

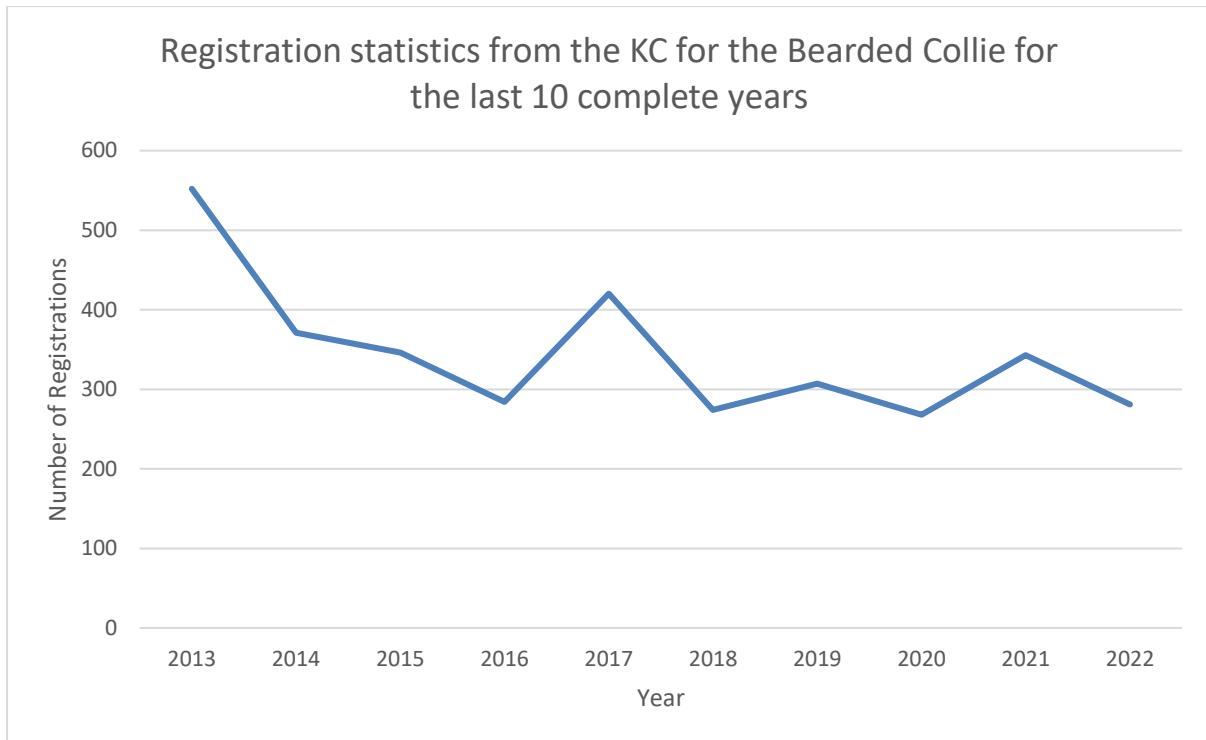
Bearded Collie Health Survey 2023



This is the sixth year in which we have carried out a yearly health survey. In recent years although showing fluctuations there has been an overall downward trend in registration numbers - data from the Kennel Club (Kennel Club, 2022).

Year	Registration numbers
2013	552
2014	371
2015	346
2016	284
2017	420
2018	274
2019	307
2020	268
2021	343
2022	281

In 2016 the numbers fell below the 300 mark which meant we were classified as a vulnerable breed by the Kennel Club (KC) and although the numbers recovered slightly in 2017, in 2018, 2020 and 2022 we again fell into the vulnerable breeds category. In 2020 we had our lowest ever registration figure of 268 puppies but this should be interpreted with a degree of caution as the world was in the middle of the Covid-19 pandemic and lockdowns and restriction of travel meant that many breeding plans just could not take place. Nevertheless, there has been a general downward trend in registrations.

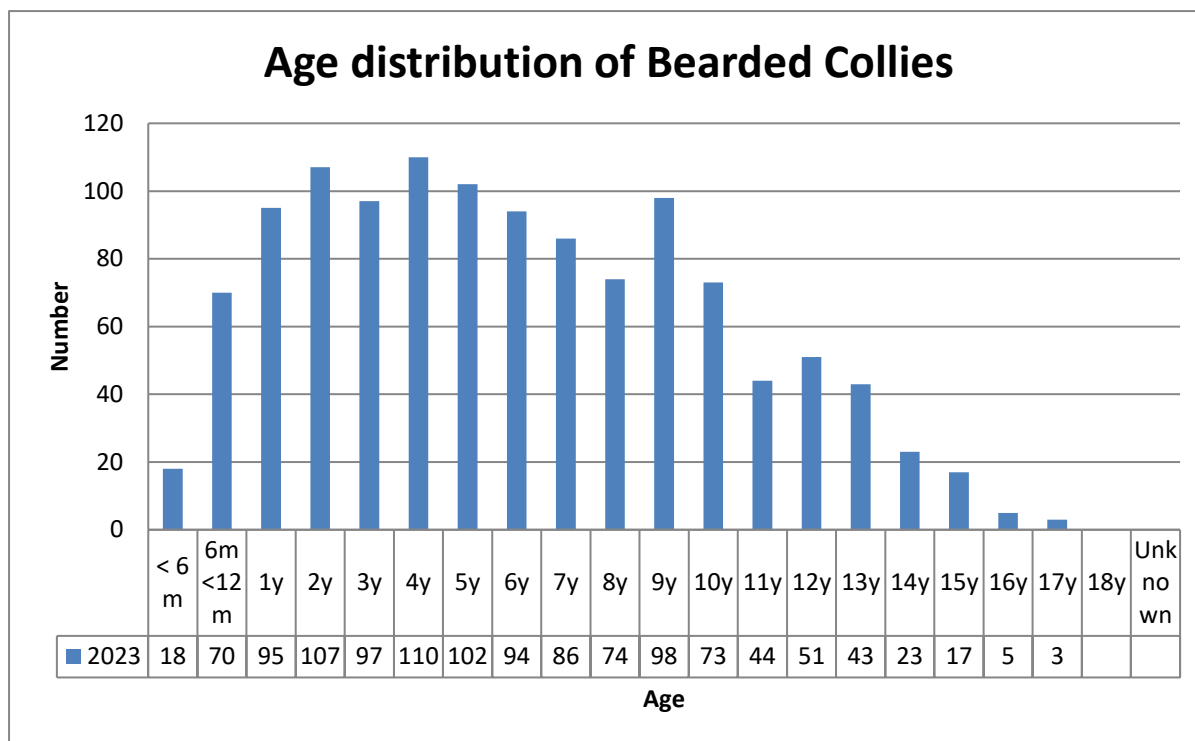


This survey is a follow up to the surveys taken in February 2018 through to February 2022 and is designed to be repeated on an annual basis so that we can observe trends in health within the breed rather than looking at a single snapshot. To this end a survey was designed that was not too detailed in order to encourage maximum participation and obtain data on as many dogs as possible to get an accurate picture on the health of the breed. A few questions were added in 2019 in response to drawing up the Breed Health and Conservation Plan (BHCP) in conjunction with the Kennel Club and a further question related to dogs with retained testicles was added in 2022. The final survey consisted of seventeen questions with either Yes/No or short answers and was designed to be user-friendly.

