.edu/research/academic-departments/clinical-sciences-advanced-medicine/research-labs-centers/penngen/instructions-resources/metabolic-fanconi-cystinuria-testing	Optional	PennGen Lab cost: \$65 per dog Type 3 Cystinuria DNA Marker Test (as of 6/21/18). Submit results to OFA for \$15.00	1-1 (Homozygous Normal/Clear) - This dog is homozygous (2 copies) for the normal marker and no copies of the marker associated with cystine stone formation in Mastiff dogs and some related breeds. A male dog with this 1-1 result does not have the cystinuria-predisposing marker and most commonly has a negative nitroprusside (NP-) test result and the lowest risk for forming cystine stones. We recommend annual urine nitroprusside test screening for intact male dogs starting by two years of age because we have identified a few 1-1 dogs with elevated urinary cystine levels. 1-2 (Heterozygous) - This dog is heterozygous with one copy of the normal marker and one copy of the marker associated with cystine stone formation. An intact male dog with this 1-2 result is at intermediate risk for developing cystine stones. Urine nitroprusside screening on intact males, starting by two years of age, should be performed, since many 1-2 intact male dogs can have elevated cystine levels (NP+), and some form cystine stones. We have observed intact male 1-2 dogs become nitroprusside positive (NP+) after the age of two years. A negative nitroprusside test does not guarantee that an intact male dog will remain nitroprusside negative and will not form stones throughout his life. However, dogs with the 1-2 test result and multiple NP- results after the age of two years are at low risk for cystine stone formation. Castration is an option for lowering urine cystine levels, thus reducing the risk for cystine stone formation. Both males and females with the 1-2 result can pass on the high-risk marker (2) to their offspring. 2-2 (Homozygous Affected/At Risk) This dog is homozygous (2 copies) for the marker associated with cystinuria and cystine stone formation. An intact male 2-2 dog has the highest risk for forming cystine stones, usually with cystine stones causing clinical signs by 4 years of age. Castration is recommended to essentially eliminate both the risk of stone formation and prevent the spread of the disease-causing allele to offspring. While females will not be cystinuric and have no risk for cystine calculi formation, they will pass on the disease-associated marker allele (2) to all their offspring and thereby can produce cystinuric (2-2) male offspring if bred to 1-2 or 2-2 males, or all 1-2 dogs if bred to 1-1 (clear) dogs.
Cystinuria Urine Test	N/A	18 months	http://www.mastiff.org/images/Mastiff%20Cystinuria%20Urine%20Test%20Form%2012-4-09.pdf	Optional	\$40 per urine screen	
von Willebrand (vWD)	no minimum age requirement	no minimum age requirement	https://ahdc.vet.cornell.edu/sites/clinical/vonwill/abdi_ag.cfm		\$32.00 von Willebrand factor (vWF:Ag) - VWF von Willebrand factor concentration, ELISA method thru Cornell. Submit results to OFA for \$15.00	Samples shipped through the mail should be addressed to: Animal Health Diagnostic Center College of Veterinary Medicine Cornell University P.O. Box 5786 Ithaca, NY 14852-5786 Samples shipped through a courier service should be addressed to: Animal Health Diagnostic Center College of Veterinary Medicine Cornell University 240 Farrier Rd Ithaca, NY 14853 For Von Willebrand factor assay tests: please ship the PLASMA sample CHILLED with frozen cold packs in an insulated container via overnight delivery! Also verify receipt of package in good condition!

