Troy

WISDOM PANEL™

Kit type: Essential

ID kit: EVBGSDW
Test date: 2026-02-21

Summary of health conditions

Key Findings

We detected 1 genetic condition in Troy's DNA.

1	0	29
At Risk	Carrier	Clear

Genetic Condition	Gene	Risk Variant	Copies	Inheritance	Result
Chondrodystrophy (CDDY) and Intervertebral Disc Disease (IVDD) Risk	FGF4 retrogene	Insertion	1	AD	**At Risk**

What this means for Troy

At Risk **Chondrodystrophy (CDDY) and Intervertebral Disc Disease (IVDD) Risk**

Troy has one copy of the Chondrodystrophy and Intervertebral Disc Disease Risk variant and is at an elevated risk for being diagnosed with this condition. Troy may show the first signs of this condition at birth. When compared to dogs without the variant, Troy's legs will likely be slightly shorter. Troy may also have early degeneration and calcification of her spinal discs which would predispose her to disc herniation (also known as having a "slipped" disc). The age for being diagnosed with disc herniation varies greatly, with averages ranging from 3 to 10 years. And, the risk for back surgery in dogs with one or two copies of this variant ranges from 5 to 15 times more likely. Although, additional considerations, like breed background and environmental factors, also impact overall risk level.

One of the initial signs of disc herniation includes back pain, which may appear as generalized stiffness, shivering or shaking, muscle spasms, hesitation to move, or vocalization when being touched. Other clinical signs include lameness, limb weakness, incoordination when walking, or the inability to walk. Some affected dogs may also show fecal or urinary incontinence. If signs are observed, Troy should be examined by a veterinarian as soon as possible to determine underlying cause and best course of treatment. Depending on severity, treatment may focus on medical intervention or surgical intervention, with both approaches including strict crate rest.

Please note this variant is a risk factor and some dogs with one, or even two, copies of this variant may not go on to show signs of disc disease. Additionally, not all dogs affected by IVDD have this variant, indicating additional genetic or environmental causes for disc disease.

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Health conditions tested

At-risk and carrier conditions (1)

Chondrodystrophy (CDDY) and Intervertebral Disc Disease (IVDD) Risk	Gene	Risk Variant	Copies	Inheritance	Result
	FGF4 retrogene	Insertion	1	AD	At Risk

What is it

Chondrodystrophy (CDDY) is a skeletal disorder characterized by shortened limbs and abnormal early degeneration of the spinal discs, or intervertebral disc disease (IVDD), which predisposes to disc herniation.

What it means

Troy has one copy of the Chondrodystrophy and Intervertebral Disc Disease Risk variant and is at an elevated risk for being diagnosed with this condition. Troy may show the first signs of this condition at birth. When compared to dogs without the variant, Troy's legs will likely be slightly shorter. Troy may also have early degeneration and calcification of her spinal discs which would predispose her to disc herniation (also known as having a “slipped” disc). The age for being diagnosed with disc herniation varies greatly, with averages ranging from 3 to 10 years. And, the risk for back surgery in dogs with one or two copies of this variant ranges from 5 to 15 times more likely. Although, additional considerations, like breed background and environmental factors, also impact overall risk level.

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Please note this variant is a risk factor and some dogs with one, or even two, copies of this variant may not go on to show signs of disc disease. Additionally, not all dogs affected by IVDD have this variant, indicating additional genetic or environmental causes for disc disease.

What to do

Here’s how to care for a dog with CDDY and IVDD risk

Partner with your veterinarian to make a plan regarding your dog’s well-being, including any insights provided through genetic testing. If your pet is at risk or is showing signs of this disorder, then the first step is to speak with your veterinarian.

