

THE OFA HEALTH SURVEY: WHAT DOES IT MEAN?

Abstract

This study was made based on the responses to the Orthopedic Foundation for Animals (OFA) health survey on the American Eskimo Dog. The raw data representing 814 individual American Eskimo Dogs were owner responses provided during the period January, 2014, to January, 2016.

The data set included the following populations:

Size: 78 Toys (9 inches to 12 inches in height at the shoulder), 240 Miniatures (over 12 inches to 15 inches in height), 407 Standards (over 15 inches to 19 inches in height), 6 Eskies less than 9 inches in height, and 83 Eskies greater than 19 inches in height.

Sex: 391 males and 423 females.

Life Status: 553 living Eskies and 263 deceased Eskies.

The “Top Ten” categories of diseases in terms of the percent of affected Eskies (the percent of Eskies whose owners answered that the Eskie had the disorder compared to the number who answered that their Eskie did not have the disorder):

Cancer- 17.7%
Eye Disorders- 12.2%
Dental Disorders- 11.6%
Aggression/ Temperament Issues/ Disorders- 10.2%
Allergy-Related Disorders- 9.3%
Orthopedic Disorders- 8.6%
Gastrointestinal Disorders- 8.1%
Endocrine Disorders- 6.8%
Skin Disorders- 6.0%
Neurological/ Muscular Disorders- 5.7%

Within each category, the particular disease (does *not* include the choice “Other”) which was indicated by owners as being the most common includes:

Eye Disorders- **Senile Cataracts** accounted for 46.9% of all reported eye disorders. (**prcd-PRA** is second and accounts for 22.4% of all reported eye disorders.)

Aggression/ Temperament Disorders/ Issues- **Aggressive to People** accounted for 57.8% of all reported disorders and issues.

Allergy-Related Disorders- **Seasonal Atopy (Inhalant)** accounted for 36.5% of all reported allergy-related disorders.

Orthopedic Disorders- **Arthritis** accounted for 42.6% of all reported orthopedic disorders.

Endocrine Disorders- **Diabetes Mellitus** accounted for 40.0% of all reported endocrine disorders.

Neurological/ Muscular Disorders- **Epilepsy** accounted for 37.0% of all reported neurological/ muscular disorders.

Even though some disorders had few positive responses, breeders must be vigilant that those disorders do not increase in frequency. This survey can be used as a base-line study against which future surveys can be compared.

THE OFA HEALTH SURVEY: WHAT DOES IT MEAN?

The American Eskimo Dog health survey is posted on the Orthopedic Foundation for Animals (OFA) website. Owners are encouraged to complete the survey for each American Eskimo Dog that they own (lives in/at your house if co-owned). Please use this link to access the survey:

http://www.offa.org/surveys/survey_ameskimo.html

You may use this link to complete the survey and to view the results in real time. Owner and individual dog identities are not collected, so all data appear in aggregate. All owners are encouraged to complete the survey for each Eskie, and breeders are encouraged to contact their puppy buyers for completing the survey on their dogs as well.

Many owners want to understand the meaning of the collected data, and this paper will attempt to do just that. The numbers provided were retrieved on January 15, 2015. As long as the survey remains on the OFA site and owners continue to provide new data, this paper will be periodically updated.

The numbers provided in the tables are the actual reported data on the OFA survey page, even when the sum of the “Male” and “Female” numbers do not equal the “Total” number for the entry. The number of AEDs “missing” in section totals compared to the first row in Table 1 is fairly consistent, which may indicate that some owners tried to correct answers for one or more of their AEDs or they did not complete all answers to all questions for each AED.

The purpose of the numbers should be used to indicate diseases where breeders and owners should be concerned, and not taken as absolute numbers as to the actual rates of incidence of diseases within the gene pool.

OWNER PARTICIPATION

Table 1 presents the general information on owners who participated in this survey.

Table 1- Ownership Information	ALL	MALE	FEMALE
Number of individual AEDs in the survey	821	395	426
	YES	NO	
Has Owner previously completed the survey for another Eskie(s)?	421	399	
Is Owner a member of the AEDCA?	68	332	

The true take-away info is the number of unique individual AEDs in this survey- 821 actual Eskies (not owners), of which 395 (48.1% of the total) were male and 426 (51.9% of the total) were female.

AED INFORMATION

Table 2 presents the general information on the Eskies included in the survey.

Table 2. AED Information	ALL	MALE	FEMALE
Size of AED			
Toy	78	28	50
Miniature	240	97	143
Standard	407	211	196
Less than 9 inches	6	2	4
Greater than 19 inches	83	53	30
Total	814	391	423
Where AED was obtained			
Directly from a breeder	336	154	182
Bred it yourself	143	55	88
Breed rescue	108	57	51
Other	78	38	40
Shelter	76	52	24
Pet store	57	32	25
Online Breeder	22	6	16
Total	820	394	426
Overall health of the AED			
Excellent	518	245	270
Good	246	122	122
Fair	44	20	24
Poor	12	5	7
Total	824	401	423

A comparison of the totals of the size distribution in Table 2 for “Total”, “Male, and “Female” (814, 391, and 423) do not agree with the numbers are the beginning of the survey in Table 1 (821, 395, and 426).

The size distribution of AEDs in the survey is 78 Toys (9.5%); 240 Miniatures (29.1%); and 407 Standards (50.6%). A total of 6 AEDs (0.7%) were reported being less than 9 inches, which is a disqualification under the AKC Breed Standard; but whether these are undersized adult Toys or young puppies, we do not know. A total of 83 AEDs (10.1%) were reported being more than 19 inches, which is also a disqualification under the AKC Breed Standard. Whether these Eskies are puppies or adults, they are oversized according to the Breed Standard.

