

HONDEN : SELECTIEF FOKKEN VORMING DIERENWELZIJN ERKENDE INSTELLINGEN

Lesnota's voorbereid door Johann DETILLEUX

26 SEPTEMBER 2024 (4U30)





PROGRAMMA 2024:

Donderdag 19/09/2024: Algemeen deel voor iedereen (4u30)

Donderdag 26/09 : Selectief fokken van de honden (9u-13u30)

Woensdag 23/10 : Selectief fokken van de katten (13u-17u30)

Donderdag 14/11: Het houden van reptielen (9u-13u30)



PLAN

Selectief kweken

- Prestaties
- Ras Standaard
- Studbook

Kunstmatige selectie

- Reactie op selectie
- De fokkerij vergelijking
- Selectie van fokdieren

Inteelt

- Coëfficiënten
- Voordelen
- Risico's

Erfelijke gebreken

- Overervingswijzen

Hypertypen

Discussie



Selectief kweken is een fokmethode die wordt gebruikt in de fokkerij om de prestaties te verbeteren

DEFINITIE

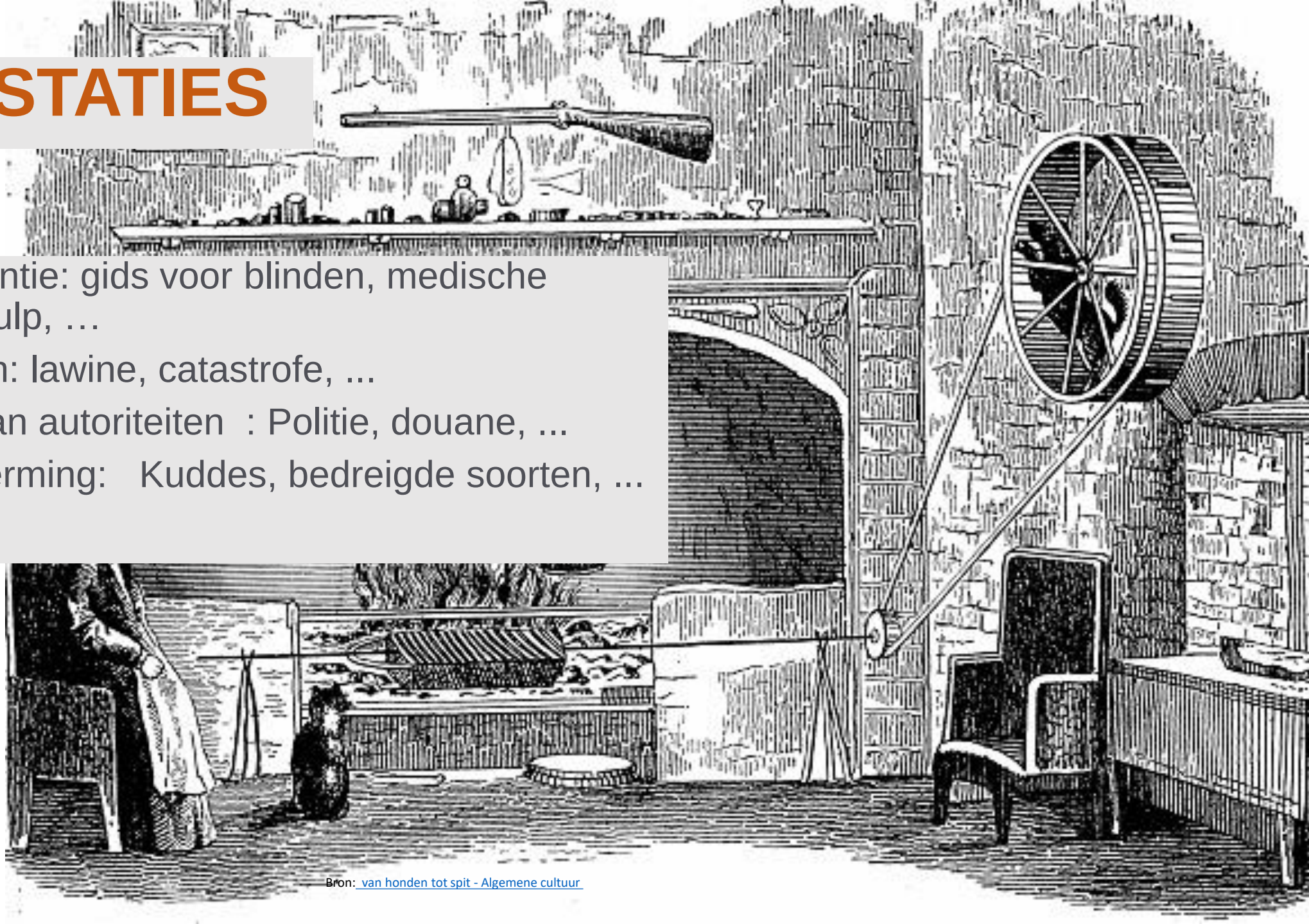


Bron: [Top 6 van de mooiste hondenrassen](#)



PRESTATIES

- Assistentie: gids voor blinden, medische alarmhulp, ...
- Redden: lawine, catastrofe, ...
- Hulp aan autoriteiten : Politie, douane, ...
- Bescherming: Kuddes, bedreigde soorten, ...
- ...

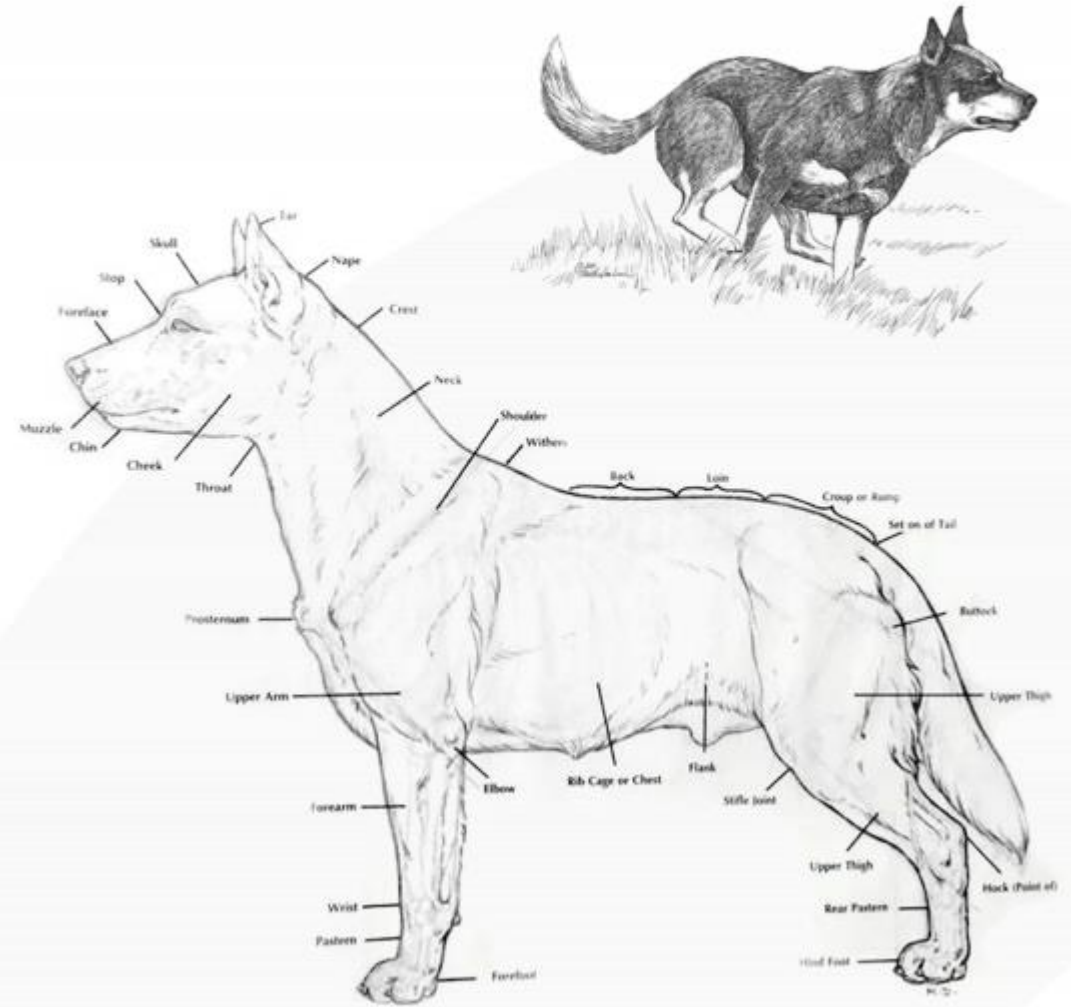




RAS STANDDAARD

BREEDING BUSINESS

THE AUSTRALIAN CATTLE DOG STANDARD



Source : [How To Breed Australian Cattle Dogs – Health, Origin & Breeding Practices](#)



STUD-BOOK PEDIGREE

AMERICAN KENNEL CLUB · FOUNDED 1884

Certified Pedigree

Sire BANCHEE'S RARE AIR
SN95081908 (02-08) BLK

Dam GUM COVE ALLIE GATOR
SR13933402 (02-08) BLK

BAILWICKS JESSICA
SR46030502
LABRADOR RETRIEVER FEMALE BLK
Date Whelped: 06/10/2007
Breeder: FRANCIS ROBERTS/JASON GOODSON

FC AFC HAMMERIN' HAWK
SF160886 (09-91) OFA32E BLK AKC DNA
PV65376

PRISSY LISSIE
SM52420504 (04-96) OFA78G BLK

ATCHAFALAYA EXPRESS JET
SN3272106 (10-99) BLK AKC DNA
PV316142

ATCHAFALAYAEXPRESSEB'SANGEL
SN1081904 (11-01) YLW

AFC WESTWINDS PEDRO
SC895966 (02-82) OFA26 BLK

AFC ITCHIN' GRETCHIN
SD171196 (06-86) OFA24 BLK

AFC DOUBLE BARREL LEGAL TENDER
SF592307 (04-82) OFA27E BLK

DOUBLE BARREL CINCH
SM5158401 (04-92) BLK

AFC HAWKEYE'S B R BUDDY
SC257152 (10-82) OFA25G YLW AKC DNA
PV75276

CANDLEWOODS NOTA PENNY MORE
SF979955 (07-82) OFA25G BLK

DOGWOOD'S DOUNTOOTERS MH
SN09251904 (07-95) OFA25E YLW AKC DNA
PV108168

DOGWOOD'S DO IT TO IT MH
SN23259705 (04-99) BLK

MFC AFC SAN JOAQUIN MONCHO
SD396026 (06-73) OFA23 BLK

BIG DADDY SUPER KATE
SD074703 (03-76) OFA32 BLK

FC AFC ITCHIN' TO GO
SD075946 (12-76) OFA34 BLK

CLIP A BOOP
SD060696 (06-76) OFA23 BLK

FC AFC THE MARATHON MAN
SD062880 (05-81) OFA23 YLW

TARNATION'S HAPPY GUSTO
SD071986 (05-87) OFA49 BLK

FC AFC WOODS CLINCHER
SD060626 (06-81) BLK

BLU HERBIBON GYPSY
SD161640 (02-87) OFA24 BLK

FC AFC CANDLEWOODS M D HOUSTON
SD140309 (06-85) OFA24G YLW

FC CANDLEWOODS WILDERNESS BROOKIE MH
SD073183 (05-89) OFA24G BLK

FC AFC TRUMAC'S ZIPARDO
SF434351 (08-89) OFA24G BLK

MFC FC AFC CANDLEWOODS TANKS A LOT
SF252290 (07-90) OFA27G BLK

FC AFC WILDERNESS HARLEY TO GO
SD0606768 (09-84) OFA25G BLK

TROUBLESOME CASSIE SH
SM76751003 (10-83) OFA34G BLK

FC AFC RIPARIAN ROUGH RIDER
SF150065 (07-92) OFA38E YLW

FC AFC HILLOCK'S SPICE
SD1719643 (09-92) OFA28E BLK

 **AMERICAN KENNEL CLUB®**

June L. Barclay
Executive Secretary

The Seal of The American Kennel Club affixed hereto certifies that this pedigree was compiled from official Stud Book records on January 7, 2011.

PARC DU CINQUANTENAIRE

SOCIÉTÉ ROYALE SAINT-HUBERT

NEUVIÈME EXPOSITION INTERNATIONALE

DE

CHIENS

ORGANISÉE
A BRUXELLES

Les samedi 16, dimanche 17, lundi 18
et mardi 19 mai 1891

CATALOGUE

Prix : 1 Franc



Prix : 1 Franc

BRUXELLES
IMPRIMERIE VANBUGGENHOUDT
42, rue d'Isabelle, 42



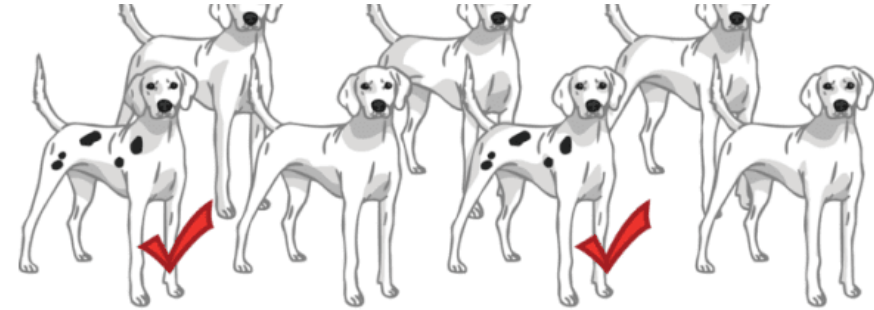
~ 500 RASSEN



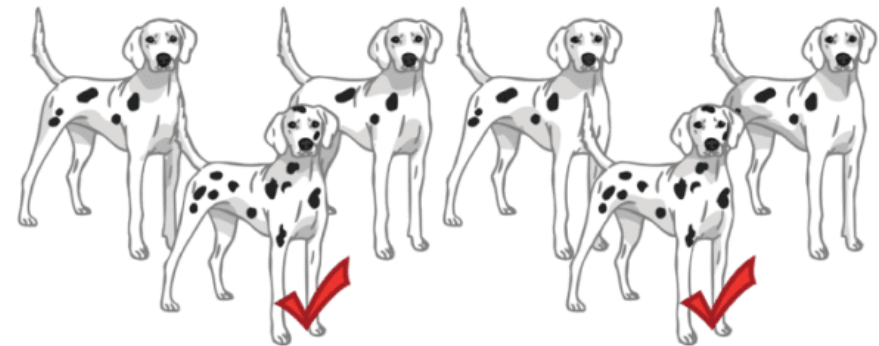
Source: Dog Breeding (biointeractive.org)



