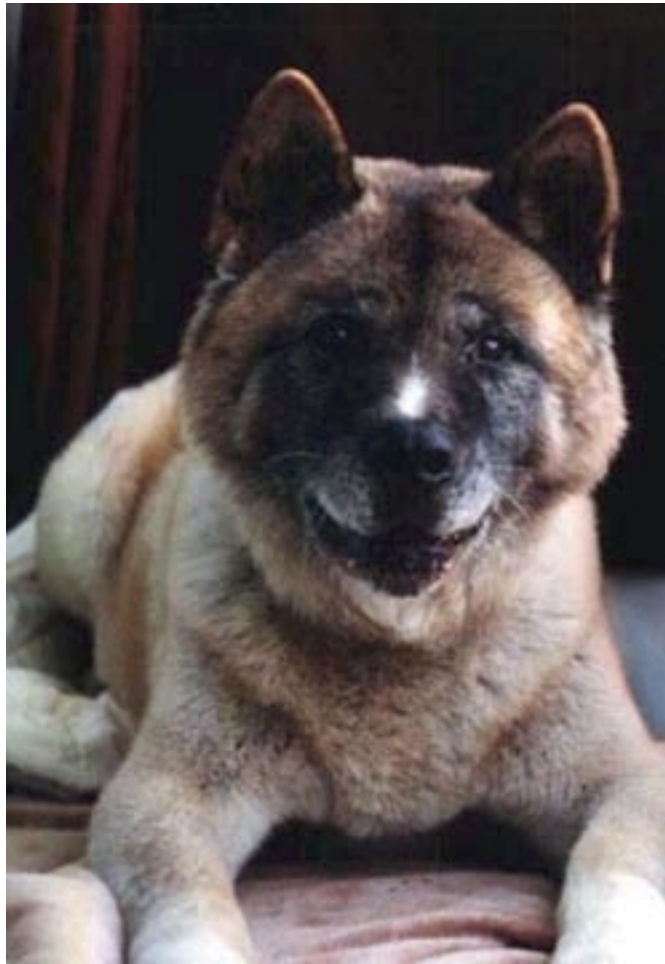


**The Akita Club of America
National Health Survey
2000-2001**



Prepared by: Purdue University School of Veterinary Medicine
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In Consultation with: Board of Directors of the Akita Club of America
Health & Genetics Committee of the Akita Club of America

About the cover:

The Akita pictured on the front cover is Kodiak, Am/Can Ch Pinehills Kyoto of Kooskia, CGC, who lived with Linda Wroth. Kodiak was born on July 1, 1981 and died August 19, 1992 as a result of gastric dilatation-volvulus.

This survey was funded anonymously for the Akita Club of America.

With this survey, we hope to find ways to positively impact the lives of all Akitas.

The Akita Club of America
Health & Genetics Committee of the Akita Club of America
Purdue University School of Veterinary Medicine

I. Introduction

The number of dog breeds recognized by the American Kennel Club is currently approaching 150. While each dog breed originated from a relatively small gene pool, selective breeding for desirable physical traits such as height, coat color, and head shape, has produced a canine species that is unique among mammals, with normal adult body weight ranging from approximately 4 to 180 lbs. This wide disparity in normal body size is associated with great differences in longevity between the smaller and larger breeds. Also, there are many diseases that occur with greater frequency in larger dogs such as bone cancer, cardiomyopathy, and hip dysplasia. Further evidence for the effect of selective breeding is that mixed breed dogs generally live longer and have a lower incidence of most diseases than do purebred dogs of the same size. For these reasons, the canine pet population must be evaluated breed by breed to fully appreciate the general state of health and well-being.

There are few existing sources of data that can be used to assess the health and longevity of purebred dogs. Veterinary hospital based information is available through the national computerized Veterinary Medical Data Base (VMDB) which is housed at Purdue University and contains information on hospital visits for more than five million dogs and cats. However, the VMDB primarily includes animals referred to veterinary teaching hospitals in North America, because of severe or life-threatening conditions that are difficult to diagnosis and treat in private veterinary practice. Thus, these dogs are not necessarily representative of the general pet population. Formal breed health surveys and genetic screening of some breeds have been conducted to measure the prevalence of suspected genetic diseases and to identify individual animals who might be carriers of these inherited diseases. Few of these health surveys however, have been comprehensive. Also, persons unfamiliar with the principles of research design and statistical data analysis have conducted many of these breed surveys.

The breed survey described in this report represents a collaborative effort between the Health and Genetics Committee of the Akita Club of America and the Clinical Epidemiology Section of the Purdue University School of Veterinary Medicine. The primary objective was to describe the frequency and pattern of occurrence of health related conditions and causes of death in Akitas.

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A secondary objective was to relate physical traits, diet, environment, and personality of individual animals to certain diseases and longevity. We hope the results of this survey will serve to better familiarize veterinarians and owners with the Akita breed and provide Akita breed clubs nationwide with information for prioritizing future health-related research and disease prevention efforts. It should serve to stimulate further studies on the causes of diseases that affect Akitas.

II. Methods

The Health and Genetics Committee of the Akita Club of America in collaboration with Dr. Larry Glickman from Purdue University School of Veterinary Medicine developed the questionnaire that was subsequently mailed to all members. Ms. Linda Wroth coordinated communications between Purdue University and individuals of the Akita Club. Each owner was asked to complete a separate questionnaire for up to five dogs that were alive on January 1, 1995. It was later decided to extend the eligibility criteria to include dogs born after 1995 in order to increase the sample size. Usable responses were submitted directly to Purdue University for 603 Akita dogs, of which 439 were reported to be alive on January 1, 1995 while 164 were born subsequent to that date.

Information on the questionnaires was coded and entered into a computer database after all personal identifiers were deleted, in order to keep the information confidential. A software application called Epi Info version 6.04 developed by the Centers for Disease Control and Prevention (Atlanta, GA) was used for data entry and the SAS System version 8.1 was used for data analysis. The SAS system is a comprehensive data management and analysis software application from the SAS Institute (Cary, NC). A probability (P) value of <0.05 was used as a measure of significance in some of the analyses to test for a possible association between a disease and a potential risk factor such as a particular diet, a chemical exposure, or vaccination. A P value of <0.05 implies that the likelihood of observing the exposure-disease relationship by chance alone was less than one in twenty (i.e., a level considered as being statistically significant).

List of Abbreviations / Glossary of Terms

N – Number

% – Percent

SD – Standard Deviation

Adult – 0.9 to 7 years of age

Senior – > 7 years of age

Table 1. General Owner Participant Information

	N	%
Number of Akitas living with you on January 1, 1995	603	100.0
0-1	187	31.0
2-5	235	39.0
6-10	117	19.4
>10	35	5.8
Unknown / missing	29	4.8
Number of Akitas currently living with you	603	100.0
0-1	109	18.1
2-5	265	43.9
6-10	159	26.4
>10	53	8.9
Unknown / missing	16	2.7
Number of years with Akitas	603	100.0
0-1	3	0.5
2-5	72	11.9
6-10	182	30.2
>10	316	52.4
Unknown / missing	30	5.0
Primary interest^a		
Companion / Pet	510	84.6
Show	411	68.2
Breeder	319	52.9
Obedience	271	44.9
Rescue	167	27.7
Agility	91	15.1
Assistance	88	14.6
Tracking	51	8.5
Other	47	7.8
Search & Rescue	29	4.8
Hunting	8	1.3
Field Trials	2	0.3

^a Respondents were allowed to check more than one answer so numbers do not add up to 603 (100%).

Table 2. General Akita Participant Information

	N	%
Owners responding to survey with	277	100.0
1 Akita	133	48.0
2 Akitas	61	22.0
3 Akitas	26	9.4
4 Akitas	16	5.8
≥ 5 Akitas	41	14.8
Alive as of or born after January 1, 1995 (eligible Akitas)	603	100.0
Bitches	336	55.7
Dogs	267	44.3
Vital status as of October 1, 2000 (study end)		
Bitches	336	100.0
Alive	257	76.5
Died	30	8.9
Euthanized	49	14.6
Dogs	267	100.0
Alive	182	68.2
Died	39	14.6
Euthanized	46	17.2
Cause of death diagnosed by a veterinarian^a	103	62.8
Bitches	49	62.0
Dogs	54	63.5
Necropsy performed^b	13	7.9
Bitches	8	10.0
Dogs	5	5.9

^a Information on whether cause of death was diagnosed by a veterinarian was missing for 37 dead / euthanized Akitas.

^b Information on whether necropsy was performed was missing for 37 dead / euthanized Akitas.

Figure 1. Age Distribution for Akita Bitches (Age as of October 1, 2000 or Age at Death)

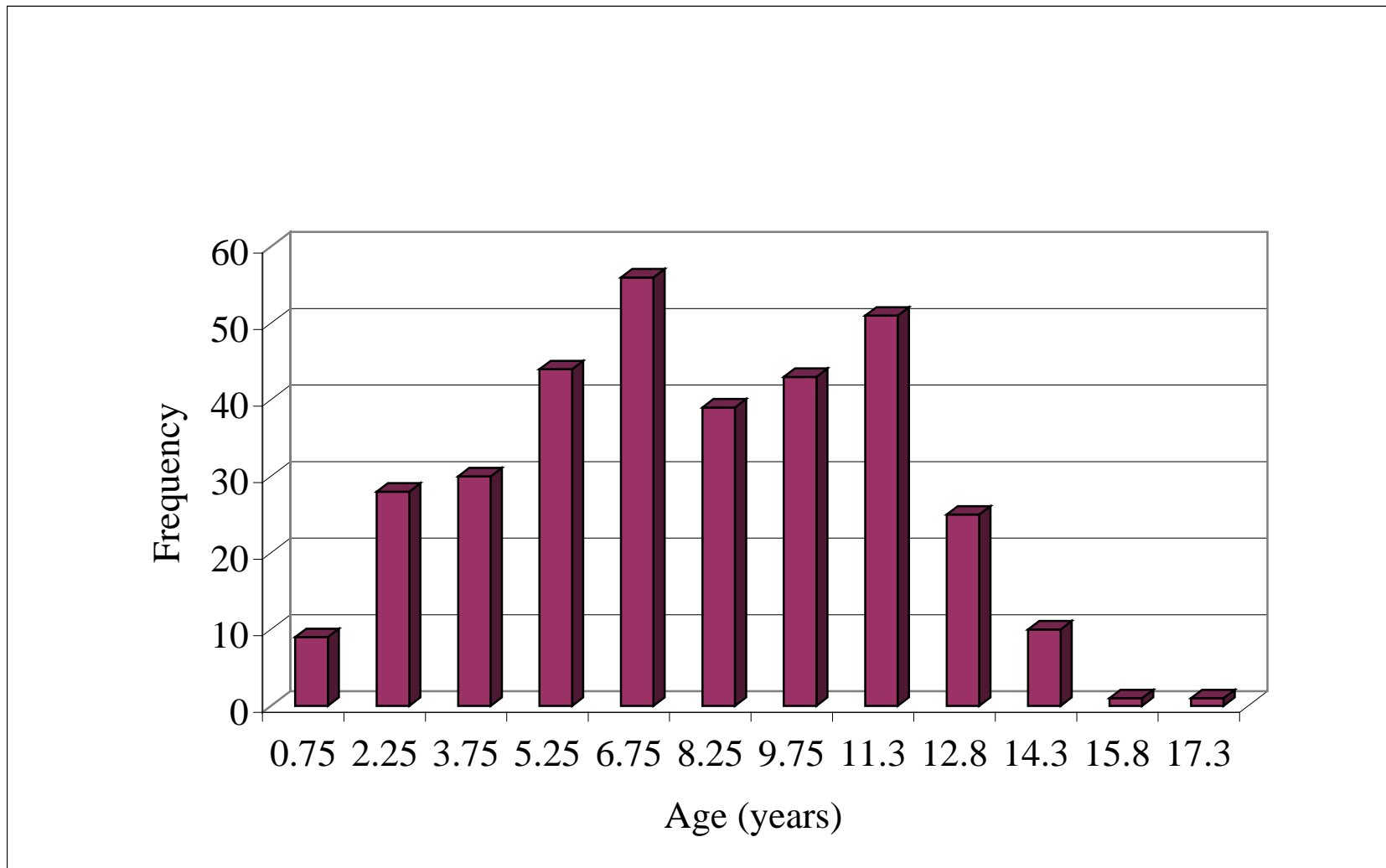


Figure 2. Age Distribution for Akita Dogs (Age as of October 1, 2000 or Age at Death)

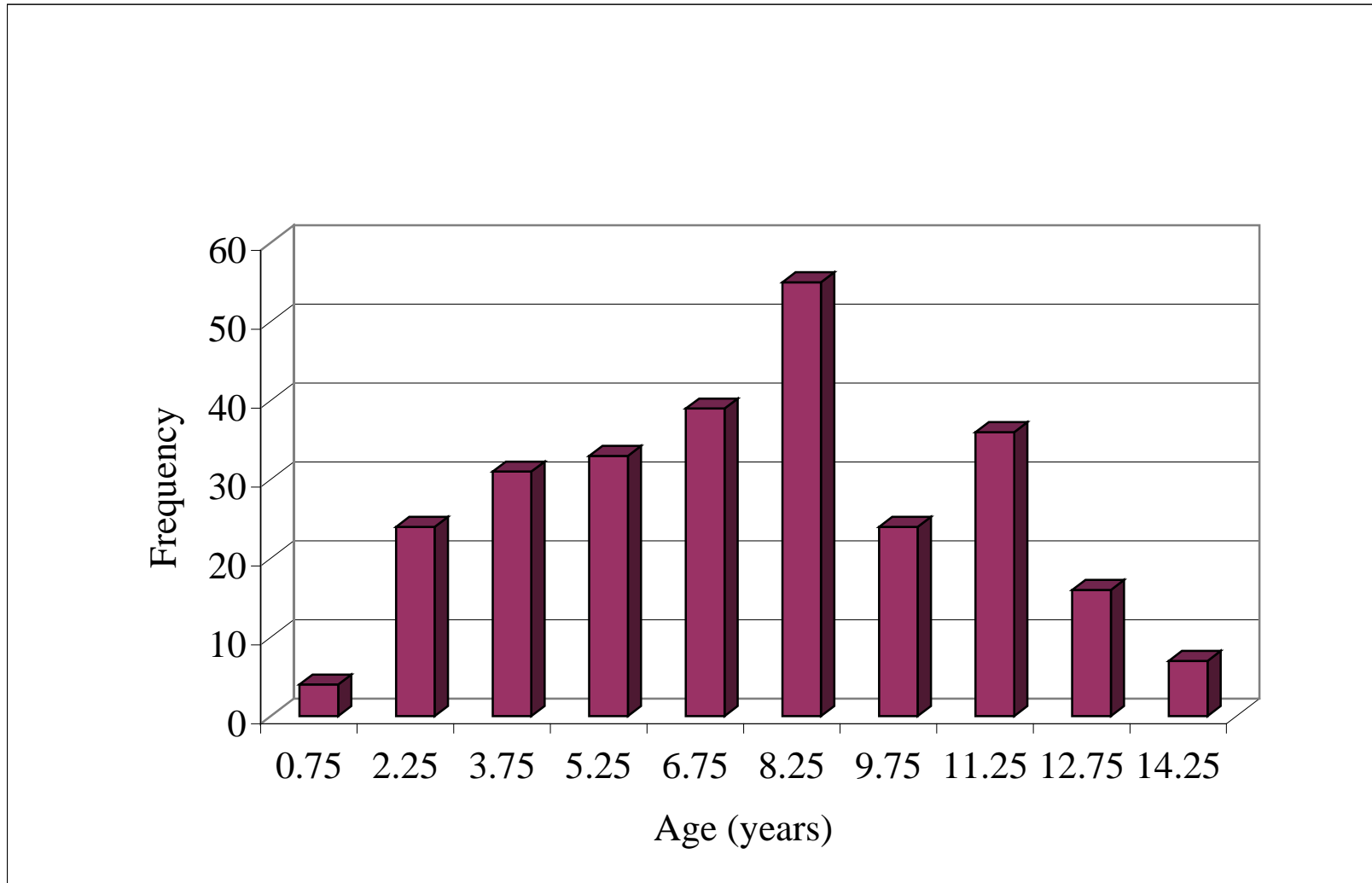


Table 3. Selected Akita Participant Information

	N (%)	Median	Mean	±SD
Neutered Akitas	352			
Bitches	214 (63.7)	--	--	--
Dogs	138 (51.7)	--	--	--
Unknown / missing	11 --	--	--	--
Age at neutering (years)	316			
Bitches	193	2.8	3.4	2.8
Dogs	123	1.9	2.8	2.5
Unknown / missing	36	--	--	--
Age as of January 1, 1995	438			
Bitches	243	4.1	4.2	3.0
Dogs	195	3.5	4.2	2.9
Not applicable ^a	165	--	--	--
Age as of October 1, 2000 (if alive)	439			
Bitches	257	6.9	7.0	3.2
Dogs	182	6.8	6.6	2.9
Age at death	164			
Bitches	79	11.0	10.1	3.3
Dogs	85	9.4	9.1	3.2
Age at death, cause confirmed	158			
Bitches	76	11.1	10.1	3.3
Dogs	82	9.6	9.2	3.1
Weight (pounds)	573			
Bitches	315	85.0	83.9	12.7
Dogs	258	100.0	101.3	13.7
Unknown / missing	30	--	--	--
Height (inches)	492			
Bitches	273	25.0	24.7	1.4
Dogs	219	27.0	26.7	1.5
Unknown / missing	111	--	--	--

^a 165 (27%) Akitas were born after January 1, 1995.

Figure 3a. Weight Distribution for Akita Bitches (Weight as of October 1, 2000 or Weight Last Reported)

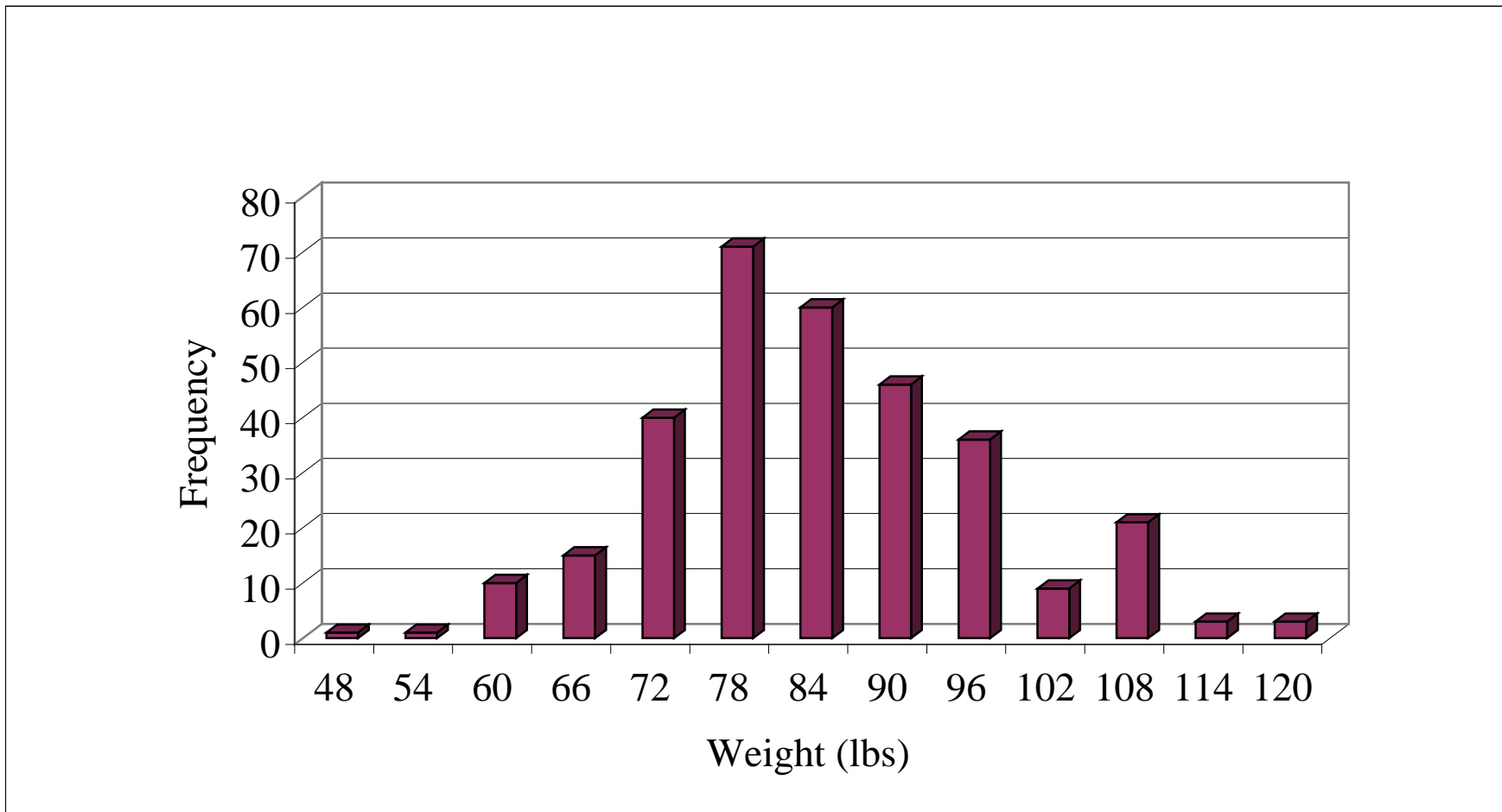


Figure 3b. Weight Distribution for Akita Dogs (Weight as of October 1, 2000 or Weight Last Reported)

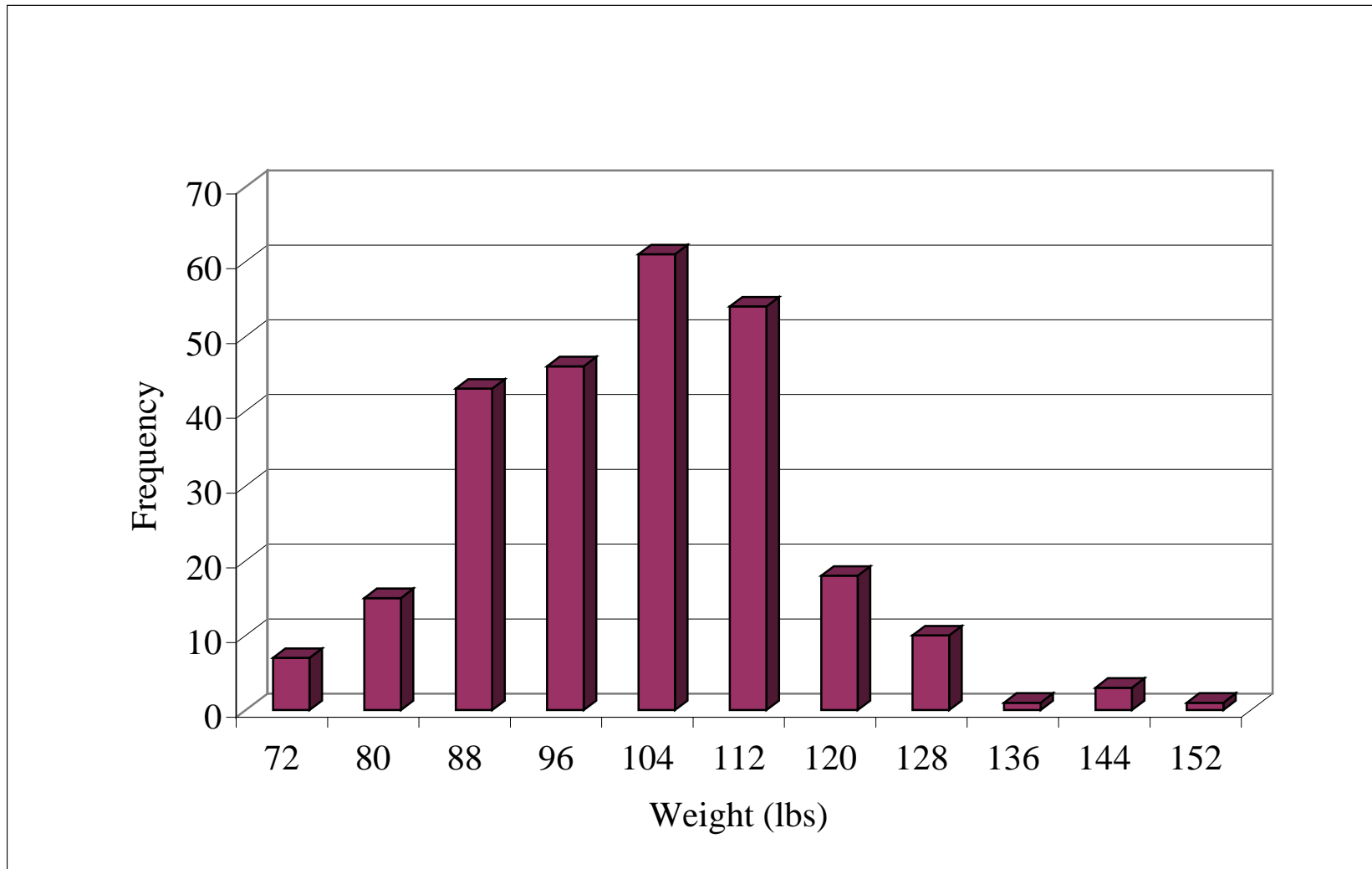


Figure 4a. Height Distribution for Akita Bitches (Height as of October 1, 2000 or Height Last Reported)

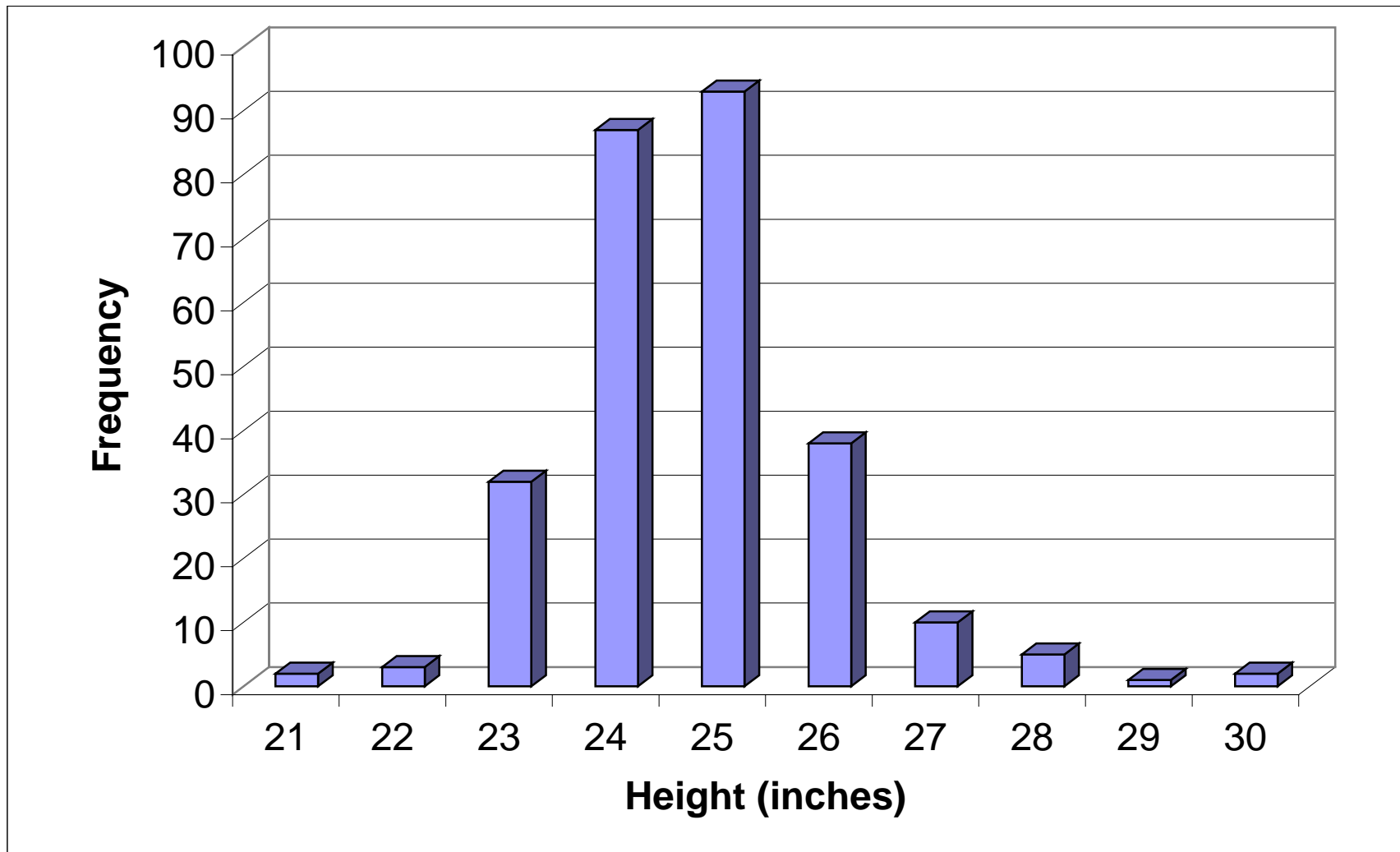


Figure 4b. Height Distribution for Akita Dogs (Height as of October 1, 2000 or Height Last Reported)

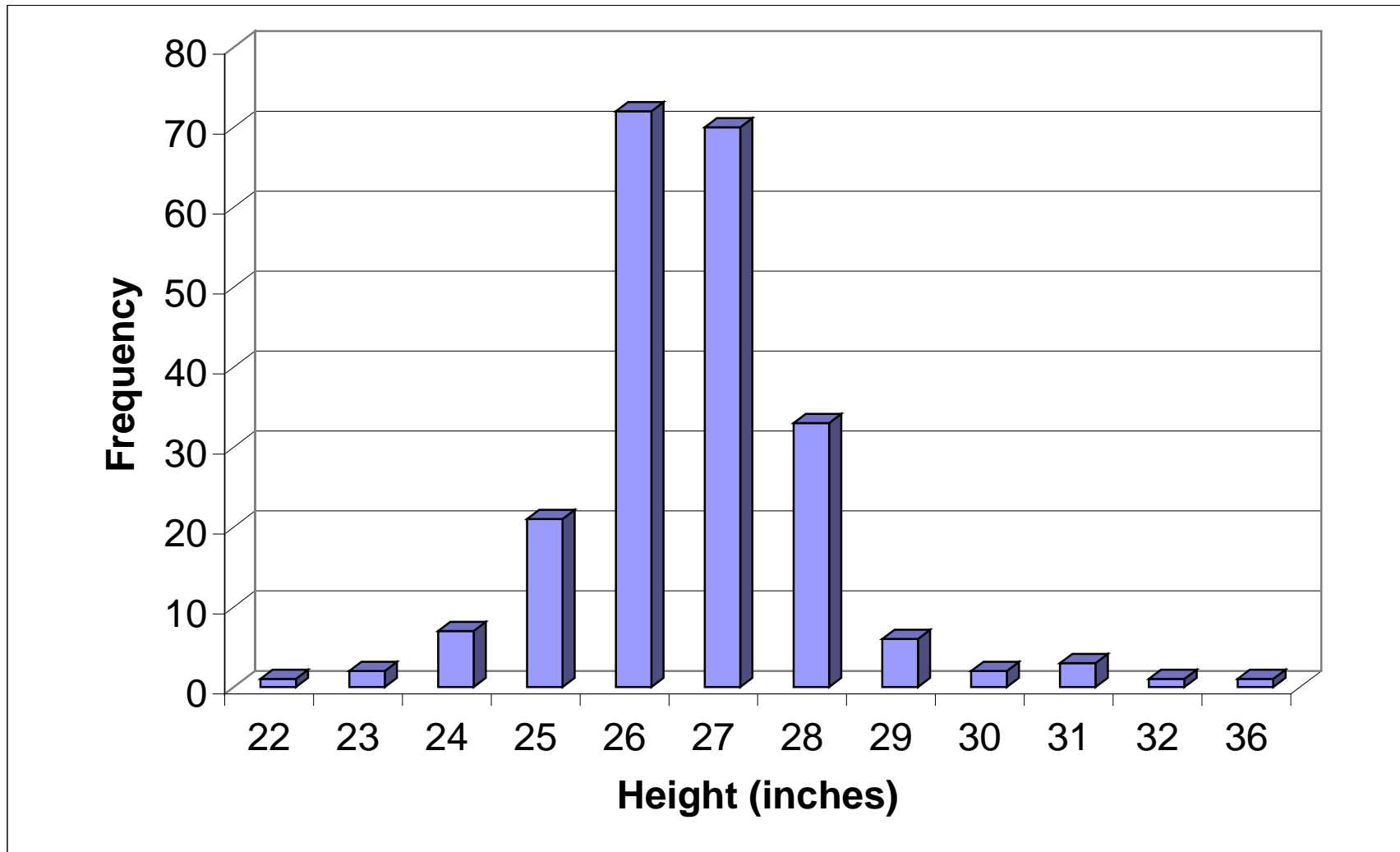


Table 4. Lineage of 569 Surveyed Akitas

Ancestry of dam of surveyed Akita	Ancestry of sire of surveyed Akita								Row total	
	American		Japanese		Mixed		Unknown		N	%
	N	%	N	%	N	%	N	%		
American	508	89.3	4	0.7	5	0.9	5	0.9	522	91.7
Japanese	0	0.0	14	2.5	1	0.2	3	0.3	18	3.2
Mixed	6	1.1	4	0.7	19	3.3	0	0.0	29	5.1
Column total ^a	514	90.3	22	3.9	25	4.4	8	1.4	569	100.0

^a Ancestry of dam and sire missing for 34 surveyed Akitas

Table 5. Birthplace of 594 Akitas

	N	%
United States	544	91.6
Canada	31	5.2
Japan	3	0.5
Other	16	2.7
Total ^a	594	100.0

^a Information missing for 7 Akitas

Table 6. Coat Colors of 595 Akitas

	N	%
Primary color		
Black	36	6.1
Brown	20	3.4
Red	103	17.3
Fawn	85	14.3
Silver	6	1.0
White	67	11.3
Black brindle	36	6.1
Brown brindle	12	2.0
Red brindle	31	5.2
Fawn/blue brindle	5	0.8
Silver brindle	14	2.4
Brown, black overlay	35	5.9
Red, black overlay	22	3.7
Fawn, black overlay	40	6.7
Silver, black overlay	27	4.5
Black, brown undercoat	9	1.5
Black, red undercoat	3	0.5
Black, fawn undercoat	15	2.5
Black, silver undercoat	24	4.0
White, red shading	5	0.8
Total ^a	595	100.0
Supplemental color		
Black mask	86	15.6
Black mask, white markings	271	49.1
Black+white mask, white markings	36	6.5
Pinto-self masked or white masked	9	1.6
Pinto-black mask	61	11.1
Pinto-black+white mask	26	4.7
< 1/3 body color	4	0.7
White mask	19	3.4
White mask, white markings	16	2.9
White mask-self masked, white markings	24	4.4
Total ^b	552	100.0

^a Information missing for 8 Akitas

^b Information missing for 51 Akitas

Table 7. State of Residence of 482 Akitas

State ^{a, b}	N	%
New England	37	7.4
Maine	4	0.8
New Hampshire	4	0.8
Massachusetts	13	2.6
Rhode Island	5	1.0
Connecticut	11	2.2
Mid. Atlantic	40	8.0
New York	20	4.0
New Jersey	9	1.8
Pennsylvania	11	2.2
E. N. Central	89	17.8
Ohio	12	2.4
Indiana	8	1.6
Illinois	26	5.2
Michigan	36	7.2
Wisconsin	7	1.4
W. N. Central	35	7.0
Minnesota	19	3.8
Missouri	16	3.2
S. Atlantic	74	14.8
Maryland	9	1.8
Virginia	28	5.6
West Virginia	3	0.6
North Carolina	12	2.4
Georgia	5	1.0
Florida	17	3.4
E.S. Central	21	4.2
Kentucky	1	0.2
Tennessee	16	3.2
Mississippi	4	0.8
W. S. Central	38	7.6
Arkansas	4	0.8
Louisiana	3	0.6
Oklahoma	5	1.0
Texas	26	5.2

^a State in which Akita spent most of its life ^b Information missing for 121 Akitas

b

Table 7. State of Residence of 482 Akitas

Page 2

State	N	%
Mountain	53	10.6
Montana	3	0.6
Wyoming	1	0.2
Colorado	5	1.0
New Mexico	6	1.2
Arizona	21	4.2
Utah	6	1.2
Nevada	11	2.2
Pacific	114	22.8
Washington	25	5.0
Oregon	8	1.6
California	81	16.1

Table 8. Reproductive Performance of 336 Akita Bitches

Number of bitches that whelped ^a	Total no. litters	Bitches				
		N	%			
	0	212	63.1			
	1	48	14.3			
	2	41	12.2			
	3	17	5.1			
	4	11	3.3			
	Unknown	7	2.1			
Bitches	Litter order	Bitches N		Median	Mean	±SD
				Age at whelp (years)		
	1	116		3.0	3.2	1.4
	2	69		4.4	4.5	1.4
	3	28		5.0	5.3	1.5
	4	11		5.6	6.0	1.0
Live born	Litter order	Litters N		Pups per litter		
	1	115		6.0	5.7	2.5
	2	69		6.0	6.1	2.6
	3	27		6.0	5.8	3.3
	4	11		6.0	6.5	2.9
Stillborn	Litter order	Litters N		Pups per litter		
	1	96		0	0.6	1.1
	2	60		0	0.4	1.0
	3	24		0	0.6	1.1
	4	9		1	0.7	0.7
Weaned	Litter order	Litters N		Pups per litter		
	1	105		5.0	5.3	2.6
	2	66		6.0	5.8	2.6
	3	27		6.0	5.4	3.1
	4	11		6.0	5.7	2.4
Euthanized	Litter order	Litters N		Pups per litter		
	1	71		0	0.2	0.6
	2	48		0	0.2	0.7
	3	18		0	0.2	0.5
	4	8		0	0.5	0.9

^a Information missing for 12 bitches; assumed not to have whelped.