Owners described 518 Eskies (63.2%) as having Excellent health and 246 (29.9%) were described as Good. Only 44 (5.4%) and 12 (1.5%) were described as Fair and Poor, respectively. These anecdotal reports support claims that the AED is overall a healthy breed. An even split between the health of males and females was also reported.

LIFE STATUS

Table 3 presents information on age of living and of death of the AEDs in the survey.

Table 3. Is AED living?	ALL	MALE	FEMALE
Is AED living?			
Yes	548	273	275
No	263	119	144
Total	811	392	419
Age of AED (living)			
Less than 6 months	8	2	6
6 months- 1 year	45	26	19
2- 4 years	109	53	56
5- 6 years	81	43	38
7- 9 years	146	73	73
10- 13 years	126	61	65
14 years	17	9	8
15 years and older	16	7	9
Total	540	272	268
Age at death			
Less than 6 months	2	1	1
6- 23 months	1	1	0
2- 4 years	5	2	3
5- 7 years	11	3	8
8- 10 years	36	18	18
11- 13 years	92	51	41
14 years and older	118	44	74
Total	265	120	145

Owners reported the health of 548 (67.6%) of living Eskies and 263 (32.4%) Eskies who have died. The breakdown of ages of living Eskies is not valuable because the age breaks are not equal. The age at death validates the belief that the American Eskimo Dog is a healthy breed: 118 Eskies (44.5% of all deceased Eskies) passed at 14 years of age or older.

CAUSE OF DEATH

Table 4 presents information on the cause of death.

Table 4. Cause of death.	ALL	MALE	FEMALE
Cancer	91	37	54
Non-specific old age-related	65	28	37
Other chronic disease	56	25	31
Other	56	28	28
Acute disease	10	3	7
Trauma	5	2	3
Infectious disease	2	1	1
Total	285	124	161

When known, the leading cause of death is cancer (91 Eskies, or 31.9% of all deaths). Non-specific old age is second with 65 (22.8%). This cause likely includes some cancer which was not diagnosed. Chronic disease (56 or 19.6%) includes cardiac and neurologic disorders.

SPAY/NEUTER STATUS

Table 5 presents information on spay/neuter status and age of alteration.

Table 5. Age of spay/neuter.	ALL	MALE	FEMALE
AED is spayed/neutered			
Yes	616	295	319
No	205	97	105
Total	821	392	424
Age AED was spayed/neutered			
Less than 6 months	150	74	76
6- 18 months	211	109	102
19- 24 months	44	30	14
2- 5 years	78	39	39
6 years and older	101	28	73
Total	584	280	304

REACTION TO PREVENTIVE TREATMENTS AND VACCINES

Table 6 presents the responses for reaction to flea and tick prevention, heartworm prevention, and vaccines.

Table 6. Reactions to flea/tick prevention, heartworm prevention, and vaccines.	ALL	MALE	FEMALE
Adverse reaction to flea/tick prevention?			
No Reaction	526	250	276
Localized Reaction	21	11	10
Systemic Reaction	14	6	8
Total	561	267	294
Adverse reaction to heartworm prevention?			
No Reaction	601	294	307
Localized Reaction	6	2	4
Systemic Reaction	1	1	0
Total	608	297	311
Adverse reaction to vaccines?			
No Reaction	631	305	326
Localized Reaction	20	10	10
Systemic Reaction	20	7	13
Total	671	322	349

Table 5 totals for each question do not add up to the total number of Eskies in the survey. One explanation for this discrepancy is that some owners do not give flea and tick prevention and heartworm prevention; and some do not give vaccines. In some parts of the country, these are acceptable practices. If the climate is too cold for fleas, ticks, and mosquitos, then the Eskies do not require prevention. However, vaccines, especially core vaccines, should be administered to all Eskies.

Approximately 6% of Eskies appear to have reactions to flea and tick prevention and to vaccines. While this is a small number, it is significant, especially since such reactions can be life-threatening.

HEALTH SCREENINGS

Table 7, on the next two pages, summarizes the number of Eskies which have received health screenings. Results for all OFA exams for AEDs may be found on the OFA webpage.

Table 7. Health Screenings.	ALL	MALE	FEMALE
Has the Eskie had an OFA exam for Hip Dysplasia?			
Yes	167	58	109
No	650	334	316
Total	817	392	425
Has the Eskie had a Hip Dysplasia exam by another entity?			
Yes	36	20	16
No	765	367	398
Total	801	387	414
Has the Eskie had an OFA exam for Elbow Dysplasia?			
Yes	55	22	33
No	754	368	386
Total	809	390	419
Has the Eskie had an OFA exam for Patellar Luxation?			
Yes	124	58	66
No	688	333	355
Total	812	391	421
Has the Eskie had an OFA exam for thyroid disorders?			
Yes	41	18	23
No	771	374	397
Total	812	392	420
Has the Eskie had an OFA/ CERF eye exam?			
Yes	180	74	106
No	623	310	313
Total	803	384	419
Has the Eskie had a DNA PRA test?			
Yes	188	78	110
No	626	314	312
Total	814	392	422

Has the Eskie had a DNA test for Degenerative Myelopathy (DM)?			
Yes	29	10	19
No	781	380	401
Total	810	390	420

A total of 167 Eskies (20.4%) have had an OFA Hip Dysplasia (HD) exam; however, the OFA has results for more than 1,000 Eskies. Another 36 Eskies have had HD exams by another entity.

