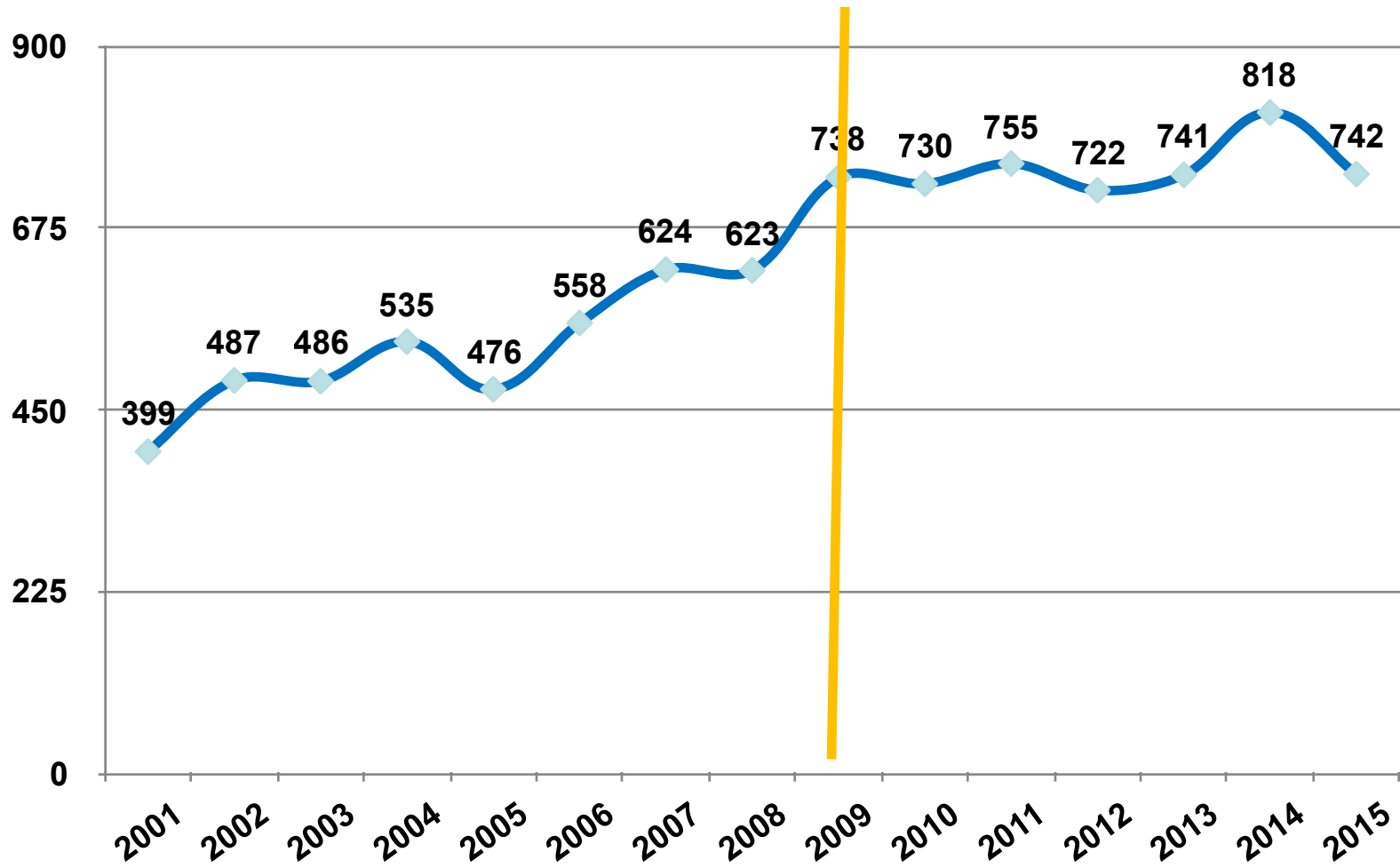


Dermoid Sinus

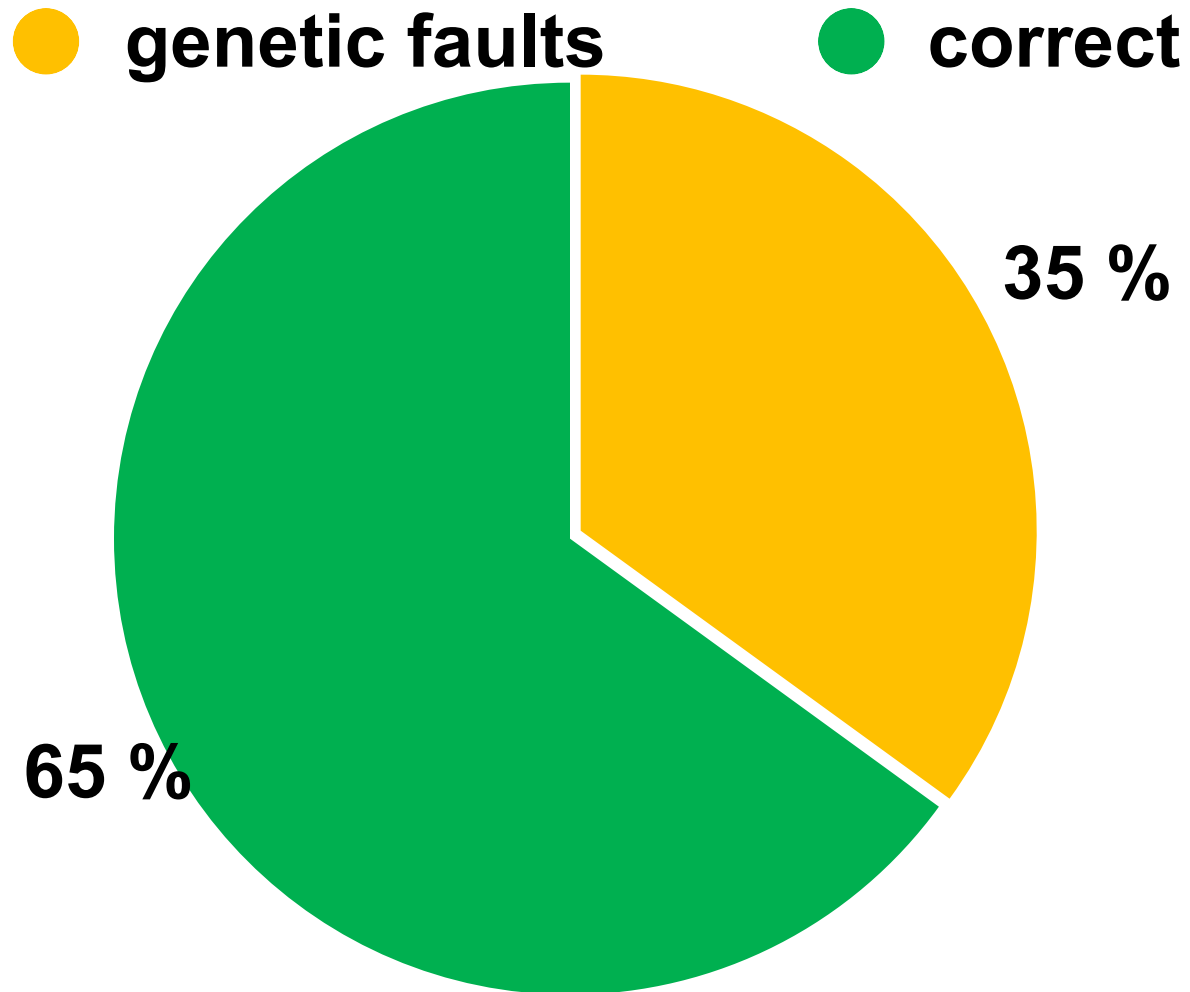
Nip it in the bud!