Table 9a. Reproductive Performance by Method of Insemination

Method of insemination	Litter order	Number of litters	Number liveborn pups per litter		
			Median	Mean	±SD
Natural					
	1	91	6.0	5.9	2.5
	2	56	7.0	6.6	2.5
	3	23	7.0	6.2	3.2
	4	11	6.0	6.5	2.9
Artificial—Fresh semen					
	1	19	4.0	4.9	2.7
	2	12	5.0	4.5	2.8
	3	4	4.5	4.3	2.8
	4	0	--	--	--
Artificial—Chilled semen					
	1	0	--	--	--
	2	1	7.0	7.0	--
	3	0	--	--	--
	4	0	--	--	--
Artificial—Frozen semen					
	1	1	3.0	3.0	--
	2	0	--	--	--
	3	1	1.0	1.0	--
	4	0	--	--	--
Unknown					
	1	6	6.5	6.5	2.3
	2	1	5.0	5.0	--
	3	0	--	--	--
	4	0	--	--	--

Table 9b. Reproductive Performance by Method of Insemination

Method of insemination	Number of bitches	Number of litters	Number of pups per litter		
			Median	Mean	±SD
Natural	103	181			
Liveborn			6.0	6.2	2.1
Stillborn			0.0	0.6	1.0
Weaned			6.0	5.8	2.1
Euthanized			0.0	0.2	0.5
Artificial—Fresh semen	24	37			
Liveborn			4.7	4.8	2.2
Stillborn			0.8	0.6	0.6
Weaned			4.5	4.6	2.0
Euthanized			0.0	0.3	0.5
Artificial—Chilled semen	1	1			
Liveborn			7.0	7.0	--
Stillborn			1.0	1.0	--
Weaned			--	--	--
Euthanized			--	--	--
Artificial—Frozen semen	2	2			
Liveborn			2.0	2.0	1.4
Stillborn			0.0	0.0	0.0
Weaned			2.0	2.0	1.4
Euthanized			0.5	0.5	0.7
Unknown	6	7			
Liveborn			6.5	6.1	1.7
Stillborn			0.5	0.5	0.5
Weaned			4.0	4.8	1.9
Euthanized			2.5	2.5	2.1

Table 10. Purpose of Breeding and Competitions Attended

	N	% ^a			
Purpose for which dog was bred					
Conformation	420	69.7			
Companion / Pet	261	43.3			
Obedience	43	7.1			
Tracking	10	1.7			
Agility	6	1.0			
Therapy	4	0.7			
Assistance	2	0.3			
Herding	0	0.0			
Competitions attended			Number of competitions attended per Akita per year		
			Median	Mean	± SD
None	278	46.1	--	--	--
Conformation	287	47.6	12.0	17.9	17.3
Obedience	55	9.1	4.0	5.0	3.8
Agility	10	1.7	8.0	9.8	8.0
Tracking	5	0.8	4.0	4.0	1.0

^a Respondents were allowed to check more than one category; therefore numbers do not add up to 100%.

Table 11. Source of Akita and Type of Husbandry

	N	%
Source of Akita	603	100.0
Breeder – kennel	245	40.6
Breeder – home	151	25.0
Breeder – self	130	21.6
Shelter / Rescue	45	7.5
Adopted from private party	17	2.8
Pet store	6	1.0
Unknown / missing	9	1.5
Primary housing type (>50 % of the time)	603	100.0
Free in house	279	46.3
Kennel, inside/outside	140	23.2
Fenced yard	40	6.6
Crate	6	1.0
Indoor kennel	6	1.0
Garage	1	0.2
Other	10	1.7
Unknown/missing	2	0.3
Mixed ^a	119	19.7
Sleeps in owner's bed	603	100.0
Usually	58	9.6
Sometimes	160	26.5
Never	378	62.7
Unknown/missing	7	1.2

^a These owners indicated more than one primary housing type.

Table 12a. Size by Age and Gender for 603 Akitas

Bitches

Age ^a (years)	Weight ^b (lb)		Height ^b (in)		Weight/Height Index	
	N	Mean±SD	N	Mean±SD	N	Mean±SD
0 – 2.9	32	80.9±12.7	25	24.7±1.4	25	3.3±0.5
3 – 5.9	62	78.5±11.9	54	24.8±1.9	53	3.2±0.4
6 – 8.9	98	87.1±13.4	91	24.7±1.2	91	3.5±0.4
9 – 11.9	85	83.3±11.5	73	24.6±1.1	73	3.4±0.4
12 ⁺	38	88.6±11.1	30	24.6±1.0	30	3.6±0.3

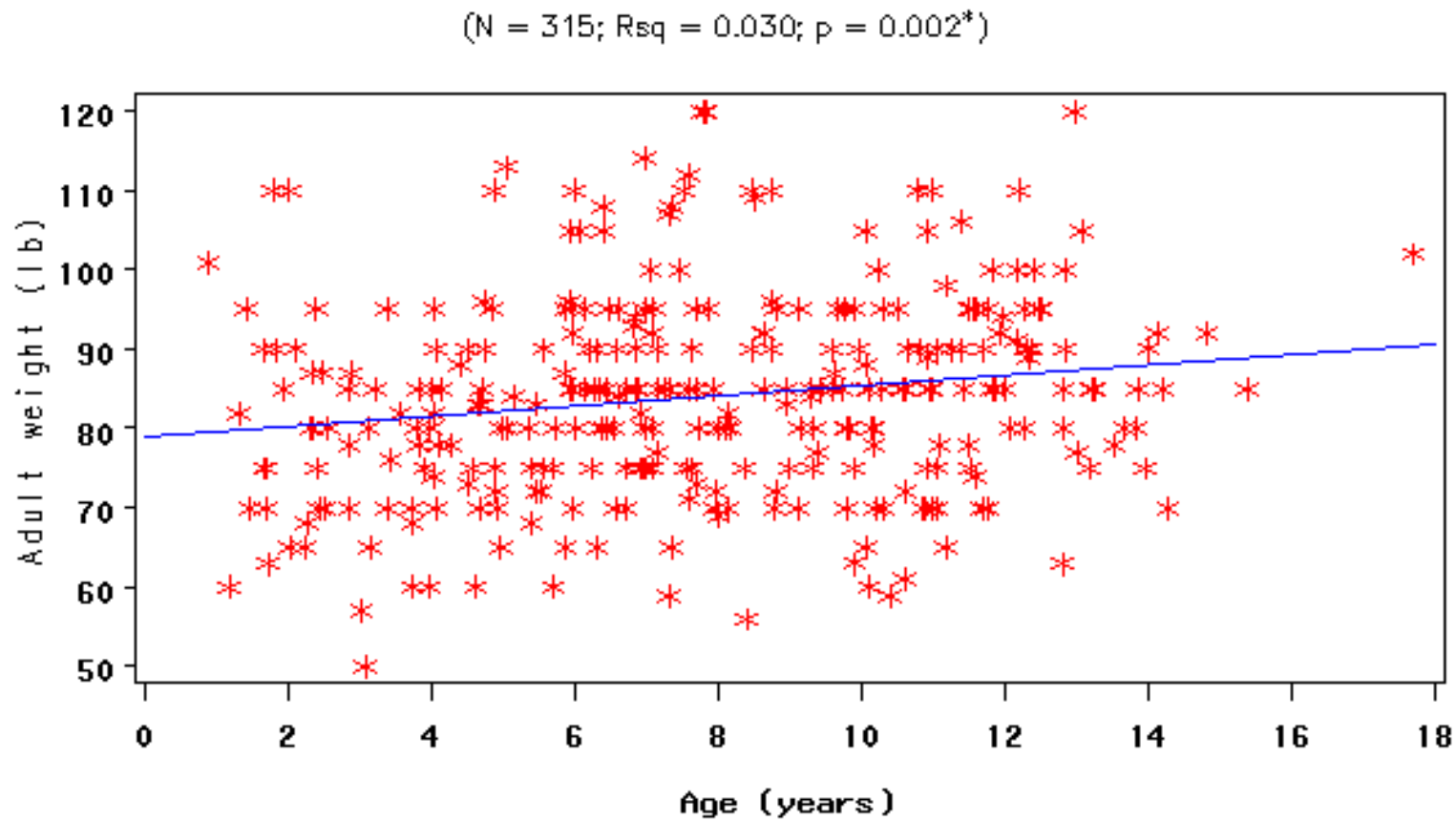
Dogs

Age ^a (years)	Weight ^b (lb)		Height ^b (in)		Weight/Height Index	
	N	Mean±SD	N	Mean±SD	N	Mean±SD
0 – 2.9	24	95.9±17.5	19	26.3±1.3	19	3.7±0.6
3 – 5.9	59	101.4±13.6	48	26.8±1.3	48	3.9±0.5
6 – 8.9	91	101.5±13.7	82	26.7±1.5	82	3.8±0.5
9 – 11.9	59	103.2±12.7	51	26.7±1.7	50	3.9±0.4
12 ⁺	25	101.1±11.9	19	26.6±1.7	19	3.9±0.3

^a Age as of 1 October, 2000 or age at death.

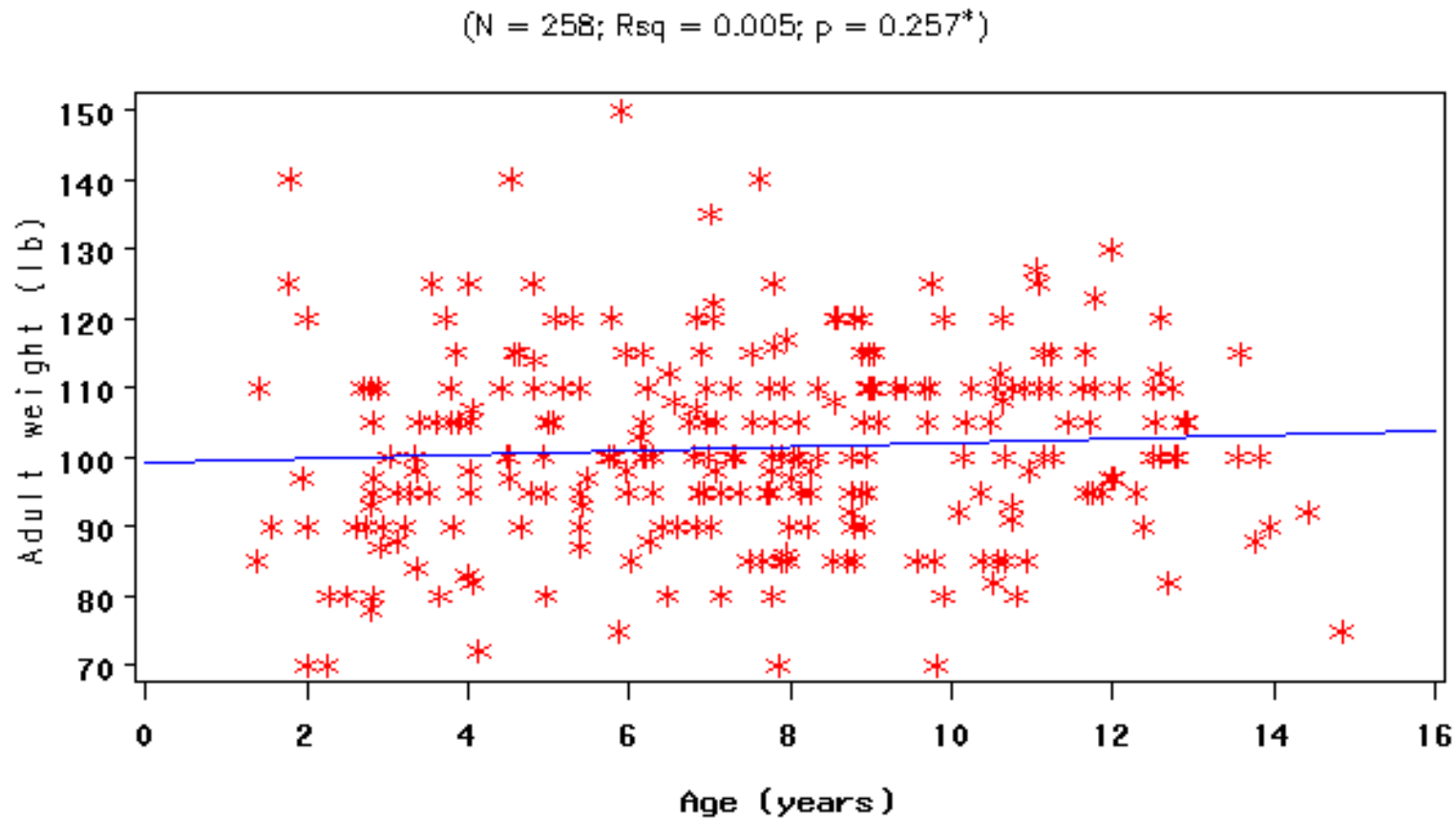
^b Weight, height as of October 1, 2000 or as last reported.

Figure 5. Relationship of Body Weight to Age in Akita Bitches



*The probability that this relationship occurred by chance alone is 2 in 1000

Figure 6. Relationship of Body Weight to Age in Akita Dogs



*The probability that this relationship occurred by chance alone is 257 in 1000

Table 12b. Size by Age and Gender for Geriatric Akitas ≥ 13 Years of Age Compared with Younger Adults 9 – 12.9 Years of Age**(Age as of 1 October, 2000 or age at death)**

Gender	Age (years)	Weight ^a (lb)		Height ^a (in)		Weight/Height Index	
		N	Mean \pm SD	N	Mean \pm SD	N	Mean \pm SD
Bitches	9–12.9	103	85.1 \pm 12.1	87	24.7 \pm 1.1	87	3.4 \pm 0.4
	≥ 13	17	84.8 \pm 9.4	13	24.5 \pm 0.7	13	3.5 \pm 0.3
Dogs	9–12.9	72	103.2 \pm 12.5	60	26.7 \pm 1.8	59	3.9 \pm 0.4
	≥ 13	7	94.3 \pm 12.4	5	26.6 \pm 1.3	5	3.7 \pm 0.3

^a Weight, height as of October 1, 2000 or last reported.

Table 13a. Owner's Assessment of Growth and Body Condition in Akita Bitches

	Weight ^a (lb)		Height ^a (in)		Weight/Height Index	
	N	Mean±SD	N	Mean±SD	N	Mean±SD
Puppy growth rate						
Slow	34	81.9±9.4	29	24.3±1.1	29	3.4±0.4
Average	219	83.4±12.0	200	24.7±1.2	200	3.4±0.4
Maximum	9	92.8±14.4	8	25.1±1.6	7	3.7±0.5
Unknown / missing	53	86.1±16.1	36	25.1±1.9	36	3.4±0.5
Puppy body condition						
Underweight	21	74.4±9.3	20	24.8±2.2	20	3.0±0.3
Average	257	84.2±11.8	223	24.7±1.2	223	3.9±0.4
Overweight	7	87.0±11.9	8	24.6±1.8	7	3.6±0.4
Unknown / missing	30	87.2±18.9	22	24.8±1.4	22	3.5±0.6
Adult body condition						
Underweight	7	68.3±7.2	7	25.1±0.9	7	2.7±0.3
Average	252	82.6±11.7	218	24.7±1.3	218	3.4±0.4
Overweight	53	92.9±13.0	47	24.7±1.3	46	3.7±0.4
Unknown / missing	3	74.7±17.5	1	23.0± -	1	3.0± -
Adult bone structure						
Small	34	70.2±9.0	31	23.9±1.3	31	2.9±0.4
Medium	179	82.1±10.2	154	24.6±1.2	154	3.4±0.4
Large	100	92.0±12.7	86	25.2±1.3	85	3.6±0.4
Unknown / missing	2	82.0±9.9	2	24.0±0	2	3.4±0.4

^a Weight and height as of October 1, 2000 or as last reported

Table 13b. Owner's Assessment of Growth and Body Condition in Akita Dogs

	Weight ^a (lb)		Height ^a (in)		Weight/Height Index	
	N	Mean±SD	N	Mean±SD	N	Mean±SD
Puppy growth rate						
Slow	28	99.8±12.2	27	26.5±1.6	27	3.8±0.4
Average	180	101.1±13.0	154	26.6±1.4	153	3.8±0.4
Maximum	15	109.7±18.2	14	27.0±1.5	14	4.1±0.6
Unknown / missing	35	100.0±15.9	24	27.0±1.8	24	4.0±0.6
Puppy body condition						
Underweight	27	96.4±14.7	21	27.1±1.4	21	3.7±0.4
Average	200	101.8±13.6	175	26.5±1.4	174	3.9±0.5
Overweight	10	110.5±8.3	9	27.8±3.2	9	4.1±0.5
Unknown / missing	21	98.4±13.0	14	26.9±1.2	14	3.9±0.3
Adult body condition						
Underweight	21	90.6±12.8	17	26.8±1.5	17	3.5±0.4
Average	221	101.6±12.7	189	26.6±1.5	188	3.8±0.4
Overweight	14	111.3±20.9	11	26.9±1.8	11	4.4±0.7
Unknown / missing	2	105.0±14.1	2	27.0±0	2	3.9±0.5
Adult bone structure						
Small	4	87.5±5.0	4	25.8±1.3	4	3.4±0.1
Medium	99	94.9±11.3	81	26.5±1.4	81	3.6±0.4
Large	153	105.7±13.5	132	26.8±1.6	131	4.0±0.4
Unknown / missing	2	106.0±19.8	2	26.0±1.4	2	4.1±0.5

^a Weight and height as of October 1, 2000 or as last reported

Table 14a. Typical Diet of 578 Adult Akitas

	Frequency of feeding ^a								
	Daily		Weekly		Monthly		Never		
	N	%	N	%	N	%	N	%	
Foods fed									
Dry	556	96.2	1	0.2	0	0.0	21	3.6	
Canned	166	28.7	36	6.2	12	2.1	364	63.0	
Home prepared	126	21.8	42	7.3	8	1.4	402	69.6	
Table scraps	110	19.0	92	15.9	18	3.1	220	61.9	
Other	16	2.8	6	1.0	6	1.0	550	95.2	

^a Information missing for 25 Akitas

Table 14b. Frequency of Daily Feeding for 578 Adult Akitas

Foods fed	Times per day	N	%
Dry		556	100.0
	1	100	18.0
	2	330	59.4
	3	3	0.5
	4	6	1.1
	Unspecified	117	21.0
Canned		166	100.0
	1	75	45.2
	2	58	34.9
	Unspecified	33	19.9
Home prepared		126	100.0
	1	39	31.0
	2	51	40.5
	3	1	0.8
	Unspecified	35	27.8
Table scraps		110	100.0
	1	49	44.6
	2	14	12.7
	3	2	1.8
	4	1	0.9
	Unspecified	44	40.0
Other		15	100.0
	1	13	86.7
	2	1	6.7
	4	1	6.7

Table 15a. Typical Diet of 214 Senior Akitas

Foods fed	Frequency of feeding							
	Daily		Weekly		Monthly		Never	
	N	%	N	%	N	%	N	%
Dry	197	92.1	2	0.9	0	0.0	15	7.0
Canned	60	28.0	3	1.4	4	1.9	67	31.3
Home prepared	54	25.2	15	7.0	2	0.9	71	33.2
Table scraps	42	19.6	47	22.0	4	1.9	93	43.5
Other	10	4.7	2	0.9	1	0.5	13	6.1

Table 15b. Frequency of Daily Feeding for 214 Senior Akitas

Foods fed	Times per day	N	%
Dry		197	100.0
	1	36	18.3
	2	111	56.4
	3	4	2.0
	4	3	1.5
	5	2	1.0
	Unspecified	41	20.8
Canned		60	100.0
	1	31	51.7
	2	15	25.0
	Unspecified	14	23.3
Home prepared		54	100.0
	1	9	16.7
	2	29	53.7
	Unspecified	16	29.6
Table scraps		42	100.0
	1	20	47.6
	2	1	2.4
	4	1	2.4
	Unspecified	20	47.6
Other		10	100.0
	1	9	90.0
	4	1	10.0

Table 16. Primary Ingredients in Commercial Foods Fed Daily Based on Product Label

Foods fed	N	% ^a
Dry	368^b	100.0
Red meat ^c	145	39.4
White meat ^c	194	52.7
Plant origin	22	6.0
Fish or fish meal	7	1.9
Canned	146^b	100.0
Red meat	64	43.8
White meat	50	34.3
Meat by products	25	17.1
Other	7	4.8

^a Indicates percent of owners who answered the question.

^b Number of Akitas where label information was available

^c Category includes meat meal and meat by-products.

Table 17a. Home Prepared Foods Fed Daily

Type of food	Daily		Food cooked (Yes)	
	N	% ^a	N	%
White meat	112	18.6	43	38.4
Vegetables	74	12.3	42	56.8
Red meat	54	9.0	34	63.0
Bones	44	7.3	1	2.3
Yogurt	43	7.1	NA	NA
Dairy	30	5.0	NA	NA
Fish	23	3.8	15	65.0
Fruit	23	3.8	1	4.3
Eggs	17	2.8	10	58.8
Other meat	16	2.7	6	37.5
Pasta	13	2.2	10	76.9
Other	20	3.3	16	80.0
Grains	29	4.8	--	--
Organ meats	4	0.7	--	--
Coconut milk	1	0.2	--	--

^a Indicates percent of owners who answered the question.

Table 17b. Home Prepared Foods Fed Weekly

Type of food	Weekly		Food cooked (Yes)	
	N	% ^a	N	%
White meat	131	21.7	84	64.1
Vegetables	141	23.4	57	40.4
Red meat	154	25.5	78	50.6
Bones	96	15.9	11	11.5
Yogurt	85	14.1	NA	NA
Dairy	60	10.0	NA	NA
Fish	143	23.7	92	64.3
Fruit	89	14.8	1	1.1
Eggs	128	21.2	53	41.4
Other meat	27	4.5	11	40.7
Pasta	65	10.8	45	69.2
Other	20	3.3	10	50.0

^a Indicates percent of owners who answered the question.

Table 18a. Supplements Used in 578 Adult Akitas

	Daily		Weekly		Monthly		Never	
	N	%	N	%	N	%	N	%
Supplements								
Multivitamins	225	38.9	17	2.9	3	0.5	333	57.6
Minerals	94	16.3	6	1.0	0	0.0	478	82.7
Cartilage/joint	78	13.5	6	1.0	0	0.0	494	85.5
Food supplements	171	29.6	18	3.1	2	0.3	387	67.0
Other	13	2.2	2	0.3	0	0.0	463	80.1

Table 18b. Supplements Used in 214 Senior Akitas

	Daily		Weekly		Monthly		Never	
	N	%	N	%	N	%	N	%
Supplements								
Multivitamins	106	49.5	4	1.9	0	0.0	104	48.6
Minerals	45	21.0	5	2.3	0	0.0	164	76.6
Cartilage/joint	85	39.7	2	0.9	0	0.0	127	59.3
Food supplements	67	31.3	7	3.3	2	0.9	138	64.5
Other	6	2.8	0	0.0	0	0.0	208	97.2

Table 19a. Daily Diet Compared with Body Condition of 578 Adult Akitas

Type of diet	Body condition ^{a,b}							
	Underweight		Average		Overweight		Total	
	N	%	N	%	N	%	N	%
Dry								
Yes	22	4.0	459	83.9	66	12.1	547	100.0
No	2	9.5	17	81.0	2	9.5	21	100.0
Canned								
Yes	3	1.8	138	83.6	24	14.6	165	100.0
No	21	5.2	338	83.9	44	10.9	403	100.0
Home prepared								
Yes	8	6.6	105	86.1	9	7.4	122	100.0
No	16	3.6	371	83.2	59	13.2	446	100.0
Table scraps								
Yes	8	7.3	94	86.2	7	6.4	109	100.0
No	16	3.5	382	83.2	61	13.3	459	100.0

^a Body condition as of October 1, 2000 or as last reported.

^b Information missing for 10 Akitas.

Table 19b. Daily Diet Compared with Body Condition of 214 Senior Akitas

Type of diet	Body condition ^{a,b}							
	Underweight		Average		Overweight		Total	
	N	%	N	%	N	%	N	%
Dry								
Yes	5	2.6	163	83.2	28	14.3	196	100.0
No	0	0.0	17	100.0	0	0.0	17	100.0
Canned								
Yes	2	3.3	48	80.0	10	16.7	60	100.0
No	3	2.0	132	86.3	18	11.8	153	100.0
Home prepared								
Yes	1	1.9	48	90.6	4	7.6	53	100.0
No	4	2.5	132	82.5	24	15.0	160	100.0
Table scraps								
Yes	0	0.0	40	95.2	2	4.8	42	100.0
No	5	2.9	140	81.9	26	15.2	171	100.0

^a Body condition as of October 1, 2000 or as last reported.

^b Information missing for 1 Akita.

Table 20a. Daily Diet Compared with Weight and Height in Adult Akita Bitches

Type of diet	Weight ^a (lb)		Height ^a (in)		Weight/Height Index	
	N	Mean±SD	N	Mean±SD	N	Mean±SD
Dry						
Yes	289	83.4±12.1	251	24.7±1.3	250	3.4±0.4
No	14	84.1±18.4	13	24.3±1.8	13	3.4±0.6
Canned						
Yes	86	85.2±11.8	76	24.9±1.2	76	3.4±0.4
No	217	82.8±12.7	188	24.6±1.4	187	3.4±0.4
Home prepared						
Yes	62	82.6±14.5	53	24.5±1.4	53	3.3±0.5
No	241	83.7±11.9	211	24.7±1.3	210	3.4±0.4
Table scraps						
Yes	57	81.1±13.3	48	24.5±1.3	48	3.3±0.5
No	246	84.0±12.2	216	24.7±1.3	215	3.4±0.4

^a Weight and height as of October 1, 2000 or as last reported

Table 20b. Daily Diet Compared with Weight and Height in Adult Akita Dogs

Type of diet	Weight ^a (lb)		Height ^a (in)		Weight/Height Index	
	N	Mean±SD	N	Mean±SD	N	Mean±SD
Dry						
Yes	240	101.6±13.6	202	26.6±1.4	201	3.9±0.4
No	7	96.3±10.6	7	26.7±1.4	7	3.6±0.3
Canned						
Yes	74	99.7±13.7	59	26.5±1.3	59	3.8±0.5
No	173	102.2±13.5	150	26.7±1.4	149	3.9±0.4
Home prepared						
Yes	58	103.1±14.3	53	26.8±1.4	53	3.8±0.5
No	189	100.9±13.3	156	26.5±1.3	155	3.9±0.4
Table scraps						
Yes	45	103.7±13.3	41	27.2±1.4	41	3.8±0.4
No	202	100.9±13.6	168	26.5±1.3	167	3.9±0.4

^a Weight and height as of October 1, 2000 or as last reported

Table 21a. Daily Diet Compared with Weight and Height in Senior Akita Bitches

Type of diet	Weight ^a (lb)		Height ^a (in)		Weight/Height Index	
	N	Mean±SD	N	Mean±SD	N	Mean±SD
Dry						
Yes	97	87.4±13.0	81	24.8±1.1	81	3.5±0.4
No	12	83.8±14.8	12	24.5±1.1	12	3.4±0.5
Canned						
Yes	29	88.0±14.5	22	25.0±1.0	22	3.5±0.5
No	80	86.7±12.8	71	24.7±1.1	71	3.5±0.4
Home prepared						
Yes	31	87.8±15.2	25	24.7±0.9	25	3.5±0.5
No	78	86.7±12.4	68	24.8±1.1	68	3.5±0.4
Table scraps						
Yes	20	88.0±16.1	18	24.9±1.1	18	3.4±0.5
No	89	86.8±12.5	75	24.7±1.1	75	3.5±0.4

^a Weight and height as of October 1, 2000 or as last reported

Table 21b. Daily Diet Compared with Weight and Height in Senior Akita Dogs

Type of diet	Weight ^a (lb)		Height ^a (in)		Weight/Height Index	
	N	Mean±SD	N	Mean±SD	N	Mean±SD
Dry						
Yes	89	101.4±12.8	76	26.6±1.7	75	3.9±0.4
No	5	99.0±5.4	5	26.8±0.4	5	3.7±0.2
Canned						
Yes	29	96.1±12.2	20	26.2±1.7	20	3.8±0.4
No	65	103.5±12.1	61	26.7±1.6	60	3.9±0.4
Home prepared						
Yes	22	102.8±11.6	21	26.7±0.9	21	3.9±0.4
No	72	100.8±12.8	60	26.6±1.8	59	3.9±0.4
Table scraps						
Yes	18	107.2±10.7	17	26.9±0.8	17	4.0±0.3
No	76	99.8±12.6	64	26.5±1.8	63	3.8±0.4

^a Weight and height as of October 1, 2000 or as last reported

Table 22. Rate of Growth, Body Condition, and Bone Type of Akitas

	Lifestage			
	Puppy		Adult	
	N	%	N	%
Growth rate as puppy				
Slow	67	11.1	--	--
Average	414	68.7	--	--
Maximum	26	4.3	--	--
Unknown/missing	96	15.9	--	--
Body condition				
Bitches				
Underweight	21	6.3	7	2.1
Average	274	81.6	264	78.6
Overweight	9	2.7	57	17.0
Unknown /missing	32	9.5	8	2.4
Dogs				
Underweight	27	10.1	21	7.9
Average	206	77.2	229	85.8
Overweight	10	3.8	14	5.2
Unknown /missing	24	9.0	3	1.1
Bone type				
Bitches				
Small	--	--	35	10.4
Medium	--	--	189	56.3
Large	--	--	104	31.0
Unknown/missing	--	--	8	2.4
Dogs				
Small	--	--	4	1.5
Medium	--	--	103	38.6
Large	--	--	157	58.8
Unknown/missing	--	--	3	1.1

Table 23. Personality Score as Characterized by Owners: Akitas vs Golden Retrievers

Personality trait	Akita			Golden Retriever ^b
	N	Median ^a	Mean±SD ^a	Mean±SD
Active	589	6.0	6.3±2.1	6.9±1.9
Aggressive to dogs	598	5.0	4.9±2.9	2.4±2.0
Aggressive to people	600	1.0	2.0±1.6	1.3±0.9
Excitable	597	5.0	5.3±2.3	5.6±2.2
Fearful of environmental changes ^c	598	2.0	3.4±2.8	3.3±2.9
Fearful of people	599	1.0	2.1±2.0	1.5±1.3
Happy	599	9.0	8.6±1.6	9.0±1.3
Submissive to dogs	597	2.0	2.9±2.3	3.4±2.5
Submissive to people	592	5.0	5.3±3.0	4.2±3.2
Trainable	597	8.0	7.8±1.9	8.5±1.7

^a Possible scores are 1 – 10 where 1 = never (low)...10 = always (high).

^b Based on 1998 Golden Retriever Health Survey by Purdue University

^c Environmental changes include thunder, guns, firecrackers, other loud noises, etc.

