

# Breeders Panel Newsletter

Summer 2012

*Dear reader,*

I can't believe another year has passed. Most of you are probably making plans for the Christmas holidays. Please remember our four-legged friends and make certain they are well looked after when you are away! It is also time again for our summer Newsletter. We have

some interesting articles again. One is a summary by Pam Zeiler about microchipping. There are various new brands on the market and she has compared the three that are ISO compliant and accepted by SA Stud Book. Also from January 2013 new, more user-friendly "Application for Registration" forms will be implemented. Please breeders, read this section carefully. Included also an article explaining Degenerative Myelopathy which is a progressive disease of the spinal cord.

Last but not least the Breeders Panel wishes those will be traveling in the coming weeks a very safe journey!





## News from the fbcса secretary ...

### Micro-chips

#### *Which Micro-Chips should I use on my Boxers?*

All Micro-chips that are inserted into your puppies and adult Boxers must be ISO compliant. After some investigation it can be noted that the following micro-chips are ISO compliant and will be acceptable to both the FBCSA and SA Stud Book.

#### **Virbac, Identipet and Five StarID**

You may have read in the news that Virbac recently experienced faulty micro-chips where when the dog was scanned the micro-chip could not be found. If you, within the last year or 18 months bought a pup with a Virbac ID please have your Boxer scanned to see that the chip is in fact visible. If not please contact Virbac for more information.

Remember, it is a **requirement** that **ALL adult Boxers** used for breeding purposes **MUST** be micro-chipped and **ALL puppies** in the litter **MUST** be micro-chipped, with the exception of white pups if they are NOT being registered.

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### New Forms

Breeders please note that as from January 2013 there will be a new Application for Registration form. This now has more space to complete the details of the New Owners. This particular section has in the past held up the registration process due to lack of information when I receive the form. Please note that **ALL forms MUST be completed in FULL.**

Please also note that as from January 2013, Mrs Corinne Young will be handling ALL Breeder queries and will be acting as the PRO for all Breeding information. Her email address will be [breederhelp@fbcса.net](mailto:breederhelp@fbcса.net). In future any Breeder related correspondence I receive will be forwarded to Corinne to follow up on.

There is also a new Advertising form, if you wish to advertise the pups. Pups will only be placed on the website if the form is returned completed in full and I have proof of payment. Please check the website for this new form.

I would like to take this opportunity to thank all those Breeders who have during this year complied with all the rules and regulations of the FBCSA when registering your litters. It has made my life a lot easier. Please always feel free to contact Corinne or myself if you are unsure of any procedure. There is no such thing as a silly question.

Wishing you all a good Breeding season in 2013.

**Pam Zeiler**

*FBCSA Secretary*

## Canine degenerative myelopathy

(Compiled by Dr Gareth Zeiler and Prof Marinda Oosthuizen)

Degenerative myelopathy is a devastating disease causing progressive paralysis in a large number of dog breeds. New research has identified a gene that is associated with a major increase in risk of the disease.



### Introduction:

Canine degenerative myelopathy (DM) (also known as chronic degenerative radiculomyelopathy) is a progressive disease of the spinal cord in older dogs. The disease is chronic and progressive, resulting in paralysis. It has an insidious onset typically between 7 and 14 years of age. It begins with a loss of coordination (ataxia) in the hind limbs. The affected dog will wobble when walking, knuckle over or drag the feet. This can first occur in one hind limb and then affect the other. As the disease progresses, the limbs become weak and the dog begins to buckle and has difficulty standing. The weakness gets progressively worse until the dog is unable to walk.