A project of the DZRR

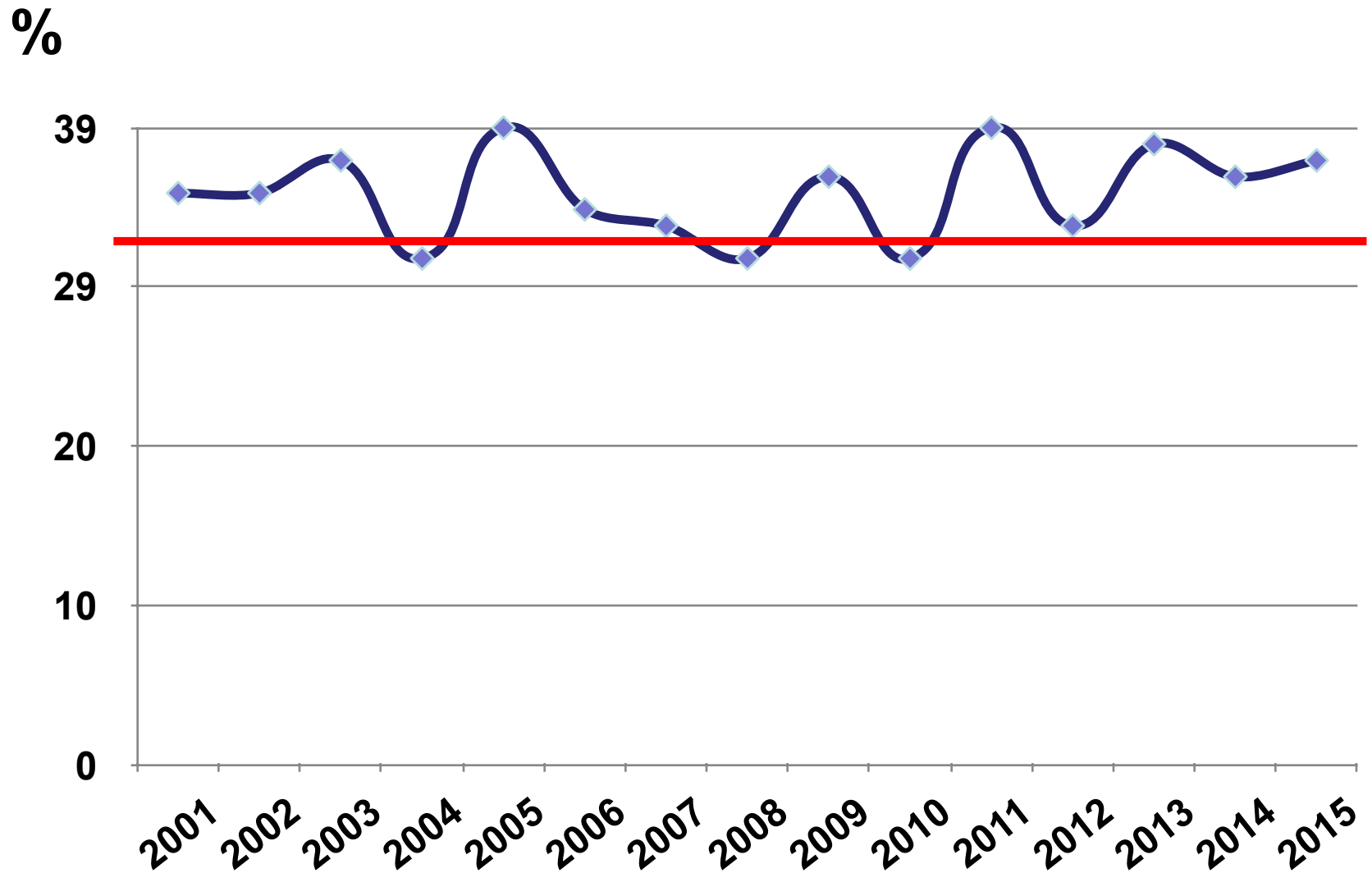
Number of puppies / a



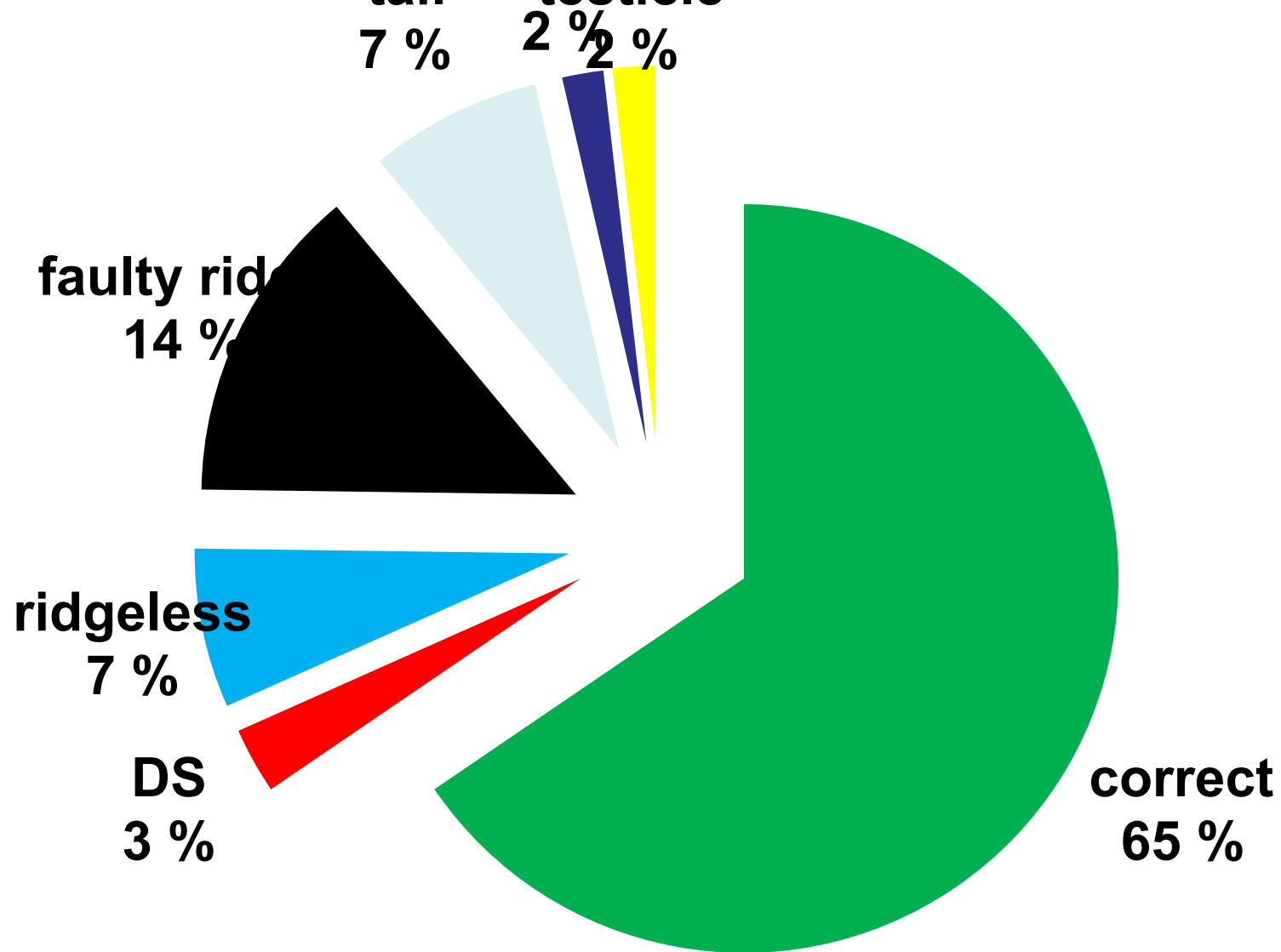
Ratio correct pups vs. genetic faults



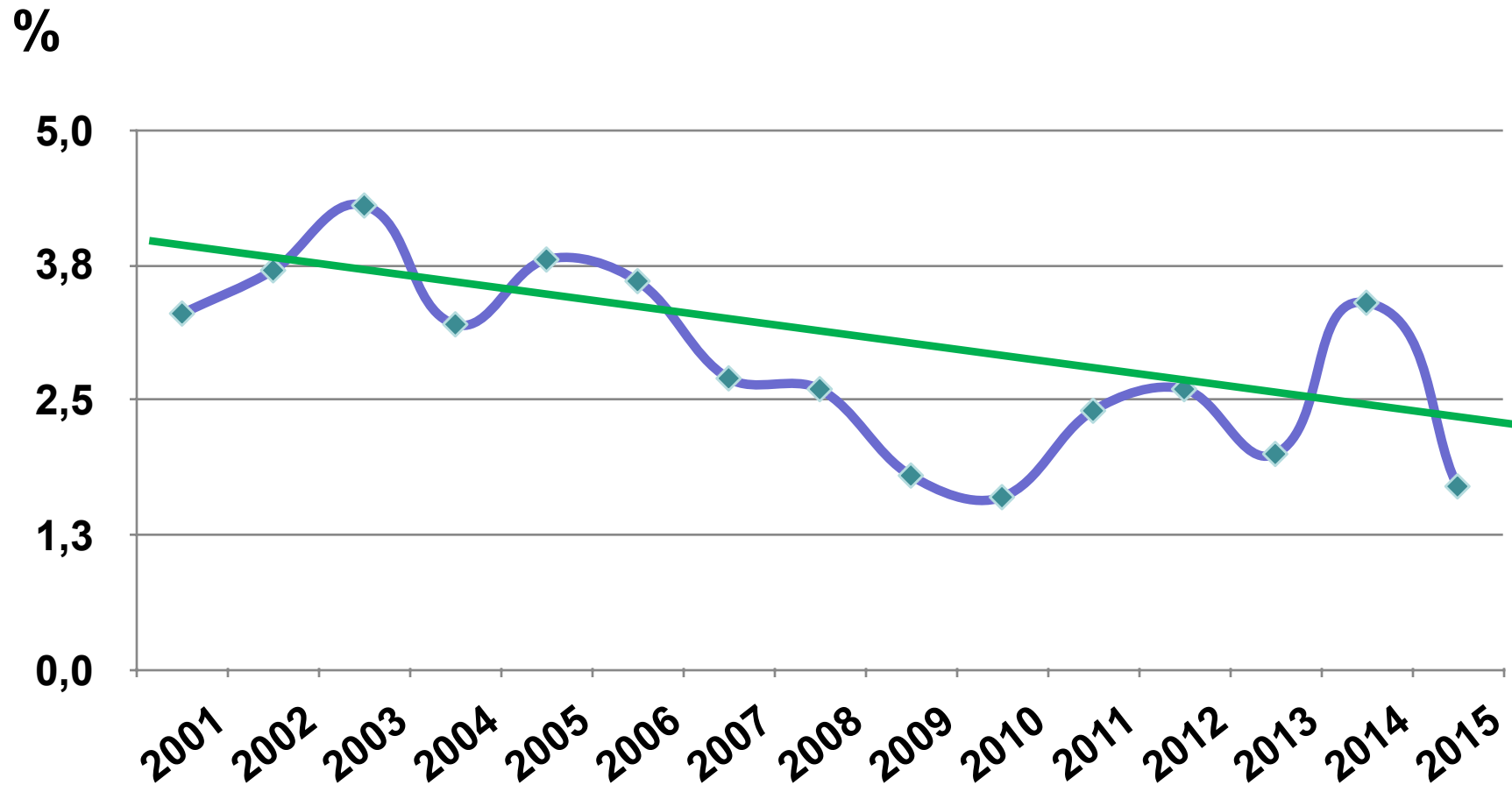
Genetic variation? Anything we can do?



Distribution of faults



Development of DS -frequency



What has been done so far?

- 1. Selective breeding**
- 2. Database application, containing litter documentation (DS, Ridge, bite, testicle) of 18.000 RRs out of the German population inclusive some hundred data from dogs abroad.**
- 3. Search program shows quality of litter mates as well as the litter mates of parents, grand- and grand-grand-parents**
- 4. Risk evaluation based on the above mentioned overview**

**But
still approximately 4 % DS**