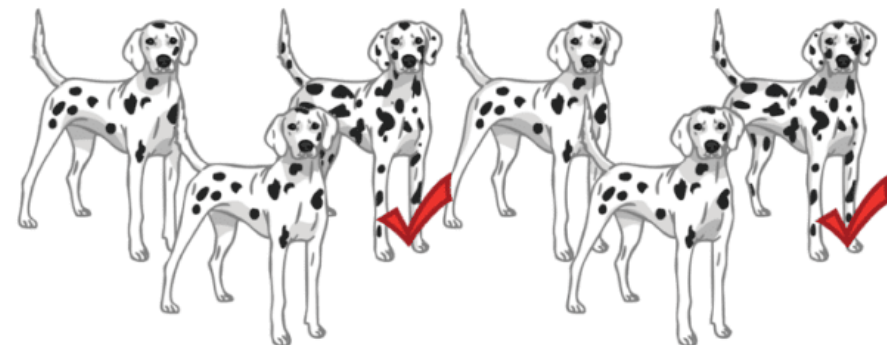
KUNSTMATIGE SELECTIE



2nd Generation

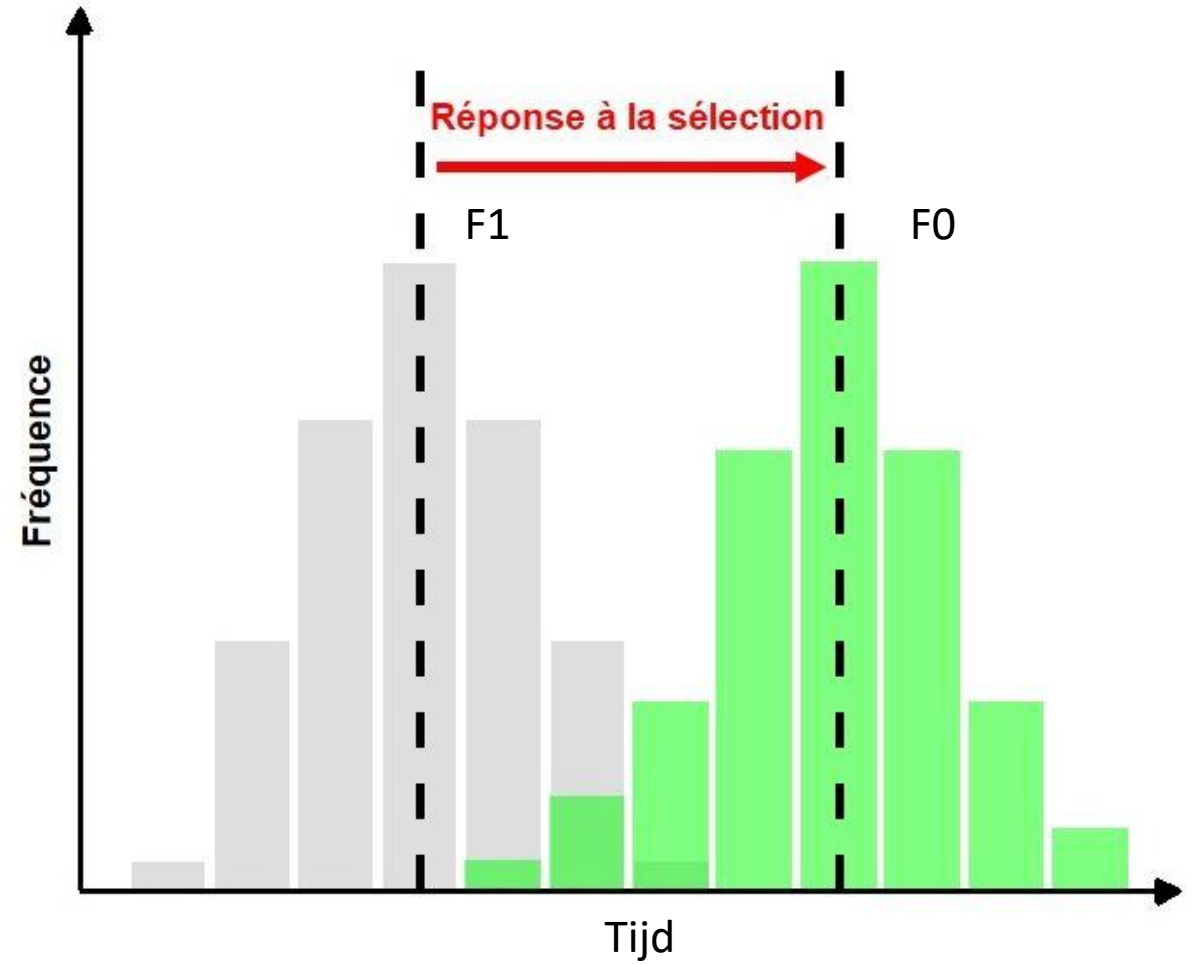


3rd Generation





REACTIE OP SELECTIE



Bronnen:

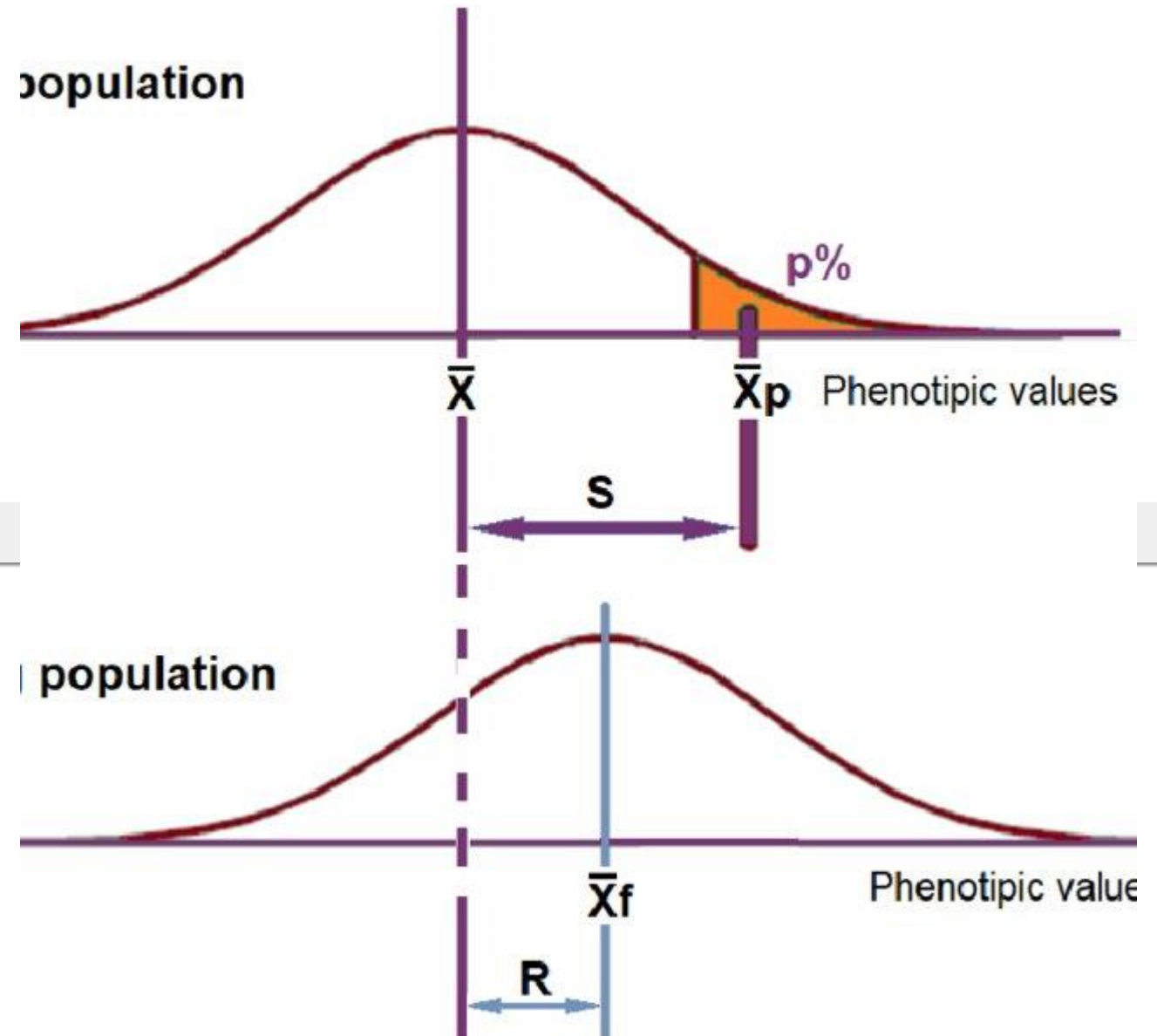
[De officiële website van de Commissie CCS Cavage \(leavageenfrance.com\)](http://leavageenfrance.com)

4. De reactie op selectie – evolutionaire Ecophysiologie (etsmtl.ca)



$$R = h^2 S$$

DE FOKKERIJ VERGELIJKING





$$H^2 = \frac{V_G}{V_P} = \frac{V_G}{V_G + V_E}$$

$$P = G + E$$

$$V_P = V_G + V_E$$

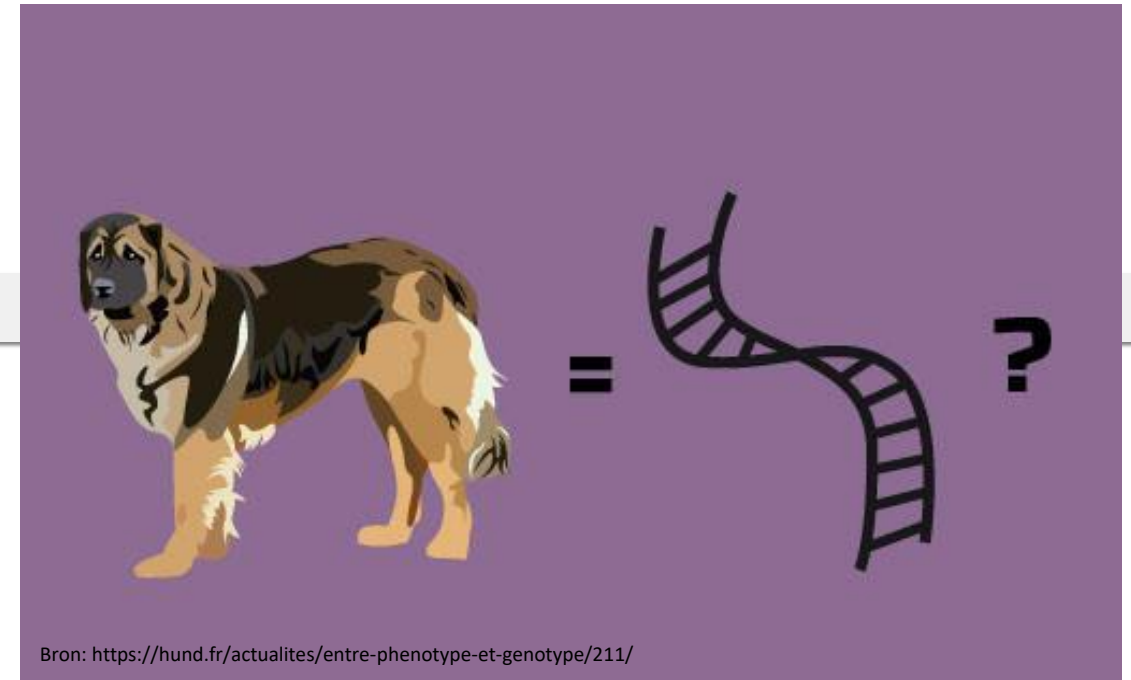
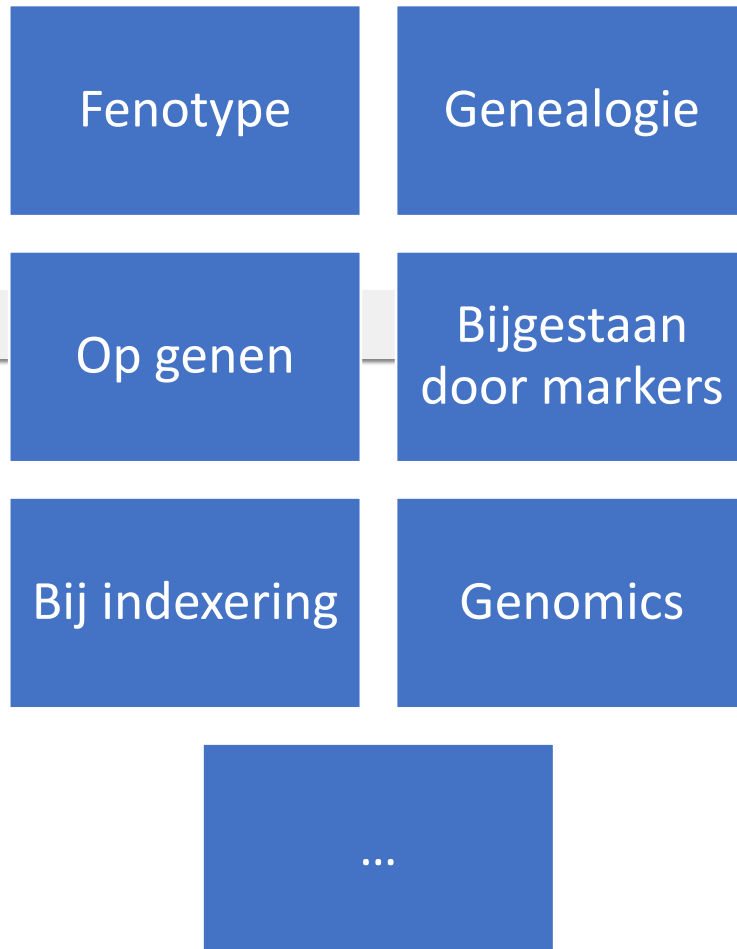
phenotypic
variance

genetic
variance

environmental
variance



SELECTIE VAN FOKDIEREN





TRANSFORMATIES

Source : [Incredible Then and Now Pictures That Show What Popular Dog Breeds Looked Like Before And After 100 Years of Breeding ~ Vintage Everyday](#)





VRAGEN

Wanneer $H_2 = 0$?

Wanneer $H_2 = 1$?

Wanneer is $S = 0$?

Wanneer is $R = 0$?

Niet-erfelijke niet-erfelijke prestaties?

Niet-erfelijke erfelijke prestaties?

Niet-erfelijke erfelijke prestaties?

$$z = 20\%$$

$$\bar{X} = 20 \text{ sec}$$

$$\bar{X}_p = 10 \text{ sec}$$

$$R = ?$$

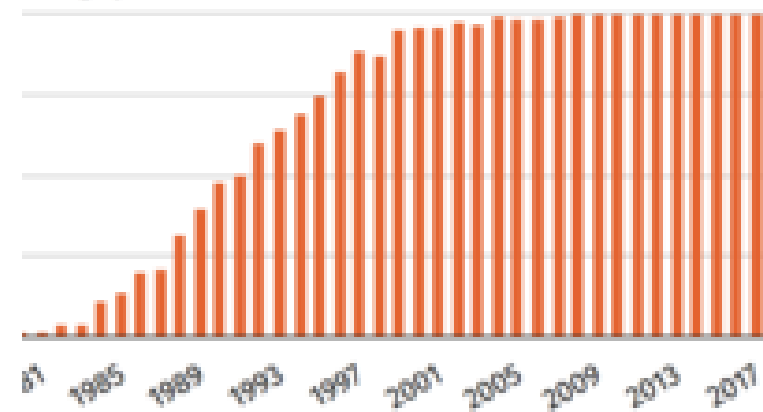
$$\bar{X}_f = ??$$

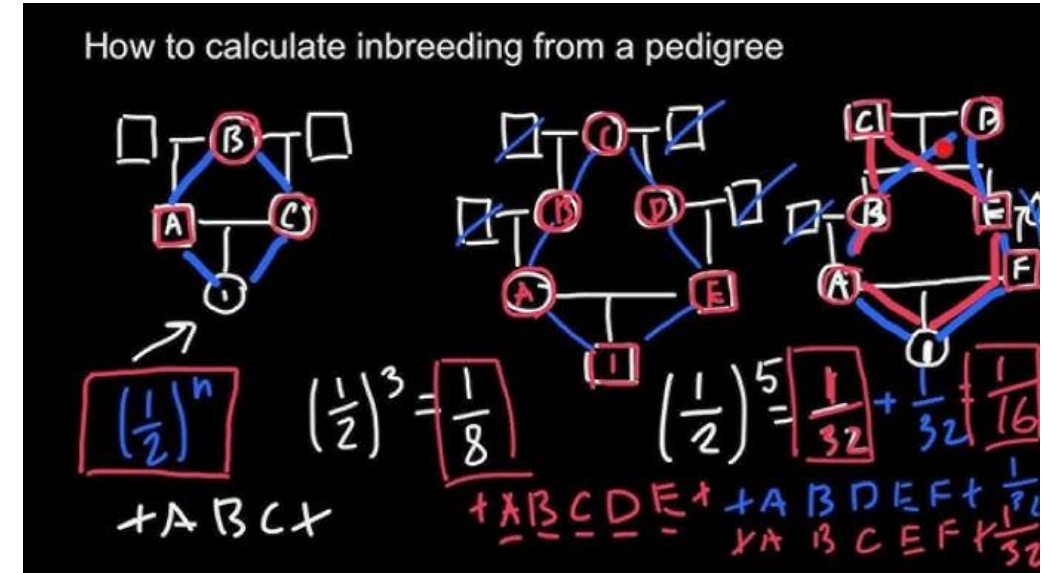


INTEELT

Source : [The popular sire syndrome - IWDB Infosite](#)

Int of dogs born every year related to scrag Lysander





INTEELT COËFFICIËNTEN

Bronnen:

<https://khalibisnya.com/la-consanguinite-du-chien-de-race/>

[How to calculate inbreeding from a pedigree chart](#)

[\[PDF\] Runs of homozygosity for autozygosity estimation and genomic analysis in production animals | Semantic Scholar](#)