Table 24. Frequency of Vaccination

Type of vaccines	Yearly		Every 2 years		Every 3 years		Sporadic		As puppy only		Never	
	N	%	N	%	N	%	N	%	N	%	N	%
Rabies	172	28.5	58	9.6	306	50.8	17	2.8	2	0.3	15	2.5
Distemper	388	64.3	46	7.6	32	5.3	59	9.8	9	1.5	12	2.0
Parvovirus	375	62.2	45	7.5	30	5.0	62	10.3	9	1.5	13	2.2
Leptospirosis	279	46.3	27	4.5	16	2.7	64	10.6	7	1.2	69	11.4
Lyme disease	64	10.6	14	2.3	0	0.0	8	1.3	1	0.2	244	40.5
Kennel cough	220	36.5	18	3.0	4	0.7	69	11.4	3	0.5	119	19.7
Other	61	10.1	4	0.7	1	0.2	2	0.3	2	0.3	1	0.2

Table 25. Frequency of Routine Deworming and Heartworm Prevention

	Yearly		Every 2 years		Every 3 years		Sporadic		Never	
	N	%	N	%	N	%	N	%	N	%
Routine deworming	167	27.7	19	3.2	3	0.5	194	32.2	185	30.7
	Daily		Monthly		Spring to fall		Sporadic		Never	
	N	%	N	%	N	%	N	%	N	%
Heartworm prevention	35	5.8	226	37.5	139	23.1	31	5.1	151	25.0

Table 26. Frequency of Exposure to Chemicals or Water

Type of exposure	Weekly		Monthly		Sporadic		Never	
	N	%	N	%	N	%	N	%
Contact with lawn chemicals								
Type not specified	7	1.2	18	3.0	158	26.2	323	53.6
Contact with tick/flea products								
Dips	0	0.0	4	0.7	89	14.8	400	66.3
Products applied as drops on skin	1	0.2	81	13.4	130	21.6	299	49.6
Pills	0	0.0	44	7.3	18	3.0	398	66.0
Shampoos	10	1.7	18	3.0	167	27.7	307	50.9
Sprays	6	1.0	11	1.8	134	22.2	326	54.1
Other	6	1.0	4	0.7	35	5.8	332	55.1
Swimming								
Pool	12	2.0	1	0.2	21	3.5	386	64.0
Fresh water	16	2.7	11	1.8	137	22.7	289	47.8
Salt water	4	0.7	0	0.0	53	8.8	361	59.9

Table 27a. Source of Drinking Water Used More Than 50% of the Time

Type of water	N	%
Municipal	387	64.2
Well	208	34.5
Bottled	15	2.5
Other—Reverse osmosis	1	0.2
Total	611	100.0

Table 27b. Treatment of Drinking Water Used More Than 50% of the Time

Type of treatment	N	%
Filtered	212	35.2
Chlorinated	282	46.8
Softened	86	14.3
Total	580	100.0

Table 28. Treatments Reported for Behavior Problems in 112 Akitas

	N	%
None	68	60.7
Any	44	39.3
Professional counseling or behavior modification	30 ^a	
Medical	13 ^a	
Euthanatized	2 ^a	
<hr/>		
Euthanasia was considered but not done	28	

^a Categories do not add up to 44 because an Akita may have had more than one treatment

Table 29. Automobile Accidents, Drug Reactions, and Hospitalizations in 603 Akitas

	N	%
Automobile accidents		
Yes	11	1.9
No	584	98.2
Any adverse drug reactions		
Yes ^{a, b}	49	8.4
No	537	91.6
Age at adverse drug reaction		
0 – 2.9	21	42.9
3 – 5.9	12	24.5
6 – 8.9	10	20.4
9+	4	8.2
Missing age	2	4.1
Dog hospitalized for any health-related conditions		
Yes	56	10.2
No	492	89.8

^a 11 vaccine-, 8 anesthetic- and 29 drug-reactions

^b 34 veterinary-confirmed

Table 30. Three Most Important Health Related Disorders—Owner-Ranking Versus Actual Survey Results

Ranking of importance / occurrence	Owners' opinion	Survey results ^a			
		Death		Disease or condition	
		Cause	% of deaths	Cause	Lifetime risk
#1	Autoimmune diseases	Cancer	21.4	Hypothyroid	1 in 3
#2	Thyroid diseases	Gastric dilatation-volvulus	21.4	Bloat with torsion	1 in 5
#3	Behavior problems	Musculoskeletal	15.5	Hot spots	1 in 6
				Arthritis (not autoimmune)	1 in 6

^a Based on veterinary-confirmed causes of death or disease only

Table 31. Prevalence of Veterinary-Confirmed Health Disorders by Type and System Involved

Disorders	N	% of reports in category	% of 603 Akitas
Malignant neoplasms by type			
Lymphoma/lymphosarcoma	8	17.0	1.3
Osteosarcoma	7	14.9	1.2
Adenocarcinoma	5	10.6	0.8
Hemangiosarcoma	4	8.5	0.7
Carcinoma, unspecified	4	8.5	0.7
Sarcoma, unspecified	3	6.4	0.5
Mast cell	2	4.3	0.3
Squamous cell	2	4.3	0.3
Giant cell	1	2.1	0.2
Melanoma	1	2.1	0.2
Seminoma	0	0.0	0.0
Chondrosarcoma	0	0.0	0.0
Fibrosarcoma	0	0.0	0.0
Interstitial cell	0	0.0	0.0
Liposarcoma	0	0.0	0.0
Mesothelioma	0	0.0	0.0
Myeloma	0	0.0	0.0
Neuroblastoma	0	0.0	0.0
Neurofibrosarcoma	0	0.0	0.0
Sertoli cell	0	0.0	0.0
Transitional cell	0	0.0	0.0
Transmissible venereal	0	0.0	0.0
Other/Unspecified	10	21.3	1.7
Total # of incidents	47		
Total # of Akitas	46		7.6
Malignant neoplasms by location			
Bone	13	27.7	2.2
Mammary gland	9	19.1	1.5
Lymph nodes	5	10.6	0.8
Lung	4	8.5	0.7
Eye	3	6.4	0.5
Skin	3	6.4	0.5
Intestine	2	4.3	0.3
Spleen	2	4.3	0.3
Uterus	2	4.3	0.3
Heart	1	2.1	0.2
Liver	1	2.1	0.2
Mouth	1	2.1	0.2

Table 31. Prevalence of Veterinary-Confirmed Health Disorders by Type and System Involved

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Disorders	N	% of reports in category	% of 603 Akitas
Malignant neoplasms by location (cont'd)			
Testes	1	2.1	0.2
Site missing	1	2.1	0.2
Total # of incidents	47		
Total # of Akitas	46		7.6
Non-malignant neoplasms by type			
Papilloma	10	30.3	1.7
Lipoma	6	18.2	1.0
Adenoma	2	6.1	0.3
Histiocytoma	1	3.0	0.2
Epithelioma	1	3.0	0.2
Polyp	1	3.1	0.2
Other / Unspecified	12	36.4	2.0
Total # of incidents	33		
Total # of Akitas	32		5.3
Non-malignant neoplasms by location			
Mammary	9	27.3	1.5
Skin	9	27.3	1.5
Mouth	3	9.1	0.5
Eye	2	6.1	0.3
Bone	2	6.1	0.3
Other / Unspecified	4	12.1	0.7
Site missing	4	12.1	0.7
Total # of incidents	33		
Total # of Akitas	32		5.3
Cardiovascular			
Heartworm infection	6	40.0	1.0
Heart murmur	3	20.0	0.5
Heart arrhythmia	1	6.7	0.2
Cardiomyopathy	1	6.7	0.2
Heart failure	1	6.7	0.2
Pulmonic stenosis	0	0.0	0.0
Subaortic stenosis	0	0.0	0.0
Valve dysfunction	0	0.0	0.0
Ventricular septal defect	0	0.0	0.0
Other cardiovascular diseases	3	20.0	0.5

Table 31. Prevalence of Veterinary-Confirmed Health Disorders by Type and System Involved

Page 3

Disorders	N	% of reports in category	% of 603 Akitas
Cardiovascular (cont'd)			
Total # of incidents	15		
Total # of Akitas	15		2.5
Allergies			
Allergic dermatitis due to			
Inhaled allergens	61	32.6	10.1
Fleas	40	21.4	6.6
Food	33	17.6	5.5
Flea dip	5	2.7	0.8
Pond water	4	2.1	0.7
Insect bite allergy	11	5.9	1.8
Anesthesia allergy	7	3.7	1.2
Antibiotic allergy	3	1.6	0.5
Vaccine allergies	3	1.6	0.5
Atopic rhinitis	2	1.1	0.3
Other allergies	18	9.6	3.0
Total # of incidents	187		
Total # of Akitas	127		21.1
Endocrine			
Hypothyroid	112	87.5	18.6
Hyperthyroid	4	3.1	0.7
Diabetes mellitus	3	2.3	0.5
Pancreatic insufficiency	3	2.3	0.5
Pancreatitis	2	1.6	0.3
Cushing's (hyperadrenal) disease	2	1.6	0.3
Addison's (hypoadrenal) disease	0	0.0	0.0
Other endocrine diseases	2	1.6	0.3
Total # of incidents	128		
Total # of Akitas	122		20.2
Gastrointestinal			
Bloat with torsion	57	41.0	9.5
Bloat without torsion	16	11.5	2.7
Excessive diarrhea	16	11.5	2.7
Gastritis (chronic or intermittent)	11	7.9	1.8
Esophageal disorder	8	5.8	1.3
Excessive vomiting	7	5.0	1.2
Inflammatory bowel disease	5	3.6	0.8
Colitis	4	2.9	0.7

Table 31. Prevalence of Veterinary-Confirmed Health Disorders by Type and System Involved

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Disorders	N	% of reports in category	% of 603 Akitas
Gastrointestinal (cont'd)			
Foreign body	4	2.9	0.7
Liver disease	3	2.2	0.5
Excessive flatulence	1	0.7	0.2
Malabsorption	1	0.7	0.2
Other gastrointestinal diseases	6	4.3	1.0
Total # of incidents	139		
Total # of Akitas	106		17.6
Hematologic			
Thrombocytopenia	3	15.8	0.5
Von Willebrand disease	3	15.8	0.5
Chronic anemia	2	10.5	0.3
Autoimmune hemolytic anemia	1	5.3	0.2
Hemophilia	0	0.0	0.0
Bone marrow failure	0	0.0	0.0
Cyclic neutrophil	0	0.0	0.0
Other hematologic diseases	10	52.6	1.7
Total # of incidents	19		
Total # of Akitas	18		3.0
Urinary tract			
Bladder infections	36	43.9	6.0
Urinary incontinence	35	42.7	5.8
Bladder stones	5	6.1	0.8
Kidney failure	4	4.9	0.7
Kidney disease	1	1.2	0.2
Other urinary tract diseases	1	1.2	0.2
Total # of incidents	82		
Total # of Akitas	70		11.6
Neurological			
Seizures of unknown origin	10	37.0	1.7
Seizures of known origin	8	29.6	1.3
Nerve degeneration	3	11.1	0.5
Head tilt	1	3.7	0.2
Myasthenia gravis	1	3.7	0.2
Wobbler syndrome	0	0.0	0.0
Dementia	0	0.0	0.0
Tremors	0	0.0	0.0
Other	4	14.8	0.7

Table 31. Prevalence of Veterinary-Confirmed Health Disorders by Type and System Involved

Page 5

Disorders	N	% of reports in category	% of 603 Akitas
Neurological (cont'd)			
Total # of incidents	27		
Total # of Akitas	25		4.1
Musculoskeletal			
Arthritis (not autoimmune)	55	26.2	9.1
Hip dysplasia	54	24.5	9.0
Anterior cruciate ligament	40	18.2	6.6
Degenerative disk disease	17	7.7	2.8
Spondylosis	13	5.9	2.2
Patella luxation	12	5.5	2.0
Dislocated hock	5	2.3	0.8
Elbow dysplasia	5	2.3	0.8
Eosinophilic panosteitis	3	1.4	0.5
Osteochondritis dissecans	3	1.4	0.5
Arthritis (autoimmune)	3	1.4	0.5
Other	10	4.5	1.7
Total # of incidents	220		
Total # of Akitas	157		26.0
Eye			
Entropion	16	22.2	2.7
Cataracts	11	15.3	1.8
Glaucoma	7	9.7	1.2
Injury	5	6.9	0.8
Uveitis	4	5.5	0.7
Progressive retinal atrophy	3	4.2	0.5
Retinal disorders (not atrophy)	3	4.2	0.5
Prolapsed third eyelid	3	4.2	0.5
Blindness	3	4.2	0.5
Ectropion	2	2.8	0.3
Corneal dystrophy	0	0.0	0.0
Distichiasis	0	0.0	0.0
Iris cyst	0	0.0	0.0
Other	15	20.8	2.5
Total # of incidents	72		
Total # of Akitas	60		10.0
Ear			
Chronic or intermittent infection	35	71.4	5.8
Hearing problem	7	14.3	1.2

Table 31. Prevalence of Veterinary-Confirmed Health Disorders by Type and System Involved

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Disorders	N	% of reports in category	% of 603 Akitas
Ear (cont'd)			
Hematoma	6	12.2	1.0
Other	1	2.0	0.2
Total # of incidents	49		
Total # of Akitas	48		8.0
Reproductive—females			(% of 336 females)
Pyometra	19	20.9	5.7
Irregular heat cycles	14	15.4	4.2
Difficult whelping (dystocia)	11	12.1	3.3
Uterine inertia	10	11.0	3.0
Chronic false pregnancy	8	8.8	2.4
Failure to carry to term	7	7.8	2.1
Mastitis	6	6.6	1.8
Infertility	5	5.5	1.5
Malformed puppies	4	4.4	1.2
Poor mothering instinct	4	4.4	1.2
Insufficient milk	1	1.1	0.3
Other	2	2.2	0.6
Total # of incidents	91		
Total # of Akitas	62		18.5
Reproductive—males			(% of 267 males)
Cryptorchidism	6	25.0	2.2
Infertility	5	20.8	1.9
Enlarged prostate	5	20.8	1.9
Abnormal semen	3	12.5	1.1
Testicular atrophy	2	8.3	0.7
Lack of libido	0	0.0	0.0
Other	3	12.5	1.1
Total # of incidents	24		
Total # of Akitas	21		7.9
Skin			
Hot spots	72	35.0	11.9
Sebaceous adenitis	15	7.3	2.5
Lick granuloma	15	7.3	2.5
Sebaceous cysts	13	6.3	2.2
Dull and dry skin/coat	12	5.8	2.0

Table 31. Prevalence of Veterinary-Confirmed Health Disorders by Type and System Involved

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Disorders	N	% of reports in category	% of 603 Akitas
Skin (cont'd)			
Pemphigus foliaceus	12	5.8	2.0
Demodectic mange—localized	11	5.3	1.8
Pyoderma	11	5.3	1.8
Seborrhea	8	3.9	1.3
Uveodermatologic syndrome	7	3.4	1.2
Lupus erythematosus	6	2.9	1.0
Pigment abnormalities	5	2.4	0.8
Sarcoptic mange	5	2.4	0.8
Discoid lupus	5	2.4	0.8
Demodectic mange—generalized	3	1.5	0.5
Coat color change	2	1.0	0.3
Dermatomyositis	1	0.5	0.2
Demodectic mange—unspecified	0	0.0	0.0
Other	3	1.5	0.5
Total # of incidents	206		
Total # of Akitas	158		26.2
Trauma/Accidents			
Laceration requiring stitches	38	50.0	6.3
Lameness requiring treatment	15	19.7	2.5
Fracture	12	15.8	2.0
Bite wounds from fights	4	5.3	0.7
Other	7	9.2	1.2
Total # of incidents	76		
Total # of Akitas	72		11.9
Bacterial			
Anal sacculitis	16	20.0	2.7
Interdigital	15	18.8	2.5
External ear (otitis externa) infection	13	16.3	2.2
Cystitis	8	10.0	1.3
Lyme disease	5	6.3	0.8
Prostatitis	5	6.3	0.8
Tonsillitis	4	5.0	0.7
Pneumonia	3	3.8	0.5
Vaginitis	3	3.8	0.5
Septicemia	1	1.3	0.2
Other	7	8.8	1.2
Total # of incidents	80		
Total # of Akitas	76		12.6

Table 31. Prevalence of Veterinary-Confirmed Health Disorders by Type and System Involved

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Disorders	N	% of reports in category	% of 603 Akitas
Viral			
Tracheobronchitis (kennel cough)	21	67.7	3.5
Parvovirus	6	19.4	1.0
Coronavirus	3	9.7	0.5
Distemper	0	0.0	0.0
Other	1	3.2	0.2
Total # of incidents	31		
Total # of Akitas	31		5.1
Fungal			
Yeast	6	46.2	1.0
Ringworm	4	30.8	0.7
Other	3	23.1	0.5
Total # of incidents	13		
Total # of Akitas	13		2.2
Parasitic			
Tapeworms	46	26.7	7.6
Fleas	37	21.5	6.1
Giardia	27	15.7	4.5
Roundworms	25	14.5	4.1
Whipworms	14	8.1	2.3
Coccidia	10	5.8	1.7
Hookworms	10	5.8	1.7
Other	3	1.7	0.5
Total # of incidents	172		
Total # of Akitas	115		19.1
Oral			
Fractured teeth	9	23.7	1.5
Missing teeth	8	21.1	1.3
Abscessed teeth	7	18.4	1.2
Enamel hypoplasia	6	15.8	1.0
Malocclusion	2	5.3	0.3
Abnormal dentition	1	2.6	0.2
Other	5	13.2	0.8
Total # of incidents	38		
Total # of Akitas	36		6.0

Table 31. Prevalence of Veterinary-Confirmed Health Disorders by Type and System Involved

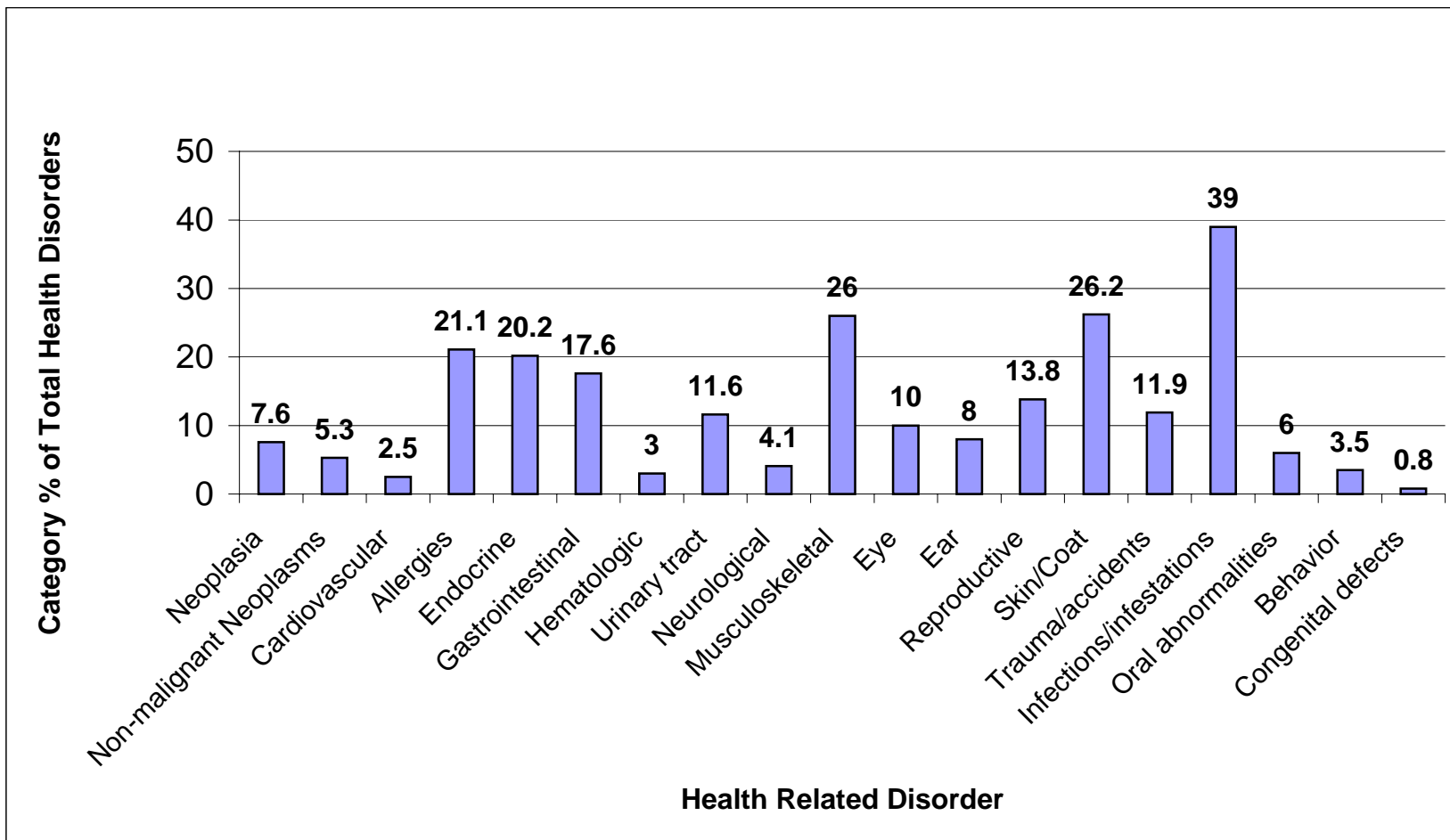
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Disorders	N	% of reports in category	% of 603 Akitas
Behavior			
Separation anxiety	8	34.7	1.3
Inappropriate urination	7	30.4	1.2
Dominance aggression	4	17.4	0.7
Fear aggression	2	8.7	0.3
Other	2	8.7	0.3
Total # of incidents	23		
Total # of Akitas	21		3.5
Congenital			
Umbilical hernia	3	60.0	0.3
Cleft lip or palate	0	0.0	0.0
Patent ductus arteriosus	0	0.0	0.0
Tetrology of Fallot	0	0.0	0.0
Other	2	40.0	0.3
Total # of incidents	5		
Total # of Akitas	5		0.8

Table 32. Prevalence of Veterinary-Confirmed Autoimmune Disorders

Disorders	N	% of reports in category	% of 603 Akitas
Pemphigus foliaceus	12	40.0	2.0
Lupus erythematosus	6	20.0	1.0
Lupus discoid	5	16.7	0.8
Arthritis	3	10.0	0.5
Hemolytic anemia	1	3.3	0.2
Autoimmune thyroiditis	1	3.3	0.2
Juvenile onset polyarthritis	1	3.3	0.2
Other	1	3.3	0.2
Total # of incidents	30		
Total # of Akitas	30		5.0

Figure 7. Health Related Disorders* in Akitas (N=603)



* Confirmed by a veterinarian

Table 33. Outcome for Disorders with 5 or More Cases

Health disorder	Confirmed reports N	Treated ^a			Cured	
		Yes	No	%	N	%
Malignant neoplasms						
Lymphoma /lymphosarcoma	8	Yes	5	62.5	1	20.0
		No	3	37.5	0	0.0
Osteosarcoma	7	Yes	3	42.9	?	?
		No	4	57.1	0	0.0
Adenocarcinoma	5	Yes	3	60.0	1	33.3
		No	2	40.0	0	0.0
Non-malignant neoplasms						
Papilloma	10	Yes	7	70.0	7	100.0
		No	3	30.0	0	0.0
Lipoma	6	Yes	2	33.3	2	100.0
		No	4	66.7	0	0.0
Cardiovascular						
Heartworm infection	6	Yes	3	50.0	3	100.0
		No	3	50.0	1	33.3
Allergies						
Allergic dermatitis due to Inhaled allergens	61	Yes	54	90.0	14	30.4
		No	6	10.0	0	0.0
Fleas	40	Yes	37	92.5	21	60.0
		No	3	7.5	0	0.0
Food	33	Yes	31	93.9	12	42.9
		No	?	?	?	?
Flea dip	5	Yes	4	80.0	2	66.7
		No	?	?	?	?
Insect bite allergy	11	Yes	10	90.9	6	85.7
		No	1	9.1	0	0.0

^a Number treated may not be equal to number of confirmed reports due to missing data

? Information not reported by owners

Table 33. Outcome for Disorders with 5 or More Cases

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Health disorder	Confirmed reports N	Treated			Cured	
			N	%	N	%
Allergies (cont'd)						
Anesthesia allergy	7	Yes	4	80.0	2	50.0
		No	1	20.0	0	0.0
Endocrine						
Hypothyroid	112	Yes	111	99.1	22	29.3
		No	1	0.9	0	0.0
Gastrointestinal						
Bloat with torsion	57	Yes	47	83.9	34	81.0
		No	9	15.8	0	0.0
Bloat without torsion	16	Yes	16	100.0	9	69.2
		No	0	0.0	0	0.0
Excessive diarrhea	16	Yes	15	93.8	12	80.0
		No	?	?	?	?
Gastritis (chronic or intermittent)	11	Yes	11	100.0	5	55.6
		No	0	0.0	0	0.0
Esophageal disorder	8	Yes	7	87.5	1	16.7
		No	1	12.5	0	0.0
Excessive vomiting	7	Yes	7	100.0	5	83.3
		No	0	0.0	0	0.0
Inflammatory bowel disease	5	Yes	5	100.0	2	40.0
		No	0	0.0	0	0.0
Urinary tract						
Bladder infections	36	Yes	36	100.0	27	79.4
		No	0	0.0	0	0.0
Urinary incontinence	35	Yes	27	79.4	10	40.0
		No	7	20.0	0	0.0
Bladder stones	5	Yes	5	100.0	5	100.0
		No	0	0.0	0	0.0

Table 33. Outcome for Disorders with 5 or More Cases

Page 3

Health disorder	Confirmed reports N	Treated			Cured	
		Yes	No	%	N	%
Neurological						
Seizures of unknown origin	10	Yes	1	11.1	1	100.0
		No	8	88.9	7	100.0
Seizures of known origin	8	Yes	6	75.0	2	40.0
		No	2	25.0	1	100.0
Musculoskeletal						
Arthritis (not autoimmune)	55	Yes	45	83.3	4	11.1
		No	9	16.7	0	0.0
Hip dysplasia	54	Yes	22	43.1	2	9.5
		No	29	56.9	0	0.0
Anterior cruciate ligament	40	Yes	37	92.5	23	71.9
		No	3	7.5	2	66.7
Degenerative disk disease	17	Yes	12	75.0	1	8.3
		No	4	25.0	0	0.0
Spondylosis	13	Yes	8	72.7	1	14.3
		No	3	27.3	0	0.0
Patella luxation	12	Yes	6	50.0	4	80.0
		No	6	50.0	0	0.0
Dislocated hock	5	Yes	?	?	?	?
		No	3	60.0	0	0.0
Elbow dysplasia	5	Yes	2	40.0	0	0.0
		No	3	60.0	0	0.0
Eye						
Entropion	16	Yes	11	68.8	9	81.8
		No	5	31.3	1	20.0
Cataracts	11	Yes	2	18.2	1	50.0
		No	9	81.8	0	0.0
Glaucoma	7	Yes	5	83.3	2	40.0
		No	1	16.7	0	0.0

Table 33. Outcome for Disorders with 5 or More Cases

Page 4

Health disorder	Confirmed reports N	Treated		Cured		
		N	%	N	%	
Eye (cont'd)						
Injury	5	Yes	4	80.0	4	100.0
		No	1	20.0	?	?
Ear						
Chronic or intermittent infection	35	Yes	33	94.3	22	66.7
		No	2	5.7	0	0.0
Hearing problem	7	Yes	1	14.3	0	0.0
		No	6	85.7	1	20.0
Hematoma	6	Yes	6	100.0	6	100.0
		No	0	0.0	0	0.0
Reproductive--females						
Pyometra	19	Yes	19	100.0	15	88.2
		No	0	0.0	0	0.0
Irregular heat cycles	14	Yes	8	57.1	3	50.0
		No	6	42.9	2	40.0
Difficult whelping (dystocia)	11	Yes	7	70.0	1	16.7
		No	3	30.0	0	0.0
Uterine inertia	10	Yes	7	77.8	2	66.7
		No	2	22.2	0	0.0
Chronic false pregnancy	8	Yes	4	50.0	2	100.0
		No	4	50.0	0	0.0
Failure to carry to term	7	Yes	2	33.3	1	50.0
		No	4	66.7	1	25.0
Mastitis	6	Yes	6	100.0	5	83.3
		No	0	0.0	0	0.0
Infertility	5	Yes	4	80.0	1	25.0
		No	1	20.0	0	0.0

Table 33. Outcome for Disorders with 5 or More Cases

Page 5

Health disorder	Confirmed reports		Treated		Cured	
	N		N	%	N	%
Reproductive—males						
Cryptorchidism	6	Yes	6	100.0	0	0.0
		No	0	0.0	0	0.0
Infertility	5	Yes	1	25.0	0	0.0
		No	3	75.0	0	0.0
Enlarged prostate	5	Yes	5	100.0	1	25.0
		No	0	0.0	0	0.0
Skin						
Hot spots	72	Yes	68	95.8	52	82.5
		No	3	4.2	1	33.3
Sebaceous adenitis	15	Yes	13	92.9	1	7.7
		No	1	7.1	0	0.0
Lick granuloma	15	Yes	12	92.3	9	75.0
		No	1	7.7	0	0.0
Sebaceous cysts	13	Yes	10	76.9	8	80.0
		No	3	23.1	1	33.3
Dull and dry skin / coat	12	Yes	10	90.9	1	10.0
		No	1	9.1	0	0.0
Pemphigus foliaceus	12	Yes	10	83.3	0	0.0
		No	2	16.7	0	0.0
Demodectic mange-- localized	11	Yes	11	100.0	11	100.0
		No	0	0.0	0	0.0
Pyoderma	10	Yes	10	100.0	8	80.0
		No	0	0.0	0	0.0
Seborrhea	8	Yes	5	83.3	3	60.0
		No	1	16.7	0	0.0
Uveodermatologic syndrome	7	Yes	5	71.4	0	0.0
		No	2	28.6	0	0.0

Table 33. Outcome for Disorders with 5 or More Cases

Page 6

Health disorder	Confirmed reports		Treated		Cured	
	N		N	%	N	%
Skin (cont'd)						
Lupus erythematosus	6	Yes	6	100.0	0	0.0
		No	0	0.0	0	0.0
Pigment abnormalities	5	Yes	3	60.0	1	33.3
		No	2	40.0	0	0.0
Sarcoptic mange	5	Yes	5	100.0	5	100.0
		No	0	0.0	0	0.0
Discoid lupus	5	Yes	4	80.0	0	0.0
		No	1	20.0	0	0.0
Trauma / Accidents						
Laceration requiring stitches	38	Yes	37	97.4	37	100.0
		No	?	?	?	?
Lameness requiring treatment	15	Yes	15	100.0	10	71.4
		No	0	0.0	0	0.0
Fracture	11	Yes	10	90.9	10	100.0
		No	1	9.1	1	100.0
Bacterial						
Anal sacculitis	16	Yes	16	100.0	14	87.5
		No	0	0.0	0	0.0
Interdigital	15	Yes	14	93.3	10	83.3
		No	1	6.7	1	100.0
External ear (otitis externa) infection	13	Yes	13	100.0	9	69.2
		No	0	0.0	0	0.0
Cystitis	8	Yes	8	100.0	7	100.0
		No	0	0.0	0	0.0
Lyme disease	5	Yes	5	100.0	3	60.0
		No	0	0.0	0	0.0
Prostatitis	5	Yes	5	100.0	4	80.0
		No	0	0.0	0	0.0

Table 33. Outcome for Disorders with 5 or More Cases

Page 7

Health disorder	Confirmed reports		Treated		Cured	
	N		N	%	N	%
Viral (cont'd)						
Tracheobronchitis (kennel cough)	21	Yes	20	95.2	20	100.0
		No	1	4.8	1	100.0
Parvovirus	6	Yes	6	100.0	6	100.0
		No	0	0.0	0	0.0
Fungal						
Yeast	6	Yes	5	83.3	4	80.0
		No	?	?	0	0.0
Parasitic						
Tapeworms	46	Yes	46	100.0	46	100.0
		No	0	0.0	0	0.0
Fleas	37	Yes	35	97.2	26	78.8
		No	1	2.8	0	0.0
Giardia	27	Yes	27	100.0	24	88.9
		No	0	0.0	0.0	0.0
Roundworms	25	Yes	25	100.0	25	100.0
		No	0	0.0	0	0.0
Whipworms	14	Yes	14	100.0	14	100.0
		No	0	0.0	0	0.0
Coccidia	10	Yes	10	100.0	10	100.0
		No	0	0.0	0	0.0
Hookworms	10	Yes	10	100.0	10	100.0
		No	0	0.0	0	0.0
Oral						
Fractured teeth	9	Yes	7	77.8	6	85.7
		No	2	22.2	0	0.0
Missing teeth	8	Yes	4	50.0	1	50.0
		No	4	50.0	0	0.0

Table 33. Outcome for Disorders with 5 or More Cases

Page 8

Health disorder	Confirmed reports N	Treated		Cured		
		N	%	N	%	
Oral (cont'd)						
Abscessed teeth	7	Yes	6	85.7	6	100.0
		No	1	14.3	0	0.0
Enamel hypoplasia	6	Yes	6	100.0	0	0.0
		No	0	0.0	0	0.0
Behavior						
Separation anxiety	8	Yes	6	75.0	4	66.7
		No	2	25.0	0	0.0
Inappropriate urination	7	Yes	7	100.0	3	60.0
		No	0	0.0	0	0.0

Table 34. Age at First Occurrence of Disorders with 5 or More Cases

Health disorders	Affected Akitas N	Age at occurrence, years		
		Mean±SD	Minimum	Maximum
Malignant neoplasms				
Lymphoma / lymphosarcoma	8	8.3±2.0	6.0	12.0
Osteosarcoma	7	7.9±2.0	5.0	11.0
Adenocarcinoma	5	7.9±3.4	3.0	12.0
Non-malignant neoplasms				
Papilloma	9	6.4±3.8	1.5	13.0
Lipoma	6	8.3±1.5	7.0	11.0
Cardiovascular				
Heartworm infection	6	4.0±2.2	2.0	7.5
Allergies				
Allergic dermatitis due to Inhaled allergens	59	2.2±1.8	0.3	7.0
Fleas	37	2.2±1.8	0.0	7.0
Food	33	2.1±1.7	0.3	6.0
Flea dip	5	3.0±2.2	0.5	6.0
Insect bite allergy	10	2.8±2.2	0.5	7.0
Anesthesia allergy	7	2.8±2.6	0.5	8.0
Endocrine				
Hypothyroid	108	3.8±2.8	0.3	11.0
Gastrointestinal				
Bloat with torsion	55	7.7±3.5	0.8	13.0
Bloat without torsion	16	6.6±3.2	2.0	12.5
Excessive diarrhea	16	2.9±2.5	0.3	8.0
Gastritis (chronic/intermittent)	9	3.8±2.9	1.0	10.0

Table 34. Age at First Occurrence of Disorders with 5 or More Cases

Page 2

Health disorders	Affected Akitas N	Age at occurrence, years		
		Mean±SD	Minimum	Maximum
Gastrointestinal (cont'd)				
Esophageal disorder	8	6.6±4.4	1.0	12.7
Excessive vomiting	7	3.0±2.3	0.3	6.5
Inflammatory bowel disease	5	5.6±5.1	0.5	12.0
Urinary tract				
Bladder infections	36	4.5±3.7	0.1	12.0
Urinary incontinence	35	7.7±3.8	0.1	14.0
Neurological				
Seizures of unknown origin	10	3.2±2.7	1.0	8.0
Seizures of known origin	8	4.1±1.7	1.0	6.0
Musculoskeletal				
Arthritis (not autoimmune)	53	8.5±3.6	1.0	21.2
Hip dysplasia	52	2.6±2.6	0.0	11.0
Anterior cruciate ligament	40	3.7±2.9	0.3	11.7
Degenerative disk disease	17	9.4±3.0	0.2	14.0
Spondylosis	13	8.1±2.9	2.0	13.0
Patella luxation	11	1.6±0.8	0.0	3.0
Dislocated hock	5	1.0±2.2	0.0	5.0
Elbow dysplasia	5	2.6±2.7	0.5	7.0
Eye				
Entropion	15	2.2±2.8	0.0	8.0
Cataracts	10	7.8±4.2	0.0	12.0

Table 34. Age at First Occurrence of Disorders with 5 or More Cases

Page 3

Health disorders	Affected Akitas N	Age at occurrence, years		
		Mean±SD	Minimum	Maximum
Eye (cont'd)				
Glaucoma	7	4.6±2.6	0.7	9.0
Injury	5	3.6±2.9	0.5	7.0
Ear				
Chronic/intermittent infection	34	4.2±3.5	0.5	13.0
Hearing problem	7	10.2±1.3	9.0	12.0
Hematoma	6	5.9±3.1	2.5	11.0
Reproductive—females				
Pyometra	19	5.1±2.7	1.0	12.5
Irregular heat cycles	13	1.5±1.1	0.5	5.0
Difficult whelping (dystocia)	11	4.2±1.8	2.0	7.0
Uterine inertia	10	5.4±1.9	2.0	8.0
Chronic false pregnancy	8	1.9±1.2	0.6	4.0
Failure to carry to term	7	3.4±1.4	1.5	6.0
Mastitis	6	3.8±1.7	2.0	6.0
Infertility	5	2.3±0.8	1.5	3.5
Reproductive--males				
Cryptorchidism	6	0.1±0.1	0.0	0.2
Infertility	5	6.3±2.8	4.0	10.0
Enlarged prostate	5	8.0±1.6	6.7	10.0
Skin				
Hot spots	66	2.8±2.2	0.5	11.0
Sebaceous adenitis	15	3.5±2.2	1.0	8.0

Table 34. Age at First Occurrence of Disorders with 5 or More Cases

Page 4

Health disorders	Affected Akitas N	Age at occurrence, years		
		Mean±SD	Minimum	Maximum
Skin (cont'd)				
Lick granuloma	15	4.5±3.3	0.6	12.0
Sebaceous cysts	13	5.6±3.0	0.3	10.0
Dull and dry skin/coat	12	4.7±3.2	1.0	13.0
Pemphigus foliaceus	12	3.8±2.2	2.0	9.0
Demodectic mange-localized	11	0.8±0.5	0.2	2.0
Pyoderma	9	2.4±2.1	0.5	7.0
Seborrhea	8	3.0±1.9	0.6	6.0
Uveodermatologic syndrome	7	4.0±2.6	0.7	7.5
Lupus erythematosus	6	5.0±0.9	4.0	6.0
Pigment abnormalities	5	5.3±3.9	1.5	11.0
Sarcoptic mange	5	6.3±3.7	2.0	10.7
Discoid lupus	5	4.1±3.4	2.0	10.0
Trauma / Accidents				
Laceration requiring stitches	32	4.1±3.1	1.0	12.5
Lameness requiring treatment	15	4.7±4.3	0.3	14.0
Fracture	10	1.8±1.4	0.4	4.0
Bacterial				
Anal sacculitis	15	4.4±3.0	1.0	11.0
Interdigital	15	3.1±1.5	1.0	5.0
External ear (otitis externa) infection	10	4.8±3.5	1.0	13.0

Table 34. Age at First Occurrence of Disorders with 5 or More Cases

Page 5

Health disorders	Affected Akitas N	Age at occurrence, years		
		Mean±SD	Minimum	Maximum
Bacterial (cont'd)				
Cystitis	8	3.6±3.6	0.1	9.0
Lyme disease	5	3.8±3.2	0.1	9.0
Prostatitis	5	5.0±2.1	2.0	7.0
Viral				
Tracheobronchitis (kennel cough)	20	3.3±1.9	0.1	7.0
Parvovirus	6	0.4±3.8	0.1	1.0
Fungal				
Yeast	6	5.3±2.6	3.0	10.0
Parasitic				
Tapeworms	38	1.9±2.0	0.0	8.0
Fleas	29	1.6±1.6	0.1	7.0
Giardia	27	2.3±2.1	0.1	9.0
Roundworms	25	1.2±1.5	0.0	5.0
Whipworms	13	2.6±2.2	0.4	7.0
Coccidia	10	0.5±0.6	0.1	2.0
Hookworms	10	2.0±1.7	0.1	5.0
Oral				
Fractured teeth	9	4.7±3.4	1.0	10.5
Missing teeth	8	3.5±2.9	0.0	9.0
Abscessed teeth	7	5.5±3.9	0.3	10.0
Enamel hypoplasia	5	0.6±0.4	0.0	1.0

Table 34. Age at First Occurrence of Disorders with 5 or More Cases

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Health disorders	Affected Akitas N	Age at occurrence, years		
		Mean±SD	Minimum	Maximum
Behavior				
Separation anxiety	8	2.8±1.8	0.5	5.0
Inappropriate urination	7	5.2±5.0	0.2	12.0

Table 35. Age-Specific Prevalence of Disorders with 5 or More Cases

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Malignant neoplasia										
Lymphoma/lymphosarcoma	0	0.0	0	0.0	5	62.5	3	37.5	8	100.0
Osteosarcoma	0	0.0	1	14.3	3	42.9	3	42.9	7	100.0
Adenocarcinoma	0	0.0	1	20.0	1	20.0	3	60.0	5	100.0
Non-malignant neoplasia										
Papilloma	2	22.2	2	22.2	3	33.3	2	22.2	9	100.0
Lipoma	0	0.0	0	0.0	4	66.7	2	33.3	6	100.0
Cardiovascular										
Heartworm infection	2	33.3	2	33.3	2	33.3	0	0.0	6	100.0
Allergies										
Allergic dermatitis due to Inhaled allergens	39	66.1	17	28.8	3	5.1	0	0.0	59	100.0
Fleas	26	70.2	8	21.6	3	8.1	0	0.0	37	100.0
Food	20	60.6	12	36.4	1	3.0	0	0.0	33	100.0

Table 35. Age-Specific Prevalence of Disorders with 5 or More Cases

Page 2

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Allergies (cont'd)										
Allergic dermatitis due to Flea dip	2	40.0	2	40.0	1	20.0	0	0.0	5	100.0
Insect bite allergy	6	60.0	2	20.0	2	20.0	0	0.0	10	100.0
Anesthesia allergy	4	57.1	2	28.6	1	14.3	0	0.0	7	100.0
Endocrine										
Hypothyroid	54	50.0	29	26.9	14	13.0	11	10.2	108	100.0
Gastrointestinal										
Bloat with torsion	7	12.7	10	18.2	10	18.2	28	50.9	55	100.0
Bloat without torsion	2	12.5	5	31.3	5	31.3	4	25.0	16	100.0
Excessive diarrhea	11	68.8	1	6.3	4	25.0	0	0.0	16	100.0
Gastritis (chronic or intermittent)	4	44.4	3	33.3	1	11.1	1	11.1	9	100.0
Esophageal disorder	2	25.0	2	25.0	1	12.5	3	37.5	8	100.0
Excessive vomiting	5	71.4	0	0.0	2	28.6	0	0.0	7	100.0