Data was received on 1210 dogs of which thirty-one had died in the year leading up to February 2023. This was an increase in the overall number of dogs participating in the survey from 2022 which was pleasing given the general downward trend in registrations.

Ages

The age range of Bearded Collies show a distribution from less than 6 months up to 17 years confirming previous studies which have shown that the Bearded Collie can be a very long-lived breed. (O'Neill et al., 2013)



The dogs that had died were distributed in age from 6 years to 16 years and died from a variety of different causes which is tabulated below.

Age (Years)	Sex	Cause of death (as stated by owner)
9 years	FN	Acute kidney failure
13 years	FN	Heart issue with fluid in the chest
10 years	MN	Renal failure
10 years	ME	No cause of death given
15 years	MN	Chronic arthritis
12 years	MN	Ruptured splenic tumour
6 years	ME	Addison's disease and immune mediated haemolytic anaemia
10 years	FE	Liver tumour
13 years	FE	Tumour on the hock
13 years	FN	Heart/Liver tumour
13 years	ME	Canine cognitive dysfunction
12 years	ME	Liver tumour and fluid on lungs
15years	ME	Dislocated hip
13 years	MN	Tumour in throat area
7 years	FN	Leukaemia
12 years	MN	No cause of death given
13 years	FN	Brain tumour

16 years	MN	Joint issues, detached retina
12 years	MN	Carcinoma in back
10 years	FE	Tumour around heart
13 years	FE	Organ failure
13 years	ME	Collapsed larynx
14 years	FN	Stroke/Brain tumour
11 years	MN	Blindness and canine cognitive dysfunction
14 years	MN	Stroke
10 years	FN	Ruptured splenic tumour
9 years	ME	Brain tumour
8 years	FN	Tumour in eye and also tumour on neck
15 years	ME	Megoesophagus
11 years	FN	Abdominal tumour
10 years	ME	Kidney disease

FE = female entire

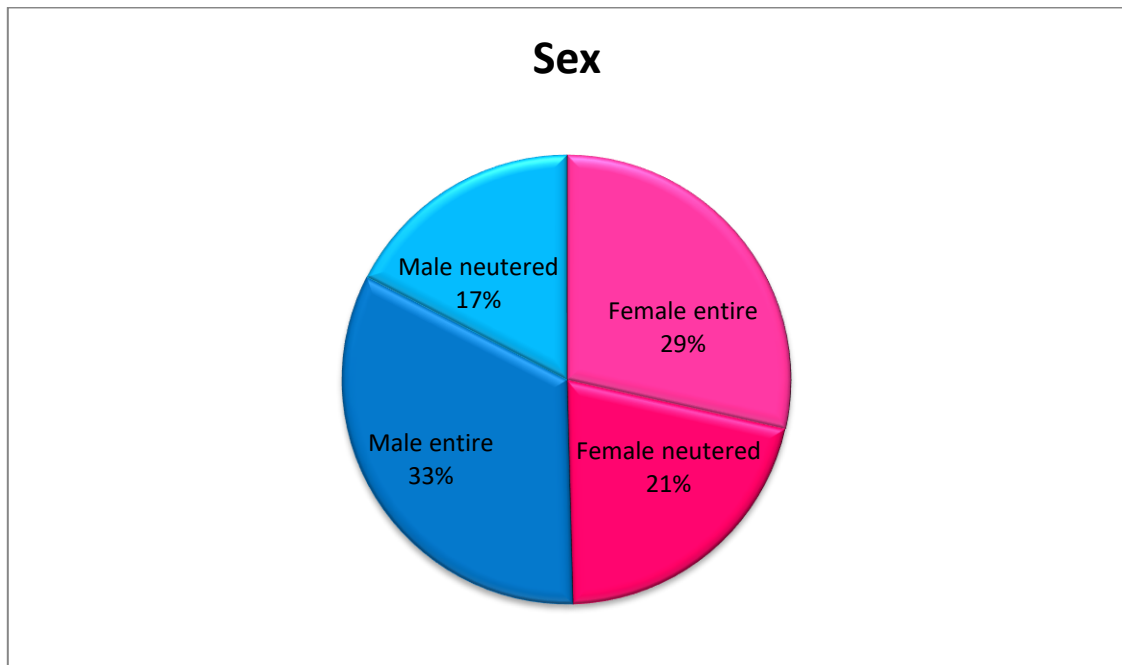
FN = female neutered

ME = male entire

MN = male neutered

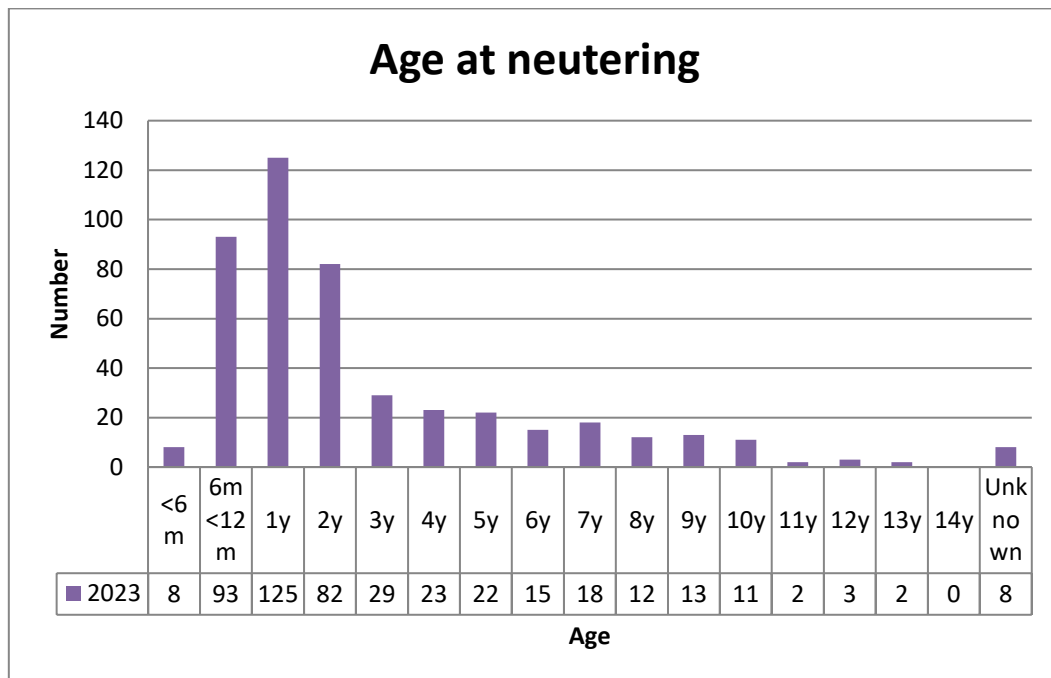
Most dogs that had died were above 10 years of age apart from five younger dogs.