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Other health conditions tested

Genetic Condition	Gene	Risk Variant	Copies	Inheritance	Result
Canine Leukocyte Adhesion Deficiency (CLAD), type III	FERMT3	Insertion	0	AR	Clear
Canine Scott Syndrome	ANO6	G>A	0	AR	Clear
Complement 3 Deficiency	C3	Deletion	0	AR	Clear
Factor VII Deficiency	F7	G>A	0	AR	Clear
Factor XI Deficiency	FXI	Insertion	0	AD	Clear
Glanzmann Thrombasthenia Type I (Discovered in Great Pyrenees)	ITGA2B	C>G	0	AR	Clear
Glanzmann Thrombasthenia Type I (Discovered in mixed breed dogs)	ITGA2B	C>T	0	AR	Clear
Hemophilia A (Discovered in Old English Sheepdog)	FVIII	C>T	0	XR	Clear
Hemophilia A (Discovered in the Boxer)	FVIII	C>G	0	XR	Clear
Hemophilia A (Discovered in the German Shepherd Dog - Variant 1)	FVIII	G>A	0	XR	Clear
Hemophilia A (Discovered in the German Shepherd Dog - Variant 2)	FVIII	G>A	0	XR	Clear
Hemophilia A (Discovered in the Havanese)	FVIII	Insertion	0	XR	Clear
Hemophilia B	FIX	G>A	0	XR	Clear
Hemophilia B (Discovered in the Airedale Terrier)	FIX	Insertion	0	XR	Clear
Hemophilia B (Discovered in the Lhasa Apso)	FIX	Deletion	0	XR	Clear
May-Hegglin Anomaly	MYH9	G>A	0	AD	Clear
MDR1 Medication Sensitivity	MDR1/ABCB1	Deletion	0	AD	Clear
P2RY12-associated Bleeding Disorder	P2RY12	Deletion	0	AR	Clear
Prekallikrein Deficiency	KLKB1	T>A	0	AR	Clear
Severe Combined Immunodeficiency (Discovered in Frisian Water Dogs)	RAG1	G>T	0	AR	Clear

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Severe Combined Immunodeficiency (Discovered in Russell Terriers)	PRKDC	G>T	0	AR	Clear
Trapped Neutrophil Syndrome	VPS13B	Deletion	0	AR	Clear
von Willebrand's Disease, type 1	VWF	G>A	0	AD	Clear
von Willebrand's Disease, type 2	VWF	T>G	0	AR	Clear
von Willebrand's Disease, type 3 (Discovered in the Kooiker Hound)	VWF	G>A	0	AR	Clear
von Willebrand's Disease, type 3 (Discovered in the Scottish Terrier)	VWF	Deletion	0	AR	Clear
von Willebrand's Disease, type 3 (Discovered in the Shetland Sheepdog)	VWF	Deletion	0	AR	Clear
X-Linked Severe Combined Immunodeficiency (Discovered in the Basset Hound)	IL2RG	Deletion	0	XR	Clear
X-Linked Severe Combined Immunodeficiency (Discovered in the Cardigan Welsh Corgi)	IL2RG	Insertion	0	XR	Clear

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Traits

Coat Color

	Gene	Variant	Copies	Result
Fawn	ASIP	a^y	0	No effect
Recessive Black	ASIP	a	0	No effect
Tan Points Two copies, or occasionally one copy, of this variant may result in a black and tan coat color pattern.	ASIP	a^t	2	Tan points possible
Dominant Black	CBD103	K^B	0	No effect
Mask	MC1R	E^m	0	No effect
Recessive Red (e1) To show a solid red coat, a dog must inherit two copies of a Recessive Red variant, one from each parent. This can either be two copies of a particular variant, such as this one (e1) or two of any combination of recessive red variants. Recessive red coats will appear white, cream, yellow or red, although there are other variants that can result in a similar appearance. The amount of red pigment in the coat, called the intensity, is governed by other genes.	MC1R	e^1	1	No effect
Recessive Red (e2)	MC1R	e^2	0	No effect
Recessive Red (e3)	MC1R	e^3	0	No effect
Sable (Discovered in the Cocker Spaniel)	MC1R	e^H	0	No effect
Widow's Peak (Discovered in Ancient dogs)	MC1R	e^A	0	No effect
Widow's Peak (Discovered in the Afghan Hound and Saluki)	MC1R	e^G	0	No effect

Color Modification

	Gene	Variant	Copies	Result
Cocoa (Discovered in the French Bulldog)	HPS3	co	0	No effect