A total of 55 Eskies (6.9%) have had an OFA exam for Elbow Dysplasia; however, this disease is not considered a concern for breeders. 124 Eskies (15.3%) of respondent Eskies have had an OFA Patellar Luxation exam. Owners claim that 41 Eskies (5.0%) have had an OFA exam for Thyroid disorders; however, only 4 Eskies are listed in the OFA Thyroid Registry. A total of 180 Eskies (22.1%) have had an OFA or CERF eye exam. A total of 188 Eskies (23.1%) have had a DNA prcd-PRA test; however, only 53 Eskies are listed in the OFA DNA Registry for prcd-PRA. A total of 29 Eskies (3.6%) have been tested for Degenerative Myelopathy (DM).

OVERALL DISORDER SUMMARY

Table 8 presents a summary by “section” of disorder in the survey. The Table Number corresponds to the Table in this paper where more information is presented. The total number of Eskies marked as being diagnosed with each disease are shown, along with the total number of Eskies whose owners responded to the question. Please note that the total numbers vary from disease to disease. Also presented are the disease in each category/section which had the highest number of positive responses along with the percentage of Eskies affected by that disease for each category.

Table 8. Overall Disorder Summary

DISORDER CATEGORY	TABLE NO.	NUMBER AFFECT ESKIES	TOTAL NUMBER ESKIES	% OF ALL ESKIES AFFECT	TOP DISEASE	NO. AFFECT	% OF AFFECTED
Cancer	9	143	810	17.7%	“Other Cancer”	44	30.8% of all cancers
Gastrointestinal	10	65	807	8.1%	“Other GI”	25	38.5% of all GI diseases
Cardiac	11	33	807	4.1%	Heart Murmur	19	57.6% of all cardiac diseases
Respiratory	11	21	806	2.6%	“Other”	9	42.9% of all respiratory diseases
Eye	12	98	805	12.2%	Cataracts, Senile	46	46.9% of all eye diseases
Ear	13	21	799	2.6%	Deafness, Bilateral	11	52.4% of all ear diseases
Neurological/ Muscular	14	46	802	5.7%	Epilepsy	17	37.0% of all neurological/ muscular diseases
Skin	15	48	806	6.0%	“Other”	12	25.0% of all skin conditions

Liver	16	30	807	3.7%	“Other”	20	66.7% of all liver diseases
Orthopedic	17	68	795	8.6%	Arthritis	29	42.6% of all orthopedic diseases
Blood/ Lymph	18	17	801	2.1%	“Other”	7	41.2% of all blood/lymph diseases
Endocrine	19	55	804	6.8%	Diabetes Mellitus	22	40.0% of all endocrine diseases
Kidney	20	40	802	11.6%	“Other”	13	32.5% of all kidney diseases
Dental	22	93	802	11.6%	“Other”	42	45.2% of all dental conditions
Allergy-Related	23	74	800	9.3%	Atopy (Inhalant), Seasonal	27	36.5% of all allergy-related conditions
Immune System	24	21	796	2.7%	“Other”	6	28.6% of all immune system diseases
Aggress/Temp.	25	83	812	10.2%	Aggressive to People	48	57.8% of all aggress/temp. conditions
Reproductive	21	26	798				
	Dogs	12	381	3.1%	Monorchid/ Cryptorchid	8	66.7% of all dog conditions
	Bitches	14	417	3.6%	Pyometra	6	42.9% of all bitch conditions

With so much information, how can breeders and owners determine what should be of concern to them?

We can rank the “Top Ten” categories of diseases in terms of the percent of affected Eskies:

- Cancer- 17.7%
- Eye Disorders- 12.2%
- Dental Disorders- 11.6%
- Aggression/ Temperament Issues/ Disorders- 10.2%
- Allergy-Related Disorders- 9.3%
- Orthopedic Disorders- 8.6%
- Gastrointestinal Disorders- 8.1%
- Endocrine Disorders- 6.8%
- Skin Disorders- 6.0%
- Neurological/ Muscular Disorders- 5.7%

Within each category of disorders, owners selected from a list of diseases, and almost all categories had “Other” as a final choice and was used when nothing else in the category fit the condition that a particular Eskie had. However, “Other” is not a disease; so it cannot be given a disease status. No one knows if “Other” is one disease or more, and which of the various choices a given Eskie has. The disease within each category which was indicated by owners as being the most common includes:

Eye Disorders- **Senile Cataracts** accounted for 46.9% of all reported eye disorders.

Aggression/ Temperament Disorders/ Issues- **Aggressive to People** accounted for 57.8% of all reported disorders and issues.

Allergy-Related Disorders- **Seasonal Atopy (Inhalant)** accounted for 36.5% of all reported allergy-related disorders.

Orthopedic Disorders- **Arthritis** accounted for 42.6% of all reported orthopedic disorders.

Endocrine Disorders- **Diabetes Mellitus** accounted for 40.0% of all reported endocrine disorders.

Neurological/ Muscular Disorders- **Epilepsy** accounted for 37.0% of all reported neurological/ muscular disorders.

CANCER

Table 9, which continues on the next page, presents information pertaining to cancer in the AED.

Table 9. Cancer Diagnosis Information.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with cancer/tumors?			
Yes	143	58	85
No	667	330	337
Total	810	388	422
What type of cancer was this Eskie diagnosed with?			
Other Cancer	44	20	24
Lymphoma/ Lymphosarcoma	15	5	10
Mast Cell Tumor	10	4	6
Hemangiosarcoma	10	4	6
Mammary Cancer	7	0	7
Leukemia	6	2	4
Osteosarcoma	3	1	2
Squamous Cell Cancer	2	1	1
Pancreatic Cancer	2	0	2
Gastric Cancer	2	1	1
Pituitary Cancer	1	1	0
Muscle Cancer	1	0	1
Melanoma	1	1	0
Total	104	40	64
Was cancer diagnosis confirmed by biopsy/ histology?			
Yes	77	30	47
No	53	24	29
Total	130	54	76