Distribution of sexes and number of dogs neutered



Female dogs represented 49.5% of the population and male dogs represented 51.4%. A total of 466 Bearded Collies were neutered representing 38% of the total population. This is much lower than the average neutering rate for pet dogs of 70% (PAW report, 2022) which

probably reflects the fact that this survey was distributed widely among many people who breed as well as pet owners and therefore includes some of the breeding population. Other factors include the increased knowledge of the fact that not all effects of neutering are positive especially if done when the dog is skeletally immature and the fact that neutering can cause coat changes, which is more evident in a long-coated breed.



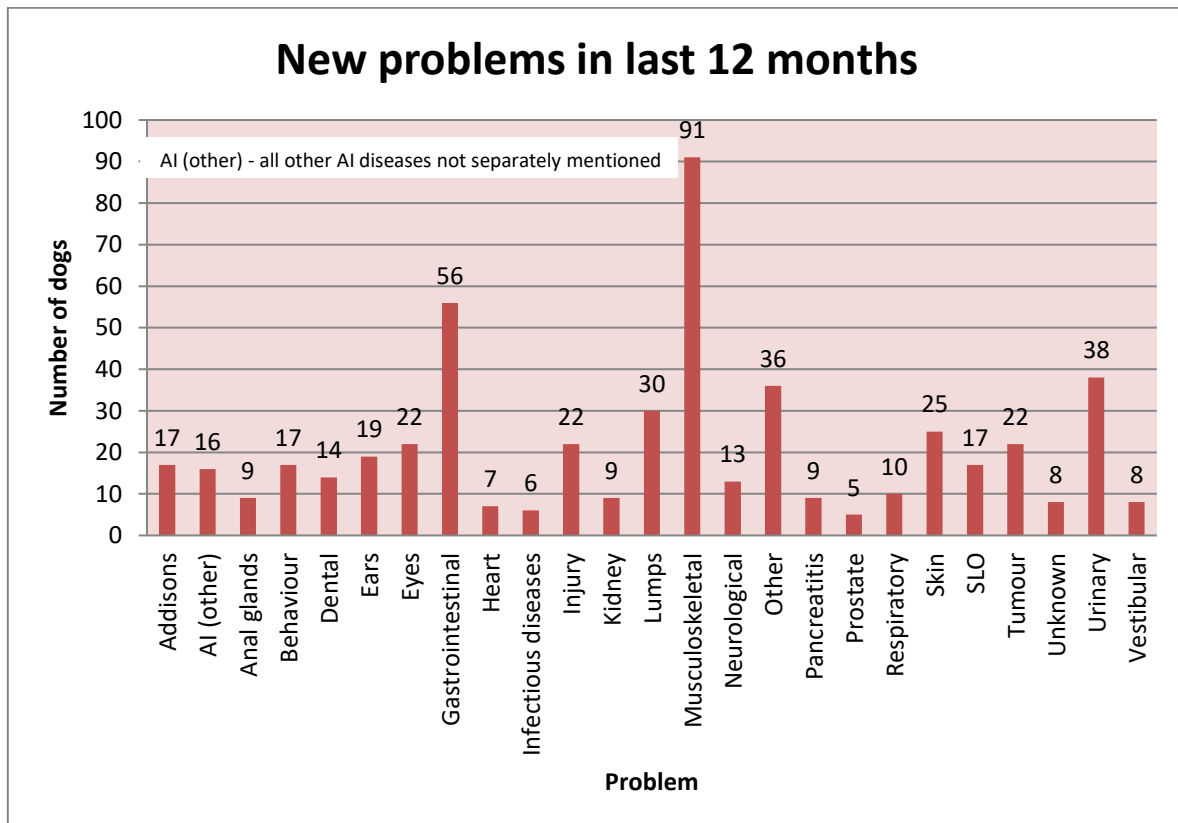
As would be expected in line with most pets neutered, the age of neutering was positively skewed with the vast majority of dogs neutered young, there were a small number (8 dogs) where age of neutering was not known. One hundred and one dogs were neutered under 12 months of age. Recent research published which appears to be very breed specific is showing in some breeds that there is an increase in orthopaedic problems such as hip dysplasia, elbow dysplasia and cruciate disease in dogs neutered earlier and also certain types of cancer and some behavioural problems. (Hart et al. 2014, Hart et al, 2016 and Zink et al. 2014) Of the dogs neutered under 12 months two dogs (2%) were diagnosed with elbow dysplasia and 3 dogs (3%) were diagnosed with hip dysplasia compared to a prevalence of 1.8% for elbow dysplasia and 1.2% for hip dysplasia in the overall population. No dogs neutered under 12 months of age were later diagnosed with cruciate disease. Eight dogs (7.9%) neutered under 12 months went on to develop autoimmune disease whilst the prevalence of autoimmune disease in the overall population was 5.9%.

There were 610 male dogs in the survey but 5 owners did not answer the question about retained testicles. Of the 605 male dog owners which answered this question 115 (18.85%) reported their dog had a retained testicle. Spangenberg (2021) reports a range of 0.8 to 10% incidence of retained testicles in dogs with a higher prevalence in smaller breeds and some purebred dogs. The incidence of cryptorchidism in Bearded Collies would therefore appear higher. Cryptorchidism is an autosomal recessive trait in dogs and therefore to be affected a dogs must inherit a gene from both parents but obviously the trait will only be seen in male dogs. This means that female siblings to cryptorchid dogs may be carriers and therefore in an

ideal world would not be bred from but this would further reduce an already small gene pool. It is therefore important that breeders are aware of this so they can consider it as a factor when making breeding decisions.

1. Episodes of new disease requiring veterinary attention in the last 12 months.

422 dogs (34.8%) were reported to have received veterinary attention for one or more new problems in the last 12 months. A total of 526 problems were reported.