CMR	DNA Test - No Minimum Age	DNA Test - No Minimum Age	http://www.optigen.com/opt9_test_cm.html		Lab cost: \$95.00 per dog Submit to OFA: \$7.50	OptiGen will test any samples for CMR that we have already received for the PRA test. OptiGen has retained frozen samples from all tests done previously, and we've decided to make these available for CMR testing, even if the owner did not pay the fee for long-term storage. You may order the CMR test online on a stored sample. Link to "Order Test" and complete the order form as usual. Be sure to indicate that this dog's sample already is at OptiGen by selecting "Blood sample is already at OptiGen under a long-term storage agreement." Mark this choice even if you did not specifically pay for Long-Term Storage.
PRA	DNA Test - No Minimum Age	DNA Test - No Minimum Age	http://www.optigen.com/opt9_test_dominant_pra.html		Lab cost: \$120 per dog Submit to OFA: \$7.50	Breeding is not advised for any animal demonstrating bilaterally symmetric retinal degeneration (considered to be PRA unless proven otherwise).
OFA Eye Certification Registry (CAER)	no minimum age requirement	no minimum age requirement 24 months for CHIC	http://www.ofa.org/pdf/eye_flyer_web.pdf	Yes	Fee to list on OFA Database (as of 3/31/15) \$12 for initial application \$8 for resubmissions no charge for abnormal results	Only a board certified veterinary ophthalmologist may perform an eye clearance examination. Recommended to repeat test every 12 months. You can visit the American College of Veterinary Medicine website at www.acvo.org and click on "Locate an Ophthalmologist" to find someone in your area.
Thyroid	under 12 months (not eligible for OFA #)	12 months	https://www.animalhealth.msu.edu/Submittal_Forms/AD_AD_M.FORM.007.pdf http://www.ofa.org/pdf/thyrap_bw.pdf	Optional	MSU Code: 20010 - Canine Thyroid Diagnostic Profile - \$49.00 Fee to list on OFA Database (as of 3/31/15) Thyroid database \$15.00	
Patellar Luxation	under 12 months (not eligible for OFA #)	12 months	http://www.ofa.org/pdf/plapp_bw.pdf		Fee to list on OFA Database (as of 3/31/15) Animals over 12 months \$15.00 each, affected dogs and resubmits are no charge	
Shoulder OCD	under 12 months (not eligible for OFA #)	12 months	http://www.ofa.org/pdf/shoulderapp_bw.pdf		Fee to list on OFA Database (as of 3/31/15) Animals over 12 Months: Shoulder evaluation by itself \$25 Shoulder in addition to hips and/or elbows \$5	Only animals that are 12 months of age or older to the day at the time of radiography, with no radiographic evidence of OCD, will be assigned a breed OFA number.
DNA Registration (AKC kit/OFA listing)	no minimum age requirement	no minimum age requirement	https://www.apps.akc.org/apps/store/?view=category&cde_category=DNA&external=yes		AKC Prepaid DNA Test Kit (Nonrefundable) \$45.00 Fee to list on OFA Database (as of 3/31/15) Submission fee/individual \$15.00	AKC Prepaid DNA Test Kit (Nonrefundable) \$45.00
DNA Sample Donated for Canine Health Research	no minimum age requirement	no minimum age requirement	http://www.caninehealthinfo.org/dnabankfaq.html http://www.caninehealthinfo.org/chic_dnabankapp_main.pdf		Swab Based Collection Kit \$5.00 (includes 4 cheek swabs to be submitted, collection instructions, health survey, mailing labels) Blood Collection Kit \$20.00 (includes collection instructions, health survey, mailing labels)	Blood sample preferred
Coat Length	DNA Test - No Minimum Age	DNA Test - No Minimum Age	http://vetgen.com/ordertests.aspx?id=Mastiff		Vetgen Lab cost: \$65.00 per dog	OFA will not list test results for coat length.
Canine Good Citizen (CGC)	Puppies who have completed all immunizations and boosters may be tested, however, because we know that behavior and temperament can change over time, when puppies pass the CGC test, owners should have them re-tested as adults.	There is no age limit for the CGC test.	http://www.akc.org/dog-owners/training/canine-good-citizen/			The CGC Program teaches good manners to dogs and responsible dog ownership to their owners. The 10-step Canine Good Citizen test is a non-competitive test for all dogs, including purebreds and mixed breeds. The CGC award is a prerequisite for many therapy dog groups. Some homeowner's insurance companies are encouraging CGC testing, and an increasing number of apartments and condos require that resident dogs pass the CGC test. The CGC Program also includes the AKC CGC™ Responsible Dog Owner Pledge. Prerequisite to Therapy Dog Testing.

OFA Clear By Parentage Policy

For direct mutant gene tests only, the OFA will issue clearances to untested offspring:

- If the sire and dam have both been DNA tested "Clear,"
- If the sire and dam's DNA disease test results have been OFA registered, and
- If all three (sire/dam/offspring) have been DNA identity profiled and parentage verified.