**The following presentation from
Dr. Thomas Laube
explains why we put tremendous
effort into this project.**

Dear Ridgeback-friends

- We know for sure, that it is impossible to breed Rhodesian Ridgebacks without occasional appearance of DS.
- The animal welfare act, as well as the statement of governmental committees in Germany and some other European countries, clearly classify the breed of Rhodesian Ridgebacks as “breeding of defects” i.e. torture breeding
- Our intention is to shoulder responsibility and to take the challenge in order to get our breed off this classification

Deutsches Tierschutzgesetz § 11b

German Animal Welfare Act § 11b

Definition Torture breeding:

Breeding of animals in which traits are allowed or promoted that cause pain, harm or behavioural disorders to the animals.

- Governmental committee prepared a list, which describes where the „breeding of defects“ occur in practise.
- Not only dogs and cats even cattle, horses, fish and birds are effected.

The following examples will clarify the problem:

Ectropion: causes permanent inflammation of the eyes



Extreme wrinkling: causes permanent inflammations of skin and eyes



Lop ears: causes inflammation of the ear canal and problems in behaviour



Very short nose: causes breathing problems



White with blue eyes: numbness



Feather cap: causes defective brain



Tailless: breeding problems



Dermoid Sinus: paralysis, meningitis, myelitis, fistulas



- It's meanwhile proven, that DS is inheritable
- Therefore it is not allowed to breed dogs with DS according to our national legislation.