Table 35. Age-Specific Prevalence of Disorders with 5 or More Cases

Page 3

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Gastrointestinal (cont'd)										
Inflammatory bowel disease	2	40.0	0	0.0	1	20.0	2	40.0	5	100.0
Urinary tract										
Bladder infections	15	41.7	8	22.2	6	16.7	7	19.4	36	100.0
Urinary incontinence	4	11.4	6	17.1	10	28.6	15	42.9	35	100.0
Neurological										
Seizures of unknown origin	6	60.0	2	20.0	2	20.0	0	0.0	10	100.0
Seizures of known origin	2	25.0	5	62.5	1	12.5	0	0.0	8	100.0
Musculoskeletal										
Arthritis (not autoimmune)	5	9.4	4	7.6	13	24.5	31	58.5	53	100.0
Hip dysplasia	38	73.1	9	17.3	2	3.9	3	5.8	52	100.0
Anterior cruciate ligament	19	47.5	13	32.5	5	12.5	3	7.5	40	100.0
Degenerative disk disease	1	5.9	3	17.7	0	0.0	13	76.5	17	100.0
Spondylosis	1	7.7	0	0.0	7	53.9	5	38.5	13	100.0

Table 35. Age-Specific Prevalence of Disorders with 5 or More Cases

Page 4

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Musculoskeletal (cont'd)										
Patella luxation	10	90.9	1	9.1	0	0.0	0	0.0	11	100.0
Dislocated hock	4	80.0	1	20.0	0	0.0	0	0.0	5	100.0
Elbow dysplasia	3	60.0	1	20.0	1	20.0	0	0.0	5	100.0
Eye										
Entropion	11	73.3	1	6.7	3	20.0	0	0.0	15	100.0
Cataracts	1	10.0	3	30.0	0	0.0	6	60.0	10	100.0
Glaucoma	1	14.3	4	57.1	1	14.3	1	14.3	7	100.0
Injury	2	40.0	2	40.0	1	20.0	0	0.0	5	100.0
Ear										
Chronic or intermittent infection	15	44.1	9	26.5	5	14.7	5	14.7	34	100.0
Hearing problem	0	0.0	0	0.0	0	0.0	7	100.0	7	100.0
Hematoma	1	16.7	2	33.3	2	33.3	1	16.7	6	100.0

Table 35. Age-Specific Prevalence of Disorders with 5 or More Cases

Page 5

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Reproductive--females										
Pyometra	3	15.8	8	42.1	7	36.8	1	5.3	19	100.0
Irregular heat cycles	12	92.3	1	7.7	0	0.0	0	0.0	13	100.0
Difficult whelping (dystocia)	3	27.3	6	54.6	2	18.2	0	0.0	11	100.0
Uterine inertia	1	10.0	5	50.0	4	40.0	0	0.0	10	100.0
Chronic false pregnancy	6	75.0	2	25.0	0	0.0	0	0.0	8	100.0
Failure to carry to term	2	28.6	4	57.1	1	14.3	0	0.0	7	100.0
Mastitis	2	33.3	3	50.0	1	16.7	0	0.0	6	100.0
Infertility	4	80.0	1	20.0	0	0.0	0	0.0	5	100.0
Reproductive—males										
Cryptorchidism	6	100.0	0	0.0	0	0.0	0	0.0	6	100.0
Infertility	0	0.0	3	60.0	1	20.0	1	20.0	5	100.0
Enlarged prostate	0	0.0	0	0.0	3	60.0	2	40.0	5	100.0

Table 35. Age-Specific Prevalence of Disorders with 5 or More Cases

Page 6

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Skin										
Hot spots	38	57.6	21	31.8	5	7.6	2	3.0	66	100.0
Sebaceous adenitis	6	40.0	7	46.7	2	13.3	0	0.0	15	100.0
Lick granuloma	5	33.3	5	33.3	3	20.0	2	13.3	15	100.0
Sebaceous cysts	3	23.1	3	23.1	5	38.5	2	15.4	13	100.0
Dull and dry skin/coat	4	33.3	5	41.7	2	16.7	1	8.3	12	100.0
Pemphigus foliaceus	6	50.0	5	41.7	0	0.0	1	8.3	12	100.0
Demodectic mange— localized	11	100.0	0	0.0	0	0.0	0	0.0	11	100.0
Pyoderma	5	55.6	3	33.3	1	11.1	0	0.0	9	100.0
Seborrhea	3	37.5	4	50.0	1	12.5	0	0.0	8	100.0
Uveodermatologic syndrome	3	42.9	2	28.6	2	28.6	0	0.0	7	100.0
Lupus erythematosus	0	0.0	4	66.7	2	33.3	0	0.0	6	100.0

Table 35. Age-Specific Prevalence of Disorders with 5 or More Cases

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Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Skin (cont'd)										
Pigment abnormalities	2	40.0	1	20.0	1	20.0	1	20.0	5	100.0
Sarcoptic mange	1	20.0	1	20.0	2	40.0	1	20.0	5	100.0
Discoid lupus	3	60.0	1	20.0	0	0.0	1	20.0	5	100.0
Trauma / Accidents										
Laceration requiring stitches	16	50.0	7	21.9	7	21.9	2	6.5	32	100.0
Lameness requiring treatment	7	46.7	3	20.0	2	13.3	3	20.0	15	100.0
Fracture	8	80.0	2	20.0	0	0.0	0	0.0	10	100.0
Bacterial										
Anal sacculitis	4	26.7	6	40.0	3	20.0	2	13.3	15	100.0
Interdigital	7	46.7	8	53.3	0	0.0	0	0.0	15	100.0
External ear (otitis externa) infection	3	30.0	3	30.0	3	30.0	1	10.0	10	100.0
Cystitis	4	50.0	1	12.5	2	25.0	1	12.5	8	100.0

Table 35. Age-Specific Prevalence of Disorders with 5 or More Cases

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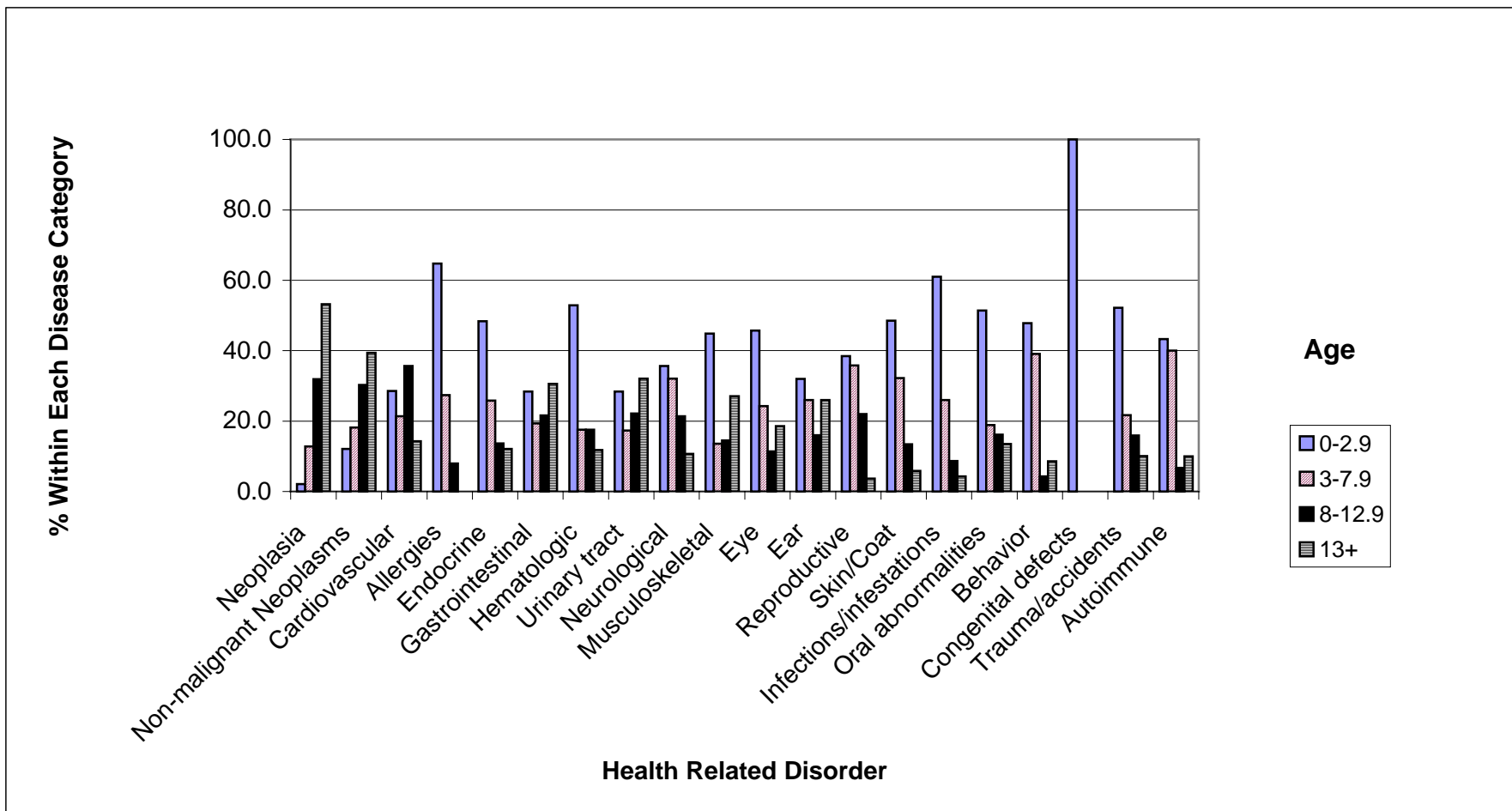
Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Bacterial (cont'd)										
Lyme disease	1	20.0	3	60.0	0	0.0	1	20.0	5	100.0
Prostatitis	1	20.0	2	40.0	2	40.0	0	0.0	5	100.0
Viral										
Tracheobronchitis (kennel cough)	6	30.0	11	55.0	3	15.0	0	0.0	20	100.0
Parvovirus	6	100.0	0	0.0	0	0.0	0	0.0	6	100.0
Fungal										
Yeast	0	0.0	4	66.7	1	16.7	1	16.7	6	100.0
Parasitic										
Tapeworms	31	81.6	2	5.3	5	13.2	0	0.0	38	100.0
Fleas	24	82.8	3	10.3	2	6.9	0	0.0	29	100.0
Giardia	18	66.7	7	25.9	1	3.7	1	3.7	27	100.0
Roundworms	20	80.0	5	20.0	0	0.0	0	0.0	25	100.0
Whipworms	8	61.5	4	30.8	1	7.7	0	0.0	13	100.0

Table 35. Age-Specific Prevalence of Disorders with 5 or More Cases

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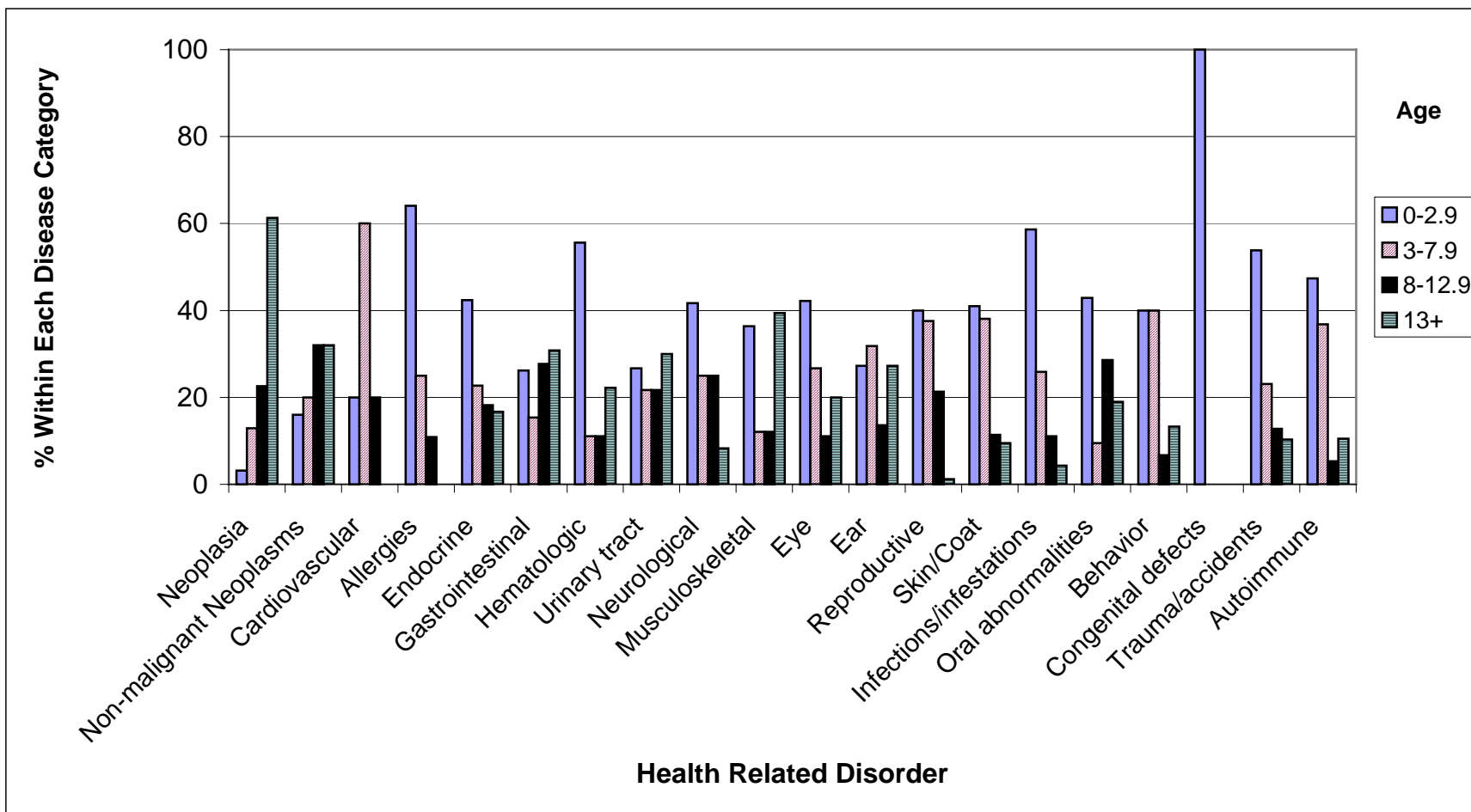
Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Parasitic (cont'd)										
Coccidia	10	100.0	0	0.0	0	0.0	0	0.0	10	100.0
Hookworms	6	60.0	4	40.0	0	0.0	0	0.0	10	100.0
Oral										
Fractured teeth	3	33.3	3	33.3	1	11.1	2	22.2	9	100.0
Missing teeth	4	50.0	3	37.5	0	0.0	1	12.5	8	100.0
Abscessed teeth	2	28.6	1	14.3	2	28.6	2	28.6	7	100.0
Enamel hypoplasia	5	83.3	0	0.0	0	0.0	0	0.0	5	100.0
Behavior										
Separation anxiety	3	37.5	5	62.5	0	0.0	0	0.0	8	100.0
Inappropriate urination	3	42.9	1	14.3	1	14.3	2	28.6	7	100.0

Figure 8. Health Related Disorders* in Akitas (N=603)



* Confirmed by a veterinarian

Figure 9. Health Related Disorders* in Akita Bitches (N=336)



* Confirmed by a veterinarian

Table 36. Age-Specific Prevalence of Disorders with 5 or More Cases in Akita Bitches

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Non-malignant neoplasia										
Papilloma	2	33.3	2	33.3	1	16.7	1	16.7	6	100.0
Lipoma	0	0.0	0	0.0	4	80.0	1	20.0	5	100.0
Allergies										
Allergic dermatitis due to Inhaled allergens	21	70.0	7	23.3	2	6.7	0	0.0	30	100.0
Fleas	11	64.7	3	17.7	3	17.7	0	0.0	17	100.0
Food	9	50.0	8	44.4	1	5.6	0	0.0	18	100.0
Anesthesia allergy	3	60.0	1	20.0	1	20.0	0	0.0	5	100.0
Endocrine										
Hypothyroid	27	44.3	15	24.6	10	16.4	9	14.8	61	100.0
Gastrointestinal										
Bloat with torsion	3	13.6	3	13.6	3	13.6	13	59.1	22	100.0
Bloat without torsion	2	22.2	2	22.2	3	33.3	2	22.2	9	100.0

Table 36. Age-Specific Prevalence of Disorders with 5 or More Cases in Akita Bitches Page 2

	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Gastrointestinal (cont'd)										
Excessive diarrhea	4	44.4	1	11.1	4	44.4	0	0.0	9	100.0
Gastritis (chronic or intermittent)	2	40.0	1	20.0	1	20.0	1	20.0	5	100.0
Inflammatory bowel disease	2	40.0	0	0.0	1	20.0	2	40.0	5	100.0
Urinary tract										
Bladder infections	12	44.4	7	25.9	5	18.5	3	11.1	27	100.0
Urinary incontinence	4	12.9	6	19.4	8	25.8	13	41.9	31	100.0
Neurological										
Seizures of unknown origin	3	60.0	1	20.0	1	20.0	0	0.0	5	100.0
Musculoskeletal										
Arthritis (not autoimmune)	2	6.7	2	6.7	5	16.7	21	70.0	30	100.0
Hip dysplasia	16	72.7	3	13.6	1	4.6	2	9.1	22	100.0
Anterior cruciate ligament	8	40.0	7	35.0	3	15.0	2	10.0	20	100.0
Degenerative disk disease	0	0.0	0	0.0	1	11.1	8	88.9	9	100.0

	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Musculoskeletal (cont'd)										
Spondylosis	0	0.0	0	0.0	2	33.3	4	66.7	6	100.0
Eye										
Entropion	9	75.0	1	8.3	2	16.7	0	0.0	12	100.0
Cataracts	1	14.5	2	28.6	0	0.0	4	57.1	7	100.0
Glaucoma	1	16.7	3	50.0	1	16.7	1	16.7	6	100.0
Ear										
Chronic or intermittent infection	6	46.2	4	30.8	2	15.4	1	7.7	13	100.0
Reproductive										
Pyometra	3	15.8	8	42.1	7	36.8	1	5.3	19	100.0
Irregular heat cycles	12	92.3	1	7.7	0	0.0	0	0.0	13	100.0
Difficult whelping (dystocia)	3	27.3	6	54.6	2	18.2	0	0.0	11	100.0
Uterine inertia	1	10.0	5	50.0	4	40.0	0	0.0	10	100.0
Chronic false pregnancy	6	75.0	2	25.0	0	0.0	0	0.0	8	100.0

	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Reproductive (cont'd)										
Failure to carry to term	2	28.6	4	57.1	1	14.3	0	0.0	7	100.0
Mastitis	2	33.3	3	50.0	1	16.7	0	0.0	6	100.0
Infertility	4	80.0	1	20.0	0	0.0	0	0.0	5	100.0
Skin										
Hot spots	18	56.3	10	31.3	2	6.3	2	6.3	32	100.0
Sebaceous adenitis	3	37.5	4	50.0	1	12.5	0	0.0	8	100.0
Lick granuloma	3	33.3	4	44.4	1	11.1	1	11.1	9	100.0
Sebaceous cysts	1	14.3	2	28.6	2	28.6	2	28.6	7	100.0
Dull and dry skin/coat	1	16.7	4	66.7	0	0.0	1	16.7	6	100.0
Pemphigus foliaceus	5	50.0	4	40.0	0	0.0	1	10.0	10	100.0
Uveodermatologic syndrome	3	60.0	2	40.0	0	0.0	0	0.0	5	100.0
Sarcoptic mange	1	20.0	1	20.0	2	40.0	1	20.0	5	100.0

Table 36. Age-Specific Prevalence of Disorders with 5 or More Cases in Akita Bitches

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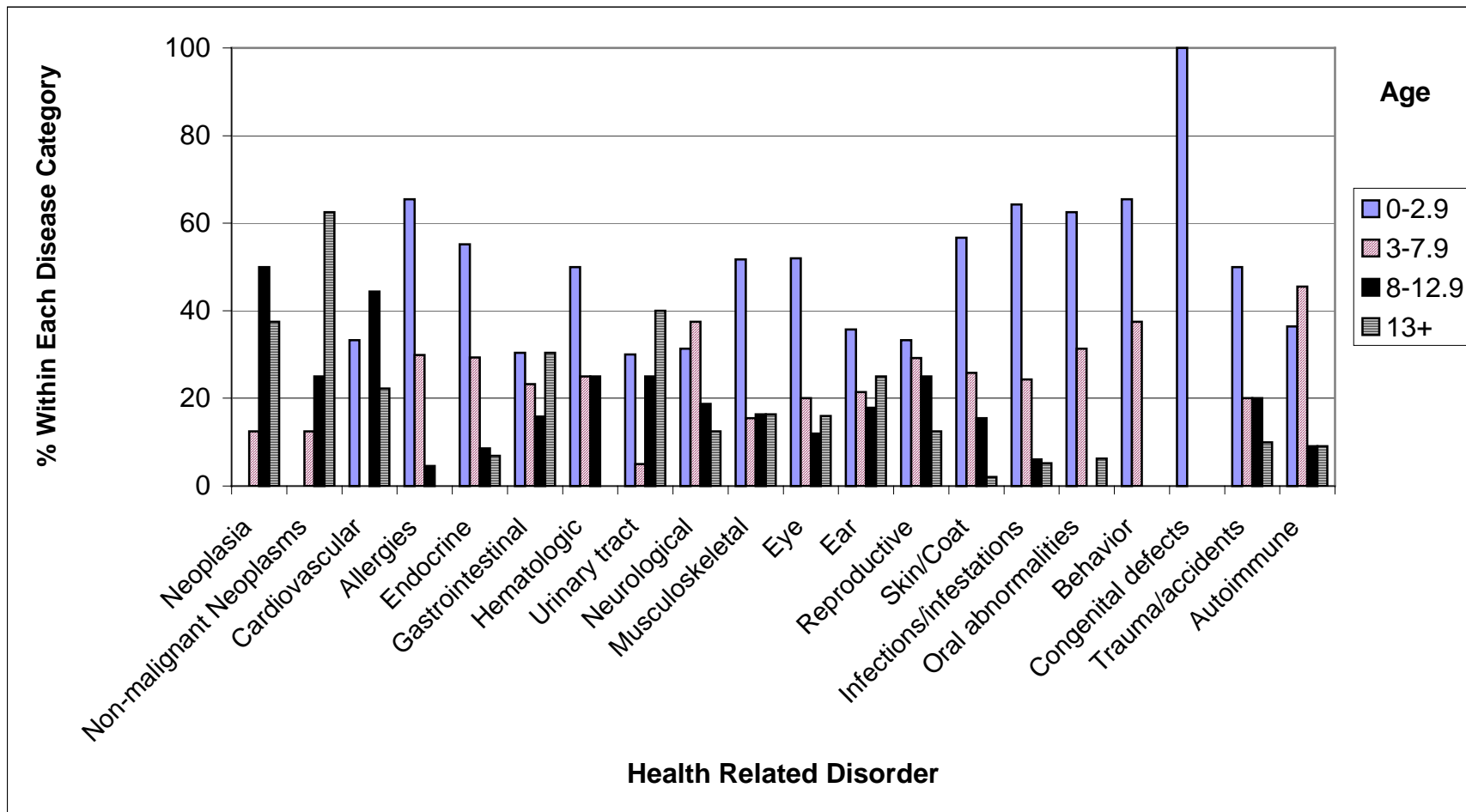
Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Trauma / Accidents										
Laceration requiring stitches	8	47.1	4	23.5	3	17.7	2	11.8	17	100.0
Lameness requiring treatment	3	42.9	2	28.6	1	14.3	1	14.3	7	100.0
Fracture	7	87.5	1	12.5	0	0.0	0	0.0	8	100.0
Bacterial										
Anal sacculitis	2	20.0	5	50.0	3	30.0	0	0.0	10	100.0
Interdigital	5	55.6	4	44.4	0	0.0	0	0.0	9	100.0
Cystitis	4	50.0	1	12.5	2	25.0	1	12.5	8	100.0
Viral										
Tracheobronchitis (kennel cough)	2	20.0	6	60.0	2	20.0	0	0.0	10	100.0
Parasitic										
Tapeworms	18	78.3	1	4.4	4	17.4	0	0.0	23	100.0
Fleas	13	76.5	2	11.8	2	11.8	0	0.0	17	100.0
Giardia	8	57.1	5	35.7	0	0.0	1	7.1	14	100.0

Table 36. Age-Specific Prevalence of Disorders with 5 or More Cases in Akita Bitches

Page 6

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Parasitic										
Roundworms	11	78.6	3	21.4	0	0.0	0	0.0	14	100.0
Whipworms	5	62.5	3	37.5	0	0.0	0	0.0	8	100.0
Coccidia	6	100.0	0	0.0	0	0.0	0	0.0	6	100.0
Hookworms	3	42.9	4	57.1	0	0.0	0	0.0	7	100.0
Oral										
Fractured teeth	1	20.0	1	20.0	1	20.0	2	40.0	5	100.0
Abscessed teeth	2	40.0	2	40.0	0	0.0	1	20.0	5	100.0
Behavior										
Separation anxiety	2	33.3	4	66.7	0	0.0	0	0.0	6	100.0

Figure 10. Health Related Disorders* in Akita Dogs (N=267)



* Confirmed by a veterinarian

Table 37. Age-Specific Prevalence of Disorders with 5 or More Cases in Akita Dogs

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Allergies										
Allergic dermatitis due to Inhaled allergens	18	62.1	10	34.5	1	3.5	0	0.0	29	100.0
Fleas	15	75.0	5	25.0	0	0.0	0	0.0	20	100.0
Food	11	73.3	4	26.7	0	0.0	0	0.0	15	100.0
Insect bite allergy	3	50.0	1	16.7	2	33.3	0	0.0	6	100.0
Endocrine										
Hypothyroid	27	57.5	14	29.8	4	8.5	2	4.3	47	100.0
Gastrointestinal										
Bloat with torsion	4	12.1	7	21.2	7	21.2	15	45.5	33	100.0
Bloat without torsion	0	0.0	3	42.9	2	28.6	2	28.6	7	100.0
Excessive diarrhea	7	100.0	0	0.0	0	0.0	0	0.0	7	100.0
Urinary tract										
Bladder infections	3	33.3	1	11.1	1	11.1	4	44.4	9	100.0

Table 37. Age-Specific Prevalence of Disorders with 5 or More Cases in Akita Dogs

Page 2

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Neurological										
Seizures of unknown origin	3	60.0	1	20.0	1	20.0	0	0.0	5	100.0
Seizures of known origin	1	20.0	3	60.0	1	20.0	0	0.0	5	100.0
Musculoskeletal										
Arthritis (not autoimmune)	3	13.0	2	8.7	8	34.8	10	43.5	23	100.0
Hip dysplasia	22	73.3	6	20.0	1	3.3	1	3.3	30	100.0
Anterior cruciate ligament	11	55.0	6	30.0	2	10.0	1	5.0	20	100.0
Degenerative disk disease	1	12.5	0	0.0	2	25.0	5	62.5	8	100.0
Spondylosis	1	14.3	0	0.0	5	71.4	1	14.3	7	100.0
Patella luxation	6	85.7	1	14.3	0	0.0	0	0.0	7	100.0
Ear										
Chronic or intermittent infection	9	42.9	5	23.8	3	14.3	4	19.1	21	100.0
Reproductive										
Cryptorchidism	6	100.0	0	0.0	0	0.0	0	0.0	6	100.0

Table 37. Age-Specific Prevalence of Disorders with 5 or More Cases in Akita Dogs

Page 3

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Reproductive										
Infertility	0	0.0	3	60.0	1	20.0	1	20.0	5	100.0
Enlarged prostate	0	0.0	0	0.0	3	60.0	2	40.0	5	100.0
Skin										
Hot spots	20	58.8	11	32.4	3	8.8	0	0.0	34	100.0
Sebaceous adenitis	3	42.9	3	42.9	1	14.3	0	0.0	7	100.0
Lick granuloma	2	33.3	1	16.7	2	33.3	1	16.7	6	100.0
Sebaceous cysts	2	33.3	1	16.7	3	50.0	0	0.0	6	100.0
Dull and dry skin/coat	3	50.0	1	16.7	2	33.3	0	0.0	6	100.0
Demodectic mange— localized	9	100.0	0	0.0	0	0.0	0	0.0	9	100.0
Pyoderma	4	66.7	2	33.3	0	0.0	0	0.0	6	100.0
Trauma / Accidents										
Laceration requiring stitches	8	53.3	3	20.0	4	26.7	0	0.0	15	100.0
Lameness requiring treatment	4	50.0	1	12.5	1	12.5	2	25.0	8	100.0

Table 37. Age-Specific Prevalence of Disorders with 5 or More Cases in Akita Dogs

Page 4

Health Disorders	Age in years									
	0 – 2.9		3 – 5.9		6 – 8.9		9+		All ages	
	N	%	N	%	N	%	N	%	N	%
Bacterial										
Anal sacculitis	2	40.0	1	20.0	0	0.0	2	40.0	5	100.0
Interdigital	2	33.3	4	66.7	0	0.0	0	0.0	6	100.0
External ear (otitis externa) infection	1	16.7	3	50.0	1	16.7	1	16.7	6	100.0
Prostatitis	1	20.0	2	40.0	2	40.0	0	0.0	5	100.0
Viral										
Tracheobronchitis (kennel cough)	4	40.0	5	50.0	1	10.0	0	0.0	10	100.0
Parasitic										
Tapeworms	13	86.7	1	6.7	1	6.7	0	0.0	15	100.0
Fleas	11	91.7	1	8.3	0	0.0	0	0.0	12	100.0
Giardia	10	76.9	2	15.4	1	7.7	0	0.0	13	100.0
Roundworms	9	81.8	2	18.2	0	0.0	0	0.0	11	100.0
Whipworms	3	60.0	1	20.0	1	20.0	0	0.0	5	100.0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years)

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Neoplasia by type	0.6	3.5	16.1	42.1
Adenocarcinoma	0	0.7	1.1	5.5
Dogs	0	0	0	9.6
Bitches	0	1.3	1.9	2.9
Chondrosarcoma	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Fibrosarcoma	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Hemangiosarcoma	0	0.7	0	5.5
Dogs	0	1.6	0	0
Bitches	0	0	0	8.8
Interstitial cell tumor	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Liposarcoma	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Lymphoma	0	0	5.4	5.5
Dogs	0	0	7.3	4.8
Bitches	0	0	3.8	5.9
Giant Cell	0.6	0	0	0
Dogs	0	0	0	0
Bitches	1.1	0	0	0
Mast Cell	0	0	1.1	1.8
Dogs	0	0	2.4	4.8
Bitches	0	0	0	0
Melanoma	0	0.7	0	0
Dogs	0	0	0	0
Bitches	0	1.3	0	0
Mesothelioma	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Myeloma	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Neuroblastoma	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 2

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Neurofibrosarcoma	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Osteosarcoma	0	0.7	3.2	5.5
Dogs	0	1.6	4.9	0
Bitches	0	0	1.9	8.8
Seminoma	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Sertoli cell tumor	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Squamous cell	0	0	0	3.6
Dogs	0	0	0	0
Bitches	0	0	0	5.9
Transitional cell carcinoma	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Transmissible venereal tumor	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Carcinoma, unspecified	0	0	1.1	5.5
Dogs	0	0	2.4	0
Bitches	0	0	0	8.8
Sarcoma, unspecified	0	0	2.1	1.8
Dogs	0	0	0	0
Bitches	0	0	3.8	2.9
Other neoplasms	0	0.7	2.1	11.0
Dogs	0	0	2.4	4.8
Bitches	0	1.3	1.9	14.7
Non-Malignant Neoplasms	2.4	5.0	10.7	25.4
Lipoma	0	0	4.3	3.6
Dogs	0	0	0	4.8
Bitches	0	0	7.6	2.9
Papiloma	1.2	1.4	3.2	3.6
Dogs	0	0	4.9	4.8
Bitches	2.1	2.6	1.9	2.9
Histiocytoma	0.6	0	0	0
Dogs	0	0	0	0
Bitches	1.1	0	0	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 3

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Adenoma	0	0.7	0	0
Dogs	0	0	0	0
Bitches	0	1.3	0	0
Other non-malignant neoplasms	0.6	2.9	3.2	18.2
Dogs	0	1.6	0	19.1
Bitches	1.1	3.8	5.7	17.6
Cardiovascular	1.8	2.1	5.4	3.6
Heart Failure	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Cardiomyopathy	0	0.7	0	0
Dogs	0	0	0	0
Bitches	0	1.3	0	0
Heartworm infection	0.6	1.4	2.1	0
Dogs	1.3	0	4.9	0
Bitches	0	2.6	0	0
Heart arrhythmia	0	0	1.1	0
Dogs	0	0	2.4	0
Bitches	0	0	0	0
Heart murmur	1.2	0	1.1	0
Dogs	1.3	0	2.4	0
Bitches	1.1	0	0	0
Pulmonic stenosis	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Subaortic stenosis	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Valve dysfunction	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Ventricular septal defect	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Other cardiovascular disorders	0	0	1.1	3.6
Dogs	0	0	0	9.6
Bitches	0	0	1.9	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 4

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Allergy	69.7	35.7	15.0	--
Allergic dermatitis due to:				
Fleas	15.3	5.7	3.2	0
Dogs	19.8	8.2	0	0
Bitches	11.7	3.8	5.7	0
Food	11.8	8.6	1.1	0
Dogs	14.5	6.6	0	0
Bitches	9.6	10.2	1.9	0
Inhaled allergens	23.0	12.2	3.2	0
Dogs	23.8	16.4	2.4	0
Bitches	22.4	8.9	3.8	0
Pond/lake water	2.4	0	0	0
Dogs	2.6	0	0	0
Bitches	2.1	0	0	0
Flea dip/insecticide	1.2	1.4	1.1	0
Dogs	0	3.3	0	0
Bitches	2.1	0	1.9	0
Atopic rhinitis	0	0.7	0	0
Dogs	0	1.6	0	0
Bitches	0	0	0	0
Insect bites	3.5	1.4	2.1	0
Dogs	4.0	1.6	4.9	0
Bitches	3.2	1.3	0	0
Anesthesia	2.4	1.4	1.1	0
Dogs	1.3	1.6	0	0
Bitches	3.2	1.3	1.9	0
Antibiotic/ sulfa	0.6	0.7	1.1	0
Dogs	0	0	0	0
Bitches	1.1	1.3	1.9	0
Vaccine allergy	1.2	0.7	0	0
Dogs	1.3	1.6	0	0
Bitches	1.1	0	0	0
Other allergic disorders	8.3	2.9	2.1	0
Dogs	9.3	3.3	2.4	0
Bitches	7.5	2.6	1.9	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 5

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Endocrine	35.5	22.9	18.3	27.2
Hypothyroid	31.9	20.8	15.0	20.0
Dogs	35.7	23.0	9.8	9.6
Bitches	28.8	19.1	19.1	26.4
Hyperthyroid	1.2	0.7	1.1	0
Dogs	2.6	1.6	2.4	0
Bitches	0	0	0	0
Cushing's (hyperadrenal)	0	0	1.1	1.8
Dogs	0	0	0	0
Bitches	0	0	1.9	2.9
Addison's (hypoadrenal)	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Diabetes mellitus	0	0.7	1.1	1.8
Dogs	0	1.6	0	0
Bitches	0	0	1.9	2.9
Pancreatic insufficiency	1.8	0	0	0
Dogs	2.6	0	0	0
Bitches	1.1	0	0	0
Pancreatitis	0.6	0	0	1.8
Dogs	1.3	0	0	4.8
Bitches	0	0	0	0
Other endocrine disorders	0	0.7	0	1.8
Dogs	0	1.6	0	4.8
Bitches	0	0	0	0
Gastrointestinal	22.5	18.7	31.1	74.5
Bloat without torsion	1.2	3.6	5.4	7.3
Dogs	0	4.9	4.9	9.6
Bitches	2.1	2.6	5.7	5.9
Bloat with torsion	4.1	7.2	10.7	50.9
Dogs	5.3	11.5	17.1	71.6
Bitches	3.2	3.8	5.7	38.1
Esophageal disorder	1.2	1.4	1.1	5.5
Dogs	0	3.3	0	9.6
Bitches	2.1	0	1.9	2.9
Gastritis	2.4	2.2	1.1	1.8
Dogs	2.6	3.3	0	0
Bitches	2.1	1.3	1.9	2.9