What was the age of first diagnosis?			
1- 3 years	2	1	1
4- 6 years	8	3	5
7- 10 years	32	14	18
11 years and older	91	38	53
Total	133	56	77
Were synthetic pesticides/herbicides used near this Eskie?			
Yes	54	20	34
No	74	35	39
Total	128	55	73
How was this Eskie's cancer treated?			
No Treatment	65	28	37
Chemotherapy	16	5	11
Alternative Medicine (Acupuncture, herbal, etc.)	10	4	6
Radiation	3	1	2
Other Treatment	45	21	24
Total	139	59	80
What was this Eskie's survival time past diagnosis?			
Less than 1 month	35	18	17
2- 3 months	12	6	6
4- 6 months	10	3	7
7 months- 1 year	24	8	16
1- 3 years	21	11	10
More than 3 years	28	9	19
Total	130	55	75

A total of 143 Eskies (17.7%) have been diagnosed with some type of cancer. Of these, 91 (63.6% of all positive responses) were diagnosed at the age of 11 years and older, which proves the adage that cancer is typically a disease of older dogs (and people). "Other cancers" besides the many listed in this survey were the largest number of positive responses at 44 (30.8% of all cancers). The most common type of specified cancer is lymphoma with 15 responses (10.5% of all cancers); and lymphoma is the most common cancer in dogs.

GASTROINTESTINAL DISORDERS

Table 10 presents information pertaining to gastrointestinal disorders in the AED.

Table 10. Gastrointestinal Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with gastrointestinal disorders?			
Yes	65	33	32
No	742	354	388
Total	807	387	420
What type(s) of GI problems has this Eskie had?			
Other	25	10	15
Inflammatory Bowel Disease (IBD)	15	8	7
Colitis	9	4	5
Bloat with Torsion	1	0	1
Total	50	22	28
At what age was the first diagnosis?			
Less than 1 year	7	1	6
1- 3 years	13	10	3
4- 6 years	19	7	12
7- 10 years	12	6	6
11 years and older	10	5	5
Total	61	29	32

Across all breeds of dogs, the three most common GI diseases are inflammatory bowel disease (IBD), colitis, and bloat. All three have been reported in the AED, but at numbers which are small. The “Other” category is the one which has the highest number of positive responses (25 out of 65 reports, or 38.5%).

CARDIOVASCULAR AND RESPIRATORY DISORDERS

Table 11 presents information pertaining to cardiac and respiratory disorders in the Eskie.

Table 11. Cardiovascular Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with cardiac disorders?			
Yes	33	12	21
No	774	377	397
Total	807	389	418
What type(s) of cardiac disorders has this Eskie had?			
Heart Murmur	19	7	12
Congenital Heart Failure	13	4	9
Other	3	2	1
Degenerative Valve Disease	3	2	1
Mitral Valve Defect	2	1	1
Cardiomyopathy	2	0	2
Total	42	16	26
At what age was the first diagnosis?			
Less than 1 year	1	0	1
1- 3 years	1	1	0
4- 6 years	7	4	3
7- 10 years	7	3	4
11 years and older	17	4	13
Total	33	12	21
Has this Eskie been diagnosed with respiratory disorders?			
Yes	21	11	10
No	785	375	410
Total	806	386	420
What type(s) of respiratory disorders has this Eskie had?			
Other	9	5	4
Collapsed Trachea	7	4	3
Elongated Soft Palate	1	0	1
Total	17	9	8

At what age was the first diagnosis?			
Less than 1 year	2	1	1
1- 3 years	3	1	2
4- 6 years	5	4	1
7- 10 years	5	2	3
11 years and older	5	3	2
Total	20	11	9

Cardiac problems are not unusual in the Eskie. The veterinary rule-of-thumb is that if the owner can pick up the dog with one hand (a small dog), the dog is prone to mitral valve disease. If it takes two hands (a big dog), the dog is prone to cardiomyopathy. Since Eskies are considered to be a “one-handed dog”, it is not surprising that mitral valve disease seems to be a problem.

Mitral valve disease is often first noted as a heart murmur which progressively gets worse over time. Mitral valve disease is typically a late-onset disease, first appearing as a murmur between the ages of 5 to 7 years. Often, most owners do not pursue the matter any further to get a diagnosis when the problem is mitral valve disease. The most common cardiac problem reported in the survey was “heart murmur” with 19 (45.2% of all reported cardiac problems). Two other cardiac problems noted were “degenerative valve disease” with 3 Eskies (7.1% of reported cardiac problems) and “mitral valve defect” with 2 Eskies (4.8% of reported cardiac problems).

Congenital heart failure was noted in 13 Eskies (31.0% of reported cardiac problems) and is commonly seen in older Eskies. Cardiomyopathy was noted in only 2 cases (4.8%).

EYE DISORDERS

Table 12 presents information pertaining to eye disorders in the Eskie.

Table 12. Eye Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with eye disorders?			
Yes	98	43	55
No	707	341	366
Total	805	384	421
What type(s) of eye disorders has this Eskie had?			
Cataracts, Senile	46	22	24
Progressive Retinal Atrophy (PRA)	22	14	8
Other	17	6	11
Cataracts, Juvenile	10	2	8
Glaucoma	5	0	5
Dry Eye	5	3	2
Corneal Ulcer	5	3	2
Entropion	2	1	1
Distichiasis	2	0	2
Corneal Dystrophy	2	1	1
Retinal Dysplasia	1	0	1
Total	117	52	65
At what age was the first diagnosis?			
Less than 1 year	1	0	1
1- 3 years	15	4	11
4- 6 years	16	8	8
7- 10 years	26	16	10
11 years and older	41	14	26
Total	98	42	56

The overall number of cases of eye disorders in the Eskie appears to increase with age. Senile cataracts and prcd-PRA were the two most common disorders reported in the Eskie with 46 (39.3%) and 22 (18.8%), respectively. Prcd-PRA has received much attention over the past ten years because of the genetic test which identifies normal, carrier, and affected Eskies and allows breeders to manage these Eskies in a responsible breeding program.