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Color Modification

	Gene	Variant	Copies	Result
Red Intensity Dogs with two copies of the Red Intensity variant are more likely to show yellow, cream or white coat shades instead of deeper red shades. If the dog does not display solid red or red coat patterns, there will be no visible effect. Other genes, notably variants in the KITLG gene, are also thought to contribute to red pigment intensity variation, so some dogs may have yellow or buff colored coats.	MFSD12	i	1	No effect
Dilution (d1) Linkage test	MLPH	d^1	0	No effect
Dilution (d2)	MLPH	d^2	0	No effect
Dilution (d3)	MLPH	d^3	0	No effect
Chocolate (basd)	TYRP1	b^{asd}	0	No effect
Chocolate (bc)	TYRP1	b^c	0	No effect
Chocolate (bd)	TYRP1	b^d	0	No effect
Chocolate (be)	TYRP1	b^e	0	No effect
Chocolate (bh)	TYRP1	b^h	0	No effect
Chocolate (bs)	TYRP1	b^s	0	No effect

Coat Patterns

	Gene	Variant	Copies	Result
Piebald Dog with copies of the Piebald variant are likely to show white spotting, patches and/or a white coat, with two copies having a greater effect than one, although the strength of this effect may be influenced by other genes.	MITF	s^p	2	Particolor or white markings possible

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Coat Patterns

	Gene	Variant	Copies	Result
Merle Most dogs with one copy of the Merle variant will show Merle patterning. Most dogs with two copies will be mostly white, but in some cases will show Merle patterning. Some dogs with this variant will not show the Merle pattern. This is because the Merle variant can sometimes be shortened (known as cryptic or atypical Merle), and these forms do not have an effect on appearance.	PMEL	M	1	Merle possible
Harlequin	PSMB7	H	0	No effect
Saddle Tan	RALY	-	0	No effect
Roan Linkage Test	USH2A	TR^r	0	No effect

Coat Length and Curl

	Gene	Variant	Copies	Result
Long Hair (lh1) To show a long coat, a dog must inherit two copies of a Long Hair variant, one from each parent. This can either be two copies of a particular variant, such as this one (lh1) or two of any combination of long hair variants. However, there are other variants suspected to influence coat length.	FGF5	lh^1	2	Long coat
Long Hair (lh2)	FGF5	lh^2	0	No effect
Long Hair (lh3)	FGF5	lh^3	0	No effect
Long Hair (lh4)	FGF5	lh^4	0	No effect
Long Hair (lh5)	FGF5	lh^5	0	No effect
Curly Coat One copy of this variant is likely to give a soft curl or wave whereas two copies are likely to give a tighter curl. A curly coat is less apparent in dogs with short hair than those with long. There is one other known Curl variant, and likely other unknown variants that exist.	KRT71	C	2	Curly coat likely

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Hairlessness

	Gene	Variant	Copies	Result
Hairlessness (Discovered in the Chinese Crested Dog) Linkage test	FOXI3	Hr^{cc}	0	No effect
Hairlessness (Discovered in the American Hairless Terrier)	SGK3	hr^{aht}	0	No effect
Hairlessness (Discovered in the Scottish Deerhound)	SKG3	hr^{sd}	0	No effect

Shedding

	Gene	Variant	Copies	Result
Reduced Shedding One or two copies of the Reduced Shedding variant is likely to reduce a dog's tendency to shed. Copies of the Furnishings variant, particularly two, also reduce the tendency of a dog to shed.	MC5R	sd	1	Occasional shedder

More Coat Traits

	Gene	Variant	Copies	Result
Hair Ridge	FGF3, FGF4, FGF19, ORAOV1	R	0	No effect
Furnishings Dogs with one or two copies of the Furnishing variant are likely to display a fuzzy beard, moustache and eyebrows, but a long or curly coat will make this variant less apparent.	RSPO2	F	1	Furnishings likely
Albino	SLC45A2	c^{al}	0	No effect

Head Shape

	Gene	Variant	Copies	Result
Short Snout (BMP3 variant)	BMP3	-	0	No effect
Short Snout (SMOC2 variant)	SMOC2	-	0	No effect

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Eye Color

	Gene	Variant	Copies	Result
Blue Eyes (Discovered in the Siberian Husky)	ALX4	-	0	No effect