As of July 15, 2008 the mutated gene (SOD1) responsible for DM has been found present in 43 breeds including German Shepherds, Boxers, Chesapeake Bay Retrievers, Rhodesian Ridgebacks, and both breeds of Welsh Corgis.<sup>1,2</sup>

### Symptoms:

Degenerative myelopathy initially affects the back legs and causes muscle weakness and loss, and lack of coordination. These cause a staggering affect that may appear to be arthritis. The dog may drag one or both rear paws when it walks. This dragging can cause the nails of one foot to be worn down. The condition may lead to extensive paralysis of the back legs. As the disease progresses, the animal may display symptoms such as incontinence and has considerable difficulties with both balance and walking.<sup>1,3</sup> If allowed to progress, the animal will show front limb involvement and extensive muscle atrophy. Eventually cranial nerve or respiratory muscle involvement necessitates euthanasia.<sup>2</sup> Progression of the disease is generally slow but highly variable. The animal could be crippled within a few months, or may survive up to three years or more. <sup>1</sup> Another key feature of DM is that it is not a painful disease.

### Causes:

The etiology of this disease is unknown. The myelin is an insulating sheath around neurons in the spinal cord. One proposed cause of degenerative myelopathy is that the immune system attacks this sheath, breaking it down. This results in a loss of communication between nerves in lower body of the animal and the brain.

Recent research has shown that a mutation in the SOD1 gene is a risk factor for developing degenerative myelopathy in several breeds.<sup>2</sup> Mutations in SOD1 are also associated with familial amyotrophic lateral sclerosis (Lou Gehrig's disease) in people.<sup>4</sup> However, it has been discovered that a German Shepherd Dog that tested Clear (N/N) was found to have DM, upon necropsy. This German Shepherd Dog was found to be homozygous for the normal form of the SOD1 gene. German Shepherd Dog Myelopathy (aka GSDM) is its own unique disease. While ALS (amyotrophic lateral sclerosis) does not involve sensory loss, German Shepherd Dog Myelopathy involves complete sensory loss. Therefore, German Shepherd Dog Myelopathy is not the common form of DM which affects other breeds.

### **Testing:**

Known causes of spinal cord dysfunction should be excluded before accepting the diagnosis of degenerative myelopathy; disc disease (protrusions) or spinal cord tumors can cause compression of the spinal cord with similar signs to degenerative myelopathy.<sup>5</sup>

The Orthopedic Foundation for Animals has developed a DNA test that can detect if a dog carries the mutated genes for DM. The test is for any dog but is only recommended for certain breeds. The test consists of a cheek swab (using something similar to a Q-tip to swab the inside of the cheek to submit for testing). The test checks for the mutated gene that will tell if your dog may be affected by degenerative myelopathy, if it is a carrier, or if it is unaffected.

This test is now also available from Inqaba Biotec in Pretoria.

### ***The results are:***

1. Normal / Normal (N/N) - this means your dog does not have the mutated strain and it will not develop degenerative myelopathy. (clear) However, there have been German Shepherds that tested Clear that were found to have DM, upon necropsy.
2. Normal / Abnormal (N/A) - this means your dog is a carrier of the gene but will not develop degenerative myelopathy. (carrier) However, there have been German Shepherd Carriers that have been found to have DM, upon necropsy.
3. Abnormal / Abnormal (A/A) - this means that your dog is affected with degenerative myelopathy and may develop degenerative myelopathy (affected). Not all dogs with A/A results will develop DM.

### **Genetics:**

Breeding risks for degenerative myelopathy can be calculated using the Punnett Square:

- If both parents are clear (N/N) then all of the puppies will be clear However, it is important to remember that Clear German Shepherd Dogs have developed Degenerative Myelopathy, so perhaps this needs to be revisited!
- If one parent is a carrier (N/A) and one is clear (N/N) then roughly 50% of the puppies will be clear and 50% will be carriers
- If both parents are carriers (N/A) then roughly 25% will be clear (N/N), 50% will be carriers (N/A), and 25% will be affected (A/A)
- If one parent is clear (N/N) and one parent is affected (A/A) then all puppies will be carriers (N/A)
- If one parent is a carrier (N/A) and one is affected (A/A) then roughly 50% of the puppies will be carriers (N/A) and 50% will be affected (A/A)
- If both parents are affected (A/A) then all puppies will be affected (A/A)

## Treatment:

Degenerative myelopathy is a non-reversible, progressive disease that cannot be cured. There are no treatments that have been clearly shown to stop or slow progression of DM.<sup>1</sup>