A range of other eye diseases are reported in far fewer numbers.

EAR DISORDERS

Table 13 presents information pertaining to ear disorders in the Eskie.

Table 13. Ear Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with ear disorders?			
Yes	21	9	12
No	778	373	405
Total	799	382	417
What type(s) of ear disorders has this Eskie had?			
Deafness, Bilateral	11	5	6
Other	5	2	3
Chronic Ear Infection	5	1	4
Deafness, Unilateral	2	1	1
Total	23	9	14
At what age was the first diagnosis?			
Less than 1 year	0	0	0
1- 3 years	4	1	3
4- 6 years	1	1	0
7- 10 years	4	2	2
11 years and older	11	4	7
Total	20	8	12

Veterinarians and geneticists have known for many years that deafness is more common in white or mostly white dogs. They believe that deafness is linked to the Severe Piebald (S_w) gene which causes the white coat in the Eskie and other breeds. The exact mode of inheritance is not yet understood, and geneticists are working to determine the mechanisms. Two important concepts to remember about deafness in white dogs are:

- A dog which is bilaterally deaf (deaf in both ears) is easily determined because the dogs cannot hear at all. However, a unilaterally deaf dog (deaf in only one ear) is just as significant from the genetics point-of-view because they still pass the defective gene to their offspring, but they are much more difficult to diagnose because they *can* hear. The only way to determine whether a dog is unilaterally deaf is to give it a brainstem auditory evoked response (BAER) test. The OFA has a web section (www.offa.org) devoted to congenital deafness, and Louisiana State University (LSU) veterinary school, a leader in canine deafness research, also has information on their web page (<http://www.lsu.edu/deafness/baerexpl.htm>).
- A genetic link between deafness and blue eyes has also been established, which is why blue eyes are a disqualification under the AKC AED Breed Standard. The Dalmatian in the U.S. has a more significant problem with deafness than Dals in other countries; and some fanciers believe that this is because the AKC Dalmatian Breed Standard allows blue eyes.

The overall number of cases of ear disorders in the Eskie appear to increase with age. This survey shows that deafness does not appear to be a significant problem as only 21 AEDs (2.6% of the 799 Eskies whose owners answered this section) have been diagnosed with ear disorders. However, the most common disorder was bilateral

deafness with 11 affected AEDs (52.3% of affected Eskies); and unilateral deafness was also noted in 2 Eskies (9.5% of affected AEDs).

While ear disorders, and particularly deafness, do not appear to be significant concerns today, Eskie breeders must remain vigilant to select against any Eskie which is deaf at birth in one or both ears.

NEUROLOGICAL/ MUSCULAR DISORDERS

Table 14 presents information pertaining to neurological and muscular disorders in the Eskie.

Table 14. Neurological/ muscular disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with neurological or muscular disorders?			
Yes	46	22	24
No	756	363	393
Total	802	385	417
What type(s) of neurological or muscular disorders has this Eskie had?			
Epilepsy	17	9	8
Other	14	4	10
Intervertebral Disc Disease	3	1	2
Encephalitis	2	2	0
Lumbosacral Stenosis	1	1	0
Degenerative Myelopathy (DM)	1	0	1
Total	38	17	21
At what age was the first diagnosis?			
Less than 1 year	5	1	4
1- 3 years	10	7	3
4- 6 years	5	3	2
7- 10 years	9	4	5
11 years and older	16	6	10
Total	45	21	24
If epilepsy, were any of these items administered within 3 days of first seizure?			
Vaccinations	3	1	2
Heartworm Prevention	2	0	2
Flea/ Tick Prevention	2	1	1
Total	7	2	5

Epilepsy, which can be extremely difficult to diagnose and control, is the most-reported neurological disorder with 17 Eskies (37.0%) out of 46 affected Eskies. The diagnosis of epilepsy is done by ruling out other disorders because not all seizures are caused by epilepsy. However, the disease is known to be present in the Eskie, and many believe that genetics play a role in the rate of incidence. Only seven reported Eskies received vaccinations, heartworm prevention, and flea/tick prevention within three days of the first seizure, indicating that these are not a direct cause of the disease.

Another condition, Degenerative Myelopathy (DM), is reported by some researchers to be “common” in the Eskie; however, only one case was reported during this health survey. Some scientists believe that the present genetic test has not identified the exact genes or the correct gene(s) which causes this disease.

SKIN DISORDERS

Table 15 presents information pertaining to skin disorders in the Eskie.

Table 15. Skin Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with skin disorders?			
Yes	48	22	26
No	758	367	391
Total	806	389	417
What type(s) of skin disorders has this Eskie had?			
Other	12	5	7
Yeast Infections	9	4	5
Autoimmune Skin Disease	7	1	6
Staph Infections	5	3	2
Alopecia	4	2	2
Generalized Demodectic Mange	2	0	2
Seborrhea	2	2	0
Total	41	17	24
At what age was the first diagnosis?			
Less than 1 year	2	0	2
1- 3 years	10	5	5
4- 6 years	8	4	4
7- 10 years	20	8	12
11 years and older	7	4	3
Total	47	21	26

A small number of Eskies have been reported with a range of skin disorders. However, none have been reported in large numbers to cause concern among breeders at this time.

LIVER DISORDERS

Table 16 presents information pertaining to liver disorders in the Eskie.