Ears

	Gene	Variant	Copies	Result
Floppy Ears	MSRB3	-	0	Pricked ears more likely

Extra Toes

	Gene	Variant	Copies	Result
Hind Dewclaws (Discovered in Asian breeds)	LMBR1	DC-1	0	No effect
Hind Dewclaws (Discovered in Western breeds) One or two copies of this Hind Dewclaws variant may result in your dog having hind dewclaws. Around half of the dogs with one copy of this variant will have hind dewclaws, and it is possible for the dewclaws to be just on one leg. With two copies the trait is more likely to be expressed and could be more pronounced.	LMBR1	DC-2	1	Hind dewclaws possible

More Body Features

	Gene	Variant	Copies	Result
Back Muscle and Bulk	ACSL4	-	0	No effect
High Altitude Adaptation	EPAS1	-	0	No effect
Short Legs (Chondrodysplasia, CDPA) Dogs with one copy of the Short Legs (CDPA) variant typically have some shortening of their legs, whereas with two copies there is more obvious shortening.	FGF4	-	1	Slightly shortened legs likely

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More Body Features

	Gene	Variant	Copies	Result
Short Legs (Chondrodystrophy, CDDY) Dogs with one copy of the Short Legs (CDDY) variant typically have some shortening of their legs, whereas dogs with two copies can have more obvious shortening. Dogs that inherit both variants associated with short legs (CDDY and CDPA) tend to show a more drastic reduction in leg length.	FGF4	-	1	Slightly shortened legs likely
Short Tail	T-box	T	0	Full tail length likely

Glossary of genetic terms

Test result definitions

At Risk: Based on the disorder's mode of inheritance, the dog inherited a number of genetic variant(s) which increases the dog's risk of being diagnosed with the associated disorder.

Carrier: The dog inherited one copy of a genetic variant when two copies are usually necessary to increase the dog's risk of being diagnosed with the associated disorder. While carriers are usually not at risk of clinical expression of the disorder, carriers of some complex variants may be associated with a low risk of developing the disorder.

Clear: The dog did not inherit the genetic variant(s) associated with the disorder and will not be at elevated risk of being diagnosed with the disorder due to this genotype. However, similar clinical signs could develop from different genetic or clinical causes.

Inconclusive: An inconclusive result indicates a confident call could not be made based on the data for that genetic variant. Health testing is performed in replicates, and on occasion the outcomes do not agree. This may occur due to an unusual sequence of DNA in the region tested, multiple cell genotypes present due to chimerism or acquired mutations, or due to quality of the DNA sample.

Inheritance mode definitions

Autosomal Recessive (AR): For autosomal recessive disorders, dogs with two copies of the genetic variant are at risk of developing the associated disorder. Dogs with one copy of the variant are considered carriers and are usually not at risk of developing the disorder. However, carriers of some complex variants grouped in this category may be associated with a low risk of developing the disorder. Dogs with one or two copies may pass the disorder-associated variant to their puppies if bred.

Autosomal Dominant (AD): For autosomal dominant disorders, dogs with one or two copies of the genetic variant are at risk of developing the associated disorder. Inheriting two copies of the variant may increase the risk of development of the disorder or cause the condition to be more severe. These dogs may pass the disorder-associated variant to their puppies if bred.

X-linked Recessive (XR): For X-linked recessive disorders, the genetic variant is found on the X chromosome. Female dogs must inherit two copies of the variant to be at risk of developing the condition, whereas male dogs only need one copy to be at risk. Males and females with any copies of the variant may pass the disorder-associated variant to their puppies if bred.

X-linked Dominant (XD): For X-linked dominant disorders, the genetic variant is found on the X chromosome. Both male and female dogs with one copy of the variant are at risk of developing the disorder. Females inheriting two copies of the variant may be at higher risk or show a more severe form of the disorder than with one copy. Males and females with any copies of the variant may pass the disorder-associated variant to their puppies if bred.

Mitochondrial (MT): Unlike the two copies of genomic DNA held in the nucleus, there are thousands of mitochondria in each cell of the body, and each holds its own mitochondrial DNA (mtDNA). Mitochondria are called the "powerhouses" of the cell. For a dog to be at risk for a mitochondrial disorder, it must inherit a certain ratio of mtDNA with the associated variant compared to normal mtDNA. mtDNA is inherited only from the mother.