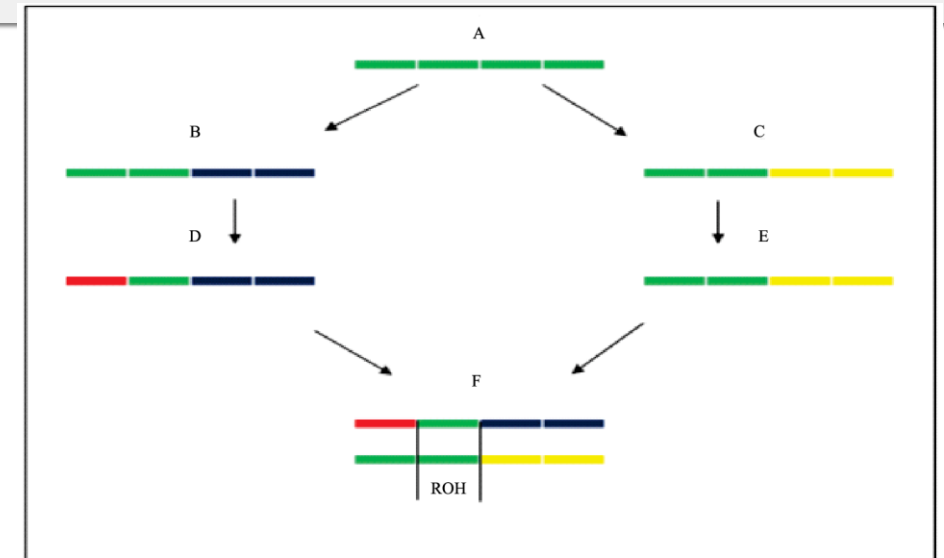


Figure 1 Representation of the formation of Runs of Homozygosity (ROH). Individual Represents a ROH (Green) Formed

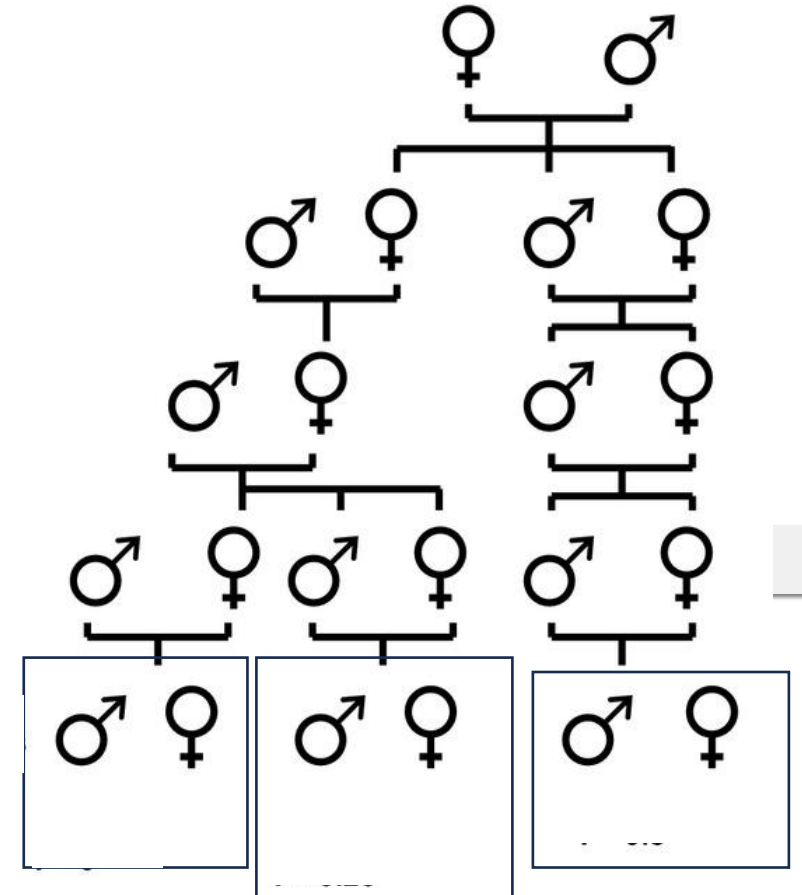


VRAGEN

Hoe varieert inteelt in de loop der tijd?

Kan de inteelt van honden nul zijn?

Hoeveel honden zijn er in een stamboom van 5



Wie zijn de minst/meest inteelt?



- Uniformiteit
- Prepotentie – 'breedtrue'
- Fixatie van het gewenste fenotype



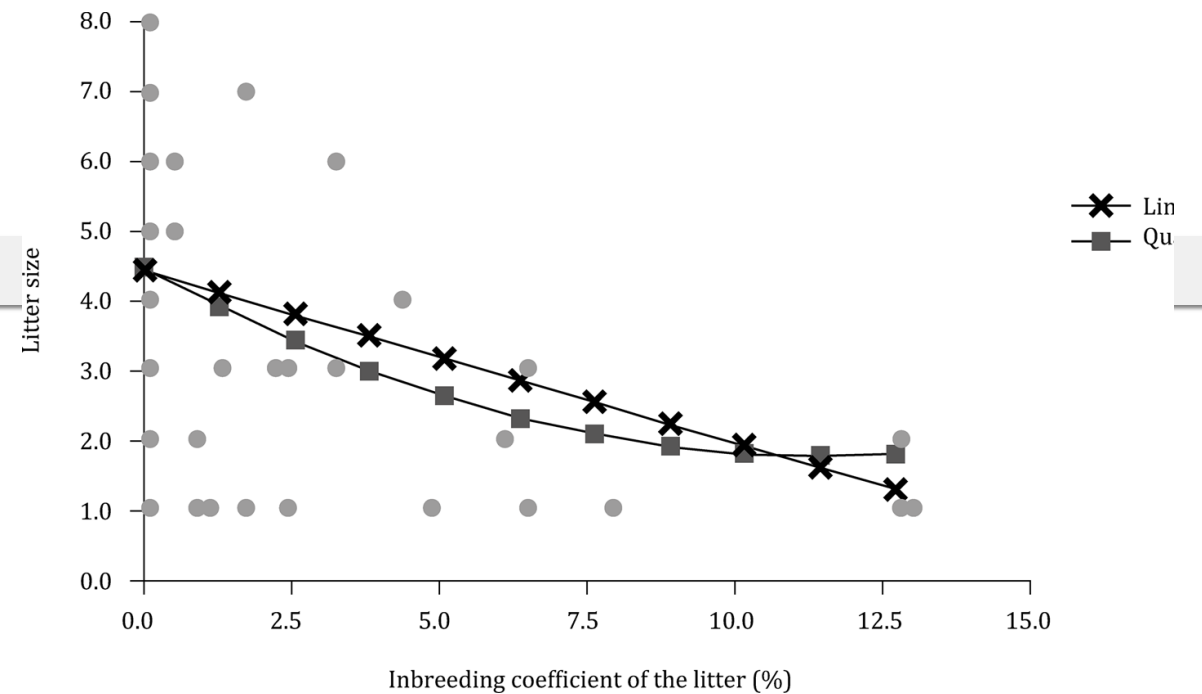
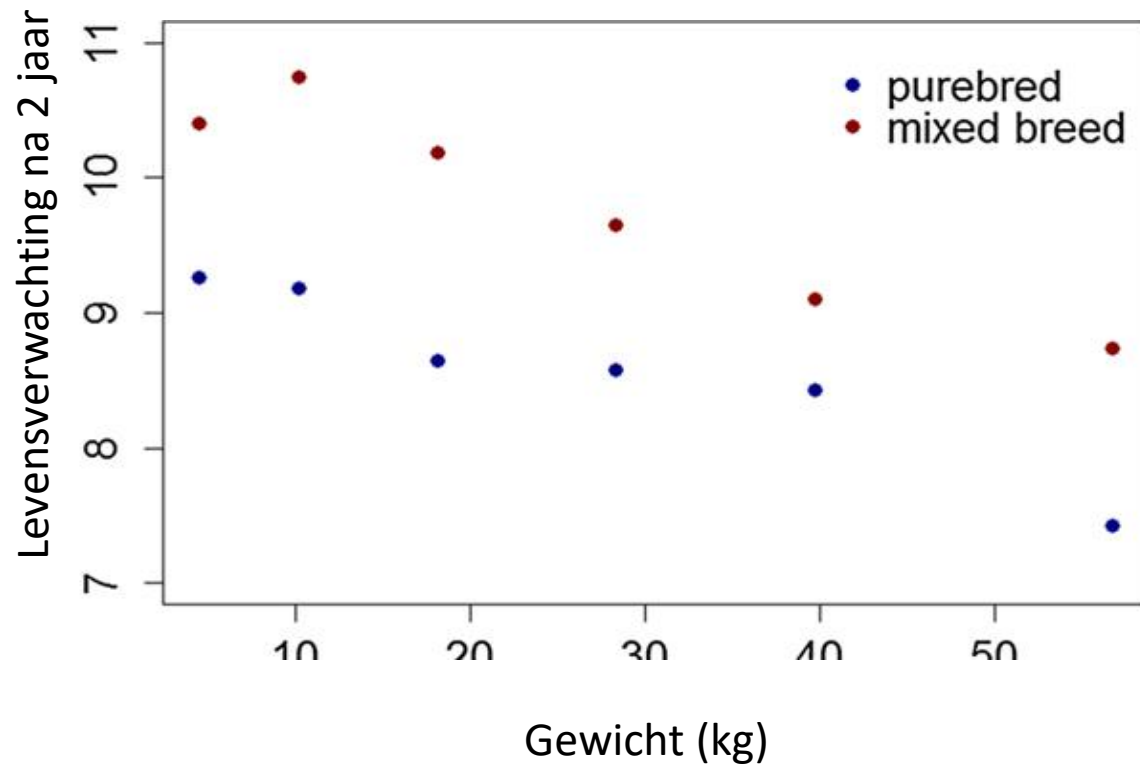
Source : The 11 Best Dog Breeds of All Time ([businessinsider.com](https://www.businessinsider.com))



Bron: Hoe kies je een puppy in een nest? (ouest-france.fr)



Inteelt depressie



Bronnen:

[Body size, inbreeding, and lifespan in domestic dogs - PMC \(nih.gov\)](#)

[Inbreeding depression causes reduced fecundity in Golden Retrievers | Mammalian Genome \(springer.com\)](#)

[SciELO - Brazil - Inbreeding on litter size of German Spitz dogs](#)



Schadelijke allelen

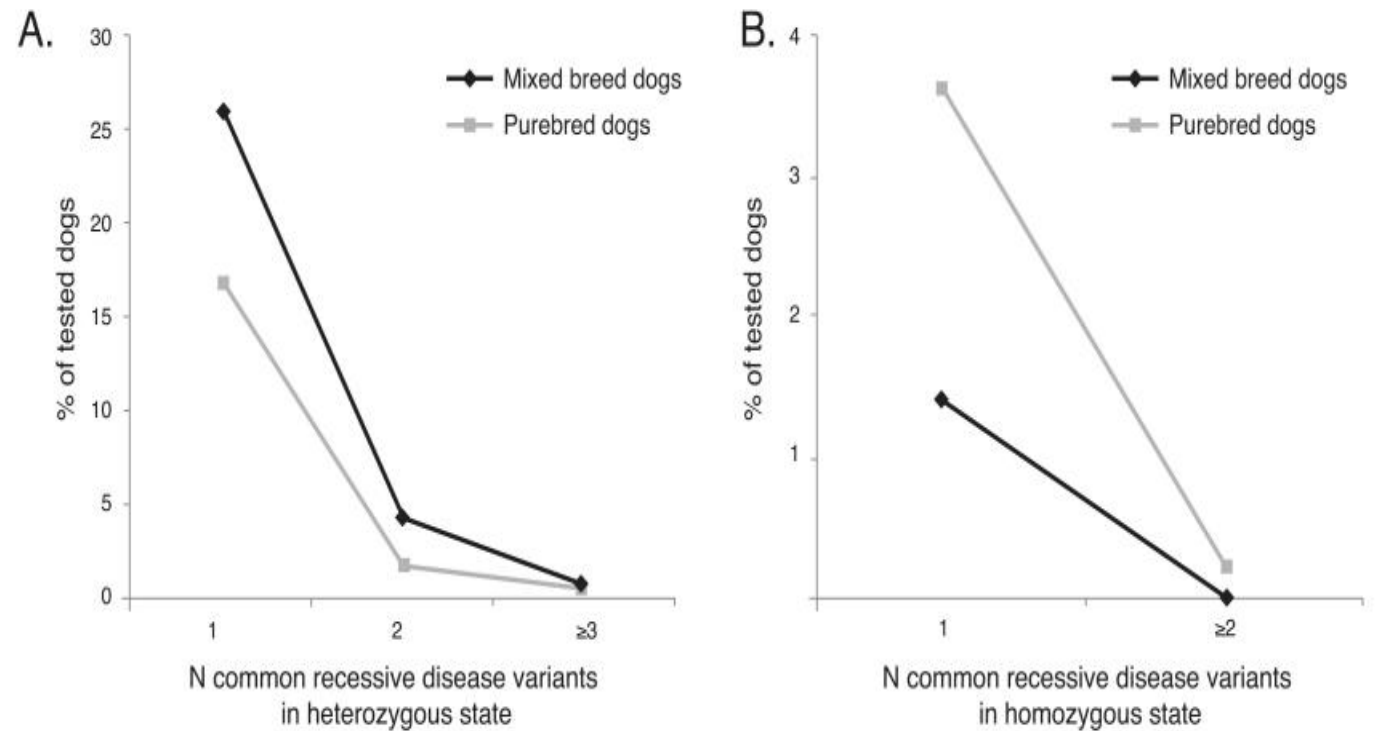
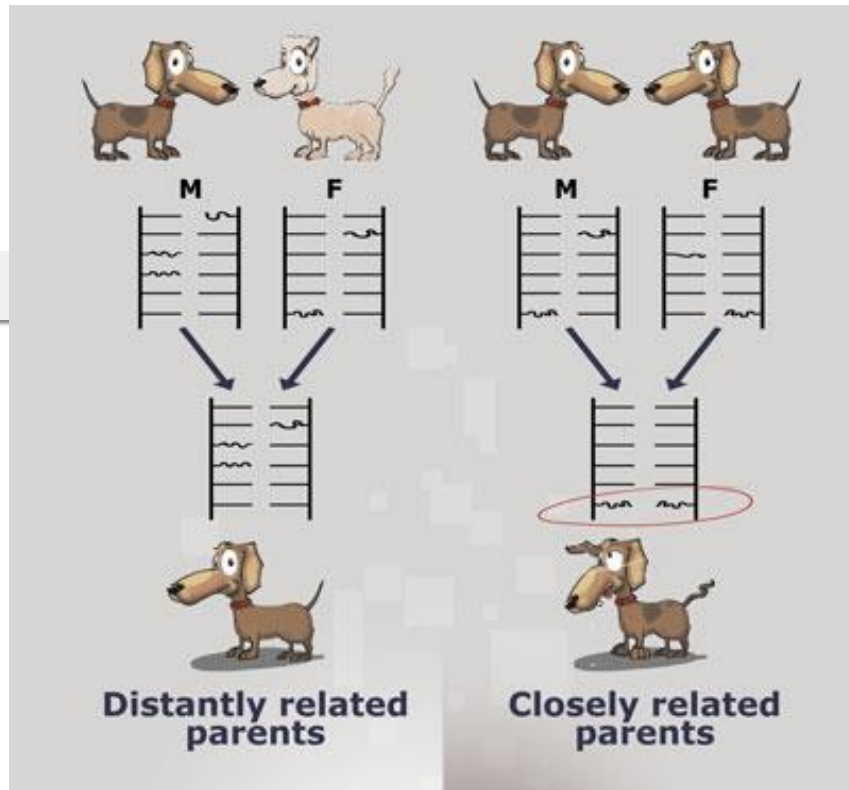


Fig 2. Patterns of common recessive disease variant presence in 96,673 dogs. (A) Comparison of 83,220 mixed breed dogs and 13,453 purebred dogs revealed that mixed breed dogs were significantly more likely to carry one or several of nine examined common largely recessive disease variants in the heterozygous state. (B) Conversely, dogs of the combined purebred sample were more likely to be genetically affected for one of the examined disorders, i.e. carry at least one recessive disease variant in the homozygous state.