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 6

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Excessive vomiting	2.9	0	2.1	0
Dogs	5.3	0	0	0
Bitches	1.1	0	3.8	0
Excessive diarrhea	6.5	0.7	4.3	0
Dogs	9.3	0	0	0
Bitches	4.3	1.3	7.6	0
Excessive flatulence	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Malabsorption	0	0	1.1	0
Dogs	0	0	0	0
Bitches	0	0	1.9	0
Liver disease	0	0	1.1	3.6
Dogs	0	0	0	4.8
Bitches	0	0	1.9	2.9
Colitis	0.6	1.4	1.1	0
Dogs	1.3	1.6	0	0
Bitches	0	1.3	1.9	0
Foreign body	0.6	2.2	0	0
Dogs	0	1.6	0	0
Bitches	1.1	2.6	0	0
Inflammatory bowel disease	1.2	0	1.0	3.6
Dogs	0	0	0	0
Bitches	2.1	0	1.9	5.9
Other gastrointestinal disorders	1.8	0	2.1	1.8
Dogs	4.0	0	4.9	4.8
Bitches	0	0	0	0
Hematologic	5.4	2.2	3.3	3.6
Hemophilia	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Autoimmune hemolytic anemia	0	0	0	1.8
Dogs	0	0	0	0
Bitches	0	0	0	2.9
Chronic anemia	0	0	1.1	1.8
Dogs	0	0	0	0
Bitches	0	0	1.9	2.9
Thrombocytopenia	1.8	0	0	0
Dogs	2.6	0	0	0
Bitches	1.1	0	0	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 7

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Von Willebrand's disease	1.2	0	1.1	0
Dogs	2.6	0	2.4	0
Bitches	0	0	0	0
Bone marrow failure	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Other hematologic disorders	2.4	2.2	1.1	0
Dogs	0	3.3	2.4	0
Bitches	4.3	1.3	0	0
Urinary Tract / Renal	13.6	10.0	19.2	47.3
Kidney disease	0.6	0	0	0
Dogs	0	0	0	0
Bitches	1.1	0	0	0
Kidney failure	0.6	0	0	5.5
Dogs	1.3	0	0	4.8
Bitches	0	0	0	5.9
Bladder stones	0.6	0	2.1	1.8
Dogs	1.3	0	4.9	4.8
Bitches	0	0	0	0
Bladder infection(s)	8.8	5.7	6.4	12.7
Dogs	4.0	1.6	2.4	19.1
Bitches	12.8	8.9	9.5	8.8
Urinary incontinence	2.4	4.3	10.7	27.3
Dogs	0	0	4.9	9.6
Bitches	4.3	7.7	15.3	38.1
Other urinary tract/renal disorders	0.6	0	0	0
Dogs	1.3	0	0	0
Bitches	0	0	0	0
Neurological	5.9	5.7	6.4	5.4
Seizures of unknown origin	3.5	1.4	2.1	0
Dogs	4.0	1.6	2.4	0
Bitches	3.2	1.3	1.9	0
Seizures of known origin	1.2	2.9	1.1	0
Dogs	1.3	4.9	2.4	0
Bitches	1.1	1.3	0	0
Wobbler syndrome	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 8

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Dementia	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Nerve degeneration	0.6	0.7	0	1.8
Dogs	1.3	1.6	0	4.8
Bitches	0	0	0	0
Tremors - generalized	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Head tilt	0	0	0	1.8
Dogs	0	0	0	4.8
Bitches	0	0	0	0
Myasthenia gravis	0	0	1.1	0
Dogs	0	0	0	0
Bitches	0	0	1.9	0
Other neurological disorders	0.6	0.7	2.1	1.8
Dogs	0	1.6	2.4	0
Bitches	1.1	0	1.9	2.9
Musculoskeletal	59.7	21.6	33.3	105.5
Eosinophilic panosteitis	1.8	0	0	0
Dogs	4.0	0	0	0
Bitches	0	0	0	0
Osteochondritis dissecans	1.8	0	0	0
Dogs	4.0	0	0	0
Bitches	0	0	0	0
Hip dysplasia	22.4	6.5	2.1	5.5
Dogs	29.1	9.8	2.4	4.8
Bitches	17.0	3.8	1.9	5.9
Elbow dysplasia	1.8	0.7	1.1	0
Dogs	2.6	1.6	2.4	0
Bitches	1.1	0	0	0
Spondylosis	0.6	0	7.5	9.1
Dogs	1.3	0	12.2	4.8
Bitches	0	0	3.8	11.7
Degenerative disk disease	0.6	0	3.2	23.6
Dogs	1.3	0	4.9	23.9
Bitches	0	0	1.9	23.5
Anterior cruciate ligament tear	11.2	9.4	5.4	5.5
Dogs	14.5	9.8	4.9	4.8
Bitches	8.5	8.9	5.7	5.9

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 9

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Arthritis (autoimmune)	1.2	0.7	0	0
Dogs	1.3	1.6	0	0
Bitches	1.1	0	0	0
Arthritis (not autoimmune)	2.9	2.9	14.0	56.3
Dogs	4.0	3.3	19.6	47.8
Bitches	2.1	2.6	9.5	61.6
Patella luxation	5.9	0.7	0	0
Dogs	7.9	1.6	0	0
Bitches	4.3	0	0	0
Dislocated hock	2.4	0.7	0	0
Dogs	4.0	1.6	0	0
Bitches	1.1	0	0	0
Other musculoskeletal disorders	7.1	0	0	5.5
Dogs	9.3	0	0	4.8
Bitches	5.3	0	0	5.9
Eyes	19.0	12.2	8.6	23.6
Corneal dystrophy	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Progressive retinal atrophy	1.2	0	0	1.8
Dogs	2.6	0	0	0
Bitches	0	0	0	2.9
Cataracts	0.6	2.2	0	10.9
Dogs	0	1.6	0	9.6
Bitches	1.1	2.6	0	11.7
Glaucoma	0.6	2.9	1.1	1.8
Dogs	0	1.6	0	0
Bitches	1.1	3.8	1.9	2.9
Entropion	6.5	0.7	3.2	0
Dogs	2.6	0	2.4	0
Bitches	9.6	1.3	3.8	0
Ectropion	0.6	0	0	1.8
Dogs	1.3	0	0	4.8
Bitches	0	0	0	0
Prolapsed 3 rd eyelid	1.8	0	0	0
Dogs	2.6	0	0	0
Bitches	1.1	0	0	0
Distichiasis	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 10

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Injury	1.2	1.4	1.1	0
Dogs	1.3	0	0	0
Bitches	1.1	2.6	1.9	0
Uveitis	1.8	0.7	0	0
Dogs	0	1.6	0	0
Bitches	3.2	0	0	0
Iris cyst	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Retinal disorders	0.6	0.7	1.1	0
Dogs	1.3	0	2.4	0
Bitches	0	1.3	0	0
Blindness	1.2	0.7	0	0
Dogs	0	0	0	0
Bitches	2.1	1.3	0	0
Other eye disorders	2.9	2.9	2.1	7.3
Dogs	5.3	3.3	2.5	4.8
Bitches	1.1	2.6	1.9	8.8
Ears	9.4	9.3	8.6	23.6
Hematoma	0.6	1.4	2.1	1.8
Dogs	1.3	0	2.4	0
Bitches	0	2.6	1.9	2.9
Hearing problem	0	0	0	12.7
Dogs	0	0	0	14.3
Bitches	0	0	0	11.7
Chronic or intermittent infection	8.8	6.5	5.4	9.1
Dogs	11.9	8.2	7.3	19.1
Bitches	6.4	5.1	3.8	2.9
Other ear disorders	0	1.4	1.1	0
Dogs	0	1.6	2.4	0
Bitches	0	1.3	0	0
Reproductive (Bitches)	36.3	41.0	34.3	2.9
Infertility				
Bitches	4.3	1.3	0	0
Failure to carry to term				
Bitches	2.1	5.1	1.9	0
Irregular heat cycles				
Bitches	12.8	1.3	0	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 11

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Chronic false pregnancy				
Bitches	6.4	2.6	0	0
Difficult whelping (dystocia)				
Bitches	3.2	7.7	3.8	0
Mastitis				
Bitches	2.1	3.8	1.9	0
Pyometra				
Bitches	3.2	10.2	13.4	2.9
Uterine inertia				
Bitches	1.1	6.4	7.6	0
Insufficient milk				
Bitches	1.1	0	0	0
Malformed puppies				
Bitches	0	2.6	1.9	0
Poor mothering instinct				
Bitches	0	0	0	0
Other reproductive disorders				
Bitches	0	0	3.8	0
Reproductive (Dogs)	10.5	11.4	14.5	14.4
Infertility				
Dogs	0	4.9	2.4	4.8
Uilateral chryptorchidism				
Dogs	6.6	0	0	0
Bilateral chryptorchidism				
Dogs	0	0	0	0
Unspecified chryptorchidism				
Dogs	1.3	0	0	0
Enlarged prostate				
Dogs	0	0	7.3	9.6
Lack of libido				
Dogs	0	0	0	0
Abnormal semen				
Dogs	1.3	1.6	2.4	0
Testicular atrophy				
Dogs	0	1.6	2.4	0
Other reproductive disorders				
Dogs	1.3	3.3	0	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 12

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Skin / Coat	57.9	46.7	28.9	21.6
Dull and dry	2.4	3.6	2.1	1.8
Dogs	4.0	1.6	4.9	0
Bitches	1.1	5.1	0	2.9
Seborrhea	1.8	2.9	1.1	0
Dogs	2.6	3.3	0	0
Bitches	1.1	2.6	1.9	0
Pigment abnormalities	1.2	0.7	1.1	1.8
Dogs	1.3	0	2.4	0
Bitches	1.1	1.3	0	2.9
Coat color change	0	0.7	0	1.8
Dogs	0	1.6	0	0
Bitches	0	0	0	2.9
Sebaceous cysts	1.8	2.2	5.4	3.6
Dogs	2.6	1.6	7.3	0
Bitches	1.1	2.6	3.8	5.9
Sebaceous adenitis	3.5	5.0	2.1	0
Dogs	4.0	4.9	2.4	0
Bitches	3.2	5.1	1.9	0
Hot spots	22.4	15.1	5.4	3.6
Dogs	26.4	18.0	7.3	0
Bitches	19.2	12.8	3.8	5.9
Lick granuloma	2.9	3.6	3.2	3.6
Dogs	2.6	1.6	4.9	4.8
Bitches	3.2	5.1	1.9	2.9
Discoid lupus	1.8	0.7	0	1.8
Dogs	2.6	1.6	0	4.8
Bitches	1.1	0	0	0
Lupus erythematosus	0	2.9	2.1	0
Dogs	0	1.6	2.4	0
Bitches	0	3.8	1.9	0
Pemphigus foliaceus	3.5	3.6	0	1.8
Dogs	1.3	1.6	0	0
Bitches	5.3	5.1	0	2.9
Dermatomyositis	0.6	0	0	0
Dogs	1.3	0	0	0
Bitches	0	0	0	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 13

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Demodectic mange - localized	6.5	0	0	0
Dogs	11.9	0	0	0
Bitches	2.1	0	0	0
Demodectic mange - generalized	1.2	0	1.1	0
Dogs	2.6	0	0	0
Bitches	0	0	1.9	0
Sarcoptic mange	0.6	0.7	2.1	1.8
Dogs	0	0	0	0
Bitches	1.1	1.3	3.8	2.9
Uveodermatologic syndrome	1.8	1.4	2.1	0
Dogs	0	0	4.9	0
Bitches	3.2	2.6	0	0
Pyoderma	3.0	2.2	1.1	0
Dogs	5.3	3.3	0	0
Bitches	1.1	1.3	1.9	0
Other skin/coat disorders	2.9	1.4	0	0
Dogs	4.0	0	0	0
Bitches	2.1	2.6	0	0
Infections / Infestations				
Bacterial	19.0	21.5	11.7	16.2
Anal sacculitis	2.4	4.3	3.2	3.6
Dogs	2.6	1.6	0	9.6
Bitches	2.1	6.4	5.7	0
Pneumonia	0.6	0	0	3.6
Dogs	0	0	0	4.8
Bitches	1.1	0	0	2.9
Prostatitis	0.6	1.4	2.1	0
Dogs	1.3	3.3	4.9	0
Cystitis	2.4	0.7	2.1	1.8
Dogs	0	0	0	0
Bitches	4.3	1.3	3.8	2.9
External ear (otitis externa)	1.8	2.2	3.2	1.8
Dogs	1.3	4.9	2.4	4.8
Bitches	2.1	0	3.8	0
Tonsillitis	1.8	0.7	0	0
Dogs	2.6	1.6	0	0
Bitches	1.1	0	0	0
Septicemia	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 14

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Lyme disease	0.6	2.2	0	1.8
Dogs	0	3.3	0	0
Bitches	1.1	1.3	0	2.9
Interdigital infection	4.1	5.7	0	0
Dogs	2.6	6.6	0	0
Bitches	5.3	5.1	0	0
Other bacterial infections	4.7	4.3	1.1	3.6
Dogs	5.3	4.9	0	4.8
Bitches	4.3	3.8	1.9	2.9
Viral	10.0	7.9	3.2	--
Parvovirus	3.5	0	0	0
Dogs	2.6	0	0	0
Bitches	4.3	0	0	0
Corona virus	1.8	0	0	0
Dogs	1.3	0	0	0
Bitches	2.1	0	0	0
Distemper	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Tracheobronchitis (kennel cough)	3.5	7.9	3.2	0
Dogs	5.3	8.2	2.4	0
Bitches	2.1	7.7	3.8	0
Other viral infections	1.2	0	0	0
Dogs	2.6	0	0	0
Bitches	0	0	0	0
Fungal	0.6	5.0	2.2	3.6
Ringworm	0.6	1.4	0	0
Dogs	0	1.6	0	0
Bitches	1.1	1.3	0	0
Yeast	0	2.9	1.1	1.8
Dogs	0	3.3	0	4.8
Bitches	0	2.6	1.9	0
Other fungal infections	0	0.7	1.1	1.8
Dogs	0	0	0	0
Bitches	0	1.3	1.9	2.9

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page 15

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Parasitic	70.8	18.0	9.7	1.8
Fleas	14.2	2.2	2.1	0
Dogs	14.5	1.6	0	0
Bitches	13.8	2.6	3.8	0
Giardia	10.6	5.0	1.1	1.8
Dogs	13.2	3.3	2.4	0
Bitches	8.5	6.4	0	2.9
Coccidia	5.9	0	0	0
Dogs	5.3	0	0	0
Bitches	6.4	0	0	0
Roundworms	11.8	3.6	0	0
Dogs	11.9	3.3	0	0
Bitches	11.7	3.8	0	0
Hookworms	3.5	2.9	0	0
Dogs	4.0	0	0	0
Bitches	3.2	5.1	0	0
Whipworms	4.7	2.9	1.1	0
Dogs	4.0	1.6	2.4	0
Bitches	5.3	3.8	0	0
Tapeworms	18.3	1.4	5.4	0
Dogs	17.2	1.6	2.4	0
Bitches	19.2	1.3	7.6	0
Other parasitic infestations	1.8	0	0	0
Dogs	1.3	0	0	0
Bitches	2.1	0	0	0
Oral	11.3	5.1	6.4	9.0
Abnormal dentition	0.6	0	0	0
Dogs	0	0	0	0
Bitches	1.1	0	0	0
Missing teeth	2.4	2.2	0	1.8
Dogs	2.6	3.3	0	0
Bitches	2.1	1.3	0	2.9
Malocclusion (bite problem)	1.2	0	0	0
Dogs	2.6	0	0	0
Bitches	0	0	0	0
Enamel hypoplasia	2.9	0	0	0
Dogs	5.3	0	0	0
Bitches	1.1	0	0	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page16

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Broken teeth	1.8	2.2	1.1	3.6
Dogs	2.6	3.3	0	0
Bitches	1.1	1.3	1.9	5.9
Abscess	1.2	0.7	2.1	3.6
Dogs	0	1.6	0	4.8
Bitches	2.1	0	3.8	2.9
Other oral disorders	1.2	0	3.2	0
Dogs	0	0	0	0
Bitches	4.3	0	5.7	0
Behavior Problems	6.6	6.5	1.1	3.6
Fear aggression	1.2	0	0	0
Dogs	1.3	0	0	0
Bitches	1.1	0	0	0
Dominance aggression	0.6	2.2	0	0
Dogs	1.3	1.6	0	0
Bitches	0	2.6	0	0
Inappropriate urination	1.8	0.7	1.1	3.6
Dogs	2.6	1.6	0	0
Bitches	1.1	0	1.9	5.9
Separation anxiety	1.8	3.6	0	0
Dogs	1.3	1.6	0	0
Bitches	2.1	5.1	0	0
Other behavioral problems	1.2	0	0	0
Dogs	0	0	0	0
Bitches	2.1	0	0	0
Congenital (birth) defects	3.6	0	0	0
Umbilical hernia	1.8	0	0	0
Dogs	0	0	0	0
Bitches	3.2	0	0	0
Cleft lip or palate	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Patent ductus arteriosus (PDA)	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0
Tetralogy of fallot	0	0	0	0
Dogs	0	0	0	0
Bitches	0	0	0	0

Table 38. Age Specific Veterinary Confirmed Health Related Disorder Rates (per 1000 dog years) Page17

Disorder	Age in Years			
	0 – 2.9	3 – 5.9	6 – 8.9	9+
Other birth defects	1.8	0	0	0
Dogs	1.3	0	0	0
Bitches	2.1	0	0	0
Trauma / Accidents	20.1	10.8	11.8	12.7
Fracture	4.7	1.4	0	0
Dogs	1.3	1.6	0	0
Bitches	7.5	1.3	0	0
Lameness	4.1	2.2	2.1	5.5
Dogs	5.3	1.6	2.4	9.6
Bitches	3.2	2.6	1.9	2.9
Lacerations	8.3	5.0	7.5	3.6
Dogs	9.3	4.9	9.8	0
Bitches	7.5	5.1	5.7	5.9
Bite wounds	1.2	0	1.1	0
Dogs	1.3	0	0	0
Bitches	1.1	0	1.9	0
Other trauma / accidents	1.8	2.2	1.1	3.6
Dogs	1.3	1.6	2.4	4.8
Bitches	2.1	2.6	0	2.9
Autoimmune	7.7	8.6	2.1	5.5
Dogs	5.3	8.2	2.4	4.8
Bitches	9.6	8.9	1.9	5.9

Table 39. Lifetime Risk of Veterinary-Confirmed Health Disorders Based on 164 Akitas that Expired

Disorders	Number of dogs affected		Lifetime risk ^b
	N ^a	%	
Malignant neoplasms by type			
Any neoplasm	36	22.0	1 in 5
Lymphoma/lymphosarcoma	8	4.9	1 in 20
Osteosarcoma	7	4.3	1 in 23
Adenocarcinoma	3	1.8	1 in 56
Hemangiosarcoma	3	1.8	1 in 56
Carcinoma, unspecified	3	1.8	1 in 56
Non-malignant neoplasm			
Any non-malignant	14	8.5	1 in 12
Papilloma	4	2.4	1 in 42
Lipoma	3	1.8	1 in 56
Cardiovascular			
Any cardiovascular	10	6.1	1 in 16
Heartworm infection	4	2.4	1 in 42
Allergies			
Any allergy	42	25.6	1 in 4
Allergic dermatitis due to			
Inhaled allergens	16	9.8	1 in 10
Fleas	13	7.9	1 in 13
Food	13	7.9	1 in 13
Insect bite allergy	6	3.7	1 in 27
Anesthesia allergy	3	1.8	1 in 56
Endocrine			
Any endocrine	56	34.2	1 in 3
Hypothyroid	52	31.7	1 in 3
Gastrointestinal			
Any gastrointestinal	50	30.5	1 in 3
Bloat with torsion	35	21.3	1 in 5
Bloat without torsion	6	3.7	1 in 27
Excessive diarrhea	4	2.4	1 in 42
Esophageal disorder	5	3.1	1 in 32
Excessive vomiting	3	1.8	1 in 56

^a Among specific disorders only those with 3 or more cases have been listed

^b Rounded to next integer

Table 39. Lifetime Risk of Veterinary-Confirmed Health Disorders Based on 164 Akitas that Expired

Page 2

Disorders	Number of dogs affected		Lifetime risk
	N	%	
Hematologic			
Any hematologic	3	1.8	1 in 56
Urinary tract			
Any urinary tract	28	17.1	1 in 6
Bladder infections	13	7.9	1 in 13
Urinary incontinence	19	11.6	1 in 9
Kidney failure	3	1.8	1 in 56
Neurological			
Any neurological	14	8.5	1 in 12
Seizures of unknown origin	7	4.3	1 in 23
Seizures of known origin	4	2.4	1 in 42
Musculoskeletal			
Any musculoskeletal	61	37.2	1 in 3
Arthritis (not autoimmune)	28	17.1	1 in 6
Hip dysplasia	17	10.4	1 in 10
Anterior cruciate ligament	8	4.9	1 in 20
Degenerative disk disease	10	6.1	1 in 16
Spondylosis	8	4.9	1 in 20
Patella luxation	4	2.4	1 in 42
Eye			
Any eye	12	7.3	1 in 14
Entropion	3	1.8	1 in 56
Cataracts	4	2.4	1 in 42
Ear			
Any ear	20	12.2	1 in 8
Chronic or intermittent infection	13	7.9	1 in 13
Hearing problem	4	2.4	1 in 42
Reproductive—females			
		(% of 79 expired females)	
Any female reproductive	18	22.8	1 in 4
Pyometra	6	7.6	1 in 13
Mastitis	3	3.8	1 in 26

Table 39. Lifetime Risk of Veterinary-Confirmed Health Disorders Based on 164 Akitas that Expired

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Disorders	Number of dogs affected		Lifetime risk
	N	%	
Reproductive—males			
		(% of 85 expired males)	
Any male reproductive	7	8.2	1 in 12
Infertility	3	3.5	1 in 29
Skin			
Any skin	53	32.3	1 in 3
Hot spots	27	16.5	1 in 6
Sebaceous adenitis	7	4.3	1 in 23
Lick granuloma	3	1.8	1 in 56
Dull and dry skin/coat	7	4.3	1 in 23
Pemphigus foliaceus	3	1.8	1 in 56
Demodectic mange—localized	3	1.8	1 in 56
Seborrhea	4	2.4	1 in 42
Lupus erythematosus	6	3.7	1 in 27
Trauma / Accidents			
Any trauma / accident	25	15.2	1 in 7
Laceration requiring stitches	14	8.5	1 in 12
Lameness requiring treatment	5	3.1	1 in 32
Fracture	6	3.7	1 in 27
Bacterial			
Any bacterial	25	15.2	1 in 7
Anal sacculitis	8	4.9	1 in 20
Interdigital	4	2.4	1 in 42
External ear (otitis externa) infection	4	2.4	1 in 42
Prostatitis	3	1.8	1 in 56
Viral			
Any viral	9	5.5	1 in 18
Tracheobronchitis (kennel cough)	6	3.7	1 in 27
Fungal			
Any fungal	5	3.1	1 in 32
Yeast	3	1.8	1 in 56
Parasitic			
Any parasitic	48	29.3	1 in 3

Table 39. Lifetime Risk of Veterinary-Confirmed Health Disorders Based on 164 Akitas that Expired

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Disorders	Number of dogs affected		Lifetime risk
	N	%	
Parasitic (cont'd)			
Tapeworms	25	15.2	1 in 7
Fleas	17	10.4	1 in 10
Giardia	9	5.5	1 in 18
Roundworms	4	2.4	1 in 42
Whipworms	8	4.9	1 in 20
Coccidia	6	3.7	1 in 27
Hookworms	4	2.4	1 in 42
Oral			
Any oral	12	7.3	1 in 14
Fractured teeth	3	1.8	1 in 56
Abscessed teeth	4	2.4	1 in 42
Behavior			
Any behavior	6	3.7	1 in 27
Inappropriate urination	3	1.8	1 in 56
Congenital			
Any congenital	4	2.4	1 in 42

Table 40. Comparison of Lifetime Risks of Select Veterinary-Confirmed Health Disorders in Akitas and Golden Retrievers

Disorders	Lifetime Risk	
	Akita (N = 164)	Golden Retriever ^a (N = 427)
Neoplasms		
Any neoplasm	1 in 5	1 in 2
Lymphoma/lymphosarcoma	1 in 20	1 in 8
Osteosarcoma	1 in 23	1 in 20
Hemangiosarcoma	1 in 56	1 in 5
Cardiovascular		
Any cardiovascular	1 in 16	1 in 7
Heartworm	1 in 42	1 in 100
Allergies		
Any allergy	1 in 4	1 in 4
Allergic dermatitis due to		
Inhaled allergens	1 in 10	1 in 17
Fleas	1 in 13	1 in 6
Food	1 in 13	1 in 25
Anesthesia allergy	1 in 56	1 in 100
Endocrine		
Any endocrine	1 in 3	1 in 4
Hypothyroid	1 in 3	1 in 4
Gastrointestinal		
Any gastrointestinal	1 in 3	1 in 8
Bloat with torsion	1 in 5	1 in 33
Bloat without torsion	1 in 27	1 in 50
Esophageal disorder	1 in 32	1 in 100
Excessive diarrhea	1 in 42	1 in 25
Excessive vomiting	1 in 56	1 in 33
Urinary tract		
Any urinary tract	1 in 6	1 in 8
Bladder infections	1 in 13	1 in 14
Kidney failure	1 in 56	1 in 25
Neurological		
Any neurological	1 in 12	1 in 7
Seizures of unknown origin	1 in 23	1 in 13
Seizures of known origin	1 in 42	1 in 25

^a Based on 1998 Golden Retriever Health Survey by Purdue University

Table 40. Comparison of Lifetime Risks of Select Veterinary-Confirmed Health Disorders in Akitas and Golden Retrievers

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Disorders	Lifetime Risk	
	Akita (N = 164)	Golden Retriever (N = 427)
Musculoskeletal		
Any musculoskeletal	1 in 3	1 in 3
Arthritis (not autoimmune)	1 in 6	1 in 8
Hip dysplasia	1 in 10	1 in 6
Degenerative disk disease	1 in 16	1 in 50
Anterior cruciate ligament	1 in 20	1 in 33
Eye		
Any eye	1 in 14	1 in 5
Cataracts	1 in 42	1 in 8
Entropion	1 in 56	1 in 100
Ear		
Any ear	1 in 8	1 in 4
Chronic or intermittent infection	1 in 13	1 in 6
Hearing problem	1 in 42	1 in 20
Reproductive--female		
Any female reproductive	1 in 4	1 in 5
Pyometra	1 in 13	1 in 15
Mastitis	1 in 26	1 in 31
Reproductive--male		
Any male reproductive	1 in 12	1 in 7
Infertility	1 in 29	1 in 35
Skin		
Any skin	1 in 3	1 in 2
Hot spots	1 in 6	1 in 3
Sebaceous adenitis	1 in 23	1 in 100
Dull and dry skin/coat	1 in 23	1 in 25
Seborrhea	1 in 42	1 in 50
Trauma/accidents		
Any trauma/accident	1 in 7	1 in 6
Laceration requiring stitches	1 in 12	1 in 13
Lameness requiring treatment	1 in 32	1 in 20
Fracture	1 in 27	1 in 25

Table 40. Comparison of Lifetime Risks of Select Veterinary-Confirmed Health Disorders in Akitas and Golden Retrievers

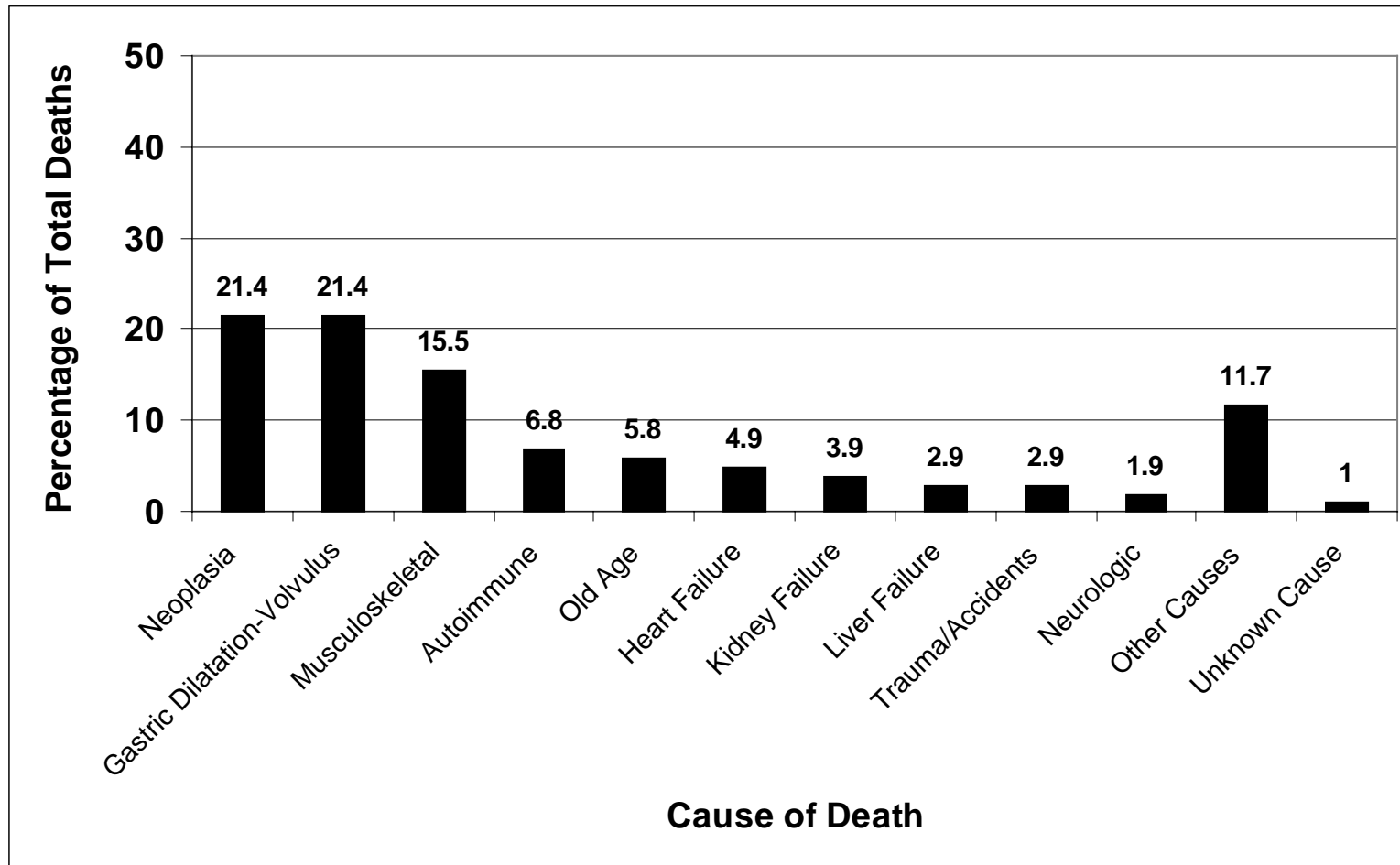
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Disorders	Lifetime Risk	
	Akita (N = 164)	Golden Retriever (N = 427)
Bacterial		
Any bacterial	1 in 7	1 in 3
Anal sacculitis	1 in 20	1 in 33
Interdigital	1 in 42	1 in 100
External ear (otitis externa) infection	1 in 42	1 in 9
Prostatitis	1 in 56	1 in 100
Viral		
Any viral	1 in 18	1 in 8
Tracheobronchitis (kennel cough)	1 in 27	1 in 10
Parasitic		
Any parasitic	1 in 3	1 in 2
Giardia	1 in 18	1 in 13
Whipworms	1 in 20	1 in 11
Coccidia	1 in 27	1 in 14
Hookworms	1 in 42	1 in 17
Roundworms	1 in 42	1 in 10
Behavior		
Any behavior	1 in 27	1 in 100
Inappropriate urination	1 in 56	1 in 100

Table 41. Veterinary Confirmed Cause of Death by Age

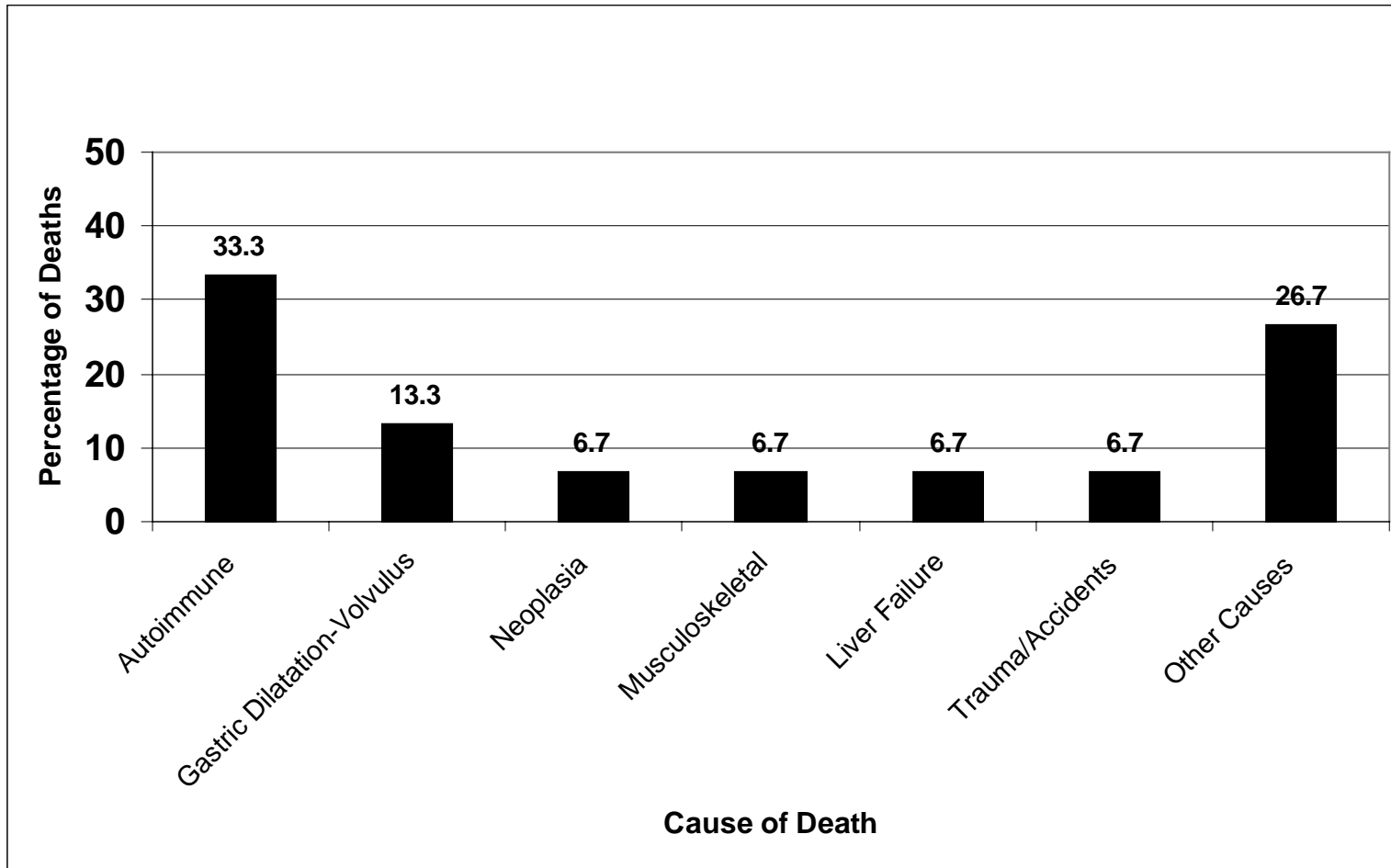
Cause of death	Age at death (years)				All Ages
	0 – 2.9	3 – 5.9	6 – 8.9	9+	
	N (%)	N (%)	N (%)	N (%)	N (%)
Cancer	0 (0.0)	1 (6.7)	7 (25.9)	14 (23.7)	22 (21.4)
Gastric dilatation volvulus	0 (0.0)	2 (13.3)	7 (25.9)	13 (22.0)	22 (21.4)
Musculoskeletal	0 (0.0)	1 (6.7)	4 (14.8)	11 (18.6)	16 (15.5)
Autoimmune disease	0 (0.0)	5 (33.3)	2 (7.4)	0 (0.0)	7 (6.8)
Old age	0 (0.0)	0 (0.0)	0 (0.0)	6 (10.2)	6 (5.8)
Heart failure	0 (0.0)	0 (0.0)	3 (11.1)	2 (3.4)	5 (4.9)
Kidney failure	0 (0.0)	0 (0.0)	1 (3.7)	3 (5.1)	4 (3.9)
Liver failure	0 (0.0)	1 (6.7)	0 (0.0)	2 (3.4)	3 (2.9)
Trauma/Accidents	0 (0.0)	1 (6.7)	0 (0.0)	2 (3.4)	3 (2.9)
Neurological	0 (0.0)	0 (0.0)	0 (0.0)	2 (3.4)	2 (1.9)
Endocrine disease	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Infection	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Other causes	2 (100)	4 (26.7)	2 (7.4)	4 (6.8)	12 (11.7)
Unknown cause	0 (0.0)	0 (0.0)	1 (3.7)	0 (0.0)	1 (1.0)
Total	2 (100)	15 (100)	27 (100)	59 (100)	103 (100)