Table 16. Liver Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with liver disorders?			
Yes	30	10	20
No	777	378	399
Total	807	388	419
What type(s) of liver disorders has this Eskie had?			
Other	20	8	12
Hepatitis	2	1	1
Portosystemic Shunts	1	1	0
Total	23	10	13
At what age was the first diagnosis?			
Less than 1 year	2	0	2
1- 3 years	3	2	1
4- 6 years	4	2	2
7- 10 years	3	1	2
11 years and older	18	5	13
Total	30	10	20

30 Eskies (3.7%) have been reported with liver disorders, yet most fall diagnoses fall within the “Other” category. Since liver issues are always serious and sometimes fatal, breeders must remain vigilant about the incidence of these diseases.

ORTHOPEDIC DISORDERS

Table 17 presents information pertaining to orthopedic disorders in the Eskie.

Table 17. Orthopedic Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with orthopedic disorders?			
Yes	68	31	37
No	727	352	375
Total	795	383	412

What type(s) of orthopedic disorders has this Eskie had?			
Arthritis	29	14	15
Hip Dysplasia (HD)	16	8	8
Patellar Luxation	11	3	8
Anterior Cruciate Ligament Rupture	10	5	5
Other	6	3	3
Intervertebral Disc Disease	4	1	3
Vertebral Abnormalities	4	2	2
Spondylosis	3	2	1
Elbow Dysplasia	2	1	1
Total	85	39	46
At what age was the first diagnosis?			
Less than 1 year	5	1	4
1- 3 years	12	7	5
4- 6 years	9	3	6
7- 10 years	18	9	9
11 years and older	24	11	13
Total	68	31	37

The most significant orthopedic disorder reported during this survey was arthritis with 29 out of 68 (42.6%) affected Eskies reported. The arthritis reported in this survey is likely senile osteoarthritis because the age of onset of orthopedic symptoms was 18 Eskies between 7 and 10 years and 24 Eskies over 10 years. Hip Dysplasia (HD) was reported in 16 of the 68 (23.5%) affected Eskies; and Patellar Luxation was reported in 11 out the 68 (16.2%) affected Eskies.

The numbers in this survey for HD likely do not accurately reflect the real world. The OFA documents that through December 31, 2015, 1,058 Eskies had been evaluated for HD through the OFA, with an incidence rate of 9.5%. In this survey, 16 out of 795 Eskies are reported to have been diagnosed with HD, resulting in a rate of incidence of 2.0%.

Patella disorders are also shown in this survey. Rupture of the Anterior Cruciate Ligament, or ACL (also known as Cranial Cruciate Ligament, or CCL, in dogs) was reported as 10 out of 68 (14.7%) affected Eskies.

Patellar Luxation, also known as “slipping stifles” was reported in 11 out of the 68 (16.2%) affected Eskies. The rate of incidence documented by the OFA through December 31, 2015, was 5 Eskies out of 106 examined, or a rate of incidence of 4.7%. This survey documented a rate of incidence of 1.4%. The OFA number is likely a low-range figure. Meaning that the actual rate of incidence is higher. Owners of affected Eskies often do not submit results of their affected dogs.

BLOOD/ LYMPH DISORDERS

Table 18 presents information pertaining to blood and lymph disorders in the Eskie.

Table 18. Blood/ Lymph Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with blood/lymph disorders?			
Yes	17	7	10
No	784	377	407
Total	801	384	417
What type(s) of blood/lymph disorders has this Eskie had?			
Other	7	2	5
Autoimmune Hemolytic Anemia	5	4	1
Anemia	4	3	1
Platelet Abnormality	2	2	0
Idiopathic Thrombocytopenia	1	0	1
Total	19	11	8
At what age was the first diagnosis?			
Less than 1 year	0	0	0
1- 3 years	1	0	1
4- 6 years	2	2	0
7- 10 years	3	0	3
11 years and older	10	4	6
Total	16	6	10

Blood and lymph disorders have been reported in 17 Eskies (2.1%). Since these disorders are always serious and sometimes fatal, breeders must remain vigilant about the incidence of these diseases.

ENDOCRINE DISORDERS

Table 19 presents information pertaining to endocrine disorders in the Eskie.

Table 19. Endocrine Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with endocrine disorders?			
Yes	55	23	32
No	749	364	385
Total	804	387	417
What type(s) of endocrine disorders has this Eskie had?			
Diabetes Mellitus	22	11	11
Hypothyroid	18	7	11
Cushing's Disease	11	1	10
Pancreatitis	4	2	2
Other	1	1	0
Hyperthyroid	1	0	1
Addison's Disease	1	1	0
Gestational Diabetes	1	1	0
Total	59	24	35
At what age was the first diagnosis?			
Less than 1 year	0	0	0
1- 3 years	6	4	2
4- 6 years	17	7	10
7- 10 years	17	7	10
11 years and older	15	5	10
Total	55	23	32

The two most common endocrine problems reported in this survey were Diabetes Mellitus (DM) and hypothyroidism (low thyroid). Both disorders have received attention from breeders in the past few years.

Diabetes Mellitus was reported in 22 out of 55 (40.0%) Eskies, and can be either Type I or Type II. According to VCA Hospitals, Type I Diabetes Mellitus (sometimes also called Insulin Dependent Diabetes Mellitus) results from total or near-complete destruction of the beta-cells in the pancreas and is the most common type of diabetes in dogs. As the name implies, dogs with this type of diabetes require insulin injections to stabilize blood sugar (www.vcahospitals.com).

Type II Diabetes Mellitus (sometimes called Non-Insulin Dependent Diabetes Mellitus) is different because some insulin-producing cells in the pancreas remain. However, the amount of insulin produced is insufficient, there is a delayed response in secreting it, or the tissues of the dog's body are relatively resistant to it (also referred to as insulin resistance). Type II diabetes may occur in older obese dogs. People with this form may be treated with an

oral drug that stimulates the remaining functional cells to produce or release insulin in an adequate amount to normalize blood sugar. Unfortunately, dogs tend not to respond well to these oral medications and usually need some insulin to control the disease (www.vcahospitals.com).