Bronnen:

[Longevity of companion dog breeds: those at risk from early death | Scientific Reports \(nature.com\)](#)

[Frequency and distribution of 152 genetic disease variants in over 100,000 mixed breed and purebred dogs | PLOS Genetics](#)

[Inbreeding, phenotypic traits, coat colours and prevalence of health problems in a population of English Cocker Spaniels: the first survey in Italy | SpringerLink](#)



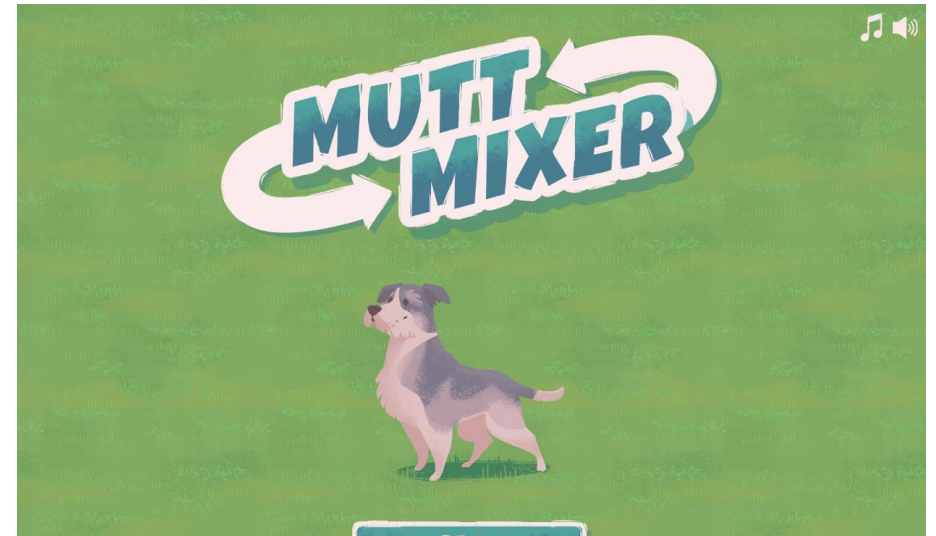
Spel Mutt Mixer

Bronnen:

<https://learn.genetics.utah.edu/content/change/muttmixer/>

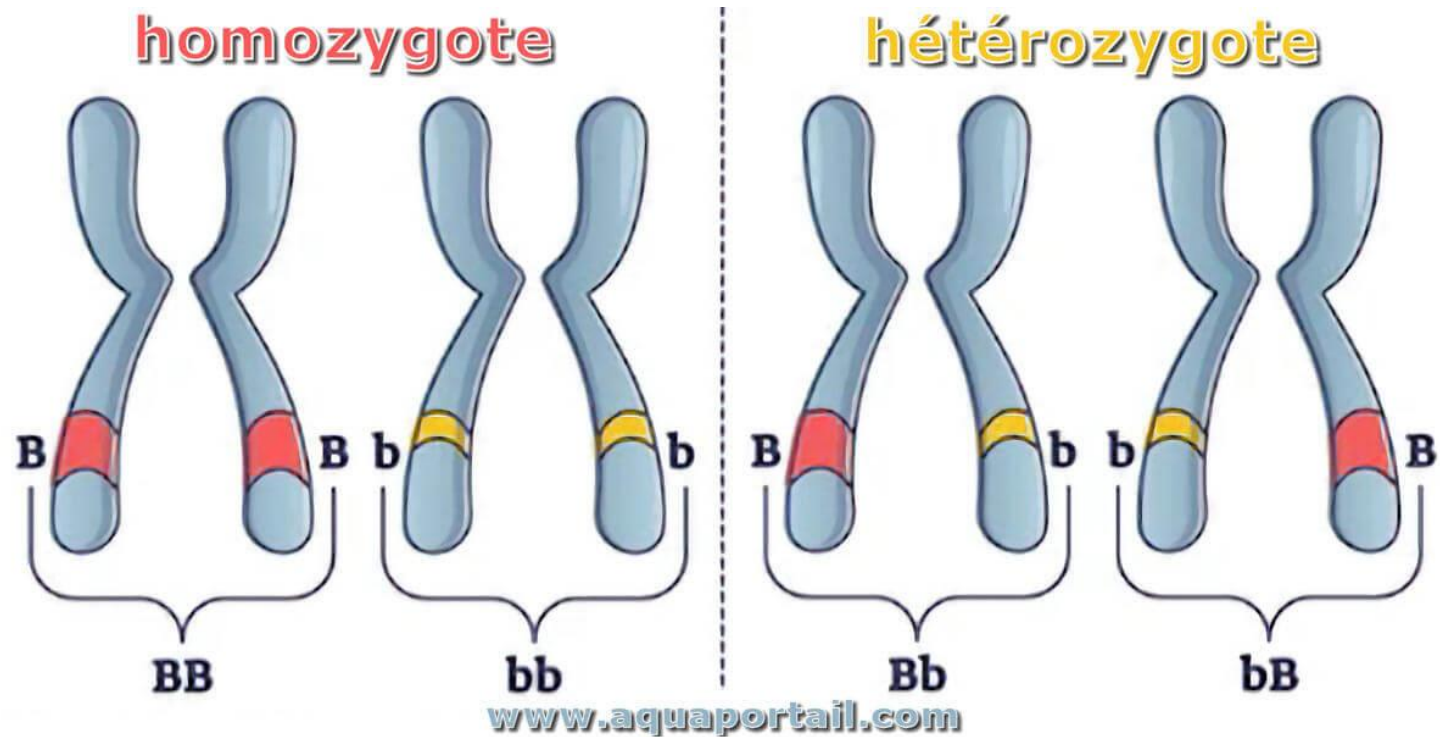
<https://learn.genetics.utah.edu/content/change/muttmixerexplained/>

ERFELIJKHEID



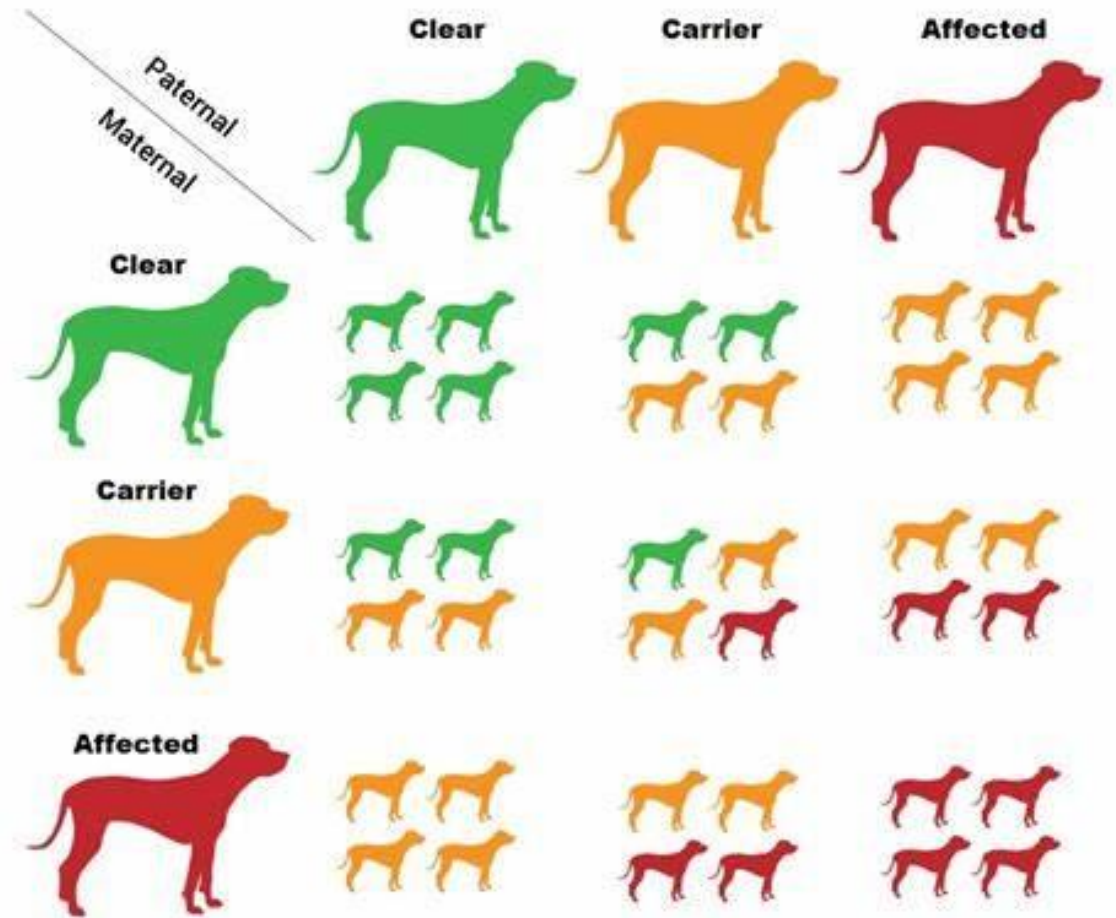


HERINNERINGEN





AUTOSOMAAL RECESSIEF



Bron: [genetisch advies volgens de wijze van overdracht van de ziekte](http://genetischadviesvolgensdewijzevanoverdrachtvandeziekte) | Société Centrale Canine (centrale-canine.fr)



VOORBEELD :



- Erfelijke cerebellaire ataxie
- Test beschikbaar (NCL-A)

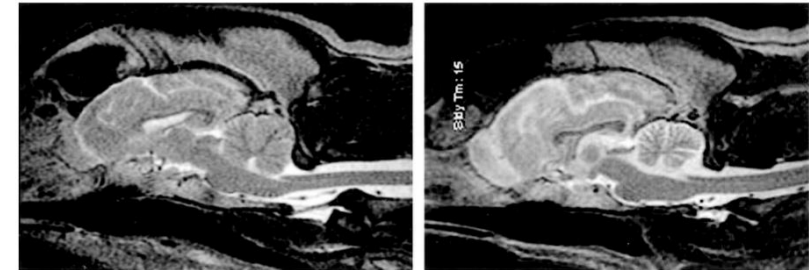


Fig 1. Sagittal T2-weighted magnetic resonance images of the brain of (left) a control dog and (right) an affected American Staffordshire Terrier. The marked increase in fluid between the folia of the cerebellum of the dog on the right indicates severe cerebellar atrophy or hypoplasia. The control dog was matched for age and weight with the affected dog.

Bronnen:

[Cerebellar cortical degeneration in adult American Staffordshire Terriers - PubMed \(nih.gov\)](#)

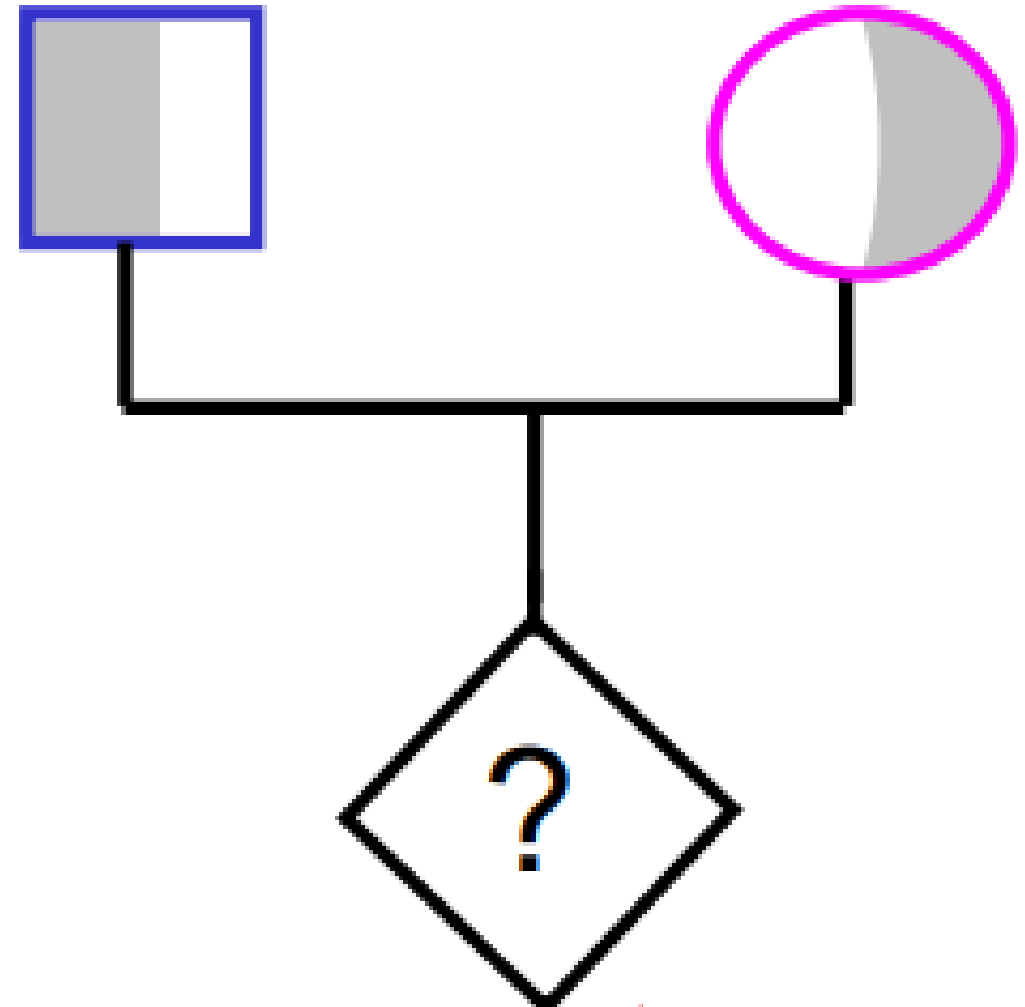
[De gezondheid van de Amerikaanse Staffordshire Terriër | Société Centrale Canine \(centrale-canine.fr\)](#)

[OMIA:000177-9615: Cerebellar cortical atrophy in Canis lupus familiaris - OMIA - Online Mendelian Inheritance in Animals](#)



RISICO:

Wetende dat een afstammeling van twee heterozygote ouders gezond is, wat is de kans dat hij drager wordt (heterozygoot)?





GENETISCH ADVIES:

- Elimineer de homozygote patiënten van de voortplanting
- Afhankelijk van de mate van bloedverwantschap van de populatie, de ernst van de tarra en de waarde van de hond, om de heterozygoten te behouden of te elimineren
- Behoud dominante gezonde homozygoten voor voortplanting

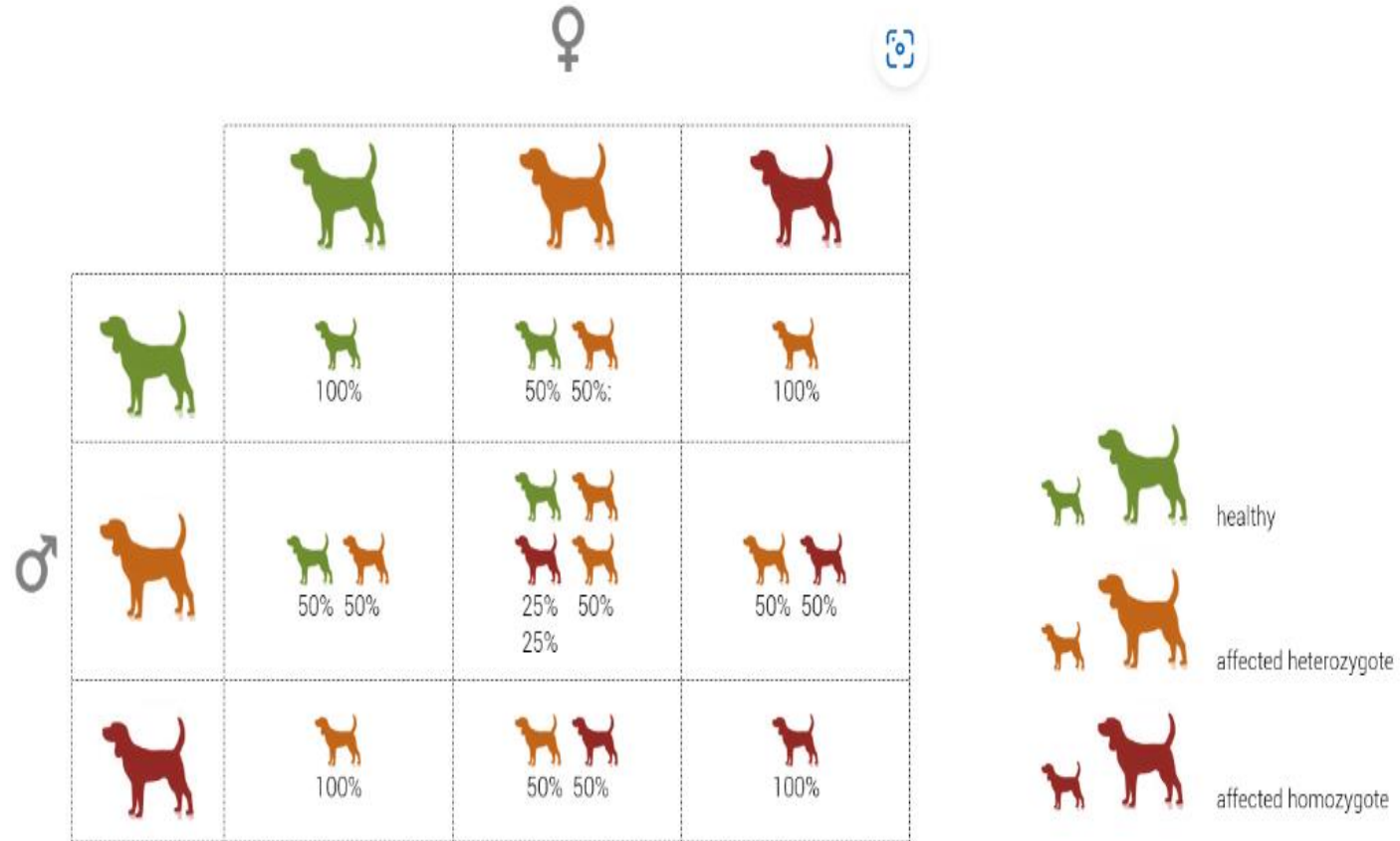


Bronnen:

[Genetische begeleiding volgens de wijze van overdracht van de ziekte](#) | [Société Centrale Canine \(centrale-canine.fr\)](#)
(3) [Facebook](#)



AUTOSOMAAL DOMINANT



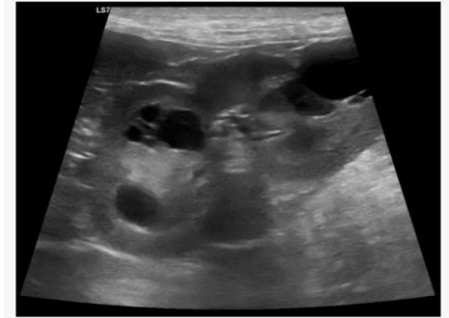
Source : Dog Genetics - Introduction to Modes of Inheritance - AnimaLabs©



VOORBEELD :



Figure 1. Ultrasound examination of the left kidney of the affected index female. Multiple cysts are visible.



