

HEALTH & CONFORMATION POLICY: SIBERIAN

INTRODUCTION

The Siberian is a landrace variety or 'natural breed' of the domestic cat and has been developed as a formal breed only since the late 1980s. It is a medium to medium-large cat.

In Russia, the Siberian's country of origin, each cat club has developed its own standard which has caused much confusion as the cats appear to be very different depending on which part of Russia they have come from.

Siberians are very agile jumpers and they are a strong and powerfully built cat. They have three layers of fur, guard hairs, awn hairs, and down, thus their coat is waterproof and warm. They may become sexually mature at a young age, as early as 5 months, but are not full grown until they are 4 or 5 years old.

They are a healthy cat with few known breed-specific illnesses although HCM is known to occur in the breed.

The Siberian cat has been developed from a wide gene pool but access to new breeding stock can be limited.

The NZCF has no permitted outcross for this breed.

This policy was approved February 2020, taking effect on 11 March 2020.

HEALTH

ERYTHROCYTE PYRUVATE KINASE DEFICIENCY

SITUATION

- Genetics known or mode of inheritance accepted.
- Rare or only seen in a specific country / group / line.
- DNA test available.

DETAILS

Erythrocyte pyruvate kinase deficiency (PK deficiency or PK-def) is an autosomal recessive inherited haemolytic anaemia that has been identified in a number of cat breeds and in random-bred domestic cats. It has high variability in age of onset and in severity of clinical symptoms.¹ Pyruvate kinase is an enzyme which is important for red blood cells and a deficiency or absence of it can cause anaemia which may range from mild and intermittent to severe and life-threatening.² A DNA test is available.

NZCF TESTING REQUIREMENTS

- DNA testing.
- Recommended (where there is reason to suspect the disease is present).
- Identity breeder certified.

Breeding cats that develop symptoms of anaemia, or whose offspring develop symptoms of anaemia must be DNA tested. Cats with two copies of the gene must not be bred from. Cats who are carriers (have one copy of the gene) can only be bred to cats that have been DNA tested and are clear of the gene. Breeders should aim over time to replace carriers with progeny who are clear of the gene.

HYPERTROPHIC CARDIOMYOPATHY

SITUATION

- Genetics known or mode of inheritance accepted.
- Recognised or acknowledged within the breed.
- Testing (non-DNA) is available and generally accepted.
- International testing programme (PawPeds).³

DETAILS

Hypertrophic cardiomyopathy (HCM) is a hereditary disease caused by a defect in an autosomal dominant gene that affects many species including man. It is the most common heart disease in cats including non-pedigrees and does occur in Siberians.⁴

The disease shows a highly variable clinical course; in severe cases death from heart failure can occur but some cats with mild HCM never show clinical disease and have a normal life span.

Unfortunately no commercial DNA test is yet available for HCM in the Siberian. Where HCM is suspected in a line the screening of breeding cats by cardiac ultrasound is recommended with affected cats being removed from the breeding program.

NZCF TESTING REQUIREMENTS

- Cardiac ultrasound screening.
- Recommended (where there is reason to suspect the disease is present).
- Identity vet certified.

Breeding cats must be screened if they show signs of cardiac disease or if offspring are diagnosed with or die from confirmed HCM. Screening must be done by a suitably qualified or experienced vet. Cats diagnosed with HCM must not be bred from.

POLYCYSTIC KIDNEY DISEASE

SITUATION

- Genetics known or mode of inheritance accepted.
- Rare or only seen in a specific country / group / line.
- Testing (DNA and non-DNA) is available and generally accepted.

DETAILS

Polycystic kidney disease (PKD) is a well-documented abnormality in domestic cats⁵ in which small, closed, liquid-filled cysts develop in the tissue of the kidney. The cysts tend to increase in number and in size as the cat ages, eventually leading to kidney failure. There is an autosomal dominant inherited form of the disorder which has been identified in Persians and related breeds. As the number of cysts and the progression of the disease varies from cat to cat, affected breeding cats may live a normal lifespan while passing the disease onto their off-spring which in turn may have a faster and more serious disease progression. Siberian cats have been diagnosed with PKD.^{6,7}

The gene responsible for PKD in the Persian breed has been identified and a DNA test has been developed for it. Evidence exists that this mutation is present in some Siberian cats which have been diagnosed with PKD but other Siberian cats with PKD test clear of the Persian mutation.⁷ Where there are lines with known Persian ancestors it may be useful to DNA test for this mutation. Otherwise ultrasound provides a definitive diagnosis and testing may identify cysts in cats as young as 6 months.⁸

NZCF TESTING REQUIREMENTS

- DNA testing and ultrasound scanning.
- Recommended (where there is reason to suspect the disease is present).
- Identity breeder certified.