In a recent scientific paper, “Diabetes Mellitus in a Population of 180,000 Insured Dogs: Incidence, Survival, and Breed Distribution”, published by the Journal of Veterinary Internal Medicine (2007) and the National Institutes of Health (NIH) (<http://www.ncbi.nlm.nih.gov/pubmed/18196728>), data from a cohort of 182,087 insured dogs aged 5-12 years were studied retrospectively. A total of 860 dogs (0.5%) were diagnosed as having Diabetes Mellitus. Results included:

- Australian Terriers, Samoyeds, Swedish Elkhounds, and Swedish Lapphunds were found to have the highest incidence.
- The proportion of females with DM varied significantly among breeds. Swedish Elkhounds, Beagles, Norwegian Elkhounds, and Border Collies that developed DM were almost exclusively females.
- The multivariable (statistical) model showed that breed, previous hyperadrenocorticism, and female sex were risk factors for developing DM.
- Median survival time was 57 days after the first claim. Excluding the 223 dogs that died within 1 day, the median survival time was 2 years after the first claim of DM.

From this work, breeders and owners must understand that specific breeds, and perhaps even established breeding lines within a breed, **do** present a greater risk in the development of this disease. If the disease is not recognized early and the dog is allowed to become extremely ill, prognosis is not good.

In the AED health survey, the rate of incidence for the Eskies reported was 22 out of 804 AEDs, or 2.7%. This rate of incidence compares to 0.5% for the data from the study of over 180,000 dogs, which could indicate that the Eskie is at a higher risk for Diabetes Mellitus than the average dog. Additionally, the 22 reported Eskies are evenly split between males (11) and females (11).

KIDNEY DISORDERS

Table 20 presents information pertaining to kidney disorders in the Eskie.

Table 20. Kidney Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with kidney disorders?			
Yes	40	14	26
No	762	370	392
Total	802	384	418
What type(s) of kidney disorders has this Eskie had?			
Other	13	4	9
Renal Dysplasia	4	3	1
Familial Kidney Disease	4	2	2
Chronic Urinary Tract Infections	3	0	3
Bladder/Kidney Stones	3	1	2
Total	27	10	17
At what age was the first diagnosis?			
Less than 1 year	0	0	0
1- 3 years	2	1	1
4- 6 years	3	0	3
7- 10 years	10	5	5
11 years and older	23	7	16
Total	38	13	25

Kidney disorders have been reported in 40 Eskies (5.0%). Since these disorders are always serious and sometimes fatal, breeders must remain vigilant about the incidence of these diseases.

REPRODUCTIVE DISORDERS

Table 21 presents information pertaining to reproductive disorders in the Eskie.

Table 21. Reproductive Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with reproductive disorders?			
Yes	26	12	14
No	772	369	403
Total	798	381	417
What type(s) of reproductive disorders has this Eskie had?			
Cryptorchidism/ Monorchidism	8	8	—
Pyometra	6	—	6
Other	5	1	4
Failure to Conceive	2	—	2
Sterility	1	1	—
Irregular Heat Cycle	1	—	1
Abnormal Sperm	1	1	—
Total	24	11	13
At what age was the first diagnosis?			
Less than 1 year	12	10	2
1- 3 years	5	1	4
4- 6 years	6	1	5
7- 10 years	2	0	2
11 years and older	1	0	1
Total	26	12	14

The most common reproductive disorder reported in dogs is cryptorchidism, or the retention of one or both testes in the abdominal cavity. Of the 12 males reported with reproductive problems, 8 (67%) were reported as monorchid/cryptorchid. The age of diagnosis was less than one year. Some breeders report anecdotally that cryptorchidism is present in all established breeding lines of Eskies.

The most common reproductive disorder reported in females is pyometra, a life-threatening uterine infection. Of the 14 females reported with reproductive problems, 6 (42.9%) were reported as having pyometra. This disease typically develops in older females, and uncommonly in young bitches. This fact gives credence to the understanding of the cause of pyometra as a change in the uterine lining which results from exposure to progesterone during heat cycles.

DENTAL DISORDERS

Table 22 presents information pertaining to dental disorders in the Eskie.

Table 22. Dental Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with dental disorders?			
Yes	93	46	47
No	709	341	368
Total	802	387	415
What type(s) of dental disorders has this Eskie had?			
Other	42	22	20
Missing Teeth	12	8	4
Underbite	5	2	3
Retained Deciduous (Puppy) Teeth	3	0	3
Misaligned Teeth	3	1	2
Overbite	2	0	2
Extranumerary Teeth	2	1	1
Dropped Incisors	1	1	0
Total	70	35	35
At what age was the first diagnosis?			
Less than 1 year	7	2	5
1- 3 years	12	4	8
4- 6 years	24	14	10
7- 10 years	30	17	13
11 years and older	14	6	8
Total	77	43	44

Dental disease does not seem to concern many Eskie owners. While periodontal disease is likely known to owners, its incidence is probably related more to dental care than to genetics. However, missing teeth in young Eskies and bite problems have a genetic component. Owners should take advantage of the OFA Dentition Database and record any dental issues in younger Eskies (between the ages of 1 and 4 years) before they develop dental disease and lose teeth.

ALLERGY-RELATED DISORDERS

Table 23 presents information pertaining to allergy-related disorders in the Eskie.

