Interpretation of the results

How to read the scientific report ?

In genetic, results are always expressed in the following way :

***+ / +** If the animal is "normal" thus carrier of the normal shape of the gene, we say that it carries two copies of the "normal" allèle, he is thus " wild homozygote" (Generally, we say that its screening is negative because absence of the moved allèle),*

***+ / -** If the animal is carrier of a normal allèle (or "savage" or "+") and of an affected allèle "-"; it is said heterozygote (we say that the screening is positive because presence of the affected allèle)*

***- / -** If the animal is carrier of two affected allèles "-" or forms moved by a gene, is said moved homozygote (affected)*

As for the HCM, the shape -"/-" represents the severe and premature shape of the disease causing the death of the cat for the period from 1 to 3 years.

The board below has not only for objective to illustrate our comments but also to inform you about the consequences of the use of a carrier cat for the reproduction.

			Father					
			Not carrier		Carrier		Affected	
			+	+	+	-	-	-
Mother	Not carrier	+	+/+ Not carrier	+/+ Not carrier	+/+ Not carrier	+/- Carrier	+/- Carrier	+/- Carrier
		+	+/+ Not carrier	+/+ Not carrier	+/+ Not carrier	+/- Carrier	+/- Carrier	+/- Carrier
	Carrier	+	+/+ Not carrier	+/+ Not carrier	+/+ Not carrier	+/- Carrier	+/- Carrier	+/- Carrier
		-	+/- Carrier	+/- Carrier	+/- Carrier	-/- Affected	-/- Affected	-/- Affected
	Affected	-	+/- Carrier	+/- Carrier	+/- Carrier	-/- Affected	-/- Affected	-/- Affected
		-	+/- Carrier	+/- Carrier	+/- Carrier	-/- Affected	-/- Affected	-/- Affected

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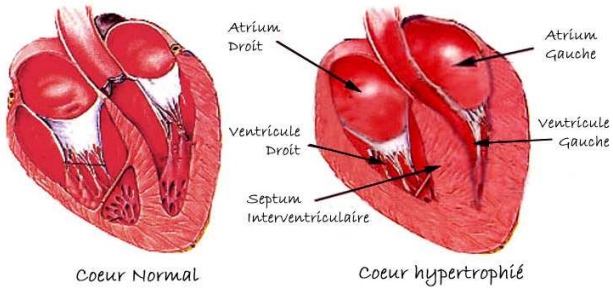
Genindexe
La génétique à votre service

Hypertrophic Cardiomiopathy

HCM screening

Hypertrophic Cardiomiopathy for cats or *HCM, usually called « CMH » for « hypertrophic cardiomiopathy » is a genetic disease presents at various feline races (Main Coon, Persan, blue British, Chartreux, Himalayen, Siamois, Burmese, Ragdoll). This affection is translated by a progressive thickening of the cardiac muscular tissue.*



Detection : *The forerunners of the disease are :* ***cardiac respiratory breath, higher cardiac frequency, difficulties.*** *In a certain number of cases, the death of the cat arises brutally while the disease has not been detected. The clinical signs of the HCM are an intolerance in the exercise, a more tired attitude and difficulties to breath.*

A hereditary transmission was revealing to Maine Coon, Persian where we find whole families affected by HCM. To Maine Coon, the transmission is autosomale dominant, in total insertion, contrary to the other races as the Persian for whom the insertion is rather weak. This means that the risk to declare the disease is more important on Main Coon race.

Diagnosis : *Diagnostic of this disease is realized by a veterinarian practising an auscultation associated with more specific examinations such as echocardiography, electrocardiography and radiography. In case of clinical suspicion of a cardiac affection, the echocardiography is an examination giving a precise diagnosis onto the nature of the disease. The limits of the echocardiography are in the difficulty of the acquisition and the interpretation of the images and in the lack of cooperation of the cat.*

Genetic Screening : *At the genetic level, transfer within the gene MYBPC3 was recently discovered on a colony of Maine Coon in the United States by the teams of Dr Kathryn Meurs (State university of Washington) and of Dr Mark Kittleson (University of Davis). The cats which possess the transfer to the heterozygous state (an affected gene) declare on average a light and late shape of cardiomyopathy. On the other hand, the cats which possess the transfer to the homozygous state (two affected copies by the gene) declare generally a more severe and more premature shape of cardiomyopathy (these homozygous cats can die between 1 and 3 years).*

Concretely, this means that a carrier cat in screening will decelopp the HCM at a moment of his life. If he's ***heterozygote****, he will ipass on it to the half of his descent. If he's* ***homozygote HCM****, he will necessary pass on on all his descent (Cf. plan on the back).*

Limits of the genetic screening :

- It does not say at which age and with which gravity the cat will develop the pathology. It is of for polygenic interactions, which were not all identified. The only one identified this day depends on the sex : males present the clinical younger signs of the pathology and express generally a more severe shape of the disease.
- It does not look for the other transfer while there is at least another genetic shape of hypertrophic cardiomiopathy because certain Maine Coon, diagnosed affected by veterinarians specialized in cardiology, do not present this transfer of the gene MYBPC3.

In brief, the screening is going to eliminate the main cause of hereditary HCM to Maine Coon, that is to determine if the cat activated or will activate a HCM before the disease is visible by echocardiography. On the other hand the screening HCM cannot eliminate all the possible causes of hereditary HCM. It does not guarantee that the cat will not develop a HCM due to another transfer.