**Can breeders of Ridgebacks guaranty that
no puppies with DS will be born ??**

NO

What can we actually do?

- **Sure identification of DS by vets and breed-warden**
- **Bann of DS – carrier from breeding program**
- **Pay attention to stud books**
 - **i.e. don't combine bloodlines where DS occurred**
- **surgery after 6 weeks of age**
- **demonstrate that Ridgebacks with ambulant surgery don't suffer anymore**

My experiences after about 680 DS surgeries

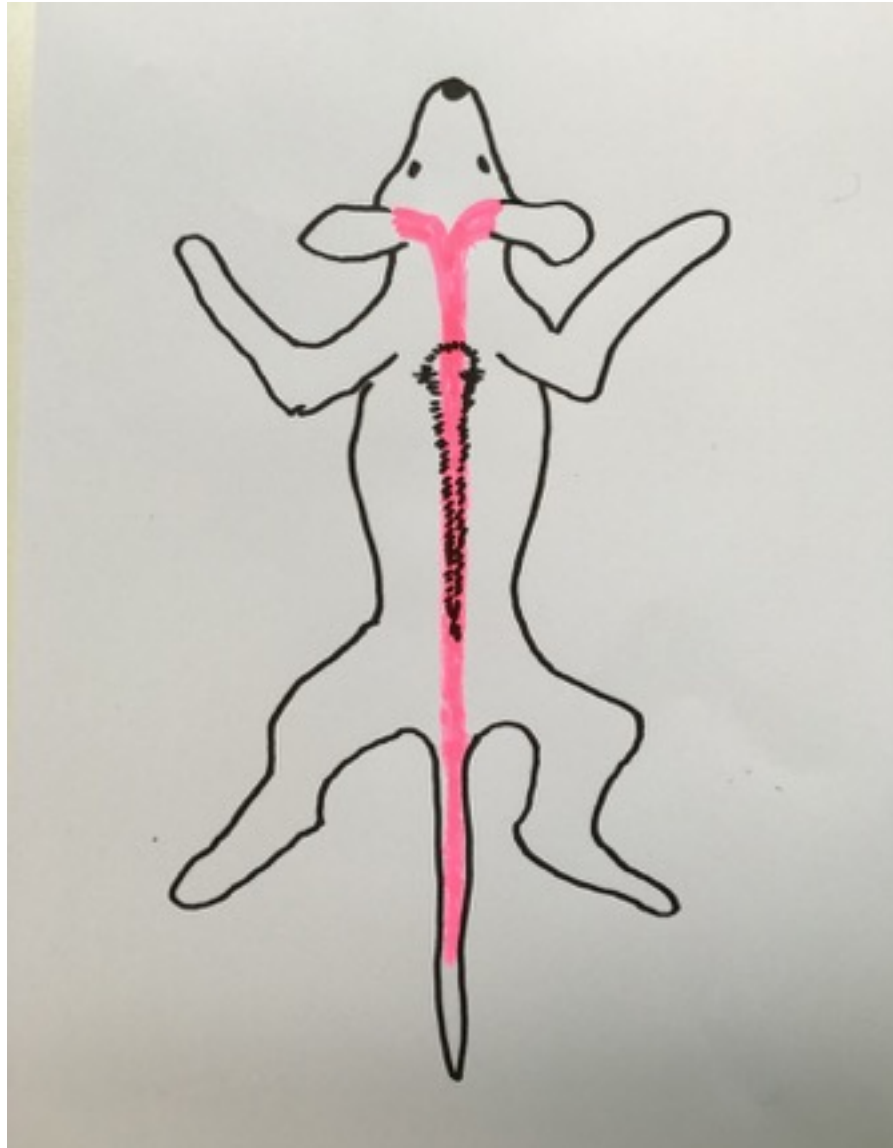
Breeds where I found DS:

- **Rhodesian Ridgeback**
 - ridged or ridgeless !
- **Thai Ridgeback**
- **RR –mix with any other breeds**
 - even 2 or 3 generations later
 - with ridge but even ridgeless !
- **Miniatuur Bullterrier**