The DNA profile paperwork must be submitted along with a completed OFA DNA-based disease test application. The resulting OFA certification will have a suffix of "CBP" (clear by parentage), indicating that the dog itself was not tested and that the clearance was based on the sire and dam's test results, and known science at the time. Because of the possibility of new mutations or as of yet undiscovered gene mutations, **only first generation offspring will be cleared.**

MCOA Health Award Requirements

Bronze Level	Passing OFA, OVC, or GDC hips, OFA, OVC, or GDC elbows, and CERF certified.
	Passing OFA, OVC, or GDC hips, OFA, OVC, or GDC elbows, CERF certified, OFA heart and passing MSU or other lab's equivalent full thyroid panel and/or OFA Thyroid Certification.
Silver Level	
Gold Level	Passing OFA, OVC, or GDC hips, OFA, OVC, or GDC elbows, OFA heart, OFA patella, CERF certified, passing MSU or other

CONTACTS:

OFA	(573)442-0418	ofa@ofa.org		Orthopedic Foundation for Animals 2300 E Nifong Boulevard Columbia, Missouri 65201-3806	www.ofa.org
VetGen	800-483-8436	vetgen@vetgen.com		3728 Plaza Drive, Suite 1 Ann Arbor, Michigan, 48108 USA	http://vetgen.com
AKC DNA Operations	919-233-9767	orderdesk@akc.org		PO Box 900065 Raleigh, NC 27675-9065	https://www.apps.akc.org/apps/store/?view=category&cde_category=DNA&external=yes
PennGEN Laboratories	(215)898-3375			3850 Spruce Street Philadelphia, PA 19104-6010	http://research.vet.upenn.edu/Default.aspx?alias=research.vet.upenn.edu/pennngen
OptiGen, LLC	607-257-0301	genetest@optigen.com		Cornell Business & Technology Park 767 Warren Road Suite 300 Ithaca, NY 14850	http://www.optigen.com
The American College of Veterinary Ophthalmologists	208.466.7624				http://www.acvo.org/
MCOA Health		See individual Health Committee listings below			http://www.mcoamastiff.com/MASTIFFHEALTH.htm
AKC	919.233.9767			AKC Operations Center 8051 Arco Corporate Drive Suite 100 Raleigh, NC 27617-3390	www.akc.org
Cornell	607-253-3900	diagcenter@cornell.edu		P.O. Box 5786 Ithaca, N.Y. 14852-5786	www.diagcenter.vet.cornell.edu
CHIC (OFA)	573-442-0418			2300 E. Nifong, Columbia, MO 65201-3806	http://www.caninehealthinfo.org/brdreqs.html?breed=MF

EYE PROBLEMS IN THE BREED

Canine Multifocal Retinopathy (CMR), also known as Retinal Dysplasia/Retinopathy Abnormal development of the retina present at birth and recognized to have three forms: folds, geographic, and detachment. A Mastiff with folds will currently pass CERF and the folds may disappear over

Cataract Lens opacity that may affect one or both eyes and some forms may cause blindness.

Distichiasis Eyelashes abnormally located in the eyelid margin which may cause ocular irritation.

Ectropion Conformational eyelid defect, which may cause ocular irritation due to exposure.

Entropion Conformational defect where eyelid margins invert or roll inward, toward the eye causing eyelashes and hair to rub against the cornea which may result in ocular irritation and pain.

Macroblepharon Abnormally large eyelid opening; may lead to secondary conditions associated with corneal exposure.

Persistent Pupillary Membranes (PPM) Persistent blood vessel remnants in the anterior chamber of the eye which fail to regress normally in the neonatal period.

Progressive Retinal Atrophy (PRA) Degenerative disease of the retinal visual cells which leads to blindness. In Mastiffs the age at which PRA can be detected varies from as young as 6 months to as late as 42 months. Typically Mastiffs with PRA go blind gradually, first losing their night

ORTHOPEDIC, NEUROLOGICAL, STRUCTURAL, AND JOINT PROBLEMS IN THE BREED

Anterior Cruciate Ligament (ACL) Rupture The knee along with the external support (i.e., collateral leg) has two ligaments inside the joint that help prevent forward movement (i.e., cruciate). Insult/injury can cause this ligament to rupture and result in acute lameness (not want to bear

Degenerative Myelopathy (DM) – This is a progressive, degenerative, late onset disease of the spinal cord seen in older dogs. The symptoms usually begin with hind end weakness, lack of coordination and shuffling or dragging of the rear feet. There is a DNA test for DM through OFA

Elbow Dysplasia Elbow dysplasia encompasses several different conditions, all of which are indicative of abnormally formed or fused elbow joints and all can cause lameness and pain:

- o Fragmented Coronoid Process (FCP) This form of elbow dysplasia is generally the most difficult to treat if the fragments are actually loose in the joint.