Figure 11. Cause of Death* for All Akitas



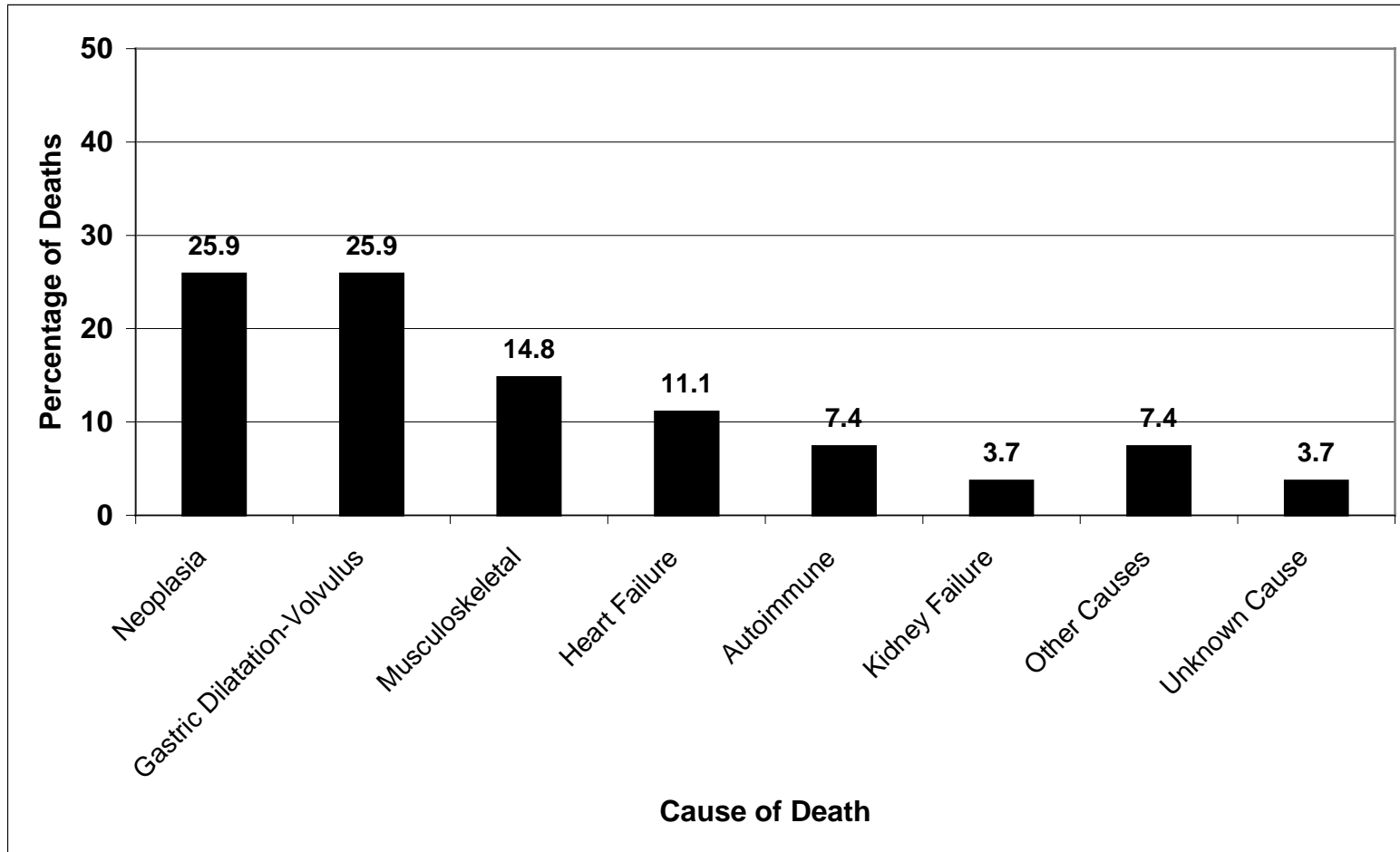
* Confirmed by a veterinarian

Figure 12. Cause of Death* at 3 - 5.9 Years of Age



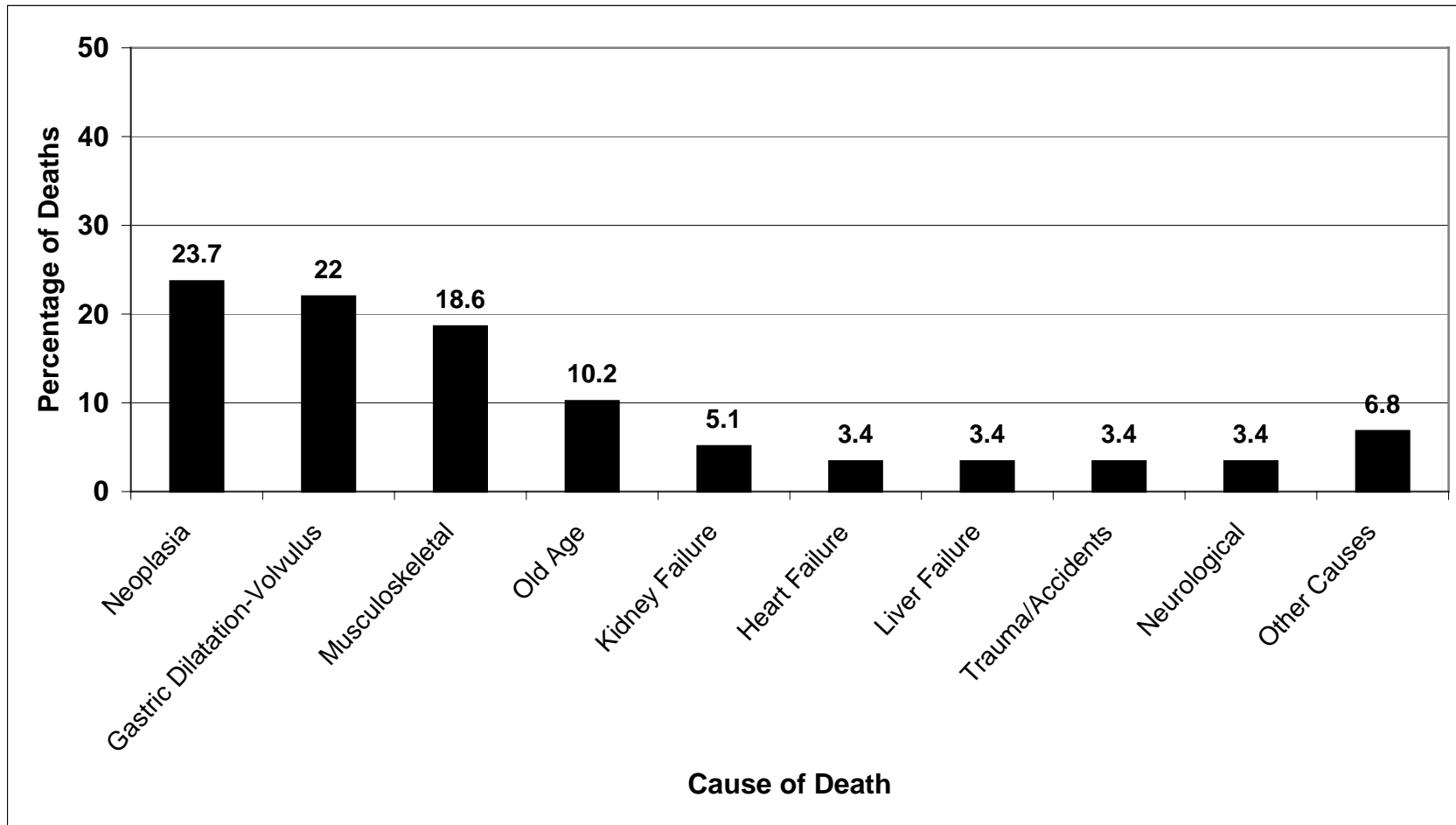
* Confirmed by a veterinarian

Figure 13. Cause of Death* at 6 - 8.9 Years of Age



* Confirmed by a veterinarian

Figure 14. Cause of Death* at 9+ Years of Age



*Confirmed by a veterinarian

Table 42. Veterinary Confirmed Cause of Death by Age for Bitches

Cause of death	Age at death (years)				All Ages
	0 – 2.9	3 – 5.9	6 – 8.9	9+	
	N (%)	N (%)	N (%)	N (%)	N (%)
Cancer	0 (0.0)	0 (0.0)	3 (30.0)	10 (32.3)	13 (26.5)
Musculoskeletal	0 (0.0)	0 (0.0)	2 (20.0)	6 (19.4)	8 (16.3)
Gastric dilatation volvulus	0 (0.0)	0 (0.0)	2 (20.0)	5 (16.1)	7 (14.3)
Autoimmune disease	0 (0.0)	3 (42.9)	1 (10.0)	0 (0.0)	4 (8.2)
Trauma/Accidents	0 (0.0)	1 (14.3)	0 (0.0)	2 (6.5)	3 (6.1)
Old age	0 (0.0)	0 (0.0)	0 (0.0)	3 (9.7)	3 (6.1)
Kidney failure	0 (0.0)	0 (0.0)	0 (0.0)	2 (6.5)	2 (4.1)
Neurological	0 (0.0)	0 (0.0)	0 (0.0)	1 (3.2)	1 (2.0)
Heart failure	0 (0.0)	0 (0.0)	0 (0.0)	1 (3.2)	1 (2.0)
Liver failure	0 (0.0)	1 (14.3)	0 (0.0)	0 (0.0)	1 (2.0)
Endocrine disease	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Infection	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Other causes	1 (100)	2 (28.6)	1 (10.0)	1 (3.2)	5 (10.2)
Unknown cause	0 (0.0)	0 (0.0)	1 (10.0)	0 (0.0)	1 (2.0)
Total	1 (100)	7 (100)	10 (100)	31 (100)	49 (100)

Table 43. Veterinary Confirmed Cause of Death by Age for Dogs

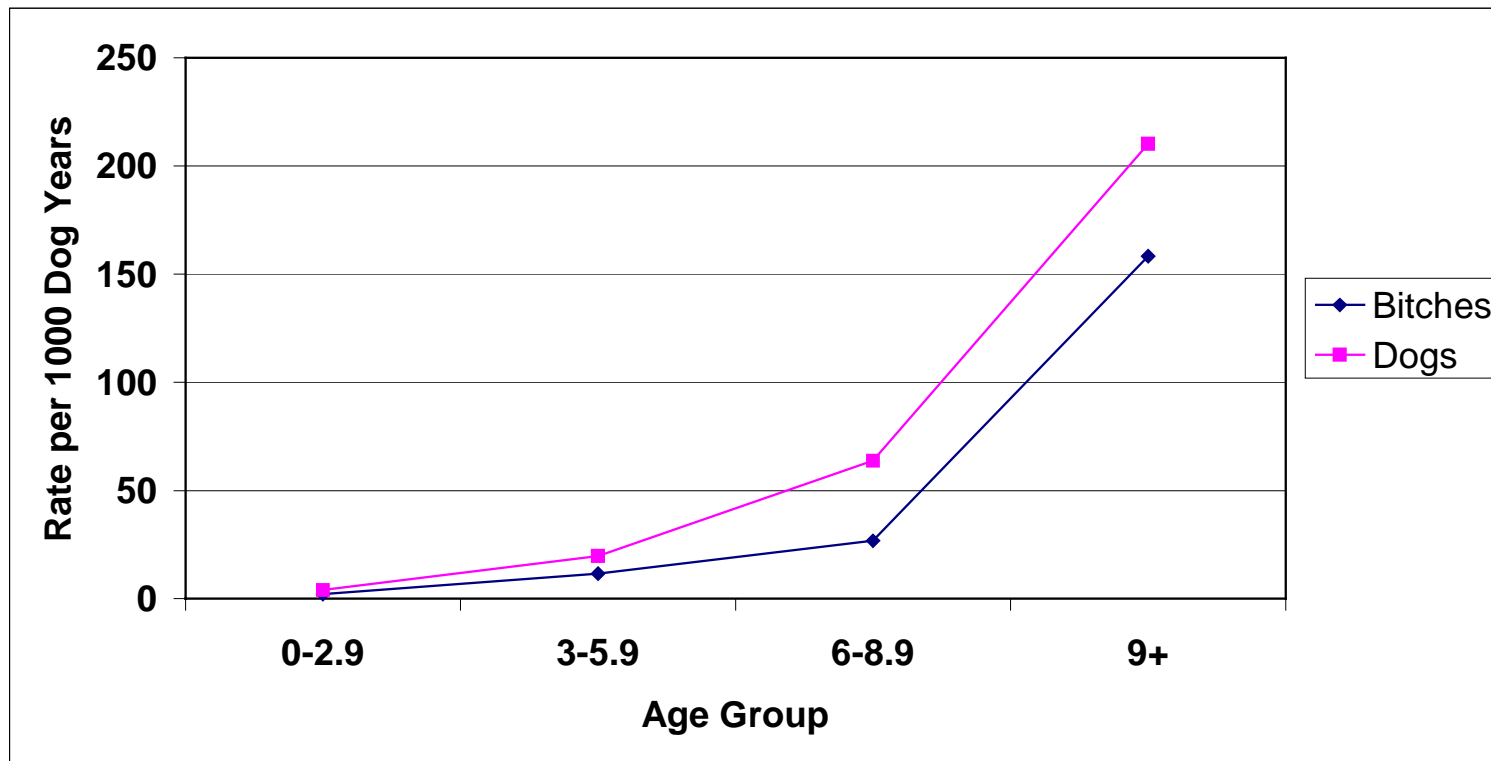
Cause of death	Age at death (years)				All Ages
	0 – 2.9	3 – 5.9	6 – 8.9	9+	
	N (%)	N (%)	N (%)	N (%)	N (%)
Gastric dilatation volvulus	0 (0.0)	2 (25.0)	5 (29.4)	8 (28.6)	15 (27.8)
Cancer	0 (0.0)	1 (12.5)	4 (23.5)	4 (14.3)	9 (16.7)
Musculoskeletal	0 (0.0)	1 (12.5)	2 (11.8)	5 (17.9)	8 (14.8)
Heart failure	0 (0.0)	0 (0.0)	3 (17.7)	1 (3.6)	4 (7.4)
Autoimmune disease	0 (0.0)	2 (25.0)	1 (5.9)	0 (0.0)	3 (5.6)
Liver failure	0 (0.0)	0 (0.0)	0 (0.0)	2 (7.1)	2 (3.7)
Old Age	0 (0.0)	0 (0.0)	0 (0.0)	3 (10.7)	3 (5.6)
Kidney failure	0 (0.0)	0 (0.0)	1 (5.9)	1 (3.6)	2 (3.7)
Neurological	0 (0.0)	0 (0.0)	0 (0.0)	1 (3.6)	1 (1.9)
Endocrine decrease	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Trauma/Accidents	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Infection	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Other causes	1 (100)	2 (25.0)	1 (5.9)	3 (10.7)	7 (13.0)
Unknown cause	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Total	1 (100)	8 (100)	17 (100)	28 (100)	54 (100)

Table 44. Age & Gender Specific Death Rates per 1,000 Dog Years (All Deaths)

Category	0 – 2.9 years		3 – 5.9 years		6 – 8.9 years		9+ years	
	N	Rate	N	Rate	N	Rate	N	Rate
All Akitas	5	2.9	21	15.1	40	42.9	98	178.1 ^a
Bitches	2	2.1	9	11.5	14	26.7	54	158.3
Dogs	3	4.0	12	19.7	26	63.7	44	210.2

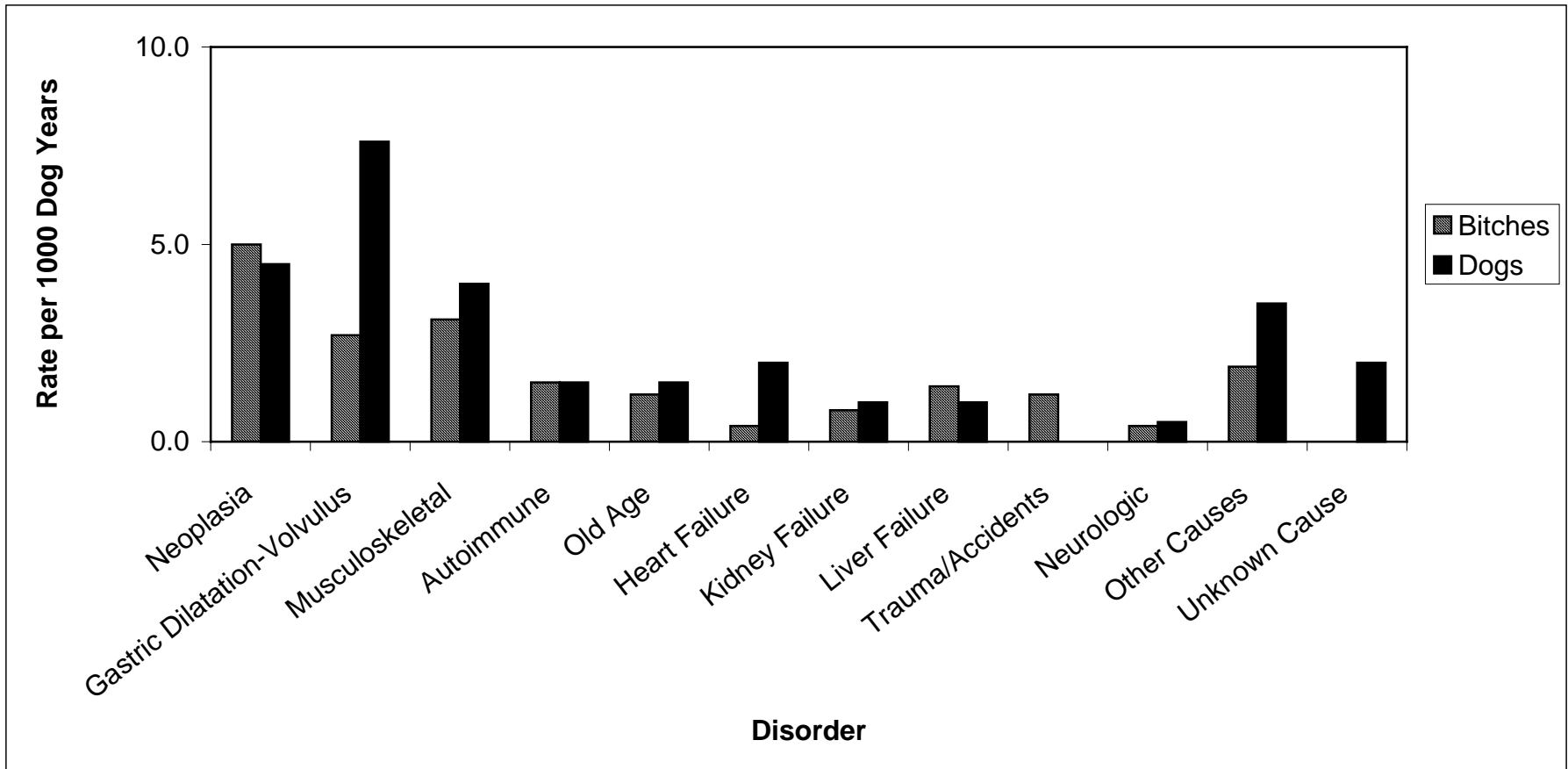
^a This indicates that 17.8% of individuals in this age group will die each year, assuming a 10 year lifespan

Figure 15. Age & Gender Specific Death* Rates



* Confirmed by a veterinarian

Figure 16. Cause & Gender Specific Death* Rates



* Confirmed by a veterinarian

Table 45. Cause & Gender Specific Death Rates per 1,000 Dog Years

Cause of Death Confirmed by Veterinarian	All Akitas		Bitches		Dogs	
	N (%) ^a	Rate	N (%) ^a	Rate	N (%) ^a	Rate
Gastric dilatation- volvulus	22 (21.4)	4.8	7 (14.3)	2.7	15 (27.8)	7.6
Cancer	22 (21.4)	4.8	13 (26.5)	5.0	9 (16.8)	4.5
Musculoskeletal	16 (15.5)	3.5	8 (16.3)	3.1	8 (14.8)	4.0
Autoimmune	7 (6.8)	1.5	4 (8.2)	1.5	3 (5.6)	1.5
Old age	6 (5.8)	1.3	3 (6.1)	1.2	3 (5.6)	1.5
Heart failure	5 (4.9)	1.1	1 (2.0)	0.4	4 (7.4)	2.0
Kidney failure	4 (3.9)	0.9	2 (4.1)	0.8	2 (3.7)	1.0
<u>Liver failure</u>	3 (2.9)	0.7	1 (2.0)	1.4	2 (3.7)	1.0
Trauma	3 (2.9)	0.7	3 (6.1)	1.2	0 (0.0)	0.0
Neurologic	2 (1.9)	0.4	1 (2.0)	0.4	1 (1.9)	0.5
Other	12 (11.7)	2.6	5 (10.2)	1.9	7 (13.0)	3.5
Unknown	1 (1.0)	0.2	1 (2.0)	0.0	0 (0.0)	2.0
All Confirmed Deaths	103 (100)	22.5	49 (100)	18.9	54 (100)	27.2
Cause of death not confirmed by veterinarian	57	12.5	28	10.8	29	14.6
All Deaths	160	34.6	77	29.8	83	41.8

^a Percent of deaths that were confirmed by a veterinarian

Table 46. Age & Cause Specific Death Rates per 1,000 Dog Years for the Three Leading Veterinary Confirmed Causes of Death (Excludes Unknown Causes)

Cause of death	0 – 2.9 years		3 – 5.9 years		6 – 8.9 years		9+ years	
	N	Rate	N	Rate	N	Rate	N	Rate
All Akitas								
Cancer	0	0.0	1	0.7	7	7.5	14	25.4 ^a
GDV	0	0.0	2	1.4	7	7.5	13	23.6
Musculoskeletal	0	0.0	1	0.7	4	4.3	11	20.0
Bitches								
Cancer	0	0.0	0	0.0	3	5.7	10	29.3
Musculoskeletal	0	0.0	0	0.0	2	3.8	6	17.6
GDV	0	0.0	0	0.0	2	3.8	5	14.7
Dogs								
GDV	0	0.0	2	3.3	5	12.8	8	38.2
Cancer	0	0.0	1	1.6	4	9.8	4	19.1
Musculoskeletal	0	0.0	1	1.6	2	4.9	5	23.9

^a This indicates that 2.5% of individuals in this age group will die due to a neoplasm each year, assuming a 10 year life span

Table 47. Age at Death in Years for the Fourteen Most Common Causes of Death

Cause of death	Veterinary Confirmed		All Deaths ^a	
	N (%)	Mean \pm SD	N (%)	Mean \pm SD
Cancer	22 (21.4)	10.1 \pm 2.7	27 (17.1)	10.1 \pm 2.6
Old age	6 (5.8)	12.6 \pm 1.9	20 (12.7)	12.7 \pm 1.3
Heart failure	5 (4.9)	9.6 \pm 1.8	6 (3.8)	9.4 \pm 1.7
Kidney failure	4 (3.9)	11.2 \pm 2.7	5 (3.2)	11.2 \pm 2.3
Liver failure	3 (2.9)	8.8 \pm 3.7	3 (1.9)	8.8 \pm 3.7
Gastric dilatation volvulus	22 (21.4)	9.5 \pm 2.8	30 (19.0)	9.4 \pm 2.9
Musculoskeletal	16 (15.5)	10.3 \pm 3.3	16 (10.1)	10.3 \pm 3.3
Autoimmune disease	7 (6.8)	5.3 \pm 1.1	10 (6.3)	5.7 \pm 2.3
Neurologic	2 (1.9)	10.8 \pm 0.3	6 (3.8)	11.5 \pm 1.9
Trauma	3 (2.9)	9.1 \pm 4.3	4 (2.5)	9.0 \pm 3.5
Infection	0 (0.0)	--	2 (1.3)	8.5 \pm 5.6
Endocrine disease	0 (0.0)	--	1 (0.6)	6.6 --
Other	12 (11.7)	7.2 \pm 3.9	21 (13.3)	7.3 \pm 3.7
Unknown	1 (1.0)	6.3 --	7 (4.4)	10.1 \pm 2.3
All Causes	103 (100)	9.4 \pm 3.2	158 (100)	9.6 \pm 3.3

^a Veterinary confirmed deaths plus unconfirmed deaths

Table 48. Years of Potential Life Lost for Veterinary Confirmed Cause of Death

Cause of Death	No. of Akitas	Mean Age at Death (\pm SD)	Years of Potential Life Lost
All Cancers	22	10.1 (\pm 2.7)	0.0
Gastric Dilatation-Volvulus	22	9.5 (\pm 2.8)	0.0
Musculoskeletal Disorders	16	10.3 (\pm 3.3)	0.0
Autoimmune Disorders	7	5.3 (\pm 1.8)	30.6
Old Age	6	12.6 (\pm 1.9)	0.0
Heart Failure	5	9.6 (\pm 1.8)	0.0
Kidney Failure	4	11.2 (\pm 2.7)	0.0
Liver Failure	3	8.8 (\pm 3.7)	1.8
Trauma	3	9.1 (\pm 4.3)	1.1
Neurologic Disorders	2	10.8 (\pm 0.3)	0.0
Unknown Causes	13	7.2 (\pm 3.9)	
Total	103	9.4 (\pm 3.2)	

Table 49. Age at Death of Surveyed Akitas by Colors and Supplemental Colors

	Age at death, years			
	N	Mean±SD	Minimum	Maximum
Colors				
Black	10	9.9 ± 2.6	6.2	13.2
Brown	5	7.7 ± 3.2	3.1	11.5
Red	22	10.5 ± 2.8	4.4	14.2
Fawn	31	9.9 ± 3.5	1.6	14.8
Silver	2	7.1 ± 7.6	1.8	12.5
White	14	9.9 ± 3.4	4.1	14.8
Other colors ^a	76	9.3 ± 3.1	2.4	14.4
Color missing	4	8.4 ± 6.4	3.8	17.7
Supplemental colors				
Black mask and related ^b	109	9.4 ± 3.1	1.6	14.8
Pinto-black mask and related ^c	24	9.6 ± 3.3	1.8	13.8
White mask and related ^d	15	11.5 ± 2.7	4.4	14.8
<1/3 body color	0	-	-	-
Supplemental color missing	16	8.7 ± 4.3	2.4	17.7

^a Category includes black brindle; brown brindle; red brindle; fawn or blue brindle; silver brindle; brown, black overlay; red, black overlay; fawn, black overlay; silver, black overlay; black, brown undercoat; black, red undercoat; black, fawn undercoat; black, silver undercoat.

^b Group also includes black mask, white markings; black+white mask, white markings

^c Group also includes pinto-self masked or white masked; pinto-black+white masked

^d Group also includes white mask, white markings; white mask-self masked, white markings

Table 50. Age at Death in Years by Source of Akita

Source	Bitches		Dogs	
	N (%)	<u>Mean ±SD</u>	N (%)	<u>Mean ±SD</u>
Breeder – self	19 (24.4)	9.2±3.8	20 (24.4)	10.0±2.7
Breeder – kennel	32 (41.0)	10.0±3.4	32 (39.0)	8.6±3.1
Breeder – home	17 (21.8)	10.4±2.6	21 (25.6)	8.6±3.2
Shelter or rescue	8 (10.3)	10.8±2.2	5 (6.1)	13.3±1.7
Pet store	1 (1.3)	7.7± --	--	--
Adopted from private party	1 (1.3)	11.4± --	4 (4.9)	9.3±1.6

Table 51. Age at Death in Years by Height, Weight, Weight/Height Index, and Body Condition

Measurement	Bitches		Dogs	
	N (%)	Mean \pm SD	<u>N (%)</u>	Mean \pm SD
Height (inches)				
20 - 21	8 (12.3)	9.0 \pm 3.5	0 (0.0)	_____
22 - 23	42 (64.6)	9.8 \pm 3.5	12 (18.2)	8.9 \pm 2.4
24 - 25	14 (21.5)	10.1 \pm 2.1	46 (69.7)	9.4 \pm 3.1
26+	1 (1.5)	11.8 \pm 0.0	8 (12.1)	8.4 \pm 3.1
Weight (pounds)				
48 - 61	10 (13.3)	9.6 \pm 3.6	1 (1.2)	9.8 \pm 0.0
62 - 69	42 (56.0)	9.9 \pm 3.5	17 (20.5)	8.5 \pm 4.0
70 - 76	22 (29.3)	10.7 \pm 3.0	48 (57.8)	9.4 \pm 3.0
77+	1 (1.3)	7.0 \pm 0.0	17 (20.5)	9.4 \pm 2.5
Weight/Height index				
2.25 - 2.76	19 (29.2)	8.3 \pm 3.7	0 (0.0)	_____
2.77 - 2.99	18 (27.7)	10.3 \pm 3.0	11 (16.7)	8.1 \pm 4.0
3.00 - 3.25	21 (32.3)	10.4 \pm 3.0	22 (33.3)	9.3 \pm 3.3
3.26+	7 (10.8)	10.4 \pm 2.4	33 (50.0)	9.5 \pm 2.3
Puppy body condition				
Underweight	1 (1.5)	13.7 \pm 0.0	6 (8.7)	8.1 \pm 3.9
Average	65 (97.0)	9.7 \pm 3.3	58 (84.1)	8.9 \pm 2.8
Overweight	1 (1.5)	11.3 \pm 0.0	5 (7.2)	9.3 \pm 3.1
Adult body condition				
Underweight	0 (0.0)	_____	5 (5.9)	8.5 \pm 3.2
Average	68 (86.1)	9.9 \pm 3.5	74 (87.1)	9.3 \pm 3.2
Overweight	11 (13.9)	10.7 \pm 1.9	6 (7.1)	7.5 \pm 2.6

Table 52. Longevity by Age at Neutering

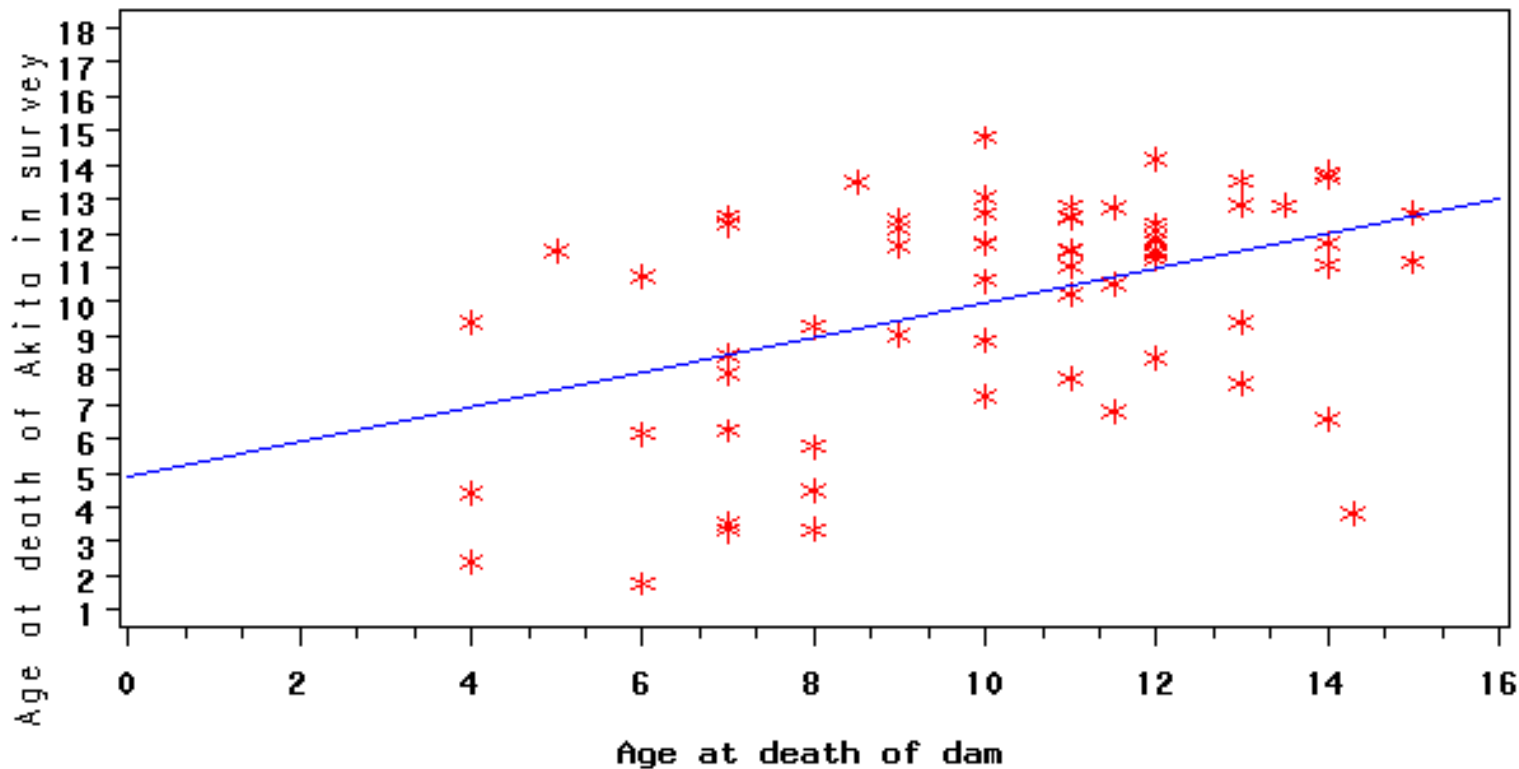
Age at Neuter (years)	Bitches ^a		Dogs ^b	
	Mean Age at Death (years) ±SD	Number of Individuals	Mean Age at Death (years) ±SD	Number of Individuals
Intact	8.8±4.0	22	9.2±3.2	41
< 1	9.8±3.2	8	8.2±3.1	13
1 – 2.9	10.5±2.5	14	9.6±3.1	13
3+	10.8±3.1	25	10.1±3.8	10
Any Age	10.6±2.8	55	9.0±3.3	43

^a Age at neutering missing for 8 bitches

^b Age at neutering missing for 7 dogs

Figure 17. Association between Age at Death and Age at Death of Dam

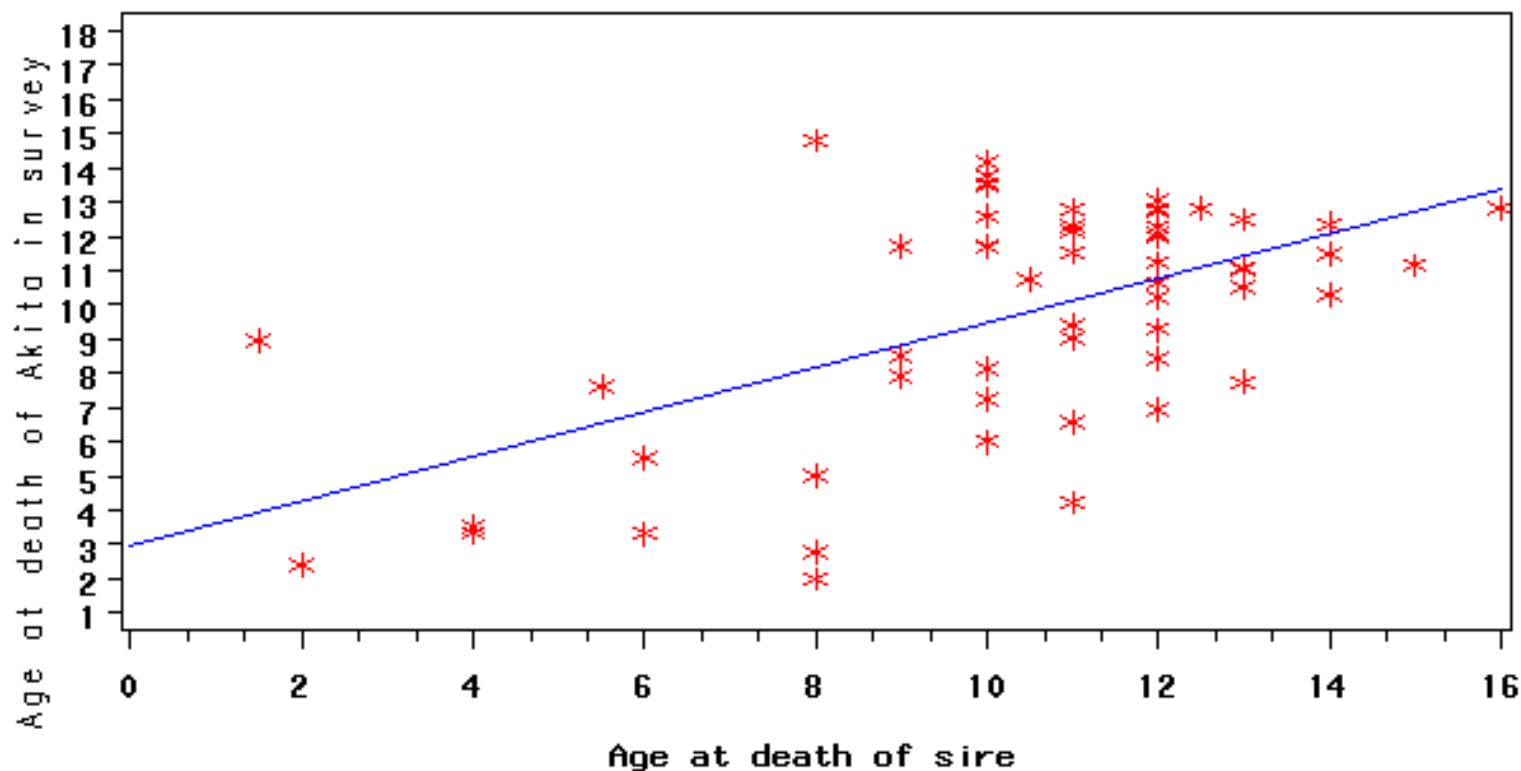
(N = 65; Rsq = 0.193; p = 0.0003*)