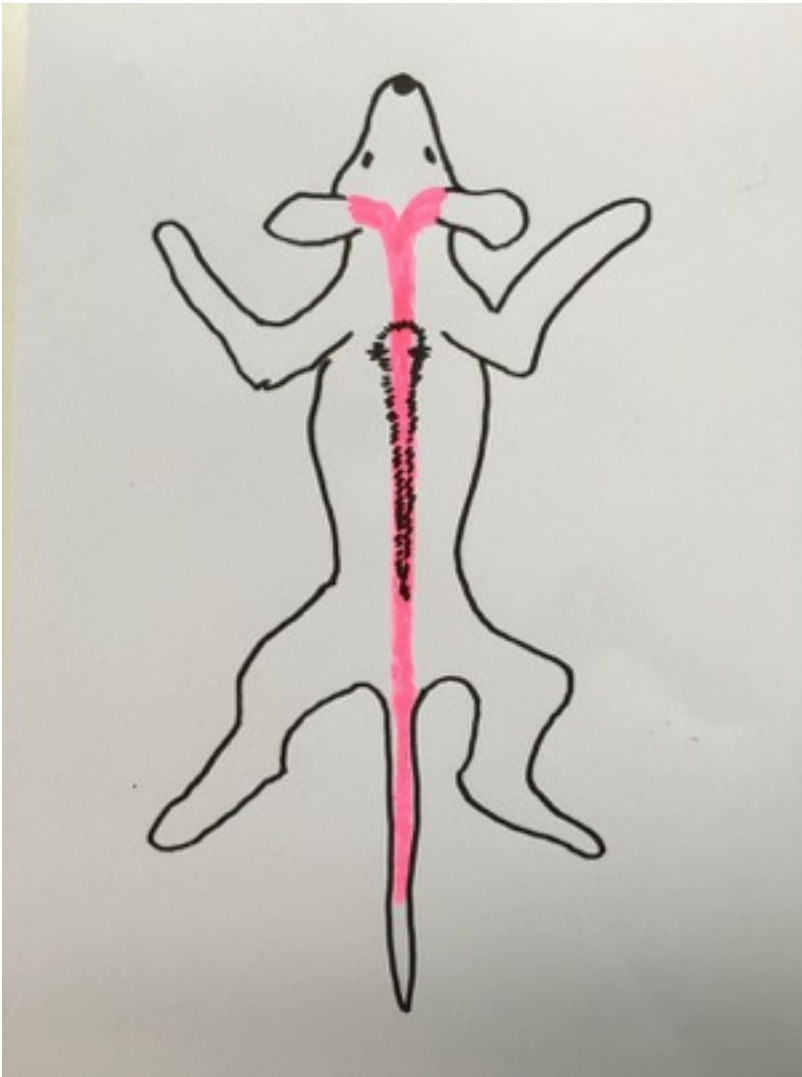
Situation after removing a DS next to the ear of an Miniatur Bullterrier



locations of DS (see red line)



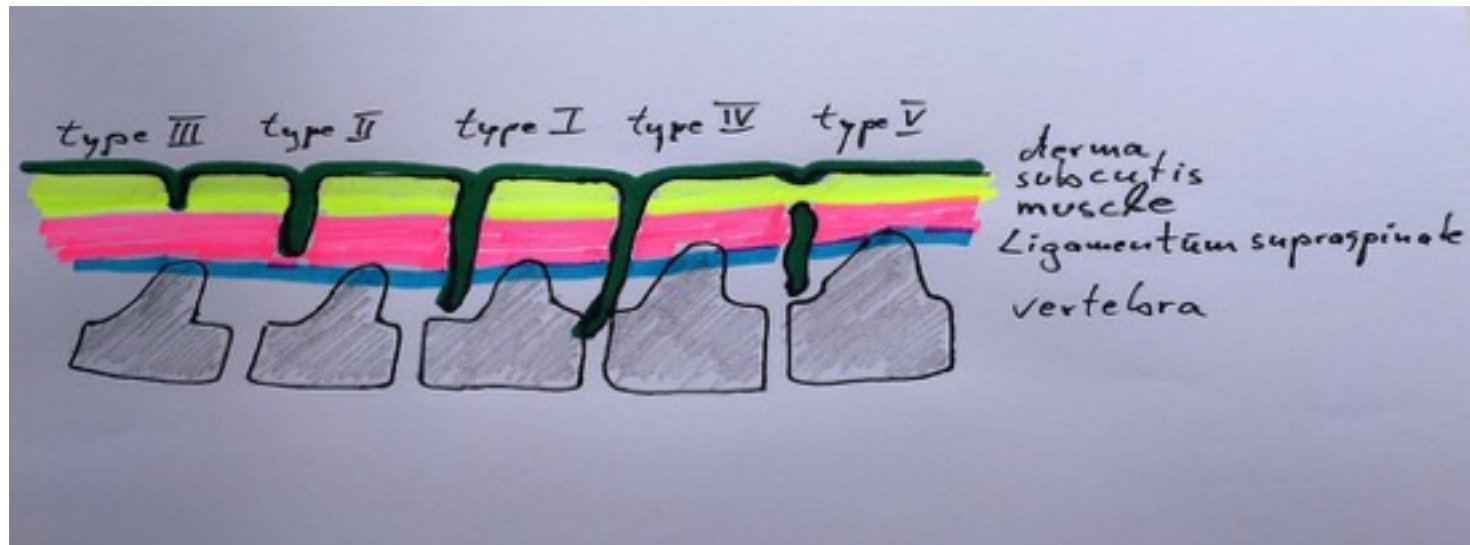
Spreading of DS:



- ears: 9,5%
- neck: 50%
- ridge: 0,5%
- tail: 40%
- two locations 10/100

This is what I found:

Type:	I	II	III	IV	V
	60%	20%	9%	10%	1%
Sacral DS:	50%		5%	45%	



- The ratio males vs. females with DS is nearly 1 : 1
- About 40% of the DS puppies have more than 1 DS
- The worst case I had to deal with was 9 DS in one puppy

6 DS at a RR-mix with a beginning abscess



Searching for DS

<https://youtu.be/40o7EQwMWFU>



- **One can already detect i.e. feel a DS, a few minutes after parturition**
- **During my practical work I found with increasing frequency DS with lack of the typical meatus. I personally assume, that the DS was ripped off by a too heftily investigation practice.**