- Nierpolycystische ziekte
- Test beschikbaar (PKD1)

Bronnen:

[OMIA:000807-9615: Polycystic kidney disease in Canis lupus familiaris \(dog\) - OMIA - Online Mendelian Inheritance in Animals Genes | Free Full-Text | PKD1 Nonsense Variant in a Lagotto Romagnolo Family with Polycystic Kidney Disease \(mdpi.com\)](#)
[Renale polykystose bij honden - Société Centrale Canine \(genodog.fr\)](#)





RISICO:

Bij een paring tussen twee gezonde ouders. Hoe groot is de kans dat een nageslacht drager zal zijn?



Source : [Chicago Dog Parks - Oak Park Apartments Near Chicago](#)



GENETISCH ADVIES:

- Elimineer de homozygoten en heterozygoten uit de voortplanting
- Bewaar de recessieve gezonde homozygoten voor reproductie

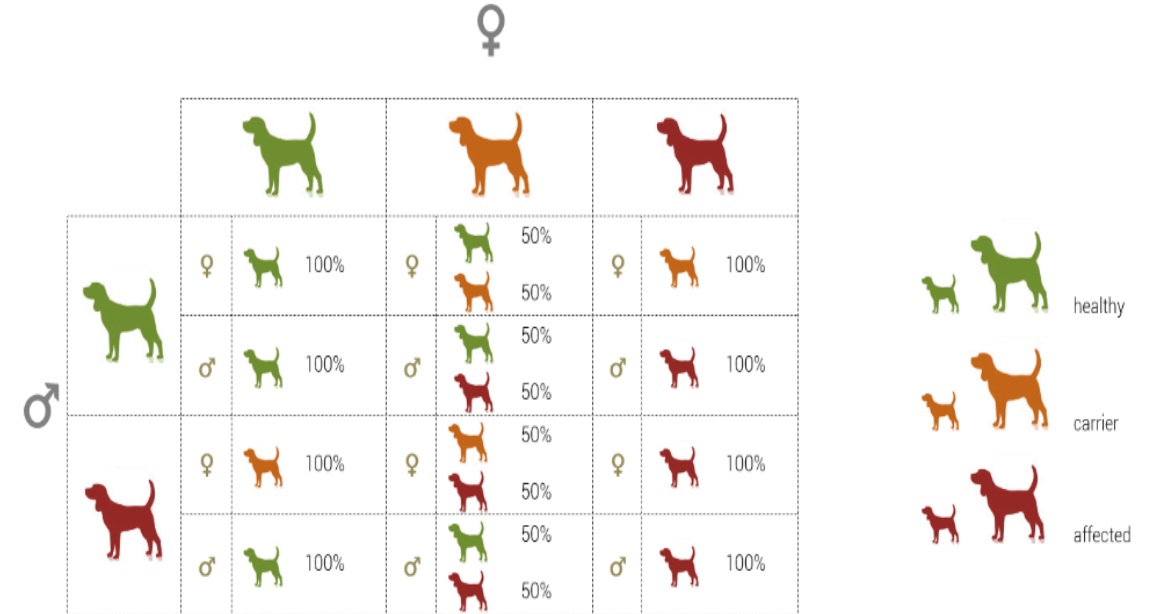


Bronnen:

[Genetische begeleiding volgens de wijze van overdracht van de ziekte](#) | [Société Centrale Canine \(centrale-canine.fr\)](#)
(3) [Facebook](#)



GEKOPPELD AAN HET X-CHROMOSOOM



Source : Dog Genetics - Introduction to Modes of Inheritance - AnimaLabs©



VOORBEELD:

- X-gekoppelde myotubulaire myopathie
- Test beschikbaar (MTM1)

Bronnen:

<https://omia.org/OMIA001508/9615/>

<https://vgl.ucdavis.edu/test/xlmtm-labrador>

<https://skeletalmusclejournal.biomedcentral.com/articles/10.1186/s13395-020-00239-0>



<https://onlinelibrary.wiley.com/doi/10.1111/jvim.12513>





RISICO :

Bij paren met een ziek mannetje. Hoe groot is de kans dat een vrouwelijke puppy drager of ziek is?



Source : [How To Tell If Your Dog Is Sick](#)



GENETISCH ADVIES:

- Verwijder aangetaste mannetjes uit de fokkerij
- Afhankelijk van de mate van inteelt van de tarra, de ernst van de tarra en de waarde van de hond, verwijder de vrouwelijke dragers

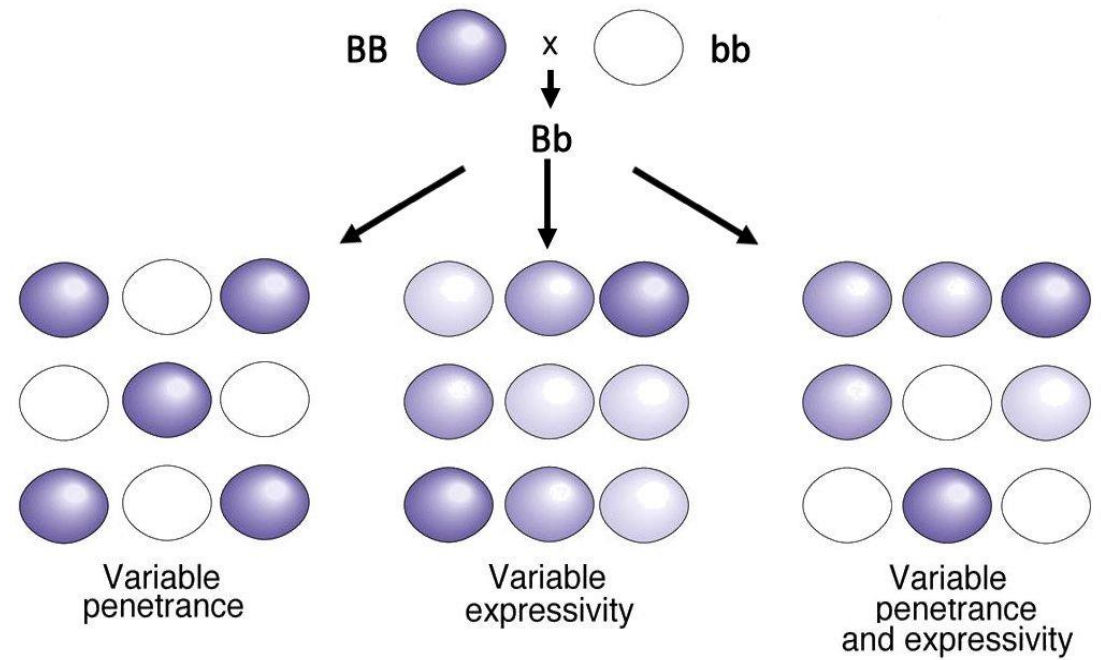


Bronnen:

[Genetische begeleiding volgens de wijze van overdracht van de ziekte](#) | [Société Centrale Canine \(centrale-canine.fr\)](#)
(3) Facebook



PENETRATIE EN EXPRESSIE



Source : https://www.mun.ca/biology/scarr/Penetrance_vs_Expressivity.html



VOORBEELD:

Penetratie:

Deel van individuen met een bepaald genotype dat het overeenkomstige fenotype uitdrukt

- Degeneratieve myopathie
- Test beschikbaar (SOD1)
- Onvolledige penetratie



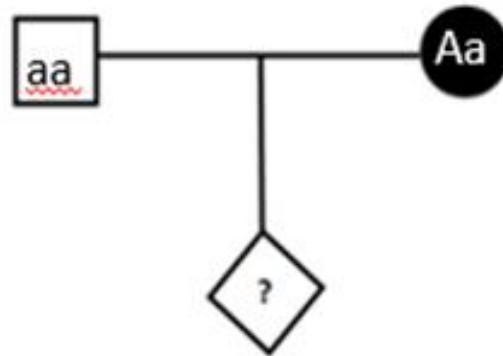
Bronnen:

[OMIA:000263-9615: Degenerative myelopathy in Canis lupus familiaris - OMIA - Online Mendelian Inheritance in Animals](#)
[Degeneratieve oplopende myelopathie bij honden - Société Centrale Canine \(genodog.fr\)](#)



RISICO:

Dans le cas d'une maladie autosomique dominante, quel est le risque que le descendant soit malade si la pénétrance est de 80% et la mère hétérozygote?



Source: [Sick Dog - 5 Ways to Care for Your Sick Dog - Take good care of them.](#)

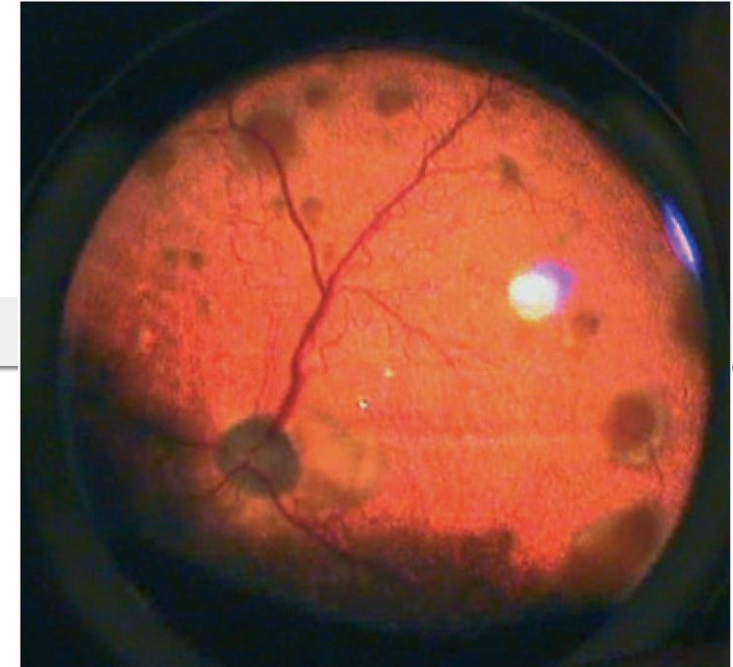


VOORBEELD :

Variabele expressiviteit:

mate van expressie van een fenotype (intensiteit)

- Multifocale Retinopathie 1
- Test beschikbaar (BEST1)
- Variabele expressiviteit



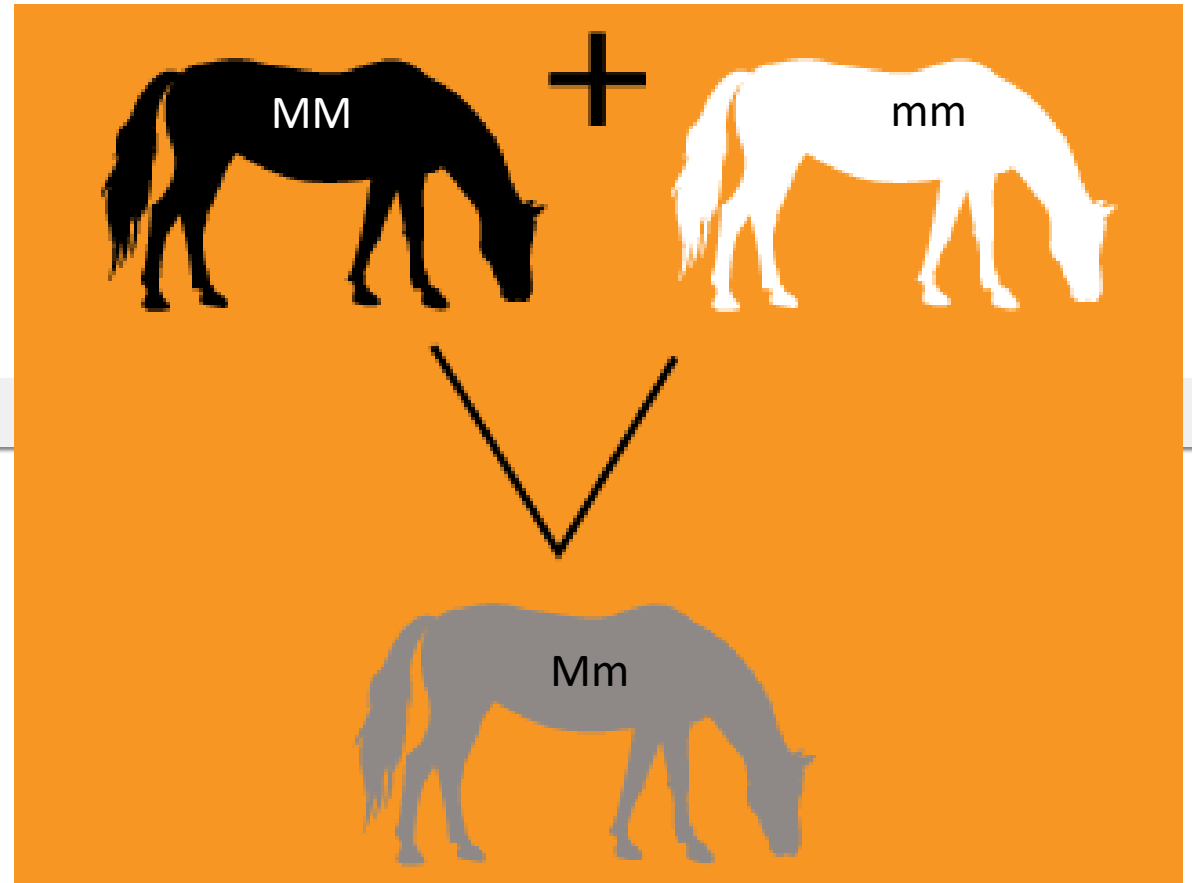
Bronnen:

<https://www.pawprintgenetics.com/blog/2014/04/07/variability-certain-canine-diseases/>

<https://omia.org/OMIA001444/9615/>



INCOMPLETE DOMINANTIE



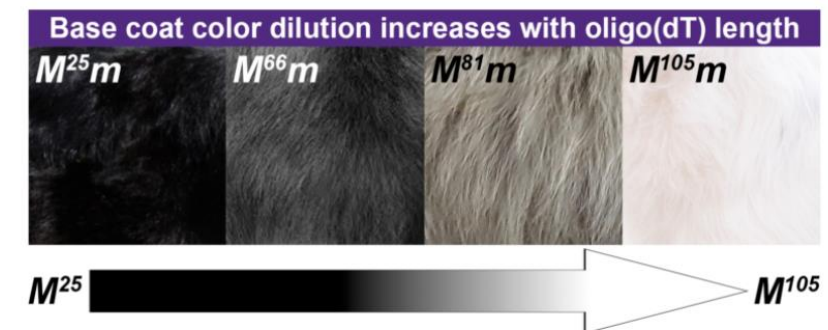


VOORBEELD:

- Oculaire dysgenese gerelateerd aan merle karakter
- Test beschikbaar (PMEL)
- Autosomaal dominant "onvolledig"



Source : The Double Merle Dog and the Dangers of Merle-to-Merle Breeding - PetHelpful



Dilution intensity likely correlates with the use of a cryptic splice acceptor site within the SINE that results in aberrant PMEL protein. Longer oligo(dT) lengths cause increased alternative splicing, more mutant PMEL, and less pigment.