The group of new problems most commonly reported were musculoskeletal conditions as in the 2018-2022 surveys with 91 instances reported some of which consisted of more than one problem. These were broken down as follows:

Condition	Number of dogs
Arthritis	55
Cruciate disease	3
Elbow dysplasia	3
Hip dysplasia	2
Lameness none specific	10
Injury	9
Other conditions	11

Other conditions included spondylosis, lumbosacral disease and non-specific diagnoses such as bad back, joint issues and stiffness and pain. Given that 259 dogs are aged 10 years and older (21.4% of the total sample) it is hardly surprising that arthritis is the most common condition reported in this section.

Nearly all the cases of arthritis were in older dogs (>8 years of age) There was a handful of cases in younger dogs which may follow injury or inherited diseases such as elbow and hip dysplasia. Numbers of dogs with elbow dysplasia and hip dysplasia will be monitored in the breed health survey on an ongoing basis as there is a hereditary component to both these diseases. At the moment there is a requirement to hip score before breeding but not to elbow score but we are monitoring this situation as part of the Breed Health and Conservation Plan (BHCP) drawn up with the KC. It is positive to see that even though the KC do not require it many breeders are starting to elbow score at the same time as they hip score and this should be encouraged.

Immune mediated disease

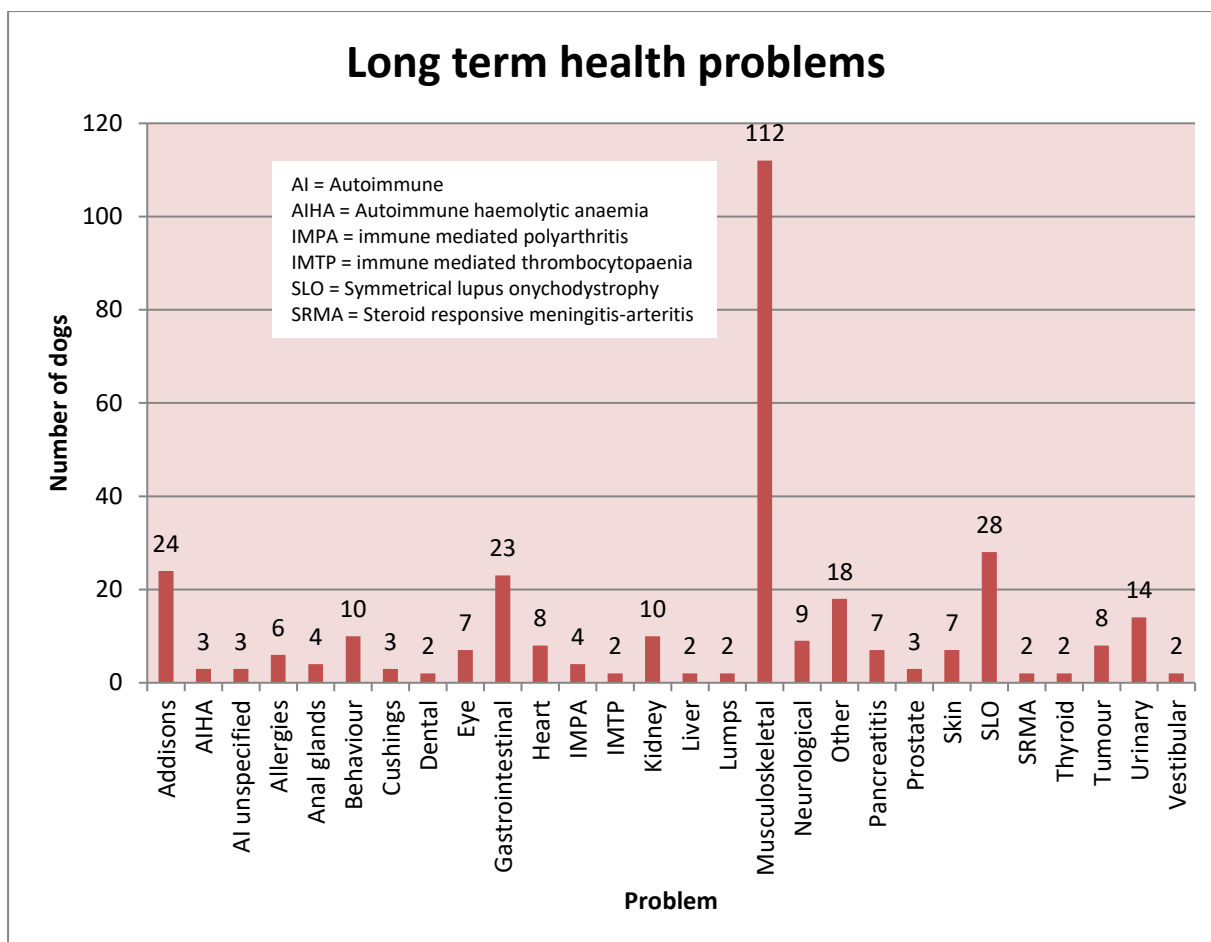
A breakdown of the incidence of immune mediated disease diagnosed in the preceding 12 months is given below.

Autoimmune disease	Number of cases
Addison's	17
AIHA	4
AI unspecified	2
Anal furunculosis	1
IMPA	1
DLE	1
IMTP	1
Pemphigus	1
Rheumatoid arthritis	1
SLO	17
SRMA	3
Thyroid disease	1
Total	50

Autoimmune disease represents 9.5% of the new problems with which dogs were taken to visit their veterinary surgeons in the preceding 12 months compared with 6.8% in the 2018 survey, 5.9% in the 2019 survey, 8% in the 2020 survey and 6.5% in the 2021 survey and 10.1% in 2022.

2. Bearded Collies with long term health problems

269 dogs (22.2%) were reported to be suffering from one or more long term health problems representing 325 long term problems.



As with new problems the largest category was musculoskeletal disease with 112 reported problems which represents 34.5% of all the long-term health problems. Of the musculoskeletal problems 66 of the 112 dogs (58.9%) were suffering from arthritis, this represents 5.4% of the total number of dogs in the survey.

Condition	Number of dogs
Arthritis	66
Cruciate disease	4
Elbow dysplasia	11
Hip dysplasia	5
Other	26

It would be expected to have a reasonable incidence of arthritis in a sample where 21.4% of the dogs are over 10 years of age due to simple wear and tear. More worrying are the diseases that have a multifactorial aetiology including hereditary factors as these often affect young dogs and can lead to a lifetime of problems for both the dog and the owner. These include hip dysplasia and elbow dysplasia. In the present survey, hip dysplasia was given as a chronic disease in 5 dogs. Assured Breeders in the UK have a mandatory requirement to hip score their dogs before breeding. It is recommended that hip scores should be looked at along with

other criteria and ideally the dogs chosen for breeding should have a hip score around or ideally below the breed median score which for the Bearded Collie is currently 9 (Kennel Club, 2021). The Kennel Club also now publish estimated breeding values (EBV) for hips in the Bearded Collie and the more complete this data becomes the more useful it will be as an additional tool to aid breeders in choosing dogs from which to breed. There is less data on elbow disease as elbow scoring is not mandatory in the breed although there are breeders starting to elbow score for their own information and there are dogs that are showing evidence of the disease. The recommendation is that ideally dogs with a score of 0 should be bred from and certainly not dogs with a score of 2 or 3 (BVA/Kennel Club, 2022) In the current survey there were 11 dogs which mentioned elbow disease as a chronic condition.