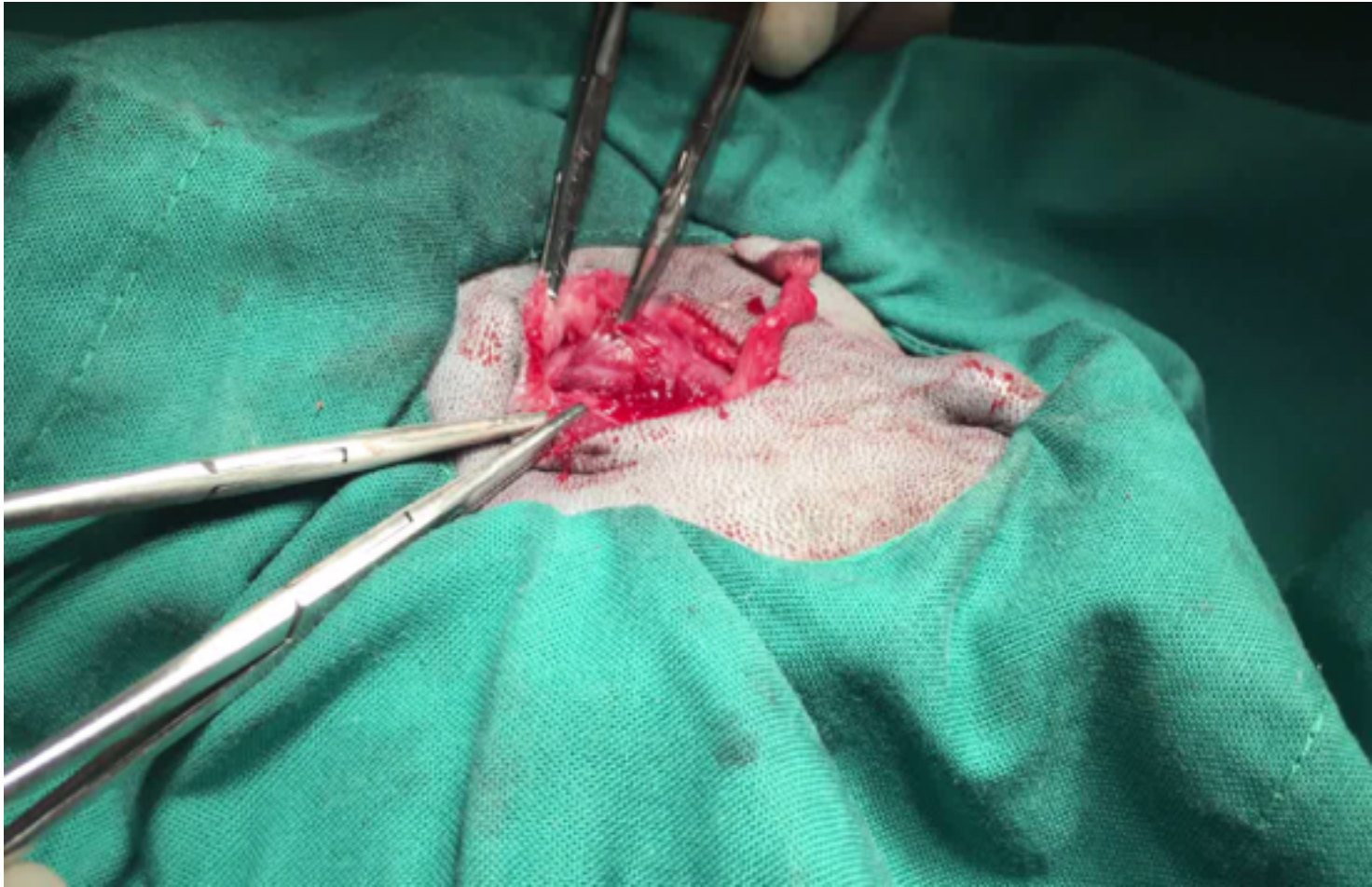
Practises you should try to avoid:

- **An x-ray image is not helpful**
- **CT or an MRT ist not necessary**
- **Don´t insert a probe into the DS**
- **Don`t inject contrast agent into the DS**

- DS is a ticking time bomb. Don't wait until inflammation occurs.
- The operation of a puppy is much easier.
- I prefer to operate puppies starting with a weight of

4 kg

First DS is removed, have a look at the very thin end



Each DS has a blind end !! If there is not a blind end the DS isn't removed completely!!



If the end is left in the tissue it could be the beginning of a fistula months later !!



After the operation

- **Antibiotics for the following 10 days**
- **NSAID for 10 days**
- **space collar (Elizabethan collar)**

In case of a seroma

- **Don't puncture, it will be reabsorbed within 3 weeks**

**We must not and we won't breed
Rhodesian Ridgebacks being
aware, that 4 % of the offspring
needs to be euthanized!!**

My appeal:
Never euthanize a puppy with DS.

**99% of all dogs where I removed
an DS had a normal, pain-free
and long life**

Outlook and intention

- Development of D N A –test method, in order to find out the DS – carrier in our breed.

Thanks very much for your attention.....

.....and now I would like to ask Martin to tell us about the status of our projekt.

Status of the DS project

Participation January 2005

The long term objective is to develop breed-specific genetic markers to allow inter-breed utilization of a DS-specific DNA-test.

Expected outcome:

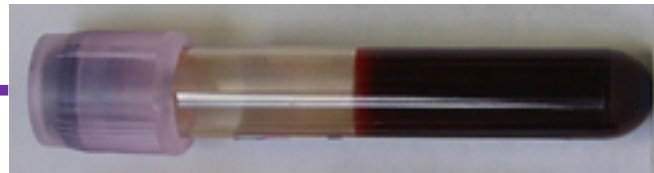
Expectations are that the ability to identify variations in the genetic makeup of Rhodesian Ridgebacks, with focus on DS, will be achieved.