Table 23. Allergy-Related Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with allergy-related disorders?			
Yes	74	32	42
No	726	353	373
Total	800	385	415
What type(s) of allergy-related disorders has this Eskie had?			
Atopy (Inhalant), Seasonal	27	12	15
Food Allergies	23	12	11
Topical/ Contact Allergies	20	10	10
Flea Allergies	14	4	10
Other Allergies	7	3	4
Atopy (Inhalant), Non-Seasonal	6	3	3
Drug Allergies	4	2	2
Total	101	46	55
At what age was the first diagnosis?			
Less than 1 year	4	3	1
1- 3 years	33	14	19
4- 6 years	21	9	12
7- 10 years	11	4	7
11 years and older	3	0	3
Total	72	30	42

Allergies are a common problem in all dogs, but most especially in dogs with pink skin and/or white coats. While seasonal allergies make humans cough and sneeze, dogs chew on themselves as if they have a flea infestation. In some parts of the country, pollen from the seasonal blooming of plants can be picked up by the wind and carried for hundreds of miles downwind to cause problems in dogs and humans alike. An example is “cedar fever” caused by the blooming of red junipers in Central Texas in winter which is reported as far south as the Mexican border over 200 miles downwind.

Eskies are prone to seasonal allergies, which was reported in 27 (36.5%) of the 74 affected Eskies. Food allergies, flea allergies, and contact allergies also have been reported in the breed. Breeders should remember that allergies often have a genetic component.

A problem for owners is that an Eskie may not have any allergies in one part of the country; but when the owners moves their households, they develop allergies, as do humans. Typically, it takes about 18 months for a dog to develop and show symptoms of inhalant allergies.

IMMUNE SYSTEM DISORDERS

Table 24 presents information pertaining to immune system disorders in the Eskie.

Table 24. Immune System Disorders.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with immune system disorders?			
Yes	21	9	12
No	775	376	399
Total	796	385	411
What type(s) of immune system disorders has this Eskie had?			
Other	6	4	2
Discoid Lupus	3	3	0
Systemic Lupus Erythematosus	1	0	1
Immune-Mediated Hypothyroidism	1	0	1
Phemphigus (Bulbous, Foliaceus)	1	0	1
Immune-Mediated Thrombocytopenia	1	0	1
Total	13	7	6
At what age was the first diagnosis?			
Less than 1 year	0	0	0
1- 3 years	4	3	1
4- 6 years	5	2	3
7- 10 years	5	0	5
11 years and older	4	3	1
Total	18	8	10

Immune system disorders have been reported in 21 Eskies (2.6%). Breeders must remain vigilant about the incidence of these diseases.

AGGRESSION/ TEMPERAMENT DISORDERS/ ISSUES

Table 25 presents information pertaining to aggression/ temperament disorders and issues in the Eskie.

Table 25. Aggression/ Temperament Disorders/ Issues.	ALL	MALE	FEMALE
Has this Eskie been diagnosed with aggression or temperament disorders or issues?			
Yes	83	53	30
No	729	339	390
Total	812	392	420
What type(s) of aggression or temperament disorders or issues has this Eskie had?			
Aggressive To People	48	34	14
Separation Anxiety	22	13	9
Aggressive with All Dogs	22	13	9
Other	22	16	6
Fear of Storms	21	14	7
Fear of Noise	21	13	8
Aggressive to Dogs in the Household	17	8	9
Shyness	15	6	9
Reserved	12	5	7
Rage Syndrome	2	2	0
Total	202	124	78
At what age was the first diagnosis?			
Less than 1 year	13	7	6
1- 3 years	46	30	16
4- 6 years	16	12	4
7- 10 years	6	2	4
11 years and older	3	1	2
Total	84	52	32

Temperament problems/ disorders are always a concern to owners and breeders. Complicating any discussion of temperament problems are nature-versus-nurture question; a common definition of what a temperament problem actually is; the experience of the owners; and the question of qualifications of the person making the diagnosis.

However, tendencies in temperament DO have a strong genetic component. How a given Eskie's temperament manifests itself depends on how well the owner socialized the Eskie and how well the owner can train his/her Eskie. "Aggressive to people" is not well defined- Does it mean that the Eskie barks when people come to the door or does it mean that the Eskie growls and tries to bite people, including its owners, whenever it wants?

As breeders and owners of Eskies, we should not fool ourselves into thinking that our breed does not have temperament issues. These issues are not specific to any particular size of Eskie, and the problems cover the entire range of size. I know of a Standard Eskie which was euthanized after he *attacked* his owner, who had been showing and training dogs for more than 20 years. Yes, these things DO happen.

Temperament is the most important trait for our Eskies who will live as family companions. Let's face it.... even when our top show dogs come home after their glory days in the ring, they ARE family companions.

BREEDING STATUS

Table 26 presents information pertaining to the breeding status of the Eskies in this survey.

Table 26. Breeding Status.	ALL	MALE	FEMALE
Has this Eskie had puppies?			
Yes	187	61	126
No	613	326	287
Total	800	387	413
How many puppies has this Eskie produced?			
1- 3	23	7	16
4- 10	101	30	71
11- 20	33	8	25
21- 30	17	10	7
31 or more	8	6	2
Total	182	61	121
Has this Eskie produced puppies with congenital abnormalities?			
Yes	15	3	12
No	711	348	363
Total	726	351	375
Has this Eskie produced stillborn puppies?			
Yes	20	4	16
No	709	349	360
Total	729	353	376
What congenital/ birth defects has this Eskie produced?			
Other Congenital Defect	6	3	3
Fading Puppy Syndrome	2	0	2
Cleft Palate	1	0	1
Total	9	3	6

Most of the Eskies included in this survey had not had puppies. Whether it was because they were still young when their owners completed the survey or whether they were already spayed and neutered, we don't know as that was beyond the scope of this survey.

Some answers show a male-female difference. Females who had puppies numbered about twice as many as dogs who had puppies. Males were far more likely to be the sires of 20 or more puppies. However, 7 bitches were dams of 21- 30 puppies, and 2 were dams to 31 or more puppies.