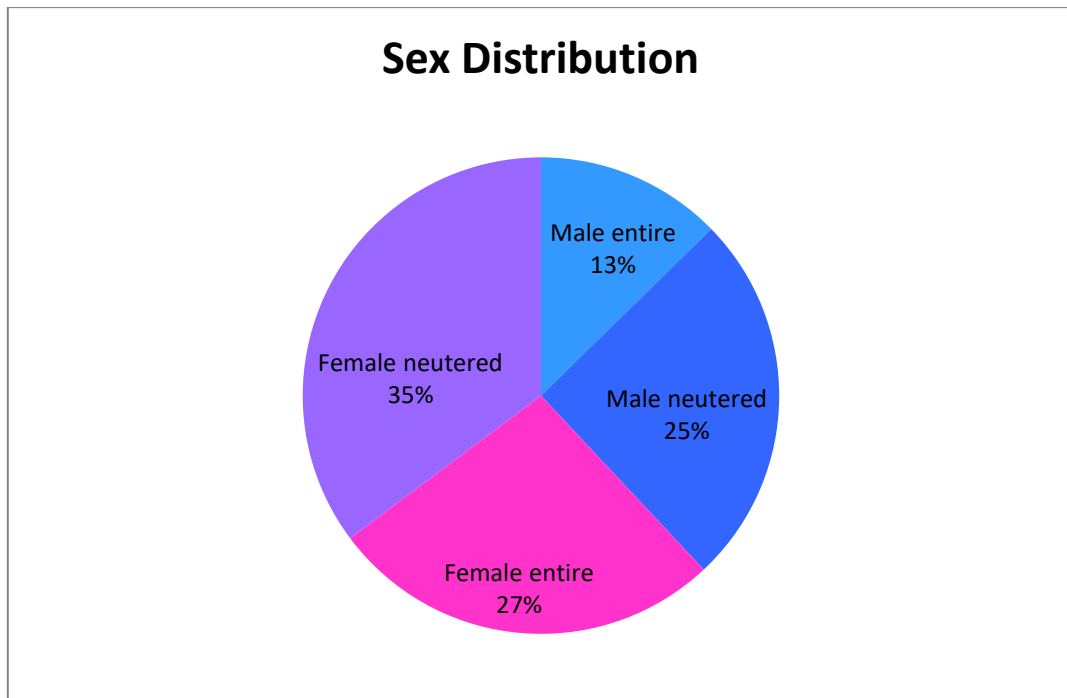
Immune mediated disease

As mentioned previously immune mediated diseases have always been of concern in the breed and in the current survey Symmetrical lupus onychodystrophy (SLO) is the second most common chronic condition. The total number of instances of immune mediated disease in the long-term health problems was 71 which represents 21.8% of all long-term health problems mentioned. Breakdown of immune mediated disease is as follows:

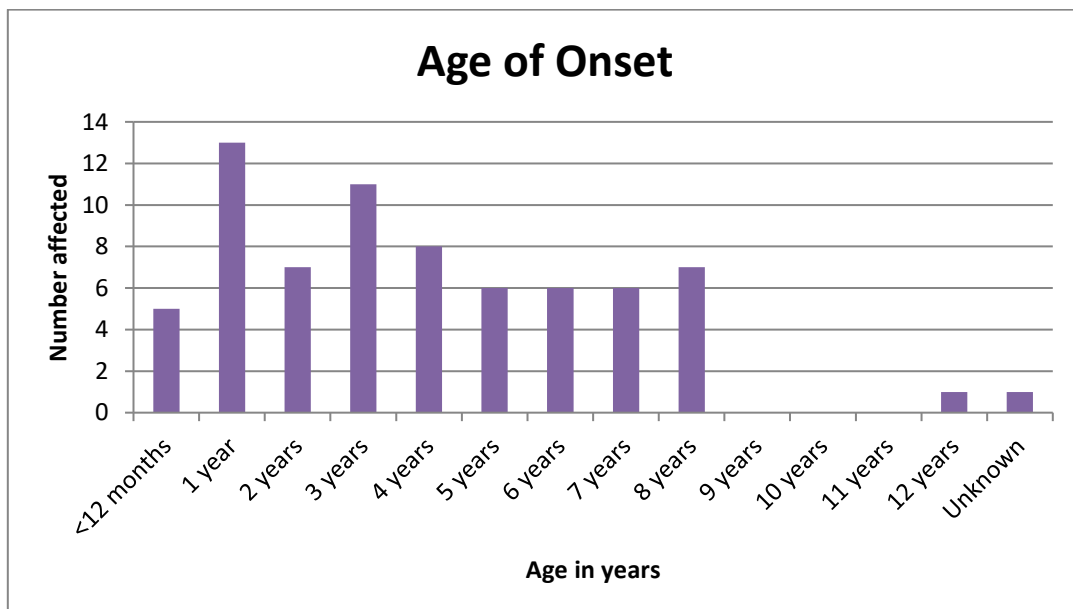
Disease	Number of cases
Addison's	24
Autoimmune haemolytic anaemia (AIHA)	3
AI unspecified	3
Discoid lupus erythematosus (DLE)	1
Immune mediated polyarthritis (IMPA)	4
Immune mediated thrombocytopaenia (IMTP)	2
Masticatory Myositis	1
Pemphigus	1
SLO	28
Steroid responsive meningitis-arteritis (SRMA)	2
Thyroid disease	2
Total	71

Within the survey the total number of dogs affected with immune mediated diseases was 71 which represents 5.9% of the total dogs in the survey, this compares with a total of 65 (6.8%) in 2022, 67 (5.6%) in 2021, 68 (5.3%) in 2020, 57 (4.9%) in 2019 and 61 (5.4%) in 2018. This number is generally less than has been reported in other surveys (Kershaw, Wilkins and Mc Bride, 2015, and Kennel Club, 2014) but may reflect that we had a large sample number and owners of healthy dogs were encouraged to enter data. The sex distribution of these dogs was 38% male and 62% female with a breakdown as follows:

Sex of dog	Number affected
Male entire	9
Male neutered	18
Female entire	19
Female neutered	25



Age of onset of immune mediated disease for these dogs was as follows:



Age of onset is positively skewed showing more young dogs diagnosed which is the reason for concern with these diseases, along with their life threatening nature of some diseases, the need for ongoing treatment in most cases and the unclear mode of inheritance and their likely multifactorial aetiology. Female neutered dogs are still the category most likely to be affected

but it should be remembered that some of these dogs were neutered after their diagnosis possibly so they could not be bred due to the autoimmune issues. There have been advances in the understanding of autoimmune disease in 2019 with research into SLO and Addison's disease from Liza Gershony at the University of California and research funded by the JBLC into Addison's disease by Brian Catchpole at the Royal Veterinary College. Both have advanced our knowledge of these diseases but they are multifactorial diseases and we do not at present have any commercial tests available to identify genetically susceptible animals.