The development of DNA tests will allow testing of presumptive breeding animals.

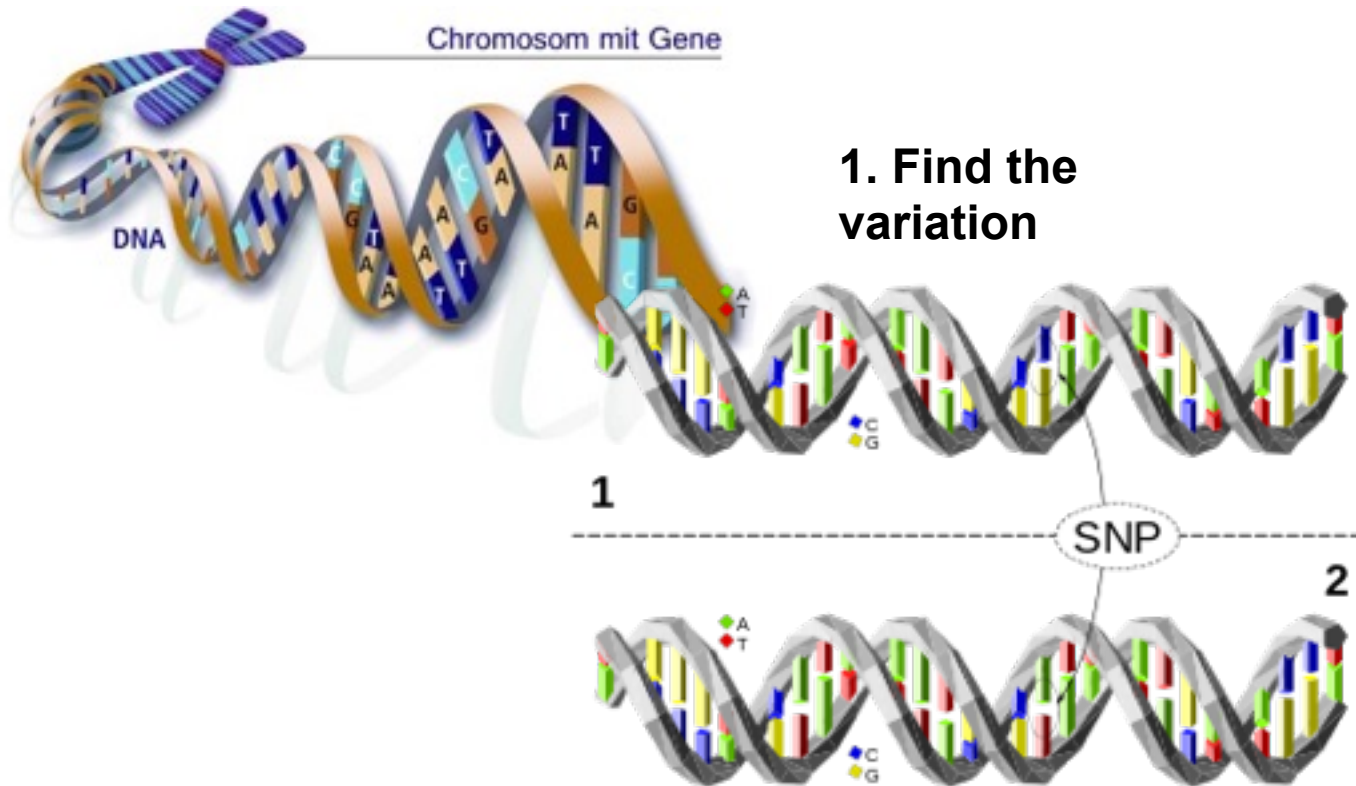
Second attempt

- First scientific information & outcome at RRWC 2008 (Ireland)
- February 2014: DZRR decided to carry on in cooperation with University of Veterinary Medicine, Hannover.

Sampling



Research steps:



1. Find the variation

2. Does it cause DS?

3. Verification and development of test methode

Sampling

- **Sex-specific**
- **Nature of sample (Serum, EDTA, tissue)**
- **Identifikation of sample**
- **DS-carrier / non-carrier**
- **DS within litter mates**
- **DS within parent generation**

Genotyping



The screenshot displays the Neogen website's navigation bar with links: HOME | FOOD SAFETY | ACUMEDIA | ANIMAL SAFETY | GENOMICS | LIFE SCIENCES | TOXICOLOGY. The main header features the Neogen logo and a banner image of a cow and a dog. A large red arrow points to the 'IGENITY® DASHBOARD' section, which includes the text 'BE CONFIDENT IN YOUR SELECTION DECISIONS.' Below this, the 'Genomic Solutions' section is visible, describing Neogen's services for the agricultural biotechnology industry and leading dog breed registries. A sidebar on the left lists various solutions: Beef Cattle, Dairy Cattle, Canine, Equine, Food Safety, Sheep, Swine, and Plant.

Sequencing



STIFTUNG TIERÄRZTLICHE HOCHSCHULE HANNOVER
UNIVERSITY OF VETERINARY MEDICINE HANNOVER, FOUNDATION

Next steps

- **Verification**
- **Testmethod**
- **Deadline 2020**

Thank you for your attention