Exercise has been recommended to maintain the dog's ability to walk.<sup>1</sup> Physiotherapy may prolong the length of time that the dog remains mobile and increase survival time.<sup>6</sup> Canine hydrotherapy (swimming) may be more useful than walking.<sup>7</sup> Use of a belly sling/leash allows the handler the ability to support the dog's hind legs while exercising or going up and down stairs. A 2-wheel cart, or 'dog wheelchair' will allow the dog to remain active and maintain its quality of life once signs of weakness or paralysis of the hind limbs is detected.

## References:

1. Kahn, Cynthia M.; Line, Scott, eds. (2005-02-08). "Degenerative Diseases". The Merck Veterinary Manual (9 ed.). Merck. ISBN 0-911910-50-6.
2. Awano T et al.: Genome-wide association analysis reveals a SOD1 mutation in canine degenerative myelopathy that resembles amyotrophic lateral sclerosis. Proc Natl Acad Sci U S A. 2009 Feb 2. Epub ahead of print.
3. Hovanessian, Natasha (2001-03-27). "Degenerative Myelopathy". Listing of Inherited Disorders in Animals. University of Sydney. Archived from the original on 2008-08-02. Retrieved 2008-07-25.
4. Awano, T.; Johnson, G. S.; Wade, C. M.; Katz, M. L.; Johnson, G. C.; Taylor, J. F.; Perloski, M.; Biagi, T. et al. (2009). "Genome-wide association analysis reveals a SOD1 mutation in canine degenerative myelopathy that resembles amyotrophic lateral sclerosis". Proceedings of the National Academy of Sciences 106 (8): 2794–2799. Bibcode2009PNAS..106.2794A. DOI:10.1073/pnas.0812297106.
5. M. D. Lorenz and J. N. Kornegay. Handbook of Veterinary Neurology, Philadelphia: W.B. Saunders Company, 2004, pp 147-9.
6. Kathmann I, I; Cizinauskas S, Doherr MG, Steffen F, Jaggy A. (July–August 2006). "Daily controlled physiotherapy increases survival time in dogs with suspected degenerative myelopathy". J Vet Intern Med 20 (4): 927–932. DOI:10.1892/0891-6640(2006)20[927:DCPIST]2.0.CO;2. 16955818.
7. Clemmons, R.M. (2002-08-27). "Degenerative Myelopathy German Shepherd Dogs". University of Florida. [http://neuro.vetmed.ufl.edu/neuro/DM\\_Web/DMofGS.htm](http://neuro.vetmed.ufl.edu/neuro/DM_Web/DMofGS.htm). Retrieved 2008-07-25.

## End Note:

This information sheet made use of the Wikipedia, the free encyclopaedia. [Http://www.wikipedia.org](http://www.wikipedia.org). Please visit the page by searching for "Canine degenerative myelopathy". No wording was altered and references are based from actual citations defined on the page. We would like to thank the multiple authors for compiling this informative page on Wikipedia.



**Inqaba biotec™**

### Canine Genetic Tests offered

- Von Willebrand's Disease Type I
- Collie Eye Anomaly (CEA)
- Cystinuria
- PRA-cord1
- CLAD
- Fucosidosis
- Phosphoinositide Kinase Deficiency
- PRA-red1
- Familial Nephropathy (FN)
- Ceroid Lipofuscinosis
- PRA-pred
- MDL1
- LZHGA
- Heritable Cataracts
- Labrador colour inheritance
- Exercise induced Collapse (EIC)
- Von Willebrand's Disease Type III **New**
- Degenerative Myelopathy (DM) **New**

**• Parentage Verification**  
**• Breed identification – Determine breed make-up of a mix and/or if a dog is pure-bred (Hans Wisdom Panel™ Insights) **New****

**Prices range between R300–R450 per test, depending on the test and number of dogs tested**

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*We wish you a blessed Christmas and  
a very happy New Year!*

*Breeders Panel*

*December 2012*