- o Osteochondritis Dissecans (OCD) A defect in the joint cartilage overlaying or attaching to the bone. OCD most commonly occurs in the elbows, shoulders, hocks and stifles.

- o Ununited Anconeal Process (UAP) In giant breeds such as Mastiffs the Anconeal Process can close later than in smaller breeds, often as late as one year of age or older.

Hip Dysplasia Hip dysplasia is a painful condition caused by abnormally formed hips. The animal may become lame in the hind quarters due to the pain associated with the degeneration of the hips.

Hypertrophic Osteodystrophy (HOD) A developmental disorder that manifests with toes turning in or out, roached toplines, pinched rears, and in advanced stages fever, lethargy, pain in joints, inability to stand or function. This is a problem of intake in calories versus output of energy too

Panosteitis (Pano or Wandering Lameness) – A developmental problem that affects the long bones during rapid growth periods typically between 6-16 months of age. The exact cause is unknown although genetics, diet, stress, infection, and metabolic or autoimmune problems have been

Spondylolysis – is a degenerative disease that causes excessive bone production of osteophytes along the spinal vertebrae which can cause lameness. In advanced cases the vertebrae can fuse together. In many cases there are no clinical symptoms, but the acute expression of the disease such

Wobblers Syndrome – Cervical Vertebral Instability (CVI) is caused by pressure and pinching of the cervical spinal cord and the nerves in the neck due to ligament problems and/or vertebrae malformation. The compression on the spinal cord in the neck may cause the Mastiff to stand and

MISCELLANEOUS OTHER PROBLEMS IN THE BREED

Allergies – Some Mastiffs have allergies to certain foods, pollens, etc. Allergies are due to autoimmune problems and since they often run in certain lines they are believed to be inherited.

Cancer Most forms of cancer have been diagnosed in some members of the breed. Cancer can be hereditary while others occur spontaneously or even due to environmental toxins. Although there are several forms of cancer found in Mastiffs, the most common types are: Osteosarcoma

Cystinuria An inherited metabolic disease caused by a defective kidney transporter for cystine and some other amino acids. Because cystine readily precipitates in acid urine, crystals and later calculi (stones) can form in the kidney and bladder. Cystinuria in Mastiffs primarily affects males

Epilepsy – A seizure disorder which can have multiple causes. The age of onset of the inherited form is normally around 6 months to 5 years of age. Epilepsy is often difficult to treat successfully in Mastiffs and other large breeds.

Gastric Dilation, Torsion, Volvulus (Bloat) Bloat is a hideous killer of giant breed animals, and Mastiffs are no exception. Without warning, the stomach fills with air (dilation), can twist 180 degrees (torsion) on its long axis, or more than 180 degrees (volvulus) thereby cutting off blood and

Heart Disease The most common heart problems in Mastiffs are cardiomyopathy, aortic stenosis and mitral valve dysplasia. Early detection and treatment are essential for a good prognosis. Some mastiffs have heart murmurs that are mild and not a cause for concern. If a heart murmur is

Hypothyroidism Hypothyroidism is the result of an abnormally functioning thyroid gland resulting in a lower than normal level of thyroid hormone. This lack of thyroid hormone can have serious health consequences including coat and skin problems, intolerance to cold, weight gain or

Reproductive Issues – There are several reproductive problems that can affect Mastiffs and it is encouraged that you research this area if you plan to breed. Some of the most common are pyometria (uterine infection), cryptorchidism (undescended testicles), failure to conceive, and vaginal

von Willebrand's Disease (vWD) An abnormal bleeding disorder due to a lack of normal clotting. An animal's life can be threatened by bleeding due to an injury, or during spaying/neutering or any other condition resulting in bleeding.