Source : On Biology The genetics of merle coat patterns in dogs (biomedcentral.com)

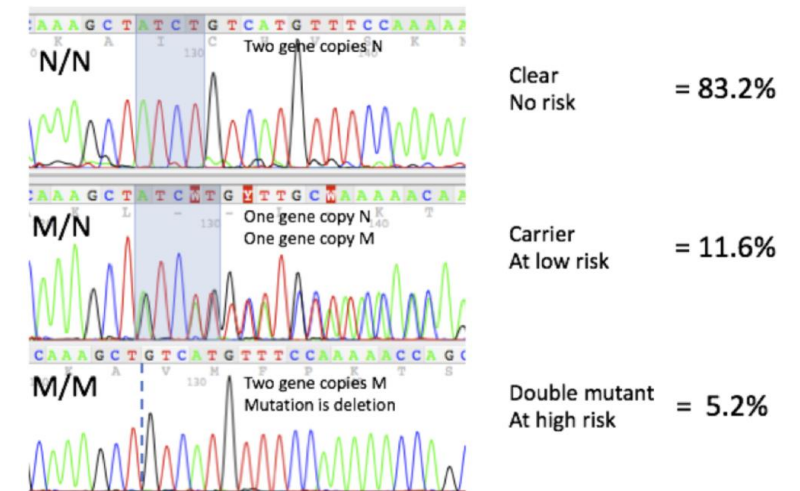


VOORBEELD:

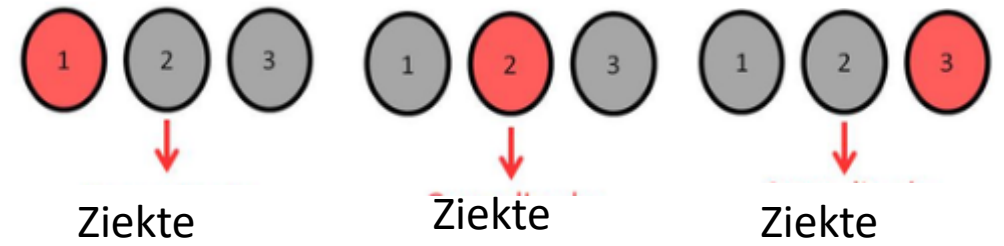
MDR1	Ivermectin-Präparate: Animec®, Chanectin®, Diapec®, Ecomectin®, Equimax®, Eraquell®, Furexel®, Hippomectin®, Ivomec®, Noromectin®, Paramectin®, Qualimec®, Vectin®, Virbamec® Doramectin-Präparat: Dectomax® Moxidectin-Präparate: Cydectin®, Equest® Loperamid-Präparat: Imodium®	• Nicht bei MDR1⁺ Hunden anwenden. • Es kann zu schweren Intoxikationen mit Todesfolge kommen.
MDR1	Zytostatika: Vincristin, Vinblastin, Paclitaxel, Doxorubicin, Mitoxantron, Dactinomycin, u. a. Immunsuppressiva: Cyclosporin A, Tacrolimus, u. a. Opiode: Morphin, Methadon, Fentanyl, Butorphanol Herz/Kreislaufmedikamente: Digoxin, Methylidigoxin, Verapamil, Diltiazem, Chinidin, Talinolol, Losartan, u. a. Antiemetika: Ondansetron, Domperidon Ulkustherapeutika: Cimetidin, Ranitidin Antimykotika: Itraconazol, Ketoconazol Antibiotika: Rifampicin, Erythromycin, Levofloxacin, u. a. Andere: Acepromazin, Fexofenadin, u. v. a.	• Unbewusstes Überdosieren • Zunahme neurotoxischer, hepatotoxischer oder nephrotoxischer Wirkungen möglich
MDR1	Advocate® (Wirkstoff Moxidectin), Milbemax® und Program Plus® (Wirkstoff Milbemycinoxim), Stronghold® (Wirkstoff Selamectin), Profender® (Wirkstoff Emodepsid)	• Sicher auch bei MDR1⁺ Hunden, wenn Herstellerangaben zu Dosierung und Applikation exakt befolgt werden.

Bron: [mdr1 - veterinaireCarineSchalbar](http://mdr1-veterinaireCarineSchalbar) (nordveterinaire.lu)

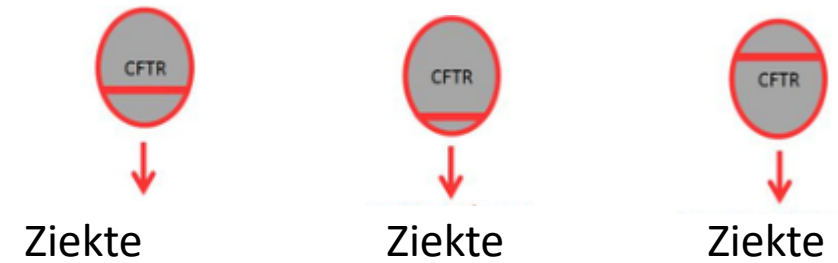
- Geneesmiddelentoxiciteit (DTM)
- Test beschikbaar (ABCB1)
- Autosomaal dominant "onvolledig"



Source : Canine Disease Profile – Multi-Drug Resistance (MDR1) | Laboratoire de génétique vétérinaire (labgenvet.ca)



HETEROGENITEIT





VOORBEELD:



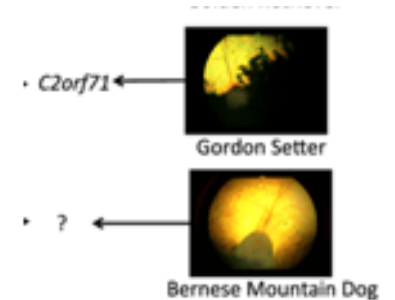
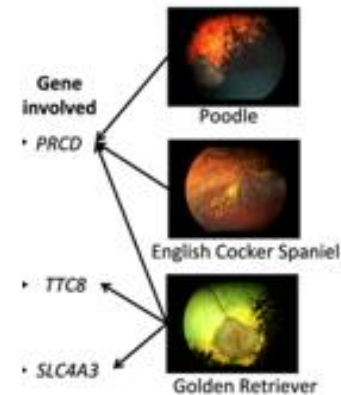
- Progressieve retinale atrofie
- Tests beschikbaar
- Genetische heterogeniteit

Bronnen:

<https://omia.org/OMIA000830/9615/>

[https://www.fregis.com/en-en/chien/fiches-info-sante-des-chien/atrophie-retinienne-progressive-generalisee-\(arp\)](https://www.fregis.com/en-en/chien/fiches-info-sante-des-chien/atrophie-retinienne-progressive-generalisee-(arp))

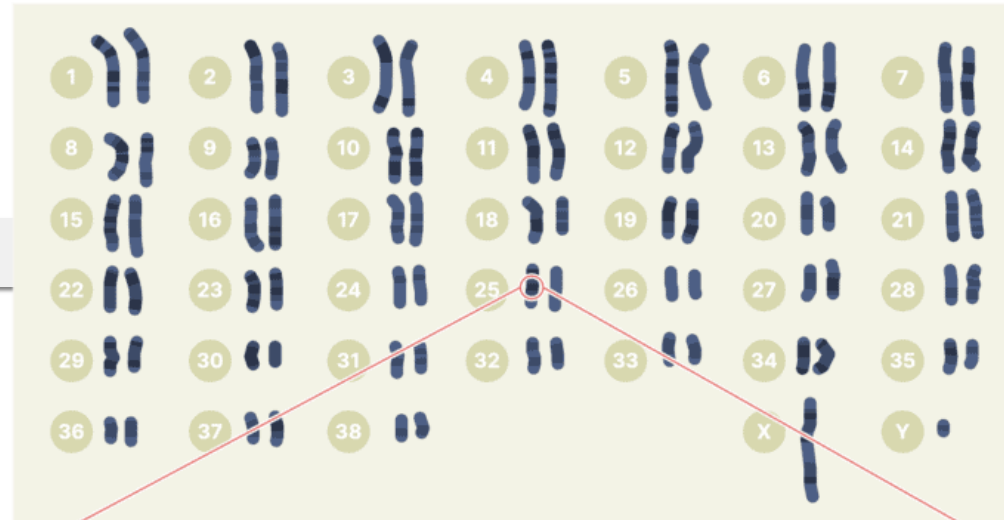
<https://www.dovepress.com/the-genetics-of-inherited-retinal-disorders-in-dogs-implications-for-d-peer-reviewed-fulltext-article-VMRR>





EPIGENETISCH

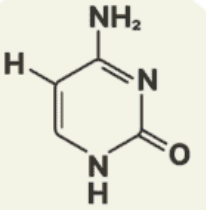
Dog genome



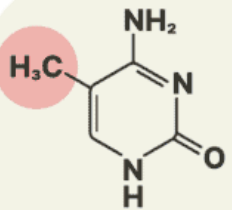
Chromosome 25: 100,000 - 100,020

A A A T A C A C A C C C G A G A A T G

<https://loyalfordogs.com/posts/what-is-dna-methylation-and-how-does-it-help-us-understand-longevity>



C = Cytosine



Methylated cytosine

Bronnen:

<https://www.akcchf.org/educational-resources/library/articles/canine-epigenetics-and-aging.html>

[Gedragsontwikkeling: Epigenetische of omgevingsfactoren \(vetopsy.fr\)](#)



VOORBEELD:

Gedrag

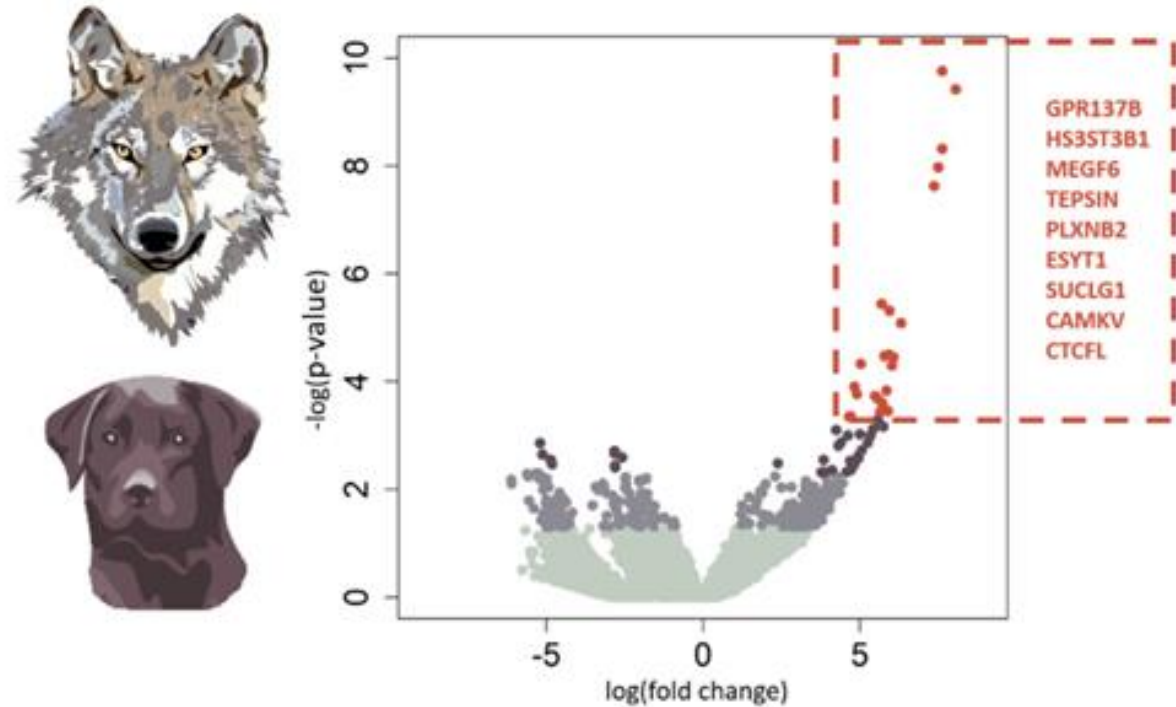


Figure 6. Volcano plot over the methylated regions that are different between wolf and dog. Colours represent significant levels (from bottom to top: $p > 0.05$, < 0.05 , < 0.005 , < 0.0005). Differentially methylated regions with a positive log fold change are more methylated in the wolf than the dog. The regions that reach the highest level of significance are listed to the right of the graph.

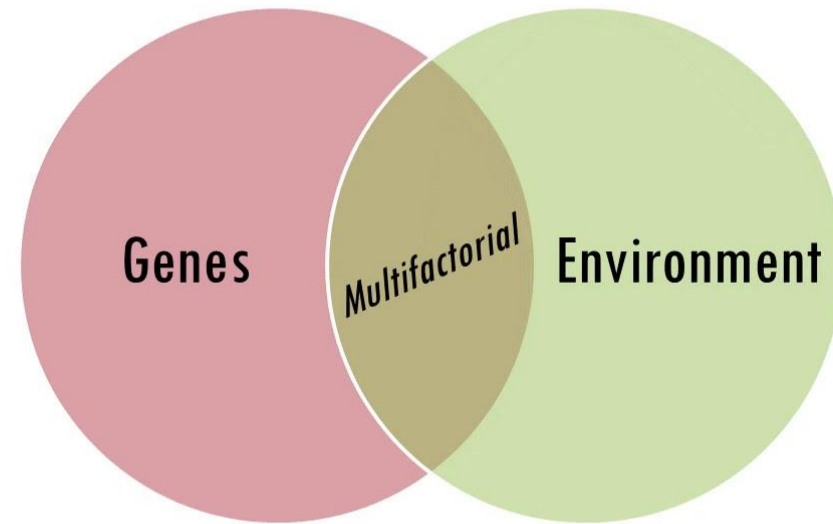
Bronnen:

[\(6\) \(PDF\) Dog behaviour : Intricate picture of genetics, epigenetics, and human-dog relations \(researchgate.net\)](#)

[DNA methylation in canine brains is related to domestication and dog-breed formation - PMC \(nih.gov\)](#)



MULTIFACTORIALE ERFELIJKHEID



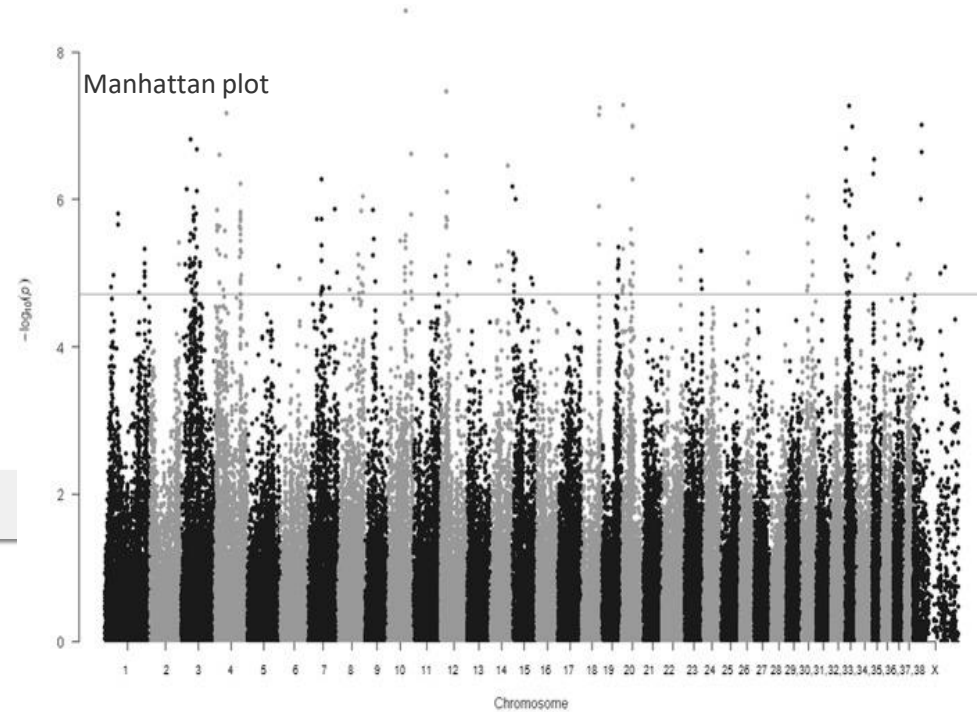
Bron:
[Multifactorial inheritance \(futurelearn.com\)](https://futurelearn.com)



VOORBEELD:

Heupdysplasie

$h^2 \sim 35\%$



A Genetic Predictive Model for Canine Hip Dysplasia: Integration of Genome Wide Association Study (GWAS) and Candidate Gene Approaches - PMC (nih.gov)

Bronnen:

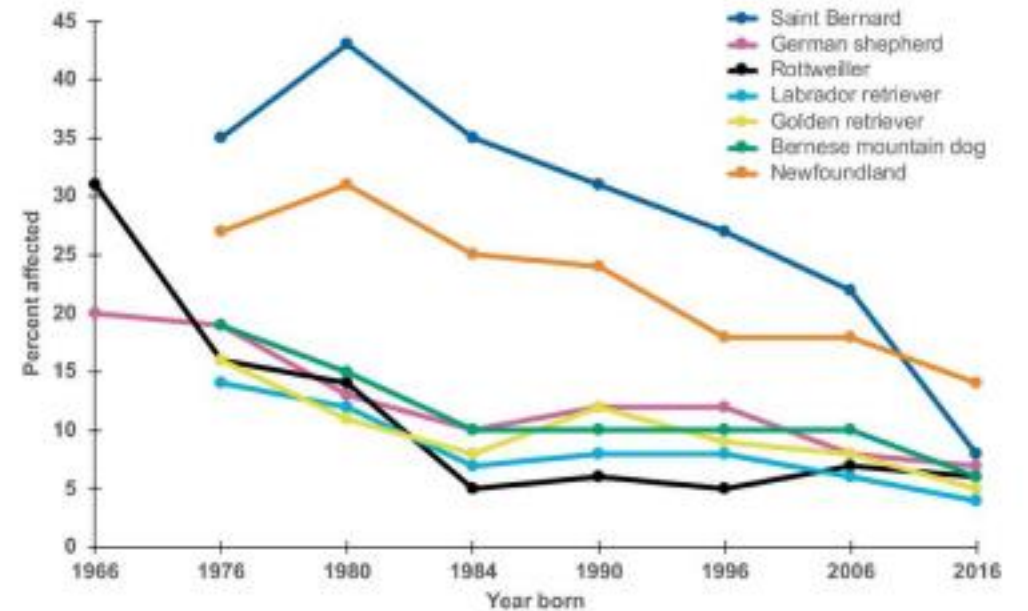
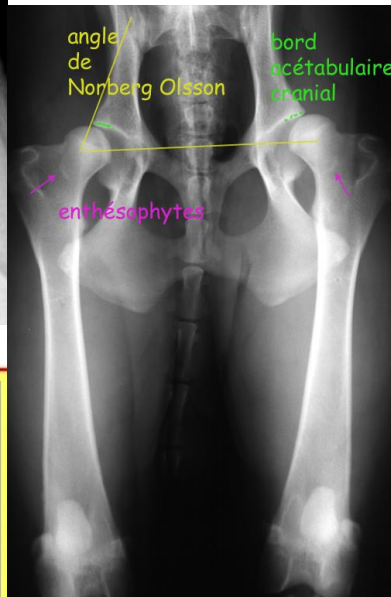
https://www.researchgate.net/publication/23556051_Prevalence_of_hip_dysplasia_elbow_dysplasia_and_humeral_head_osteocondrosis_in_dog_breeds_in_Belgium

[An across-breed validation study of 46 genetic markers in canine hip dysplasia | BMC Genomics | Full Text \(biomedcentral.com\)](#)

[OMIA:000473-9615: Hip dysplasia in Canis lupus familiaris \(dog\) - OMIA - Online Mendelian Inheritance in Animals](#)



Diverse fenotypische maatregelen



Daling van het percentage honden gediagnosticeerd met HD graad 2-4/D-E in Zweden

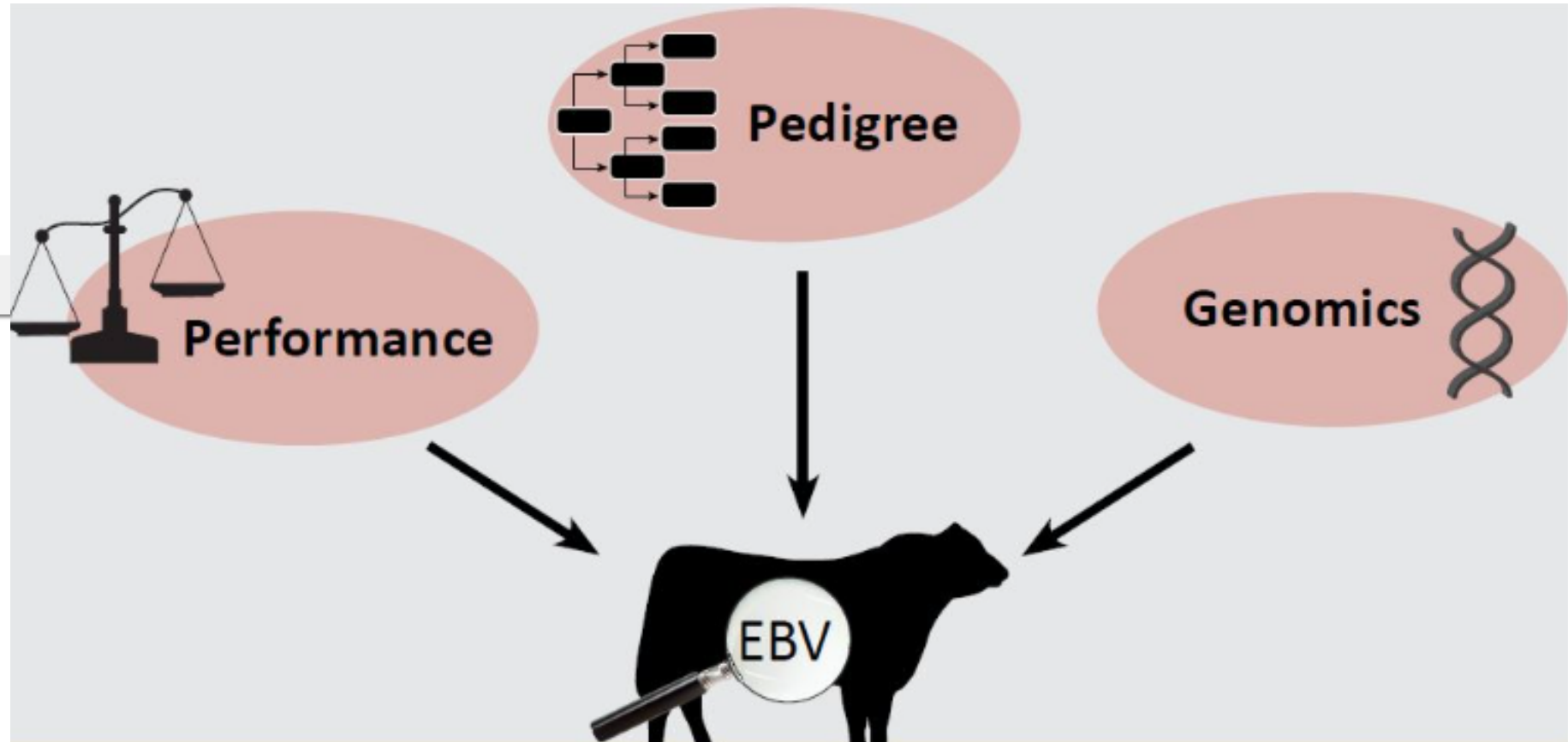
Bronnen:

[\(8\) \(PDF\) Swedish Experiences From 60 Years of Screening and Breeding Programs for Hip Dysplasia—Research, Success, and Challenges \(researchgate.net\)](#)

[Dysplasie bij honden | Société Centrale Canine \(centrale-canine.fr\)](#)



Geschatte fokwaarde – Zuchtwert



Bronnen:
[Prospective evaluation of a patented DNA test for canine hip dysplasia \(CHD\) | PLOS ONE](#)
[SV-Datenbank - HD breeding value \(sv-doxs.net\)](#)
[Monitoring Hip and Elbow Dysplasia Achieved Modest Genetic Improvement of 74 Dog Breeds over 40 Years in USA - PMC \(nih.gov\)](#)
[\(8\) \(PDF\) Comparative analyses of genetic trends and prospects for selection against hip and elbow dysplasia in 15 UK dog breeds \(researchgate.net\)](#)
[A Genetic Predictive Model for Canine Hip Dysplasia: Integration of Genome Wide Association Study \(GWAS\) and Candidate Gene Approaches - PMC \(nih.gov\)](#)



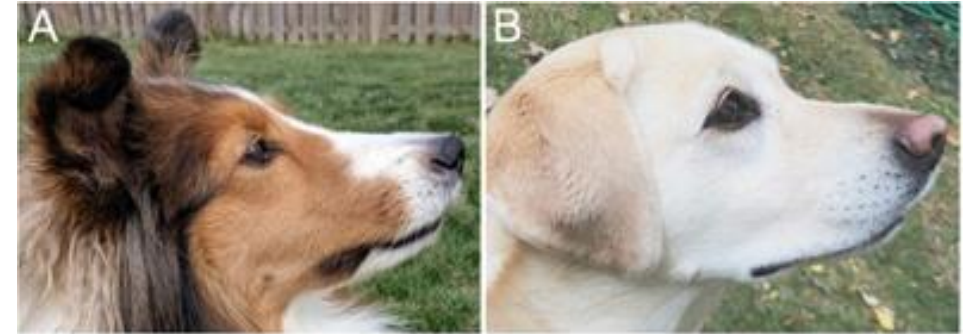
VOORBEELD:

BAOS Syndroom

Genen (brachycephalie)

FGF4, SMOC2, BMP3, DVL2,

Zachte weefsels, grootte van neusgaten



Vorm van de schedel van honden.

A) Shetland Sheepdog (dolichocephal); (B) Labrador retriever (mésatiocéphale); C) bulldog (brachycephaal); D) Franse bulldog (brachycephaal).

Bronnen:

[What Practitioners Should Know About the Genetics of Brachycephaly - WSAVA 2018 Congress – VIN](#)

[Canine DVL2 variant contributes to brachycephalic phenotype and caudal vertebral anomalies - PubMed \(nih.gov\)](#)

[Canine Brachycephaly: Anatomy, Pathology, Genetics and Welfare - PMC \(nih.gov\)](#)

[Brachycephalics: 'Once a problem is seen it cannot be unseen' | Canine Medicine and Genetics | Full Text \(biomedcentral.com\)](#)

[Brachycephalic obstructive airway syndrome \(BOAS\) - in FOCUS \(rcvsknowledge.org\)](#)



Diverse fenotypische maatregelen

Morfometrische indicatoren

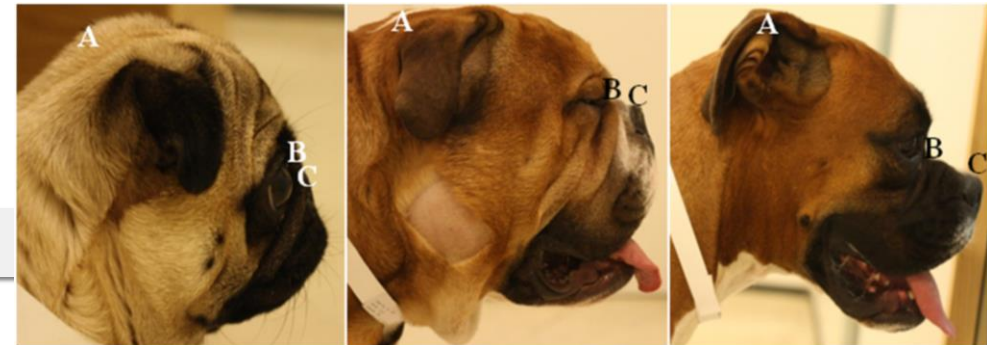
- Vorm van de schedel
- Stenose van de neusgaten
- Aanwezigheid van een plooi

....

Functionele tests

- Lopen (6 minuten, 100 meter)
- BREATH

...



Bronnen:

[ADEM testen voor brachycefale rassen | Société Centrale Canine \(centrale-canine.fr\)](https://www.centralkanine.fr/)

[Impact of Facial Conformation on Canine Health: Brachycephalic Obstructive Airway Syndrome | PLOS ONE](https://doi.org/10.1371/journal.pone.0218881)

[breeding-short-muzzled-dogs-in-the-netherlands expertisecentre-genetics-of-companionanimals-2019-translation-from-dutch.pdf \(fecava.org\)](https://www.fecava.org/)



VOORBEELD:



Berner Mountain Sarcoma

Pre-test op basis van 9
markeringen

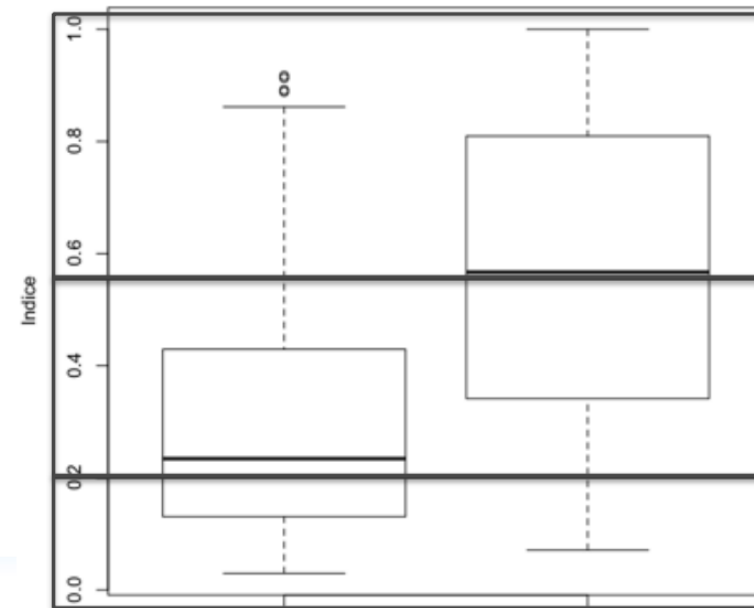
Bronnen:

[OMIA:000620-9615: Histiocytosis, malignant in Canis lupus familiaris \(dog\) - OMIA - Online Mendelian Inheritance in Animals](#)
[Epidemiology, Pathology, and Genetics of Histiocytic Sarcoma in the Bernese Mountain Dog Breed | Journal of Heredity | Oxford Academic \(oup.com\)](#)
[Histiocytisch sarcoom bij de Berner berggeit: Pathologie, diagnose en genetisch risico \(uliege.be\)](#)
[IWG 2017 B Hedan \(bernese.co.uk\)](#)
[Identification of common predisposing loci to hematopoietic cancers in four dog breeds | PLOS Genetics](#)

Category A

Category B

Category C



47 % of healthy
10% of affected

43 % of healthy
50% of affected

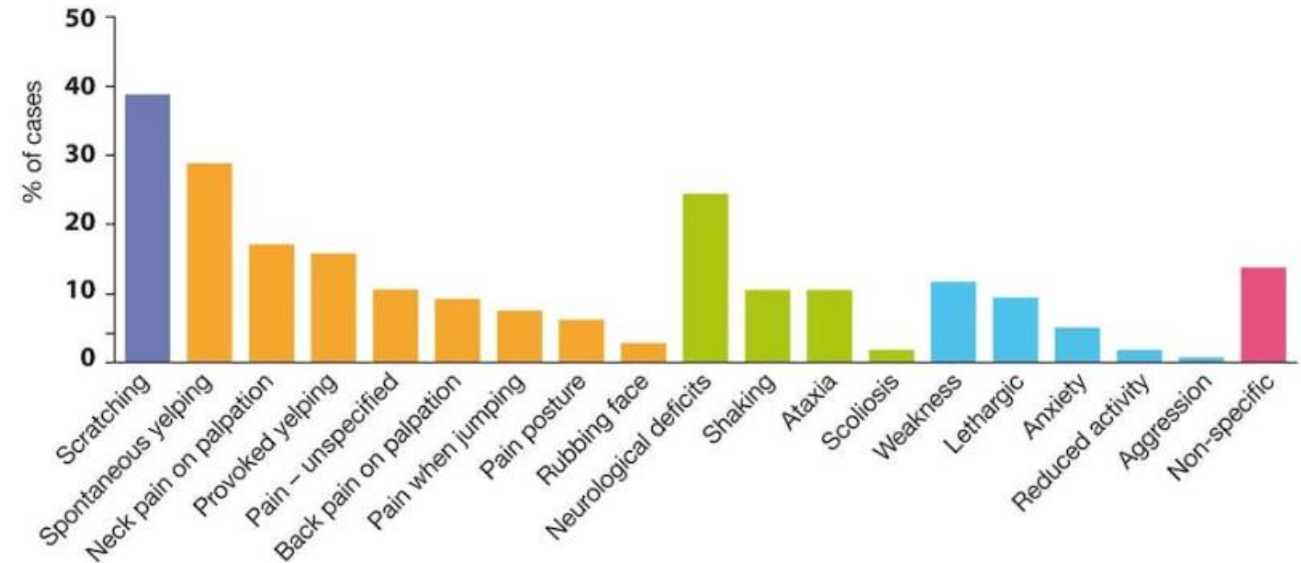
10 % of healthy
40% of affected

D+ D-



VOORBEELD:

Syringomyelia van CKC



[Chiari-like malformation and syringomyelia in dogs | Vet ... \(royalcanin.com\)](#)

Gènes: PCDH17, ZWINT,
PLXNA2, HHAT, MBOAT2, ITGAV, HPCAL1,...