*The probability that this relationship occurred by chance alone is 3 in 10,000

Figure 18. Association between Age at Death and Age at Death of Sire

(N = 58; Rsq = 0.326; p < 0.0001*)



*The probability that this relationship occurred by chance alone is less than 1 in 10,000

Table 53. Association Between Rate of Growth As Puppy and Selected Health Disorders

	Disorder		P-value ^a	P-value for trend ^a
	N (%)	N(%)		
Any neoplasm				
	No	Yes		
Rate of growth as puppy				
Slow	63 (13.4)	4 (11.4)	0.94	0.73
Average	385 (81.6)	29 (82.9)		
Maximum	24 (5.1)	2 (5.7)		
Total	472 (100.0)	35 (100.0)		
Osteosarcoma				
	No	Yes		
Rate of growth as puppy				
Slow	67 (13.3)	0 (0.0)	0.71	0.74
Average	411 (81.6)	3 (100.0)		
Maximum	26 (5.2)	0 (0.0)		
Total	504 (100.0)	3 (100.0)		
Any musculoskeletal				
	No	Yes		
Rate of growth as puppy				
Slow	52 (13.2)	15 (13.2)	0.13	0.29
Average	325 (82.7)	89 (78.1)		
Maximum	16 (4.1)	10 (8.8)		
Total	393 (100.0)	114 (100.0)		
Hip dysplasia				
	No	Yes		
Rate of growth as puppy				
Slow	60 (12.9)	7 (16.7)	0.29	0.88
Average	383 (82.4)	31 (73.8)		
Maximum	22 (4.7)	4 (9.5)		
Total	465 (100.0)	42 (100.0)		
Arthritis				
	No	Yes		
Rate of growth as puppy				
Slow	64 (13.7)	3 (7.7)	0.46	0.21
Average	381 (81.4)	33 (84.6)		
Maximum	23 (4.9)	3 (7.7)		
Total	468 (100.0)	39 (100.0)		

a A p-value of < 0.05 is considered a statistically significant association

Table 54. Association Between Adult Bone Structure and Selected Health Disorders

	Disorder		P-value ^a	P-value for trend ^a
	N (%)	N(%)		
Any neoplasm				
	No	Yes		
Adult bone structure				
Small	37 (6.8)	2 (4.6)	0.34	0.15
Medium	274 (50.0)	18 (40.9)		
Large	237 (43.3)	24 (54.6)		
Total	548 (100.0)	44 (100.0)		
Osteosarcoma				
	No	Yes		
Adult bone structure				
Small	39 (6.7)	0 (0.0)	0.32	0.14
Medium	290 (49.6)	2 (28.6)		
Large	256 (43.8)	5 (71.4)		
Total	585 (100.0)	7 (100.0)		
Any musculoskeletal				
	No	Yes		
Adult bone structure				
Small	34 (7.7)	5 (3.3)	0.18	0.23
Medium	216 (48.9)	76 (50.7)		
Large	192 (43.4)	69 (46.0)		
Total	442 (100.0)	150 (100.0)		
Hip dysplasia				
	No	Yes		
Adult bone structure				
Small	36 (6.7)	3 (5.7)	0.48	0.26
Medium	269 (50.0)	23 (42.6)		
Large	233 (43.3)	28 (51.9)		
Total	538 (100.0)	54 (100.0)		
Arthritis				
	No	Yes		
Adult bone structure				
Small	38 (7.1)	1 (1.9)	0.11	0.77
Medium	259 (48.1)	33 (61.1)		
Large	241 (44.8)	20 (37.0)		
Total	538 (100.0)	54 (100.0)		

^a A p-value of < 0.05 is considered a statistically significant association

Table 55. Association Between Body Condition and Health Disorders

Body Condition	Health Disorder		P value*
	GDV Number (%)	No GDV Number (%)	
Puppy			
Underweight	6 (10.9)	42 (8.5)	0.84
Average	47 (85.5)	433 (88.0)	
Overweight	2 (3.6)	17 (3.5)	
Total	55 (100)	492 (100)	
Adult			
Underweight	3 (4.4)	25 (4.8)	0.11
Average	63 (91.3)	430 (82.2)	
Overweight	3 (4.4)	68 (13.0)	
Total	69 (100)	523 (100)	
Any Neoplasm			
No Neoplasm			
Puppy			
Underweight	3 (7.7)	45 (8.9)	0.06
Average	32 (82.1)	448 (88.2)	
Overweight	4 (10.3)	15 (3.0)	
Total	39 (100)	508 (100)	
Adult			
Underweight	2 (4.6)	26 (4.7)	0.82
Average	38 (86.4)	455 (83.0)	
Overweight	4 (9.1)	67 (12.2)	
Total	44 (100)	548 (100)	
Hypothyroidism			
No Hypothyroidism			
Puppy			
Underweight	13 (12.6)	35 (7.9)	0.03
Average	83 (80.6)	397 (89.4)	
Overweight	7 (6.8)	12 (2.7)	
Total	103 (100)	444 (100)	
Adult			
Underweight	6 (5.4)	22 (4.6)	0.30
Average	88 (78.6)	405 (84.4)	
Overweight	18 (16.1)	53 (11.0)	
Total	112 (100)	480 (100)	

* P < 0.05 indicates the association is statistically significant, that is, a less than 5% probability this association occurred by chance alone.

Table 55. Association Between Body Condition and Health Disorders

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Body Condition	Health Disorder		P value*
	Any Musculoskeletal Number (%)	No Musculoskeletal Number (%)	
Puppy			
Underweight	11 (8.2)	37 (9.0)	0.003
Average	112 (83.6)	368 (89.1)	
Overweight	11 (8.2)	8 (2.0)	
Total	134 (100)	413 (100)	
Adult			
Underweight	6 (21.4)	22 (5.0)	0.84
Average	129 (83.8)	364 (83.1)	
Overweight	19 (12.3)	52 (11.9)	
Total	154 (100)	438 (100)	
		Hip Dysplasia	No Hip Dysplasia
		Number (%)	Number (%)
Puppy			
Underweight	4 (8.3)	44 (8.8)	0.96
Average	42 (87.5)	438 (87.8)	
Overweight	2 (4.2)	17 (3.4)	
Total	48 (100)	499 (100)	
Adult			
Underweight	3 (5.7)	25 (4.6)	0.56
Average	46 (86.8)	447 (82.9)	
Overweight	4 (7.6)	67 (12.4)	
Total	53 (100)	539 (100)	
		Arthritis	No Arthritis
		Number (%)	Number (%)
Puppy			
Underweight	5 (11.6)	43 (8.5)	0.07
Average	34 (79.1)	446 (88.5)	
Overweight	4 (9.3)	15 (3.0)	
Total	43 (100)	504 (100)	
Adult			
Underweight	2 (3.7)	26 (4.8)	0.52
Average	43 (79.6)	450 (83.6)	
Overweight	9 (16.7)	62 (11.5)	
Total	54 (100)	538 (100)	

* P < 0.05 indicates the association is statistically significant, that is, a less than 5% probability this association occurred by chance alone.

Table 56. Morphometrics and Health Disorders

Gastric Dilatation-Volulus						
Measurement	Bitches			Dogs		
	Yes Number (%)	No Number (%)	P value	Yes Number (%)	No Number (%)	P value ^a
Weight (pounds)						
1 st tercile	11 (36.7)	94 (33.0)	0.92	5 (13.2)	66 (30.0)	0.05
2 nd tercile	9 (30.0)	93 (32.6)		21 (55.3)	83 (37.7)	
3 rd tercile	10 (33.3)	98 (34.4)		12 (31.6)	71 (32.3)	
Total	30 (100)	285 (100)		38 (100)	220 (100)	
Height (inches)						
1 st tercile	2 (8.7)	35 (14.0)	0.42	1 (3.0)	30 (16.1)	0.13
2 nd tercile	14 (60.9)	166 (66.4)		25 (75.8)	117 (62.9)	
3 rd tercile	7 (30.4)	49 (19.6)		7 (21.2)	39 (21.0)	
Total	23 (100)	250 (100)		33 (100)	186 (100)	
Weight/Height Index						
1 st tercile	5 (21.7)	84 (33.7)	0.47	9 (27.3)	64 (34.6)	0.20
2 nd tercile	10 (43.5)	85 (34.1)		14 (42.4)	50 (27.0)	
3 rd tercile	8 (34.8)	80 (32.1)		10 (30.3)	71 (38.4)	
Total	23 (100)	249 (100)		33 (100)	185 (100)	
Any Neoplasm						
Measurement	Bitches			Dogs		
	Yes Number (%)	No Number (%)	P value	Yes Number (%)	No Number (%)	P value ^a
Weight (pounds)						
1 st tercile	6 (21.4)	99 (34.5)	0.27	2 (14.3)	69 (28.3)	0.29
2 nd tercile	9 (32.1)	93 (32.4)		5 (35.7)	99 (40.6)	
3 rd tercile	13 (46.4)	95 (33.1)		7 (50.0)	76 (31.2)	
Total	28 (100)	287 (100)		14 (100)	244 (100)	
Height (inches)						
1 st tercile	2 (8.3)	35 (14.1)	0.46	2 (14.3)	29 (14.2)	0.41
2 nd tercile	15 (62.5)	165 (66.3)		11 (78.6)	131 (63.9)	
3 rd tercile	7 (29.2)	49 (19.7)		1 (7.1)	45 (22.0)	
Total	24 (100)	249 (100)		14 (100)	205 (100)	
Weight/Height Index						
1 st tercile	2 (8.3)	87 (35.1)	0.03	2 (14.3)	71 (34.8)	0.09
2 nd tercile	11 (45.8)	84 (33.9)		3 (21.4)	61 (29.9)	
3 rd tercile	11 (45.8)	77 (31.1)		9 (64.3)	72 (35.3)	
Total	24 (100)	248 (100)		14 (100)	204 (100)	

^a P < 0.05 indicates the association is statistically significant, that is, a less than 5% probability this association occurred by chance alone.

Table 56. Morphometrics and Health Disorders

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Osteosarcoma						
Measurement	Bitches			Dogs		
	Yes Number (%)	No Number (%)	P value	Yes Number (%)	No Number (%)	P value ^a
Weight (pounds)						
1 st tercile	1 (25.0)	104 (33.4)	0.75	0 (0.0)	71 (27.8)	0.37
2 nd tercile	2 (50.0)	100 (32.2)		1 (33.3)	103 (40.4)	
3 rd tercile	1 (25.0)	107 (34.4)		2 (66.7)	81 (31.8)	
Total	4 (100)	311 (100)		3 (100)	255 (100)	
Height (inches)						
1 st tercile	0 (0.0)	37 (13.7)	0.72	0 (0.0)	31 (14.4)	0.43
2 nd tercile	2 (66.7)	178 (65.9)		3 (100)	139 (64.4)	
3 rd tercile	1 (33.3)	55 (20.4)		0 (0.0)	46 (21.3)	
Total	3 (100)	270 (100)		3 (100)	216 (100)	
Weight/Height Index						
1 st tercile	1 (33.3)	88 (32.7)	0.99	0 (0.0)	73 (34.0)	0.08
2 nd tercile	1 (33.3)	94 (34.9)		0 (0.0)	64 (29.8)	
3 rd tercile	1 (33.3)	87 (32.3)		3 (100)	78 (36.3)	
Total	3 (100)	269 (100)		3 (100)	215 (100)	
Hypothyroidism						
Measurement	Bitches			Dogs		
	Yes Number (%)	No Number (%)	P value	Yes Number (%)	No Number (%)	P value ^a
Weight (pounds)						
1 st tercile	10 (16.7)	95 (37.3)	0.01	12 (24.0)	59 (28.4)	0.65
2 nd tercile	24 (40.0)	78 (30.6)		23 (46.0)	81 (38.9)	
3 rd tercile	26 (43.3)	82 (32.2)		15 (30.0)	68 (32.7)	
Total	60 (100)	255 (100)		50 (100)	208 (100)	
Height (inches)						
1 st tercile	5 (8.9)	32 (14.8)	0.29	10 (23.3)	21 (11.9)	0.12
2 nd tercile	36 (64.3)	144 (66.4)		23 (53.5)	119 (67.6)	
3 rd tercile	15 (26.8)	41 (18.9)		10 (23.3)	36 (20.5)	
Total	56 (100)	217 (100)		43 (100)	176 (100)	
Weight/Height Index						
1 st tercile	12 (21.4)	77 (35.7)	0.10	12 (27.9)	61 (34.9)	0.43
2 nd tercile	25 (44.6)	70 (32.4)		16 (37.2)	48 (27.4)	
3 rd tercile	19 (33.9)	69 (31.9)		15 (34.9)	66 (37.7)	
Total	56 (100)	216 (100)		43 (100)	175 (100)	

^a P < 0.05 indicates the association is statistically significant, that is, a less than 5% probability this association occurred by chance alone.

Table 56. Morphometrics and Health Disorders

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Measurement	Hotspots					
	Bitches			Dogs		
	Yes Number (%)	No Number (%)	P value	Yes Number (%)	No Number (%)	P value ^a
Weight (pounds)						
1 st tercile	12 (40.0)	93 (32.6)	0.02	8 (21.1)	63 (28.6)	0.34
2 nd tercile	3 (10.0)	99 (34.7)		14 (36.8)	90 (40.9)	
3 rd tercile	15 (50.0)	93 (32.6)		16 (42.1)	67 (30.5)	
Total	30 (100)	285 (100)		38 (100)	220 (100)	
Height (inches)						
1 st tercile	3 (12.0)	34 (13.7)	0.62	4 (12.5)	27 (14.4)	0.56
2 nd tercile	15 (60.0)	165 (66.5)		19 (59.4)	123 (65.8)	
3 rd tercile	7 (28.0)	49 (19.8)		9 (28.1)	37 (19.8)	
Total	25 (100)	248 (100)		32 (100)	187 (100)	
Weight/Height Index						
1 st tercile	9 (36.0)	80 (32.4)	0.08	7 (21.9)	66 (35.5)	0.29
2 nd tercile	4 (16.0)	91 (36.8)		10 (31.3)	54 (29.0)	
3 rd tercile	12 (48.0)	76 (30.8)		15 (46.9)	66 (35.5)	
Total	25 (100)	247 (100)		32 (100)	186 (100)	
Any Musculoskeletal Disorders						
Measurement	Bitches			Dogs		
	Yes Number (%)	No Number (%)	P value	Yes Number (%)	No Number (%)	P value ^a
Weight (pounds)						
1 st tercile	22 (31.4)	83 (33.9)	0.20	19 (23.8)	52 (29.2)	0.62
2 nd tercile	18 (25.7)	84 (34.3)		35 (43.8)	69 (38.8)	
3 rd tercile	30 (42.9)	78 (31.8)		26 (32.5)	57 (32.0)	
Total	70 (100)	245 (100)		80 (100)	178 (100)	
Height (inches)						
1 st tercile	5 (8.8)	32 (14.8)	0.49	6 (9.2)	25 (16.2)	0.02
2 nd tercile	40 (70.2)	140 (64.8)		38 (58.5)	104 (67.5)	
3 rd tercile	12 (21.1)	44 (20.4)		21 (32.3)	25 (16.2)	
Total	57 (100)	216 (100)		65 (100)	154 (100)	
Weight/Height Index						
1 st tercile	16 (28.6)	73 (33.8)	0.08	20 (30.8)	53 (34.6)	0.44
2 nd tercile	15 (26.8)	80 (37.0)		23 (35.4)	41 (26.8)	
3 rd tercile	25 (44.6)	63 (29.2)		22 (33.9)	59 (38.6)	
Total	56 (100)	216 (100)		65 (100)	153 (100)	

^a P < 0.05 indicates the association is statistically significant, that is, a less than 5% probability this association occurred by chance alone.

Table 56. Morphometrics and Health Disorders

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Hip Dysplasia						
Measurement	Bitches			Dogs		
	Yes Number (%)	No Number (%)	P value	Yes Number (%)	No Number (%)	P value ^a
Weight (pounds)						
1 st tercile	8 (38.1)	97 (33.0)	0.83	8 (27.6)	63 (27.5)	0.56
2 nd tercile	7 (33.3)	95 (32.3)		14 (48.3)	90 (39.3)	
3 rd tercile	6 (28.6)	102 (34.7)		7 (24.1)	76 (33.2)	
Total	21 (100)	294 (100)		29 (100)	229 (100)	
Height (inches)						
1 st tercile	3 (15.8)	34 (13.4)	0.23	3 (13.6)	28 (14.2)	0.75
2 nd tercile	15 (79.0)	165 (65.0)		13 (59.1)	129 (65.5)	
3 rd tercile	1 (5.3)	55 (21.07)		6 (27.3)	40 (20.3)	
Total	19 (100)	254 (100)		22 (100)	197 (100)	
Weight/Height Index						
1 st tercile	9 (47.4)	80 (31.6)	0.37	4 (18.2)	69 (35.2)	0.14
2 nd tercile	5 (26.3)	90 (35.6)		10 (45.5)	54 (27.6)	
3 rd tercile	5 (26.3)	83 (32.8)		8 (36.4)	73 (37.2)	
Total	19 (100)	253 (100)		22 (100)	196 (100)	
Arthritis						
Measurement	Bitches			Dogs		
	Yes Number (%)	No Number (%)	P value	Yes Number (%)	No Number (%)	P value ^a
Weight (pounds)						
1 st tercile	8 (27.6)	97 (33.9)	0.25	7 (29.2)	64 (27.3)	0.72
2 nd tercile	7 (24.1)	95 (33.2)		11 (45.8)	93 (39.7)	
3 rd tercile	14 (48.3)	94 (32.9)		6 (25.0)	77 (32.9)	
Total	29 (100)	286 (100)		24 (100)	234 (100)	
Height (inches)						
1 st tercile	2 (9.1)	35 (13.9)	0.75	1 (5.3)	30 (15.0)	0.48
2 nd tercile	16 (72.7)	164 (65.3)		13 (68.4)	129 (64.5)	
3 rd tercile	4 (18.2)	52 (20.7)		5 (26.3)	41 (20.5)	
Total	22 (100)	251 (100)		19 (100)	200 (100)	
Weight/Height Index						
1 st tercile	4 (18.2)	85 (34.0)	0.24	8 (42.1)	65 (32.7)	0.70
2 nd tercile	8 (36.7)	87 (34.8)		5 (26.3)	59 (29.7)	
3 rd tercile	10 (45.5)	78 (31.2)		6 (31.6)	75 (37.7)	
Total	22 (100)	250 (100)		19 (100)	199 (100)	

^a P < 0.05 indicates the association is statistically significant, that is, a less than 5% probability this association occurred by chance alone.

Table 57. Association Between Flea Allergies and Health Disorders

	Disorder		P Value ^a
	Number (%)	Number (%)	
Gastric Dilatation Volvulus			
Flea Allergies	Yes	No	
Yes	7 (10.1)	33 (6.2)	0.21
No	62 (89.9)	501 (93.8)	
Total	69 (100)	534 (100)	
Osteosarcoma			
Flea Allergies	Yes	No	
Yes	1 (14.3)	39 (6.5)	0.41
No	6 (85.7)	557 (93.5)	
Total	7 (100)	596 (98.8)	
Hypothyroidism			
Flea Allergies	Yes	No	
Yes	9 (8.0)	31 (6.3)	0.51
No	103 (92.0)	460 (93.7)	
Total	112 (100)	491 (100)	
Hot Spots			
Flea Allergies	Yes	No	
Yes	12 (16.7)	28 (5.3)	< .001
No	60 (83.3)	503 (94.7)	
Total	72 (100)	531 (100)	
Arthritis			
Flea Allergies	Yes	No	
Yes	6 (10.9)	34 (6.2)	0.18
No	49 (89.1)	514 (93.8)	
Total	55 (100)	548 (100)	

^a P < 0.05 indicates the association is statistically significant, that is, a less than 5% probability this association occurred by chance alone.

Table 58. Association Between Daily Diet and Health Disorders

Type of Diet Fed	Disorder		P Value ^a
Daily	Number (%)	Number (%)	
Gastric Dilatation-Volvulus			
Dry	Yes	No	
Yes	66 (95.7)	490 (91.8)	0.26
No	3 (4.3)	44 (8.2)	
Canned	Yes	No	
Yes	29 (42.0)	137 (25.7)	.004
No	40 (58.0)	397 (74.3)	
Table/Home Prepared	Yes	No	
Yes	23 (33.3)	165 (30.9)	0.68
No	46 (66.7)	369 (69.1)	
Osteosarcoma			
Dry	Yes	No	
Yes	6 (85.7)	550 (92.3)	0.52
No	1 (14.3)	46 (7.7)	
Canned	Yes	No	
Yes	1 (14.3)	165 (27.7)	0.43
No	6 (85.7)	431 (72.3)	
Table/Home Prepared	Yes	No	
Yes	3 (42.9)	185 (31.0)	0.50
No	4 (57.1)	411 (69.0)	
Any Neoplasm			
Dry	Yes	No	
Yes	40 (90.9)	516 (92.3)	0.74
No	4 (9.1)	43 (7.7)	
Canned	Yes	No	
Yes	10 (77.3)	156 (27.9)	0.46
No	34 (6.4)	403 (72.1)	
Table/Home Prepared	Yes	No	
Yes	17 (38.6)	171 (30.6)	0.27
No	27 (61.4)	388 (69.4)	
Hypothyroidism			
Dry	Yes	No	
Yes	98 (87.5)	458 (93.3)	0.04
No	14 (12.5)	33 (6.7)	
Canned	Yes	No	
Yes	39 (34.8)	127 (25.9)	0.06
No	73 (65.2)	364 (74.1)	
Table/Home Prepared	Yes	No	
Yes	33 (29.5)	155 (31.6)	0.66
No	79 (70.5)	336 (68.4)	

^a P < 0.05 indicates the association is statistically significant, that is, a less than 5% probability this association occurred by chance alone.

Table 58. Association Between Daily Diet and Health Disorders

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Type of Diet Fed Daily	Disorder	Number (%)	Number (%)	P Value ^a
Hotspots				
Dry		Yes	No	
Yes		69 (95.8)	487 (91.7)	0.22
No		3 (4.2)	44 (8.3)	
Canned				
Yes		17 (23.6)	149 (28.1)	0.43
No		55 (76.4)	382 (71.9)	
Table/Home Prepared				
Yes		23 (31.9)	165 (31.1)	0.88
No		49 (68.1)	366 (68.9)	
Any Musculoskeletal Disorder				
Dry		Yes	No	
Yes		144 (91.7)	412 (92.4)	0.76
No		13 (8.3)	34 (7.6)	
Canned				
Yes		42 (26.8)	124 (27.8)	0.80
No		115 (73.3)	322 (72.2)	
Table/Home Prepared				
Yes		47 (29.9)	141 (31.6)	0.70
No		110 (70.1)	305 (68.4)	
Hip Dysplasia				
Dry		Yes	No	
Yes		51 (94.4)	505 (92.0)	0.52
No		3 (5.6)	44 (8.0)	
Canned				
Yes		13 (24.1)	153 (27.9)	0.55
No		41 (75.9)	396 (72.1)	
Table/Home Prepared				
Yes		15 (27.8)	173 (31.5)	0.57
No		39 (72.2)	376 (68.5)	
Arthritis				
Dry		Yes	No	
Yes		50 (90.9)	506 (92.3)	0.71
No		5 (9.1)	42 (7.7)	
Canned				
Yes		20 (36.4)	146 (26.6)	0.12
No		35 (63.6)	402 (73.4)	
Table/Home Prepared				
Yes		15 (27.3)	173 (31.6)	0.51
No		40 (72.7)	375 (68.4)	

^a P < 0.05 indicates the association is statistically significant, that is, a less than 5% probability this association occurred by chance alone.

Table 59. Association Between Chemical Exposures and Health Disorders

Chemical Exposure	Disorder		P Value
	Number (%)	Number (%)	
Any Neoplasm			
Lawn Chemicals	Yes	No	
Yes	15 (40.5)	168 (35.8)	0.57
No	22 (59.5)	301 (64.2)	
Flea/tick Dips	Yes	No	
Yes	12 (33.3)	81 (17.7)	0.02
No	24 (66.7)	376 (82.3)	
Flea/tick Drops	Yes	No	
Yes	17 (43.6)	185 (41.3)	0.78
No	22 (56.4)	277 (58.7)	
Flea/tick Pills	Yes	No	
Yes	7 (20.0)	55 (12.9)	0.24
No	28 (80.0)	370 (87.1)	
Flea/tick Shampoo	Yes	No	
Yes	21 (56.8)	174 (37.4)	0.02
No	16 (43.2)	291 (62.6)	
Flea/tick Sprays	Yes	No	
Yes	14 (40.0)	137 (31.0)	0.27
No	21 (60.0)	305 (69.0)	
Hotspots			
Lawn Chemicals	Yes	No	
Yes	35 (54.7)	148 (33.5)	0.001
No	29 (45.3)	294 (66.5)	
Flea/tick Dips	Yes	No	
Yes	15 (24.6)	78 (18.1)	0.22
No	46 (75.4)	354 (81.9)	
Flea/tick Drops	Yes	No	
Yes	31 (49.2)	181 (40.4)	0.18
No	32 (50.8)	267 (59.6)	
Flea/tick Pills	Yes	No	
Yes	8 (14.6)	54 (13.3)	0.80
No	47 (85.5)	351 (86.7)	
Flea/tick Shampoo	Yes	No	
Yes	32 (50.8)	163 (37.1)	0.04
No	31 (49.2)	276 (62.9)	
Flea/tick Sprays	Yes	No	
Yes	26 (42.6)	125 (30.1)	0.05
No	35 (57.4)	291 (69.9)	

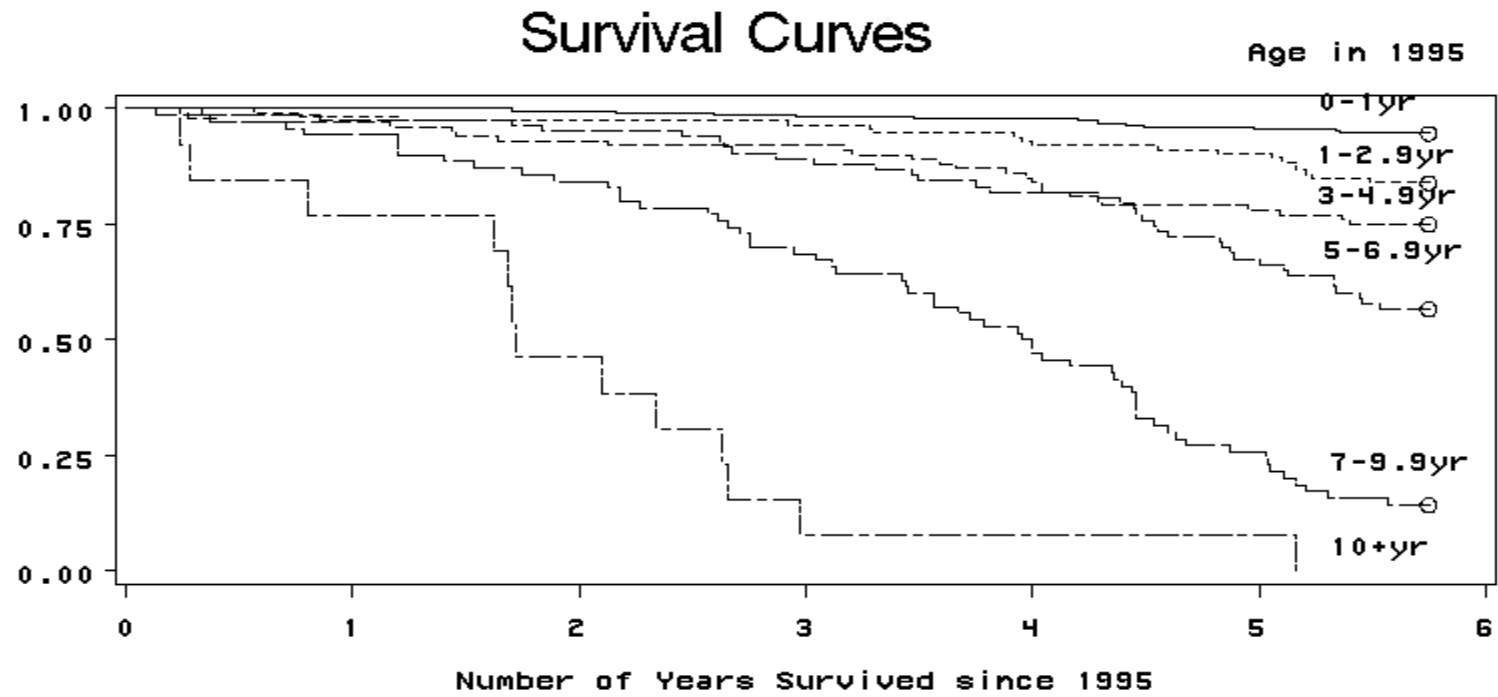
Table 59. Association Between Chemical Exposures and Health Disorders
Page 2

Chemical Exposure	Disorder		P Value
	Number (%)	Number (%)	
Hypothyroidism			
Lawn Chemicals	Yes	No	
Yes	48 (49.5)	135 (33.0)	0.002
No	49 (50.5)	274 (67.0)	
Flea/tick Dips	Yes	No	
Yes	18 (19.2)	75 (18.8)	0.94
No	76 (80.8)	324 (81.2)	
Flea/tick Drops	Yes	No	
Yes	33 (34.7)	179 (43.0)	0.14
No	62 (65.3)	237 (57.0)	
Flea/tick Pills	Yes	No	
Yes	10 (11.4)	52 (14.0)	0.52
No	78 (88.6)	320 (86.0)	
Flea/tick Shampoo	Yes	No	
Yes	45 (46.9)	150 (37.0)	0.07
No	51 (53.1)	256 (63.1)	
Flea/tick Sprays	Yes	No	
Yes	38 (39.2)	113 (29.7)	0.07
No	59 (60.8)	267 (70.3)	

Table 60. Yearly Vaccination and Health Disorders

Yearly Vaccination	Disorder		P Value
	Number (%)	Number (%)	
Any Neoplasm			
Rabies	Yes	No	
Yes	10 (22.7)	162 (30.8)	0.26
No	34 (77.3)	364 (69.2)	
Distemper	Yes	No	
Yes	29 (67.4)	359 (71.4)	0.59
No	14 (32.6)	144 (28.6)	
Parvovirus	Yes	No	
Yes	30 (71.4)	345 (70.1)	0.86
No	12 (28.6)	147 (29.9)	
Leptospirosis	Yes	No	
Yes	24 (63.2)	255 (60.1)	0.72
No	14 (36.8)	169 (39.9)	
Lyme Disease	Yes	No	
Yes	10 (28.6)	76 (25.7)	0.72
No	25 (71.4)	219 (74.3)	
Kennel Cough	Yes	No	
Yes	25 (64.1)	286 (73.2)	0.23
No	14 (35.9)	105 (26.8)	
Hypothyroidism			
Rabies	Yes	No	
Yes	25 (23.2)	147 (31.8)	0.08
No	83 (76.8)	315 (68.2)	
Distemper	Yes	No	
Yes	72 (66.1)	316 (72.3)	0.20
No	37 (33.9)	121 (27.7)	
Parvovirus	Yes	No	
Yes	70 (65.4)	305 (71.4)	0.22
No	37 (34.6)	122 (28.6)	
Leptospirosis	Yes	No	
Yes	49 (52.7)	230 (62.3)	0.09
No	44 (47.3)	139 (37.7)	
Lyme Disease	Yes	No	
Yes	15 (22.7)	71 (26.9)	0.49
No	51 (77.3)	193 (73.1)	
Kennel Cough	Yes	No	
Yes	60 (69.0)	251 (73.2)	0.43
No	27 (31.0)	92 (26.8)	

Figure 19. Number of Years Survived Since 1995



III Interpretive Summaries and Comments on the Results

Table 1

1. Usable questionnaires were received for 603 Akitas. It was not possible to determine the exact response rate since some individuals made copies for use by other Akita owners, a practice which was strongly encouraged.
2. The most common reason why some of the returned questionnaires were not included in the final count included ineligible dogs or missing information such as date of birth and vital status. As many owners as possible were contacted by the Purdue study staff by email or telephone to obtain missing information.
3. Most (52.4%) of the survey respondents had owned or bred Akitas for >10 years, suggesting a great deal of familiarity with health issues. The most commonly stated primary interest in the breed was as a companion animal or pet (84.6%) followed by showing (68.2%) and as a breeder (52.9%). A significant number (27.7%) also reported a primary interest in rescue.

Table 2

1. The questionnaires for the 603 surveyed Akitas were received from 277 different owners. Most submitted surveys for only 1 Akita (48%) while 14.8% submitted surveys for ≥ 5 Akitas. If an owner submitted questionnaires for ≥ 5 Akitas, 5 were randomly selected for inclusion.
2. The survey included 55.7% bitches and 44.3% dogs. As of October 1, 2000 (the study end), 76.5% were still alive while the rest either died (8.9%) or were euthanatized (14.6%).
3. The cause of death had been confirmed by a veterinarian for most (62.8%) of the Akitas in the survey. Veterinary confirmed diagnoses only were used in many of the subsequent analyses. However, a necropsy had been performed in only 7.9% of all deaths, a figure that is similar to that in human medicine. If more necropsy exams had been performed, many other important causes of death would probably have been identified.

Figures 1 & 2

1. The ages of the bitches and dogs in the survey as of October 1, 2000 were approximately normally distributed. The youngest in the survey were <1 year of age while the oldest bitch and dog were 17.3 and 14.3 years of age, respectively.
2. The youngest Akitas in the survey as of October 1, 2000 contributed much less information than those that were older. This was our primary reason for initially restricting the survey to Akitas that were alive as of January 1, 1995 and who would have been at least 5 years of age if still alive. However, it was decided to include some of the younger Akitas so as to increase the total sample size.

Table 3

1. Approximately 64% bitches and 52% of the dogs in the survey had been neutered. The bitches and dogs were neutered at a mean age of 2.8 and 1.9 years, respectively. These ages at neutering are older than typically seen in a population in which owners have no intention of breeding their pet.
2. The mean age of the bitches and dogs in the survey as of October 1, 2000 was 6.9 and 6.8 years, respectively.
3. The mean age at death of the bitches and dogs was 11.1 and 9.4 years of age, respectively. The higher age at death for females compared with males is a consistent observation in most animal species including humans. The biological basis for this phenomenon is not completely understood, but is thought to involve the adverse affects of male hormones such as testosterone.
4. The mean weight and height of the Akita bitches in the survey was 83.9 lbs and 24.7 in, respectively. The means for the Akita dogs was 101.3 lbs and 26.7 in, respectively.

Figures 3a & 3b

1. The weights of the bitches and dogs in the survey were approximately normally distributed.
2. The lightest and heaviest bitches in the survey were 48 and 120 lbs, respectively, while the lightest and heaviest dogs in the survey were 72 and 152 lbs, respectively. These numbers reflect dogs of any age as of October 1, 2000.

Figures 4a & 4b

1. The heights of the bitches and dogs in the survey were approximately normally distributed.
2. The shortest and tallest bitches in the survey were 21 in and 30 in, respectively, while the shortest and tallest dogs in the survey were 22 and 36 in, respectively. These numbers reflect dogs of any age as of October 1, 2000.

Table 4

1. The vast majority of sires (91.7%) and dams (90.3%) were reported to be of American ancestry. Eighty nine point three percent of the Akitas had both a sire and dam of American ancestry.
2. There were very few sires (3.9%) or dams (3.2%) that were reported to be of Japanese ancestry. However, the accuracy of this information is hard to determine.

Table 5

1. Greater than 91% of the Akitas in this survey were reported to have been born in the United States with only 0.5% born in Japan

Table 6

1. The Akita Club of America provided a list of primary and supplemental coat colors. This table indicates there is no one dominant primary color, whereas 49.1% of the Akitas had a black mask with white markings as the primary supplemental color.
2. To our knowledge, the relevance of coat color to disease or longevity has not been explored previously in the Akita breed.

Table 7

1. The Akitas in this survey had resided in most states of the United States. The Pacific region (Washington, Oregon, and California) had the greatest number (22.8%) of participants. Overrepresentation from this region may be related in part to the high proportion of the human population of Japanese descent. We are not aware of similar relationships between breed popularity and ethnic diversity elsewhere in the United

States with the exception of hound breeds that appear to be over-represented in more rural areas where hunting is a favored activity.