Breeding cats must be scanned and DNA tested if they develop symptoms of kidney disease before the age of 7 years or if an offspring is diagnosed with confirmed PKD. Cats diagnosed with non-Persian PKD must not be bred from. Cats diagnosed with Persian PKD (i.e., positive on a DNA test) may have up to two further litters and all progeny must be tested for Persian PKD. Clear cats kept for breeding must then also be tested for non-Persian PKD. Full disclosure of test results must be made to any potential new owner regardless of whether the cat or kitten is a pet or for breeding.

CONFORMATION

ISSUE

None identified.

SOURCES & REFERENCES

SOURCES

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6. Journal of Small Animal Practice, Vol 55, July 2014, Polycystic kidney disease in a Neva Masquerade cat, accessed 25 Oct 2016, <http://onlinelibrary.wiley.com>
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8. Cornell Feline Health Center, Polycystic Kidney Disease, accessed 25 Oct 2016, www.vet.cornell.edu

NOTES ON THE POLICY

KEY

SITUATION

UNDERSTANDING

- Genetics known or mode of inheritance accepted.
- Strongly suspected as inherited.
- Possibly inherited or data is not strong or clearly defined.

FREQUENCY

- Recognised or acknowledged within the breed.
- Rare or only seen in a specific country / group / line.
- Managed condition (testing programme in place).

TESTS

- DNA test available.
- Testing (non-DNA) is available and generally accepted.
- No tests available or the costs are prohibitive.

TESTING PROGRAMMES

- International testing programme.
- NZCF testing programme or registration requirement.

NZCF TESTING REQUIREMENTS

COMPLIANCE

- Mandatory (Two Parents Rule).
- Mandatory (One Parent Rule).
- Highly recommended.
- Recommended (where there is reason to suspect the disease is present).
- Voluntary.
- No testing required.

IDENTITY

- Identity vet certified.
- Identity breeder certified.

NZCF TESTING REQUIREMENT OPTIONS

VOLUNTARY DNA TESTING

- **Voluntary**
NZCF breeders are not required to do this test to register kittens.
- **Breeder Certified**
The identity of the cat tested can be certified by the breeder.
- **Microchip Not Required**
It is not required that cats are microchipped for breeder certified tests.
- **NZCF Recording Available**
Breeders are welcome to submit results to the NZCF for adding to the cat's records.
- **Review**
Policies of voluntary testing may have a review date set for consideration of an upgrade to mandatory testing.

MANDATORY DNA TESTING - ONE PARENT RULE

- **Mandatory**
Breeders must do this test for their kittens to be registered in the NZCF.
- **Breeder Certified**
Individual testing programmes will specify whether the identity of the cat tested may be certified by the breeder, **or** must be

Vet Certified (Microchip Required)
Where the test sample must be taken by the vet who will certify the identity of the cat by microchip.
- **NZCF Recording Required**
Breeders submit results to the NZCF for adding to the cat's records.
- **Breeding Requirements**
To register kittens with the NZCF, one parent must either have clear DNA test results recorded with the NZCF, or be 'clear by parentage' where ancestor DNA results are recorded with the NZCF.
- **Review**
Policies of mandatory DNA testing (one parent rule) must have a review date set for consideration of an upgrade to mandatory testing (both parents rule).

MANDATORY DNA TESTING - BOTH PARENTS RULE

- **Mandatory**

Breeders must do this test for their kittens to be registered in the NZCF.

- **Breeder Certified**

Individual testing programmes will specify whether the identity of the cat tested may be certified by the breeder, **or** must be

Vet Certified (Microchip Required)

Where the test sample must be taken by the vet who will certify the identity of the cat by microchip.

- **NZCF Recording Required**

Breeders submit results to the NZCF for adding to the cat's records.

- **Breeding Requirements**

To register kittens with the NZCF, both parents must either have clear DNA test results recorded with the NZCF, or be 'clear by parentage' where ancestor DNA results are recorded with the NZCF.

- **Review**

Policies of mandatory DNA testing (both parents rule) breeder certified must have a review date set for consideration of an upgrade to mandatory testing (both parents rule) vet certified.

TYPES OF TESTING

DNA TESTING

DNA testing **is a one-off test** - either the harmful gene is present or not.

If the gene is a recessive gene then breeding with heterozygous carriers (one harmful gene, one normal gene) to clear partners is acceptable in the medium term as by doing this no affected cats will be born. However, to clear the harmful gene from the entire breeding population eventually only those cats testing homozygous clear (two normal genes) should be retained for breeding.

HEART SCANNING FOR HCM

In breeds where there is no genetic test for an HCM causing mutation or the test does not identify all cats who will develop HCM (because there's at least one more gene in the gene pool of that breed that causes it), the only means of reducing the likelihood of breeding with affected animals is cardiac ultrasound, preferably done by a specialist cardiologist vet or a radiology specialist vet.

Because HCM can be a slow developing condition **it requires testing at intervals during the cat's life** (for example, every 2 years). For meaningful results, cats should be screened until age 7 which should catch late onset examples of the disease. Although there are documented examples of cats developing HCM later than this the aim is over time to develop a breeding population all of whose recent ancestors have scanned clear to 7, whereupon the likelihood of HCM then becomes much lower.