Dogs on long term medication

183 dogs (15.1%) were reported to be on long term medication with one or more drug, this figure has remained fairly constant across all the surveys. Data was not collected in this survey on the drugs used.

Jaw problems

As part of the BHCP information was collected on dogs which had jaw problems, 31 dogs (2.6%) were reported as having one or more problems with their jaw compared with 3.3% in 2019, 4% in 2020, 3.9% in 2021 and 2.5% in 2022. The breakdown of these problems was as follows:

Problem	Number of dogs affected
Level bite	1
Narrow jaw	7
Other	1
Overshot	12
Teeth impacting palate	1
Teeth misplaced	3
Undershot	5
Unknown	2

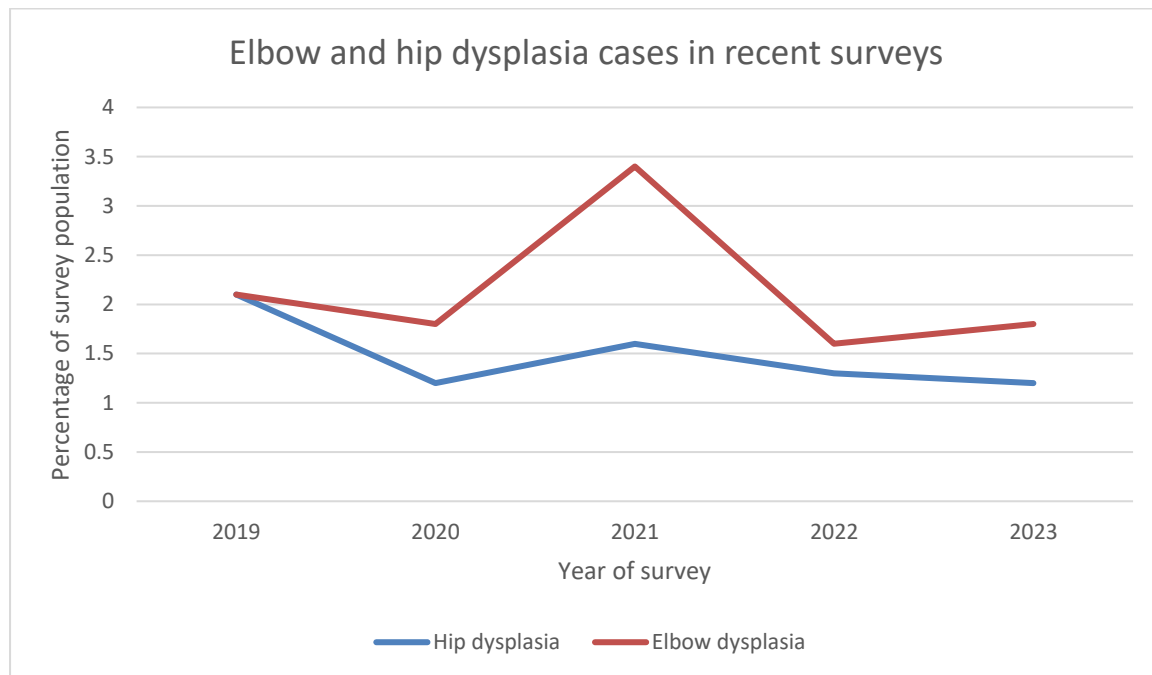
There is often a genetic component to malocclusions but trauma can be another occasional cause. The only ways of dealing with this at present are not to breed from parents with jaw problems and not to repeat matings which have produced jaw problems. Of the 31 affected dogs 13 (41.2%) required veterinary attention to resolve the situation, the rest either resolved without intervention or the dogs were able to live with the condition.

Inherited diseases

There are potentially many diseases which have a genetic component but Bearded Collie breeders are strongly advised to test for Hip dysplasia (HD), indeed it is mandatory for the Assured breeder Scheme (ABS) and breeders are also strongly advised to test for Collie eye anomaly (CEA) and have an eye examination to check for other potential hereditary eye diseases before breeding. As part of the BHCP we also agreed to monitor the breed for elbow

dysplasia (ED). The prevalence of these diseases was as follows when owners were asked the direct question of whether their dog suffered from them:

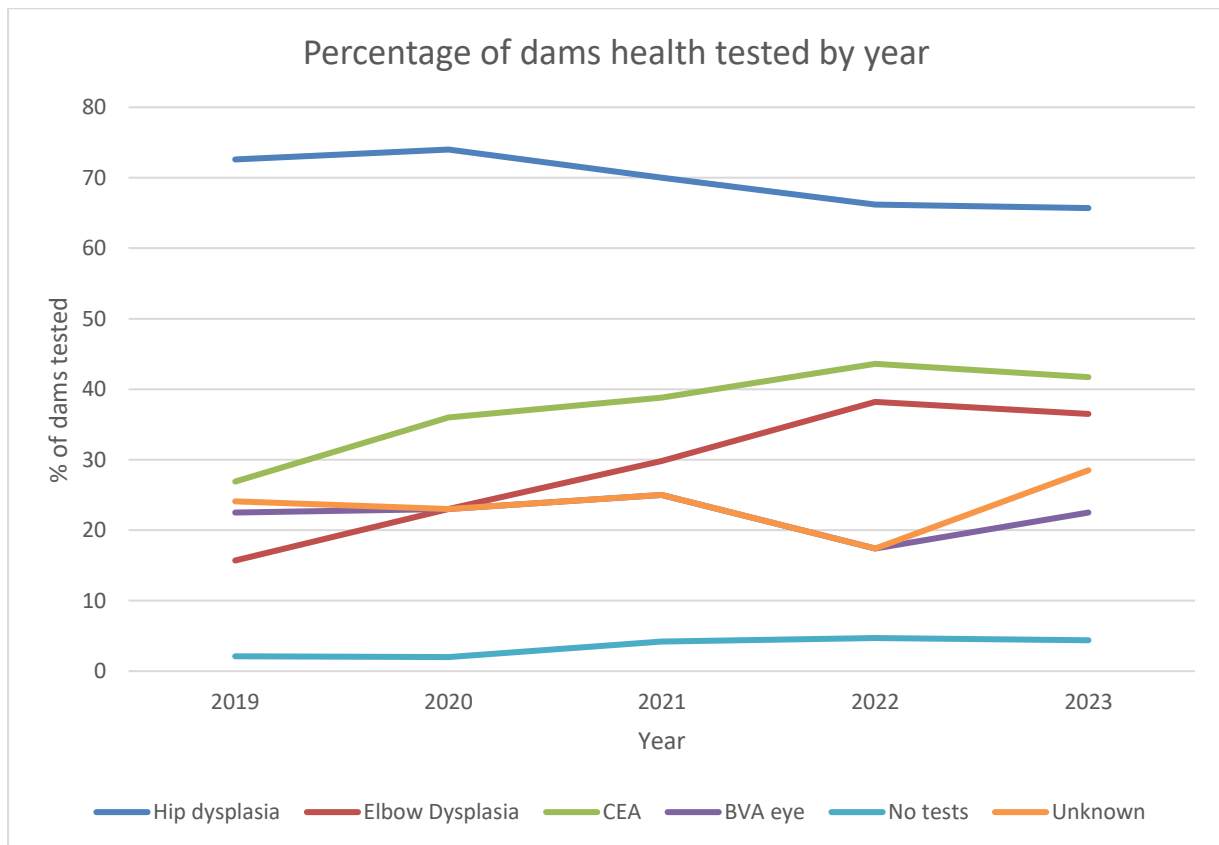
Disease	Numbers of dogs affected				
	2023	2022	2021	2020	2019
Hip dysplasia	14 (1.2%)	13 (1.4%)	20 (1.7%)	16 (1%)	24 (2.1%)
Elbow dysplasia	22 (1.8%)	15 (1.6%)	41 (3.4%)	24 (2%)	24 (2.1%)
CEA	3 (0.25%)	3 (0.3%)	3 (0.3%)	4 (0.3%)	9 (0.8%)



HD and ED are multifactorial diseases which although they have a genetic component can be affected by other factors. The Bearded Collie was one of the early breeds to embrace the British Veterinary Association (BVA) / Kennel Club (KC) Hip Dysplasia Scheme. In the fifteen-year summary published in 2019, 1397 Bearded Collies had been screened (KC). The BVA/KC scheme for elbow dysplasia was introduced later and is not a requirement for the breed at present but some breeders have started screening dogs when their hips are done and this, and clinical disease found have indicated presence of the disease in the breed. This is being monitored and this is the fifth survey where we have asked owners directly if dogs were affected – for the last 4 years the numbers of dogs with elbow dysplasia is greater than the number of dogs with hip dysplasia and I therefore think we need to reconsider whether we ask for elbow screening to become an advised test. The 3 dogs with CEA are puzzling as there was only ever one reported case of CEA in the breed in the UK but could indicate carriers of CEA or possibly non-KC registered Bearded Collies or foreign dogs although we asked only UK KC registered dogs to complete the survey.

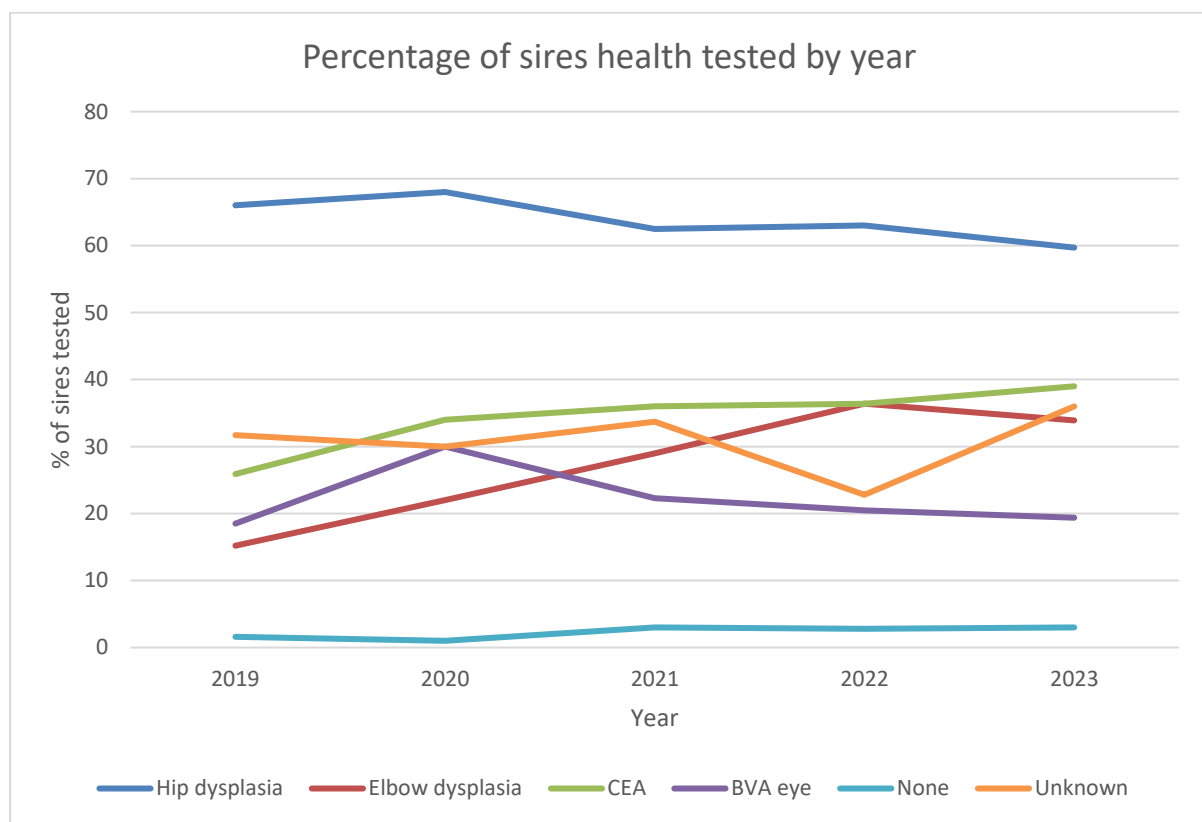
Numbers of dams of dogs screened in recent years as stated by owner are as follows:

Screening test carried out	2023	2022	2021	2020	2019
Hip dysplasia	795 (65.7%)	636 (66.2%)	833 (70%)	935 (74%)	835 (72.6%)
Elbow dysplasia	442 (36.5%)	367 (38.2%)	355 (29.8%)	291 (23%)	181 (15.7%)
CEA	504 (41.7%)	419 (43.6%)	461 (38.8%)	458 (36%)	309 (26.9%)
BVA eye examination	272 (22.5%)	225 (23.4%)	304 (25.6%)	343 (27%)	259 (22.5%)
No tests	53 (4.4%)	45 (4.7%)	50 (4.2%)	26 (2%)	25 (2.1%)
Unknown	345 (28.5%)	167 (17.4%)	298 (25%)	298 (23%)	277 (24.1%)