$h^2 \sim 40\%$

Bronnen:

[A genome-wide association study identifies candidate loci associated to syringomyelia secondary to Chiari-like malformation in Cavalier King Charles Spaniels - PMC \(nih.gov\)](#)

[Syringohydromyelia in Dogs: The Genomic Component Underlying a Complex Neurological Disease - PMC \(nih.gov\)](#)

[Heritability of syringomyelia in Cavalier King Charles spaniels - PubMed \(nih.gov\)](#)

[Clinical Signs of Canine Chiari and Syringomyelia - from the expert \(youtube.com\)](#)

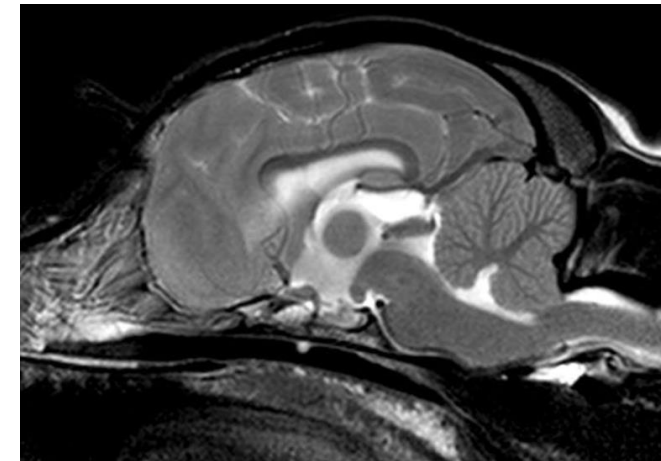


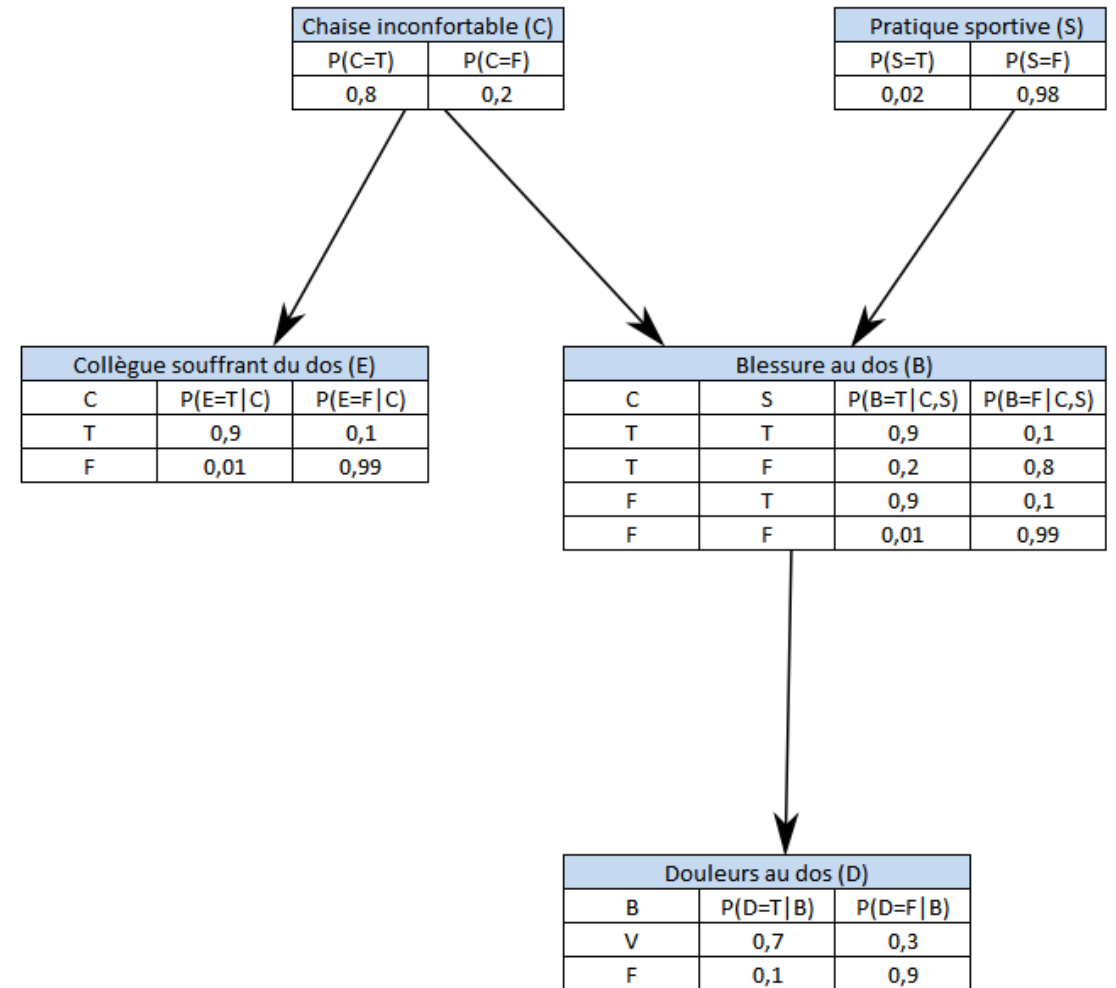
Figure 2. MRI scan of a canine patient with Chiari-like malformation showing herniation of the cerebellum through the foramen magnum. © Prof. Holger Volk



ARTIFICIËLE “INTELLIGENTIE”

Bron:

[Introduction to Bayesian Networks \(nbertagnolli.com\)](http://nbertagnolli.com)



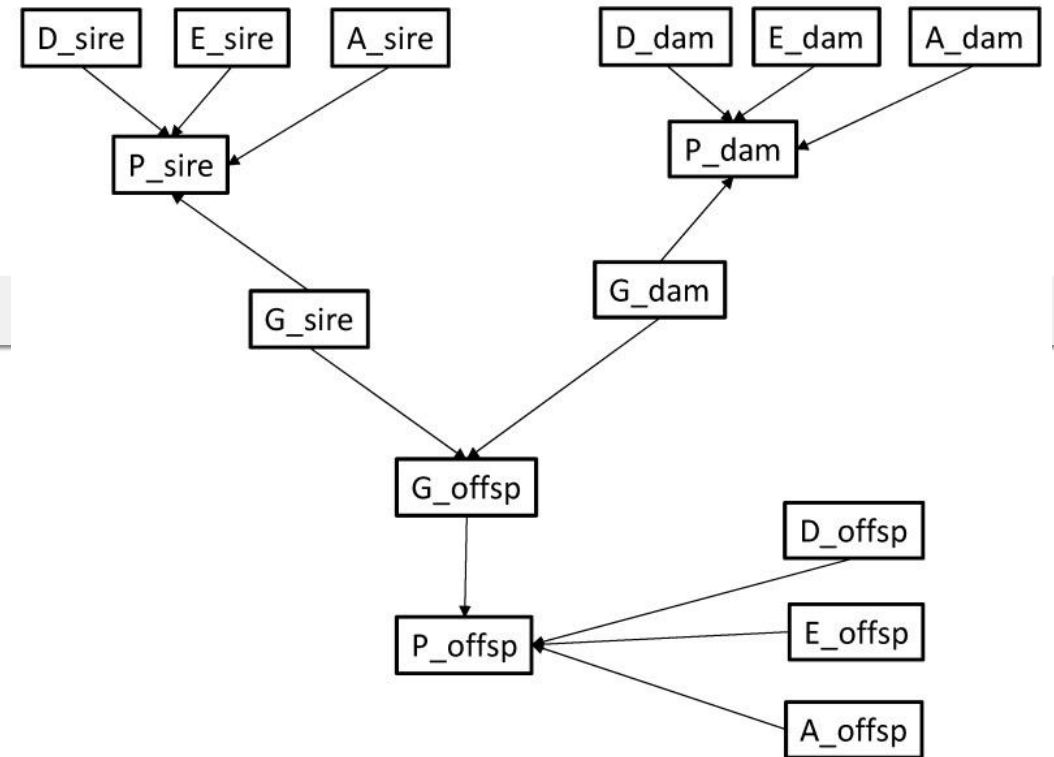


VOORBEELD:

Buitenste kruisbandbreuk



<https://chien.ooreka.fr/astuce/voir/541313/rupture-des-ligaments-croises-chez-le-chien>



Bronnen:
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7341277/>
[https://pubmed.ncbi.nlm.nih.gov/32499222/ijatcse551022021.pdf\(warr.org\)](https://pubmed.ncbi.nlm.nih.gov/32499222/ijatcse551022021.pdf(warr.org))

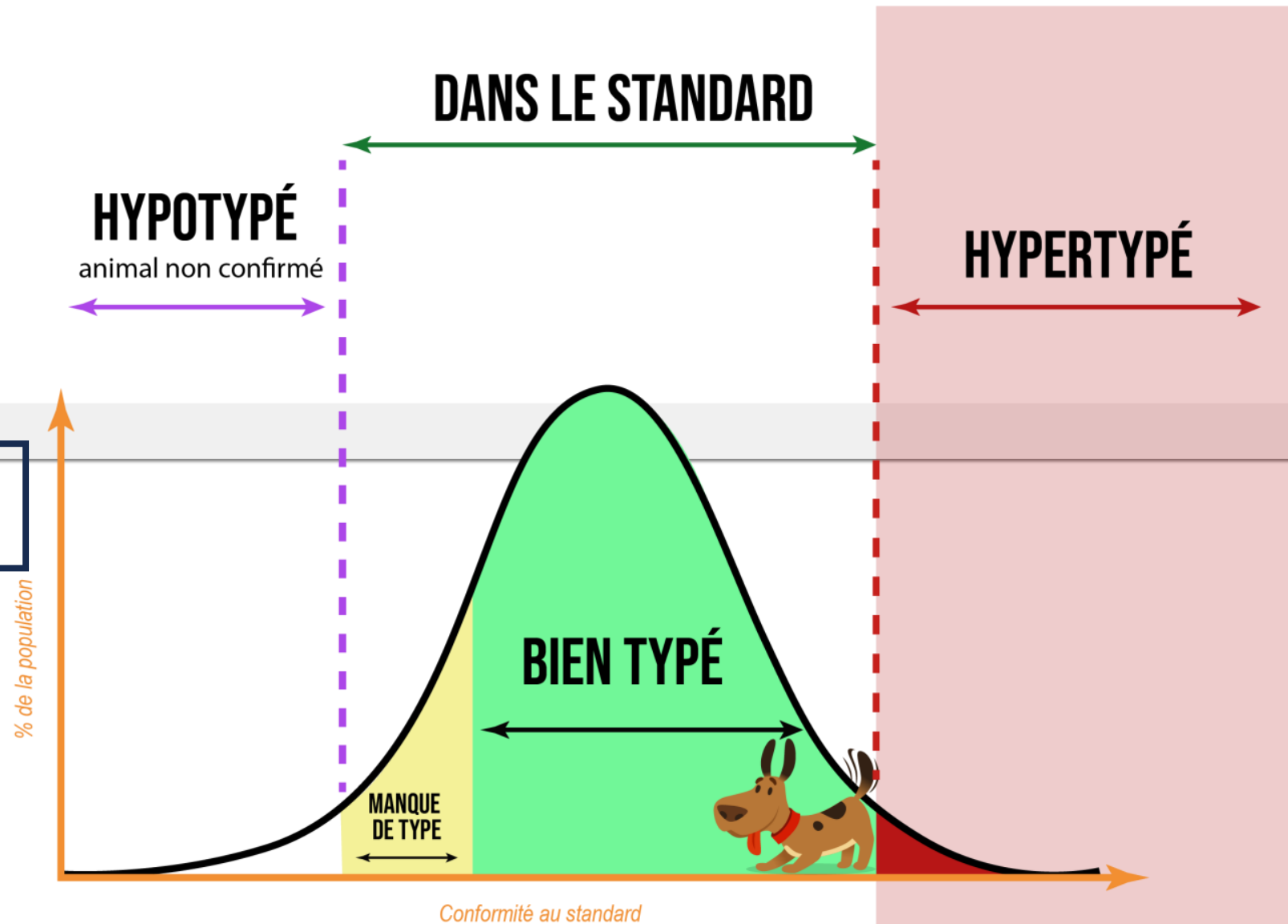


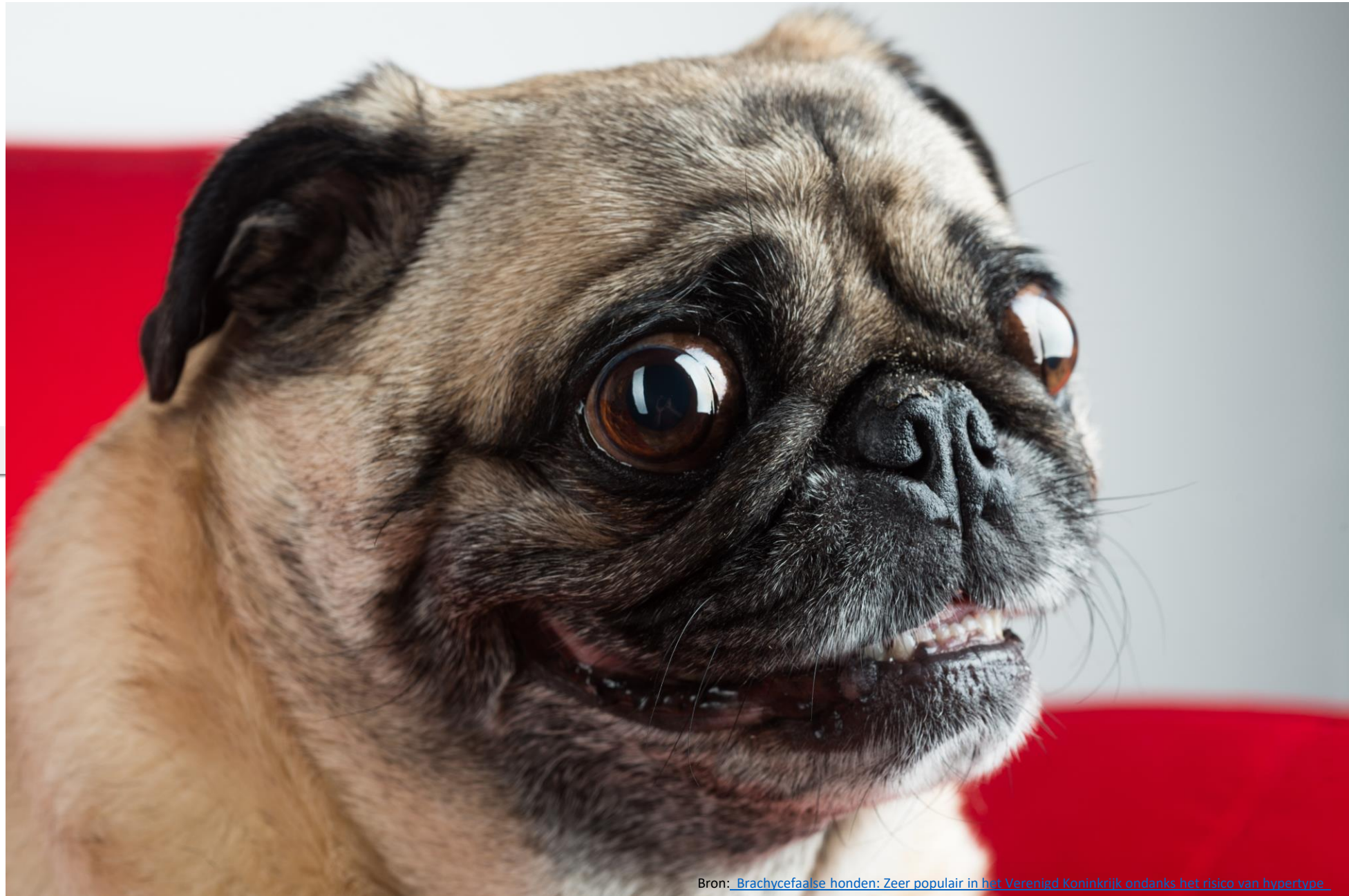
ALLES IS GOED, GOED GEDAAN ?





HYPERTYPES





Bron: [Brachycephale honden: Zeer populair in het Verenigd Koninkrijk ondanks het risico van hypertypie](#)



HYPERTYPES





Laten we een aantal concrete gevallen bespreken

- Je doet mee aan wedstrijden met je mannelijke mopshond. Om de beste standaard te bereiken, wil je het paren met zijn zus brachycefaal. Wat zijn de voor- en nadelen?
- Je bent verantwoordelijk voor een asiel waar een bulldog is. Welk advies geeft u aan de adopteerder?
- Jij kweekt Pembroke Welsh corgi op. Je bent geïnteresseerd in een reu uit Japan met de SOD1 mutatie. Welke voorzorgsmaatregelen neemt u?
- Wij bieden u een puppy van het Berner Bouvier ras. Wat te doen?
- Je windhonden doen mee aan de race op de Awans cynodrome. Hoe kan je de prestaties van hun nakomelingen verbeteren?
- Hoe vermijdt u hoge inteelt-percentages in uw populatie?
- Je fokt Beagles en je fokmannetje heeft vele prijzen gewonnen. Helaas ziet hij steeds minder goed en uw dierenarts vermoedt glaucoom. Wat ben je aan het doen?
- Je kweekt Jack Russels op en je fokmannetje heeft vele prijzen gewonnen. Helaas ziet hij steeds minder goed en uw dierenarts vermoedt glaucoom. Wat ben je aan het doen?

EN JIJ?