Numbers of sires of dogs screened in recent years as stated by owner are as follows:

Screening test carried out	2023	2022	2021	2020	2019
Hip dysplasia	722 (59.7%)	605 (63%)	743 (62.5%)	860 (68%)	760 (66%)
Elbow dysplasia	410 (33.9%)	349 (36.4%)	345 (29%)	282 (22%)	175 (15.2%)
CEA	472 (39%)	396 (41.2%)	428 (36%)	426 (34%)	298 (25.9%)
BVA eye examination	235 (19.4%)	197 (20.5%)	265 (22.3%)	386 (30%)	213 (18.5%)
No tests	36 (3%)	27 (2.8%)	36 (3%)	17 (1%)	18 (1.6%)
Unknown	436 (36%)	219 (22.8%)	401 (33.7%)	386 (30%)	365 (31.7%)



Unknown health tests may be because the dog is a rescue and they are unknown or could be because the dog is older and the owner is unaware of the tests done or could simply be because they cannot find this information. There is now no excuse for dogs being born without parents having hip scores given the Kennel Club's recommendation. However, the difficulty getting dogs tested over Covid – 19 and the length of time taken for results to be produced will have affected this but over the same time the number of dogs being tested for elbow dysplasia has increased. CEA tests have only been required in recent years so the older dogs in the survey will not have parents CEA tested. This figure should gradually increase in ongoing surveys. It should be noted that the Kennel Club has delayed the announcement

restricting the hereditary clear status for genetic tests to two generations, Eye examination in veteran dogs are useful to monitor the breed for any emerging diseases such as reports of dogs abroad with progressive retinal atrophy (PRA). Many breeders have carried out eye tests from the early days of the BVA/KC scheme and I have had sight of documentation of dogs tested from the 1970s. The numbers having BVA eye tests may also have been affected by the Bearded Collie clubs having restricted shows and therefore not being able to have testing at shows although we were able to offer eye testing again at the April 2023 Bearded Collie Club Open show and 28 dogs were tested including 7 veterans . Elbow testing although not required shows the dedication of some breeders to be proactive in ensuring they breed healthy puppies.

Summary

This is the sixth attempt to collect data on an ongoing basis by yearly health surveys in the breed. The general feedback was the survey was easy and quick to complete. The ease with which the survey could be completed did mean there was a compromise in the amount of data collected. However, there was a good response with data on 1210 dogs. This showed that although the breed has some health problems in line with many other pure-bred dogs Bearded Collies were in general a long-lived breed and many of the diseases seen were associated with age. This should not lead to complacency though as dwindling registration numbers leads to a reduction in the number of dogs available for breeding and the danger of loss of genetic diversity especially if many dogs are bred to popular sires. We also still have the problem that we do not know how to prevent the breeding of dogs with immune mediated disease and all we can do at present is not to breed from any dogs exhibiting these diseases, not repeat matings that have produced offspring with these diseases. The Joint Breed Liaison Committee and the Breed Clubs are also committed to looking for opportunities to help further research in these areas and but all research has been severely restricted over the Covid-19 pandemic. **There is ongoing research both into Addison's disease and SLO at the University of California and anyone who wishes to partake can do so by looking at the information on the website related to the Bearded Collie project.** ([Bearded Collie Project: Addison's and SLO – CGAP Canine Genetic Analysis Project \(ucdavis.edu\)](#))

References

British Veterinary Association/Kennel Club (2022) Elbow Dysplasia in dogs. Available from [20220114 CHS Elbow Dysplasia 2022 v1.indd \(bva.co.uk\)](#) [Accessed 30th April 2023]

Gershony L.C., Belanger J.M., Short A.D., Le M., Hytonen M.K., Lohi H., Famula T.R., Kennedy L.J. and Oberbauer A.M. (2019) DLA class 11 risk haplotypes for autoimmune diseases in the bearded collie offer insight to autoimmunity signatures across dog breeds. *Canine Genetics and Epidemiology*. Available from <https://cgejournal.biomedcentral.com/articles/10.1186/s40575-019-0070-7> [Accessed 30th April 2023]

Gershony L.C., Belanger J.M., Hytonen M.K., Lohi H. and Oberbauer A.M. (2019) Novel locus associated with Symmetrical Lupoid Onychodystrophy in the Bearded Collie. *Genes*. Available from <https://www.mdpi.com/2073-4425/10/9/635> [Accessed 30th April 2023]

Hart B.L., Hart L.A., Thigpen A.P. and Willits N.H. (2014) Long term health effects of neutering dogs: Comparison of Labrador Retrievers with Golden Retrievers. *Plos One* 9(7) 1-10.

Hart B.L., Hart L.A., Thigpen A.P. and Willits N.H. (2016) Neutering of German Shepherd Dogs: associated joint disorders, cancers and incontinence. *Veterinary Medicine and Science*, 2 191-199.

Kennel Club (2019) *Pedigree Breed Health Survey 2014*. Available from [2014 pedigree breed health survey | Dog health | Kennel Club \(thekennelclub.org.uk\)](#) [Accessed 30th April 2023]

Kennel Club (2020) *Annual Health Report*. Available from [breed-specific-information-hip-dysplasia.pdf \(thekennelclub.org.uk\)](#) [Accessed 30th April 2023]

Kershaw, Wilkins and Mc Bride (2015) *Report of the UK Bearded Collie Breed Liaison Committee 2007-2011*. Available from [Report of the UK Bearded Collie Breed Liaison Committee Health Survey 2007-2011 - ePrints Soton](#) [Accessed 30th April 2023] whilst

O'Neill D.G., Church D.B., McGreevy P.D., Thomson P.C. and Brodbelt D.C. (2013) Longevity and mortality of owned dogs in England. *The Veterinary Journal*, 198, 638-643.

PDSA, (2022) *PAW Report 2022*. Available from [The PAW Report 2022 - PDSA](#) [Accessed 30th April 2023]

Spangenberg C. (2021) Canine Cryptorchidism: A concise Review of its Origin, Diagnosis and Treatment. *BEMS Reports*. 2021;7 (1): 1-3.

Zink M.C., Farhooody P., Elser S.E., Ruffini L.D., Gibbons T.A. and Rieger R.H. (2014) Evaluation of the risk and age of onset of cancer and behavioural disorders in gonadectomised Vizslas. *Journal of the American Veterinary Medical Association* 244 (3) 309-319.