Table 8

1. Most (63.1%) of the 336 bitches in the survey had never whelped a litter previously while the rest had whelped between 1 and 4 litters. Of those that had whelped a litter, the mean age at first whelp (116 bitches) was 3.2 years while the mean age at the fourth whelp (11 bitches) was 6.0 years.
2. The mean number of live pups whelped per litter was approximately 6.0 pups and this did not vary greatly between the first (5.7 pups) and the fourth (6.5 pups) litter. The mean number of still-born and weaned pups per litter also did not appear to increase with the number of litters whelped.

Table 9a

1. Most bitches in this survey that whelped were bred naturally. The mean number of pups whelped per litter using this method varied with the litter order and ranged from 5.9 to 6.6 pups. In contrast, bitches bred artificially using fresh frozen semen tended to have smaller litter size ranging from 4.3 to 4.9 pups, depending on litter order.
2. One should not conclude from these findings that artificial methods of breeding necessarily result in smaller litter size than natural breeding. Owners in this survey were not asked for the reason why artificial breeding was attempted. It is possible that owners for artificial breeding selected dogs with reproductive problems that failed to breed naturally. If so, these selection factors could explain the smaller mean litter size

Table 9b

1. This table further explores the relationship between methods of insemination, while ignoring litter order. For all 181 litters, the average size was 6.2 live-born pups of which 5.8 were raised to weaning age. The number of live-born pups was lower (4.8) for the 37 litters conceived through use of fresh semen, but larger (7.0 pups) for the 1 litter conceived using chilled semen.
2. What is not possible to deduce from this survey is the actual conception rate using the different breeding methods.

Table 10

1. The majority of the bitches in this survey (69.7%) were bred primarily for conformation while 43.3% were bred primarily for pet quality. Very few were bred primarily for other reasons such as obedience or agility. Owners were allowed to check more than one reason for breeding their Akita.
2. Almost half of the owners (46.1%) reported their Akita did not attend any competitions in the preceding year. Among the 47.6% that reported attending conformation shows, the average number attended was 17.9. However, the median of 12.0 conformation shows per year attended indicates that half of all Akitas up to 12 shows per year while a few Akitas attended a greater number (>25) per year.

Table 11

1. Approximately 40% of the Akitas in the survey came originally from a kennel, 25% came from a litter born in someone else's home, and 21.6% came from a litter whelped in the owner's home, while 7.5% were adopted from a shelter or had been rescued. Only 1% of the Akitas were reported to have been purchased in a pet store.
2. Almost half (46.3%) of the Akitas in the survey were primarily kept unrestrained in the owner's home while 23.2% were kept primarily in an indoor/outdoor kennel.
3. Approximately one-third of the 603 Akitas slept at least part of the time with their owner's in bed. This is similar to what has been reported previously for pet dogs in the United States.

Tables 12a, Figures 5 & 6

1. Since the weight and height of dogs has been shown to vary with age and gender, we described the survey population taking these two factors into account. We also created a measure of body mass index by dividing body weight by height for each Akita. While weight and height showed no clear relationship with age for Akitas beyond 2.9 years of age, the weight/height index appeared to increase with increasing age for bitches, but this same relationship was not observed for dogs. A similar increase in weight/height index has been observed in humans.

2. Among Akita bitches (Fig. 5) approximately 3% of the increase in body weight could be accounted for by age. Notice the trend line that indicates a small, but constant increase in body weight with age. In contrast, among the Akita dogs (Fig. 6), the line indicates virtually no increase in body weight with age.

Table 12b

1. When one looks at the very oldest (≥ 13 years of age) Akitas in the survey, especially the dogs, it appears their mean body weight and weight/height index is lower than for adult dogs 9-12.9 years of age. A similar decrease in body weight has been reported in very old people (e.g., in nursing homes). This may be related to decreased nutritional intake as a result of a loss of appetite and cognitive function. This is often cited as a serious problem in nursing homes. In contrast, there does not appear to be a loss of height with advancing age as has been reported in people due to osteoporosis.
2. The decreased weight/height index observed in Akitas ≥ 13 years of age indicates a need for special foods that are higher in protein and caloric content in this age group. This is in sharp contrast to the foods commonly recommended for less active adult dogs that are lower in calories and protein. This problem can be addressed by switching the oldest dogs to high quality foods intended for fast growing puppies at the first sign of diminishing body condition as reflected in a lower weight/height index or to specially formulated clinical diets for such dogs. These dogs might also benefit from supplementation with high quality protein such as eggs and cottage cheese. In addition, drug therapy is now available for dogs to ameliorate the loss of cognitive function and decreased appetite associated with old age.

Table 13a & 13b

1. An association was observed among adult bitches and dogs between weight and height measurements and both body condition and bone structure. These associations were less pronounced for puppy body condition especially with respect to height.
2. Puppy growth rate and body condition were good predictors of adult body weight, but not height, for both bitches and dogs. This is not surprising since height is primarily

determined by genetic factors while puppy growth rate, puppy body condition, and adult body condition are more nutritionally related.

3. The weight/height index in both bitches and dogs is associated with adult body condition and adult bone structure.

Table 14a & 14b

1. Virtually all (96.2%) of the adult Akitas in the survey were fed dry food daily while only 3.6% were reported to never be fed dry food. In contrast, 28.7% of the Akitas were fed canned food daily while 21.8% were fed home prepared foods.
2. The feeding patterns observed were very similar to what was found in a health survey conducted by Purdue University for other large breed dogs such as the Irish Setter and Golden Retriever breeds. In general, the larger the breed the more likely it is to be fed a primarily dry food diet. This feeding pattern probably explains why many oral health problems such as dental calculus and gingivitis are much more common in smaller than larger breeds.
3. Most of the Akitas fed dry food received two meals a day (59.4%) while a smaller proportion (18%) received one meal a day. Multiple meals per day have been recommended in larger breed dogs to prevent bloat.

Table 15a & 15b

1. Senior Akitas were less likely to be fed dry food daily than were adult Akitas (92.1% versus 96.2%), but were more likely to be fed home prepared foods (25.2% versus 21.8%). This shift in feeding patterns for the senior Akitas may reflect an attempt by owners to provide supplemental nutrition to the oldest Akitas who are more likely to lose body condition (i.e., decreased body mass as reflected by a decreased weight/height ratio).
2. As with the adult Akitas, the seniors are usually fed two meals a day.

Table 16

1. Of the 368 Akitas that are fed dry food daily and where label information was available, the primary ingredients are white meat (52.7%) and red meat (39.4%). Of the 146 Akitas that are fed canned food daily and where label information was available, the primary

ingredients are red meat (43.8%) and white meat (34.3%). Very few (6.0%) are fed dry foods where the primary source of protein is of plant origin (e.g., soy).

Table 17a & 17b

1. Many owners reported giving their Akita home prepared foods on a daily basis. The most commonly served food was white meat (18.6%) followed by vegetables (12.3%) and red meat (9.0%).
2. Of the owners who reported serving their Akita white or red meat, only 38.4% and 63%, respectively indicated they cooked the meat. Akitas that are fed raw or undercooked meats are at increased risk for a variety of bacterial and parasitic infections including Salmonella and Campylobacter. These organisms can cause both diarrhea and fever, especially in animals that are immunocompromised because of other illnesses or chemotherapy.

Table 18a & 18b

1. Owners reported giving multivitamins on a daily basis to 38.9% of the adult Akitas and 49.5% of the senior Akitas. Cartilage and joint supplements were given to more senior Akitas (39.7%) than to adult Akitas (13.5%).
2. It was surprising that 48.6% of owners of senior Akitas reported never giving them multivitamins while 76.6% reported never giving minerals. It seems that like growing pups, this is the age group that would most benefit from these types of supplements.
3. Approximately one-third of owners of adult and senior Akitas reported giving food supplements. The list of supplements used was very extensive ranging from herbal therapies or supplements we were not able to find listed in standard references. This was not unexpected given the great popularity of food supplements for human health promotion. Virtually no controlled trials have been performed to measure the efficacy of these supplements in either animals or humans.

Table 19a and 19b

1. No clear-cut relationship was observed between the daily diet of 578 adult Akitas and the daily diet of 214 senior Akitas with their body condition. Most Akitas regardless of their body condition, were fed dry food daily. Any such relationships that do exist may be

masked by the fact that there are more than 75 commercially available dry foods and these differ greatly in their nutrient content. It would have been helpful to have asked owners if they fed a premium or a generic brand of dog food.

Table 20a & 20b

1. There were no obvious differences in body weight or height between adult Akitas on different types of daily diets. This was true for both bitches and dogs

Table 21a & 21b

1. There were no obvious differences in body weight or height between senior Akitas on different types of daily diets. This was true for both bitches and dogs.

Table 22

1. The majority (68.7%) of Akitas in the survey were reported by their owner to have an average growth rate as a puppy. Only 4.3% of owners said their Akita was fed for maximum growth rate while 11.1% were fed to slow the growth rate. A faster rate of growth as a puppy may be associated later in life with musculoskeletal problems.
2. The vast majority of bitches (81.6%) and dogs (77.2%) were reported to be of average weight. Obesity (overweight) in this population was reported for only 2.7% of bitches and 3.8% of dogs. The observed rate of obesity is far lower than the 20-25% rate typically reported for larger pet dogs. This was not unexpected given the large proportion of show dogs in the survey.
3. The majority of bitches were reported to be medium boned (56.3%) while the majority of dogs were reported to be large boned (58.8%).

Table 23

1. As part of our 5-year study of bloat, we developed a standardized scale to assess and compare 10 temperament traits of dog breeds. The results for the Akita survey were compared to those of a recent survey for Golden Retrievers. As anticipated, the Akitas on average were found to be more aggressive to dogs and people than Golden Retrievers and slightly less trainable. The Akitas however, were also reported to be slightly more submissive to people than were the Golden Retrievers, but less submissive to other dogs.

Keep in mind the scores for these personality traits reflect the mean for the breed, but there is considerable variability from dog to dog. While Golden Retrievers on average are more trainable than Akitas, there are many Akitas that scored very high on this trait.

Table 24

1. Very few Akitas were never vaccinated against the most common infectious agents, namely distemper (2%), parvovirus (2.2%), and rabies (2.5%). It would be interesting to know why some owners never vaccinate their dogs against these important diseases or only vaccinate them sporadically. A common reason given in other studies is fear of adverse reactions or autoimmune disease.
2. Most dogs are vaccinated against rabies either yearly (28.5%) or every three years (50.8%). This reflects both the availability of rabies vaccines that are licensed for either 1 or 3 years of immunity and laws that differ from state to state regarding the frequency of rabies vaccination. If a dog receives a 3-year vaccine, but lives in a state requiring annual rabies vaccination, it should be revaccinated every year.
3. Owners reported that 11.4% of Akitas had never been vaccinated against leptospirosis and only 46.3% were vaccinated annually against this pathogen. Many veterinarians do not recommend annual vaccination against leptospirosis because of the potential for side effects. This practice is currently under intense review given an epidemic of leptospirosis caused by newly recognized strains is currently affecting dogs throughout the United States. Leptospirosis vaccines are now available to protect dogs against these new strains, but they must be administered at least once a year to prevent disease. Keep in mind that leptospirosis is one of the most common causes of acute kidney failure in pet dogs and it is often fatal.

Table 25

1. There does not appear to be a common approach to intestinal parasite control in Akitas. About one-third of owners use routine deworming on a yearly basis while others do it routinely, but less often or only sporadically.
2. About one-third of Akita owners administer heartworm preventative monthly while about one-fifth administer preventative only during the highest risk months. One-quarter report

never administering heartworm preventative, but these owners mostly live in geographic areas of low risk, e.g., Pacific Mountain zone (data not shown).

Table 26

1. The question concerning the frequency of exposure to chemicals and water sources was added at the request of the Akita Club. The responses reflect a trend in flea control from dips and shampoos to products applied directly to the skin. For example, while dips were one of the most popular forms of flea and tick control 20 years ago, the survey indicates that only about 15% of owners use this approach today, and most of these owners only apply the dips sporadically. In contrast, spot-on products are used by approximately one-third of the owners for flea and tick control. This is a good trend, since a previous study showed an association between the frequency of application of flea and tick dips/shampoos and the risk of bladder cancer, especially in overweight dogs.
2. Many owners reported that their Akitas have at least sporadic exposure to sources of fresh water and less frequently to salt water. The health implication of such exposures or their importance for Akita owners is not clear.

Table 27a & 27b

1. Most Akitas use a municipal source of drinking water (64.2%) followed by well water (34.5%). Interestingly, 2.5% of owners reported using primarily bottled water. Recent reports on water quality indicate that many municipal water sources are of higher quality than bottled sources.
2. The largest proportion of Akitas consumes chlorinated water (46.8%) followed by filtered water (35.2%).

Table 28

1. One hundred and twelve (18.6%) owners reported their Akita has some type of behavioral problem and of these 68 were not treated. The most common type of treatment offered to 44 Akitas was professional counseling followed by behavior modification. Two Akitas were reported to have been euthanatized because of a behavioral problem while euthanasia was considered, but not performed for an additional 28 Akitas.

2. The most commonly reported types of behavioral problem were separation anxiety and inappropriate elimination (see Table 33).

Table 29

1. This table describes the frequency of selected adverse health affects in Akitas. Only 1.9% of Akita owners reported their dog was ever hit by a vehicle, reflecting a relatively high quality of management and owner supervision.
2. Adverse drug/vaccine reactions were reported by 8.4%, most commonly in Akitas <3 years of age (42.9%). Of these reactions, 29 were caused by drugs, 11 by vaccination, and 8 by anesthetic agents. However, the proportion caused by vaccines is probably underestimated, since some of these by be subclinical and not become obvious until days, weeks, or even years later (e.g., autoimmune disease). The possible association between vaccination and autoimmunity in dogs is the focus of research in several universities.

Table 30

1. Owners were asked to rank the three most important diseases of concern in Akitas. They responded with: 1. autoimmune disease, 2. thyroid disease, and 3. behavior problems. In contrast, the survey found that cancer was the leading cause of mortality (death) followed by gastric dilatation-volvulus (bloat) and musculoskeletal diseases. In terms of causes of morbidity (disease), hypothyroidism ranked first with a lifetime risk of 1 in 3 followed by gastric dilatation-volvulus with a risk of 1 in 5 and hot spots and arthritis with a risk of 1 in 6. It appears from these findings that Akita owners are more concerned about conditions that occur at high frequency than they are about conditions that are likely to result in death. This discrepancy may result from the fact that autoimmune and thyroid diseases tend to primarily affect younger Akitas while cancer and bloat are more likely to occur in older Akitas.

Table 31 & 32, and Figure 7

1. These tables and figure constitute the meat and potatoes of the Akita health survey. They describe the frequency of individual and broader types of health disorders as a proportion of all 603 Akitas affected. Within each type of disorder, the proportion of specific conditions is also reported. Note that the total number of incidents of specific conditions

may be larger than the total number of Akitas, since some animals may have more than one type of disorder within a category (e.g., malignant neoplasm).

2. Figure 7 shows that the most commonly reported conditions are infectious and infestations (39%) followed by disorder of the skin/coat (26.2%) and musculoskeletal problems (26%). Neoplasia in contrast affected only 7.6% of all Akitas. It will become apparent from later tables and figures that to fully appreciate the impact of these diseases on the Akita population, one must also look at different age groups separately as well as the ultimate outcome of the condition (i.e., can it be cured or are affected Akitas likely to die?).

Table 33

1. This table reports whether Akitas with different types of health related disorders were treated and if so, if they were considered as cured. Conditions were only included if there were at least 5 affected dogs.
2. This table can be used to identify conditions for which an effective treatment is still needed. For example, while there were 61 confirmed reports of allergic dermatitis in dogs due to inhaled allergens of which 54 were treated; only 30.4% were considered as cured by the treatment. For Akitas treated for degenerative disk disease, only 8.3% were considered cured. In contrast, about 79-80% of the Akitas with bloat (with or without torsion) that were treated were effectively cured whereas, all nine that were not treated died. This information can be used by the Akita Club to prioritize research for funding.

Table 34

1. Many diseases target different age groups. Knowledge of this pattern is important for planning disease prevention and screening efforts. Also, diseases that affect primarily younger animals such as allergies or behavior problems may have a greater impact on quality of life for a longer period of time than diseases such as cancer that generally affect older individuals. Also, if a disease primarily affects a younger age group and is often fatal, it contributes significantly to the total number of potential years of life that are lost in a population. Therefore, information in this table can be used in determining where to spend research dollars.

Table 35, 36, 37 & Figures 8, 9, & 10

1. These tables and figures further describe the distribution by age of disorders affecting 5 or more Akitas. The percentages in these tables can be used to quickly determine the age group most often affected by a specific disorder. For example, 42.9% of all cases of osteosarcoma occurred in the 6-8.9 year and in the 9+ years age groups while 70.2% of all flea allergies occurred in Akitas 0-2.9 years of age.
2. The figures are simply visual representations of the information found in the tables. The findings are shown separately for all Akitas, for bitches, and for dogs.

Table 38

1. This table is similar to the three previous tables in that it describes the frequency of different health-related conditions by age. However, the method used to calculate the frequency is very different. In previous tables disease frequency was based on the number of incidents or individuals affected and expressed as a proportion (%). This measurement however, does not provide an indication of the probability or risk that any individual Akita will develop a specific condition or disease in a given unit of time or even over an entire lifetime. By contrast, in Table 38, the frequency of disease is expressed as the incidence rate per 1000 dog years at risk. (One dog year at risk constitutes one dog living for one year or two dogs living for six months each, etc.). The frequency is expressed in this way because Akitas were of different ages at the start of the survey period. As a result, individual Akitas may have been observed for very different lengths of time when the survey period ended.
2. In order to get some idea of how dog years at risk relates to lifetime risk, one can assume that the average lifespan of an Akita is about 10 years and then divide the rate observed in dog years by 100 to obtain a lifetime risk. For example, 1000 dog years = 100 10-year Akita lifetimes. Using this assumption, if one takes the risk of any neoplasm occurring in an Akita 6-8.9 years of age which is 16.1 per 1000 dog years at risk and divides it by 100, it gives you .161 cases of neoplasia per lifetime. One can then multiply this by 100 to get the lifetime risk of neoplasia in any Akita as 16.1% or approximately 1 in 6. However, this method of approximation of lifetime risk assumes that the rate of neoplasia in Akitas is constant throughout life, which we know is not entirely accurate; the rate is lower than 16.1 per 1000 dog years at risk in younger dogs while it is much higher in older dogs.

Nonetheless, when one compares the approximated lifetime risk using this method (1 in 6) with the lifetime risk observed based on those in Table 39 that were derived from the 164 Akitas that died (1 in 5), the two are fairly close.

Table 39

1. A better way to estimate the lifetime risk of developing a disease or condition is to just examine Akitas that have already died (i.e., they have completed their lifetime). This information is shown in Table 39 where the lifetime risk of any neoplasm or endocrine condition developing is estimated as 1 in 5 and 1 in 3, respectively. In contrast, the lifetime risk for any behavior problem developing is only 1 in 27.
2. In determining how important a particular disease or condition is in Akitas, one should consider not only the lifetime risk, but also how likely the individual is to suffer (quality of life) or die of the disease.

Table 40

1. Since we have previously calculated the lifetime risk of disease using a similar approach for other dog breeds, we thought it would be interesting to compare the Akita lifetime experience with that of a similar size breed, namely the Golden Retriever.
2. Golden Retriever owners and veterinarians have reported for many years that that Golden Retrievers appear to be predisposed to cancer. A national health survey found a lifetime risk of cancer in Golden Retrievers of 1 in 2, versus only 1 in 5 for Akitas. In other words, about 50% of all Golden Retrievers will experience cancer in their lifetime compared with approximately 20% of Akitas. In contrast, the lifetime risk of bloat with torsion in the Akita is about 20% compared with only 3% in Golden Retrievers. While dog breeds share most of their genes in common, each breed has a distinct subset of genes that make a world of difference in terms of their health experiences throughout life. Most of this can be attributed to the deliberate selection for phenotypic traits that has occurred over hundreds of years.

Table 41 & Figure 11

1. Up to now the major focus of our analysis has been on causes of disease in Akitas. This table shifts the focus to causes of death. The causes were ranked in order of their occurrence.
2. The three most common causes of death in Akitas were cancer, gastric dilatation-volvulus (bloat), and musculoskeletal diseases. These three categories accounted for more than half of all deaths. By comparison, the leading causes of death in humans are cardiovascular disease (heart attacks), stroke, and cancer. These differences between Akitas and humans are not surprising given that most of our pets do not smoke (at least directly) or consume alcohol. Unfortunately, similar information is not available for most other breeds.
3. Old age is included as a cause of death in this table, even though it is not a specific disease. Almost all of these deaths were related to dogs being euthanatized because of a severe decline in cognitive function. There is now a drug licensed to treat this condition in dogs, which may prolong life.

Table 42 & 43 and Figure 12, 13, & 14

1. These figures show the leading causes of death for three different age groups of Akitas. In the Akitas <6 years of age autoimmune diseases are the leading cause of death whereas in Akita >6 years of age neoplasia (cancer) is the leading cause of death.
2. Gastric dilatation-volvulus (bloat) is a very important cause of death in Akitas of all ages
3. The leading cause of death for Akita bitches is cancer (26.5%) while for Akita dogs the leading cause of death is bloat (27.8%). A similar difference in the frequency of bloat by gender was noted in other large and giant dog breeds. In contrast, cancer is a more common cause of death for Akita bitches (26.5%) than for Akita dogs (16.7%). The reasons for these differences between males and females are not known.

Table 44, 45 & 46 and Figure 15 & 16

1. In general, death rates are higher for Akita dogs than they are for Akita bitches in all age groups. This is illustrated nicely in Figure 15. A similar phenomenon has been observed

in other animal species including humans. The overall trend is that females tend to live longer than do males. This is illustrated by the information presented in Table 52

2. The rate of death attributed to specific causes differs markedly depending on the age of the Akita. This is illustrated in Table 46 for the leading causes of death. As with other animal species, the factor that most influences death rates is age.

Table 47 & 48

1. Table 47 shows the mean age at death for different conditions. Note that for cancer, the mean age at death is 10.1 years, which is similar to the mean age at death for all Akitas (9.4 years). In contrast, the mean age at death for Akitas that die of autoimmune disease tends to be much lower (5.3 years). This implies that more potential years of life will be lost due to autoimmune disease than cancer. In other words, if Akitas did not get cancer but died of some other cause instead, the mean age at death would not be greatly affected.
2. The information in Table 48 uses both the number of Akitas that die of each cause in addition to the mean age at death, to estimate the potential years of life lost in this survey population due to specific conditions. As suggested by the findings of Table 47, no potential years of life are lost due to cancer whereas 30.6 years of life were lost because 7 Akita deaths were attributed to an autoimmune disorder at a mean age of 5.3 years. This type of analysis is often used in human medicine to prioritize research dollars. That is, disproportionate research dollars are spent on diseases affecting children than on geriatric problems.

Table 49

1. The mean age of death for Akitas was examined with respect to the primary and supplemental coat colors. The thinking was that a recessive coat marking might indicate a more homozygous genetic make-up and thus be associated with decreased longevity. For example, it has been reported that all white cats have a shorter lifespan than colored cats.
2. The survey findings were not clear-cut with respect to an association between coat color and mean age at death. Since we are not familiar with the genetics of coat color in Akitas, others may want to further analyze this information.

Table 50

1. Some concern has been expressed that dogs obtained from pet stores or other commercial sources may not be as healthy as dogs bred at home or in private kennels. We attempted to determine if longevity of Akitas was related to their source. Since only one Akita died that was reported to have been purchased at a pet store, it was not possible to evaluate this concern. There was no apparent relationship between mean age at death and other sources of Akitas. It is interesting that the oldest mean age at death (13.3 years) was found for the 5 Akita dogs that came from a shelter or were rescued.

Table 51

1. A clear relationship has been shown between size and age at death of dogs; the smaller a breed the longer their life. However, this same relationship has not been shown between size and longevity within a given breed.
2. In this survey there was no consistent relationship among Akita bitches and dogs between their mean age at death and height, weight, or weight/height index. Similarly, there was no obvious relationship between longevity and puppy or adult body condition.

Table 52

1. Neutering of bitches and dogs has been shown to reduce the risk for acquiring several hormonally related diseases such as breast cancer. For breast cancer, the earlier a bitch is neutered, the lower is its subsequent risk of breast cancer. A similar phenomenon has been reported for women. In this survey we looked for an association between age at neutering and longevity with intact bitches and dogs serving as a comparison group.
2. In bitches, it appears that the later a dog is neutered the longer it lived. However, this finding may be biased by the fact that unless a bitch lives to an older age it cannot be neutered at that age. In contrast, any bitch could be neutered earlier in life. Also, the healthiest animals may be used for breeding purposes and therefore, are not neutered until after their peak period of fecundity. In contrast, the pattern observed for Akita dogs is less clear.

Figure 17 & 18

1. In many animal species including humans, the age of one's parents is an important determinant of life expectancy. To our knowledge, this relationship has not been systematically evaluated in other dog breeds. Therefore, for all Akitas that died, we plotted their age at death against the age at death of their dam (Figure 17) and sire (Figure 18). We found a highly significant relationship in both cases. For example 19% of the variability in an Akita's death could be explained by the age at death of its dam while 33% could be explained by the age at death of its sire.
2. How can the above finding be used? Ideally if one wanted to increase longevity of a breed, one should breed only dogs that lived a long life. However, one would not have this information until an Akita was too old to be bred. One solution would be to preserve semen from dogs for use at a later date. This could be particularly useful for giant breeds in which the mean age at death is <8 years of age, but where some individuals survive to >12 years of age (e.g., Great Dane and Irish Wolfhound).

Table 53

1. Previous studies have suggested a faster rate of growth as a pup may predispose an individual to diseases such as cancer and hip dysplasia later in life. Therefore, we determined if Akitas with a faster rate of growth as pups were more likely to be diagnosed with specific health related problems later in life. No statistical association was observed with pup's rate of growth and any of these diseases. However, the information given to us by owners on the rate of growth may not be accurate.

Table 54

1. As with a pup's rate of growth, an adult Akita's bone structure was not found to be statistically associated with more common neoplastic diseases or musculoskeletal conditions such as hip dysplasia.

Table 55

1. Previous research study found that pups reported to be overweight by their owners were at increased risk of some cancers later in life. Also, a national health survey of Golden

Retrievers found that pups reported to be overweight by their owners were at significantly greater risk of having hip dysplasia as adults. Therefore, we looked for similar relationships in Akitas.

2. Several interesting relationships surfaced between body condition as a pup and adult diseases. First, Akitas diagnosed with any neoplasm were 3-times more likely to be overweight as pups than were Akitas never diagnosed with a neoplasm. The P value of $p=0.06$ means that this association could be expected by chance only about 6% of the time. This is similar to a finding in other dog breeds where overweight pups were more likely to develop breast cancer later in life, especially if they were not neutered. Second, Akitas diagnosed with hypothyroidism were more likely to have been either overweight or underweight as pups than were Akitas never diagnosed with hypothyroidism. Third, Akitas diagnosed with any musculoskeletal problem later in life were 4-times more likely to have been overweight as pups than were Akitas never diagnosed with a musculoskeletal problem. A similar relationship was observed for Akitas diagnosed with arthritis as adults.
3. A growing body of evidence, both experimental and epidemiological, suggests that in both humans and dogs, being overweight in youth can predispose to a wide variety of health related conditions later in life. The message seems clear.... the plump infant or pup we think is so cute today might be at higher risk of disease tomorrow than is the scrawny infant or pup we all long to fatten. The take home message for Akita owners is to not overfeed, especially early in life. Further research is needed to evaluate these relationships.

Table 56

1. Numerous studies have shown that taller and heavier breeds of dogs such as Great Danes and Irish Wolfhounds are at a greatly increased risk of osteosarcoma (bone cancer) compared with smaller dogs. In general, the larger the breed the higher the risk of bone cancer. However, it is not known how height or weight of an individual within a specific breed relates to its subsequent risk of disease. For this reason, we grouped Akita bitches and dogs separately according to their adult weight, height, and weight/height index and

determined if these groupings are related to the risk some of the more commonly reported diseases.

2. Several interesting trends were noted. First, both bitches and dogs diagnosed with a neoplasm were more likely to be in the highest weight/height category than were dogs never diagnosed with a neoplasm. Second, Akita dogs but not bitches with osteosarcoma were more likely to be in the highest weight/height category than were dogs never diagnosed with osteosarcoma. Finally, dogs but not bitches with any musculoskeletal disorder, were 2-times as likely to be in the highest weight/height category than were dogs never diagnosed with a musculoskeletal disease.
3. The above findings suggest that within a breed, the weight/height index or body mass may be a good health indicator and should be monitored closely throughout life. It may provide more useful information than either weight or height alone when it comes to maintaining overall health.

Table 57

1. There is some human literature suggesting that people with allergies may actually be at lower risk for certain diseases. We looked for an association between reported flea allergy in Akitas and several common diseases. The only statistically significant association noted was that Akitas with hot spots were roughly 3-times more likely to also have a flea allergy. This finding was not unexpected and has been observed in other breeds in which hot spots are commonly reported (e.g., Golden Retrievers). It suggests that either flea infestation is a cause of both hot spots and allergy, or that the chemicals used to treat fleas may cause hot spots.

Table 58

1. An important question is whether the type of diet fed daily (dry versus canned versus home prepared foods) has any significant impact on health. We compared Akitas with and without several common health conditions with respect to whether or not they were fed dry, canned, or home prepared foods daily and reported the strength of this association.
2. Akitas that developed gastric dilatation-volvulus were reported to be significantly more likely to be fed canned dog food on a daily basis (42%) than were dogs that did not

develop this condition (25.7%). However, one cannot assume a cause and effect relationship in this instance, since dogs that develop this condition are often switched from dry to canned food at the suggestion of their veterinarian. In fact, some published studies reported that dogs consuming some canned food daily were actually less likely to develop gastric dilatation-volvulus than were dogs fed only dry commercial food.

3. Akitas diagnosed with hypothyroidism were more likely to be fed canned food and less likely to be fed dry food than were dogs without hypothyroidism. Again, we cannot be sure that this association was not the result of some dogs with hypothyroidism being switched from dry to canned food in an attempt to improve the appearance of the coat.

Table 59

1. A nagging and unanswered question in veterinary as in human medicine is whether dogs exposed to chemicals in the environment or by medical treatment are at greater risk of developing diseases such as cancer. One previous study reported that dogs regularly treated with flea and tick dips or shampoos were at greater risk of developing bladder cancer compared with untreated dogs. Therefore, we looked for a relationship between exposure to lawn chemicals as well as to various flea and tick products and the risk of developing any neoplasm, hot spots, or hypothyroidism. Too few Akitas were included in the survey to allow us to look at any of the specific cancers such as osteosarcoma or lymphosarcoma.
2. In this survey, Akitas diagnosed with any neoplasm were significantly about twice as likely to have been treated with flea and tick dips or shampoos as spot-on flea and tick products. This confirms previous findings in other breeds of dogs and might be explained by the large volume of so-called “inert” ingredients in these products that are used to facilitate absorption of the active insecticide chemicals. These “inert” ingredients include chemicals such as benzene, toluene, and xylene, all of which are suspected carcinogens in animals. Such chemicals are not present in the newer spot-on flea and tick preventatives that are applied to the skin.
3. Akitas with hot spots were more likely to have been treated with flea and tick sprays than were those without hot spots. This may merely reflect an increased likelihood of flea infestation in Akitas that develop hot spots and may not therefore, be causally related.

However, this does not explain why Akitas with hot spots also were significantly more likely to have been exposed to lawn chemicals than Akitas without hot spots. This finding definitely deserves further study; since it was shown that dogs exposed to chemically treated lawns rapidly absorb herbicides and excrete them in their urine over a relatively long period of time. One should therefore compare the concentration of lawn chemicals in the urine of Akitas that recently developed hot spots with Akitas without hot spots.

4. Akitas whose owners said they were hypothyroid were significantly more likely to have been exposed to lawn chemicals than were Akitas not reported to have hypothyroidism. This relationship also should be further studied as described for hot spots above. Such studies would be relatively easy to perform and might provide a clue to the etiology of one of the most common health disorders of dogs, one that appears to be reaching epidemic proportions in recent years. It would also have relevance for thyroid disorders in cats and humans.

Table 60

1. Some have suggested that over vaccination may be responsible for some health related disorders in children and dogs, such as cancer and endocrine disorders. We found no evidence that yearly vaccination was positively associated with a diagnosis of cancer or hypothyroidism in Akitas.

Figure 19

1. Actuarial tables or survival curves are readily available for human populations but not for dogs. We used data from the Akita survey to produce survival curves for individuals that were different ages at entry (January 1, 1995). Using these curves, one can estimate the probability that a dog of any given age will survive over the next year.
2. For example, nearly all of the dogs that were 0-1 years of age in 1995 survived to 1996 and only about 5% died by 2000. In contrast, of the dogs 10+ years of age in 1995, nearly 25% died by 1996 and all were dead by 2000. Such actuarial information is particularly valuable to life insurance companies and is now being valued by the growing pet health insurance industry in the United States. It should also be of practical use to Akita owners and veterinarians when they must make critical decisions about whether to

perform surgery on an animal for a life-threatening condition such as gastric dilatation-volvulus or whether to give chemotherapy to an older animal with a life-threatening cancer.

Appendix I - 2000 Akita Club of America National Health Survey

2000 Akita Health Survey©

A Collaborative Effort of the
Akita Club of America
and
The Purdue University School of Veterinary Medicine, Section of Clinical Epidemiology
(Dr. Larry Glickman, Head)

The Akita Club of America (ACA) and the Purdue University School of Veterinary Medicine would like your participation in a survey to identify the frequency of health related conditions of Akita dogs. This information will be useful in prioritizing health research resources and will provide a baseline against which to measure the impact of future breeding and health promotion programs. All information collected will be tabulated by Dr. Glickman at Purdue University and a report of the findings submitted to the ACA for distribution to its members. All responses will be kept confidential, i.e.; the names of the respondents will be kept anonymous and separate from the responses. The Akita Club of America Health Committee assisted in the design of the questionnaire. The success and accuracy of this health survey depends on a high rate of cooperation.

Please take the time to complete **one questionnaire for each eligible dog** and return it promptly to:

2000 Akita Health Survey
c/o Professor Larry Glickman
Purdue University School of Veterinary Medicine
West Lafayette, IN 47907-1243

Please feel free to make copies of this survey as needed. Additional copies may also be downloaded from the ACA's web page at <http://www.akitaclub.org>. **The deadline for responses is June 1, 2000**, after which time your questionnaire will not be included. However, earlier responses are appreciated since this will expedite submission of the final report to the ACA.

Thanks for your participation in this most important study. If you have any questions concerning this survey, please call Linda Wroth at (510) 233-2135 or email her at lwroth@ix.netcom.com.

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Selecting Dogs for Entry into the 2000 Akita Health Survey

Each **ACA member** may enter **up to 5 dogs** in this survey. Eligible dogs are those which were **alive on January 1, 1995** and for which you know their life history. These dogs can either be alive now or have died since **January 1, 1995**. If you owned more than 5 dogs on January 1, 1995, arrange them according to the month of birth and select the first 5 for inclusion. Please complete a separate survey form for each of the dogs entered.

I. General Owner Information

1. How many Akitas were living with you on Jan. 1, 1995: _____
2. How many Akitas are currently living with you: _____
3. How many years have you been in the breed: _____
4. What are **your** primary interests: (Check all that apply)

_____ Breeder	_____ Show	_____ Obedience	_____ Agility
_____ Field Trials	_____ Tracking	_____ Search & Rescue	_____ Rescue
_____ Companion/pet	_____ Hunting	_____ Assistance/Therapy	_____ Other (specify) _____
5. What three diseases or health-related conditions do you feel are of most concern for Akitas? Write **one number** that corresponds to the respective disease from the table below on each of the following three lines: (a)=highest concern
 (a) _____ (b) _____ (c) _____

(1) Cancer (neoplasia)	(9) Allergies
(2) Elbow/hip dysplasia	(10) Autoimmune diseases
(3) Gastrointestinal diseases	(11) Eye diseases
(4) Heart disease	(12) Behavior problems
(5) Thyroid diseases	(13) Ear diseases
(6) Epilepsy/seizures	(14) Kidney disease
(7) Eye diseases	(15) Neurologic diseases
(8) Skin/coat diseases	(16) Other, specify _____

Please fill out a separate form for *each* Akita

II. General Dog Information

1. Date of birth: ___ month ___ day ___ year
2. Sex: ___ male ___ female
 Neutered ___ no ___ yes If yes, date of surgery ___ month ___ year
3. Lineage: please check appropriate boxes for the lineage of this Akita's dam and sire

	Japanese	American	Mixed
Dam			
Sire			

Place of birth for this Akita: please check one choice, and specify if choice is 'Other'

___ United States ___ Japan ___ Other _____

Please use the codes for 'Color' and 'Supplemental Descriptors' from the table below and write the desired code in the following spaces:

Color _____	Supplemental Descriptor _____
1) Black	1) Black Mask
2) Brown	2) Black Mask, White Markings
3) Red	3) Black & White Mask, White Markings
4) Fawn	4) Pinto-for self masked or white masked
5) Silver	5) Pinto, Black Mask
6) White	6) Pinto, Black & White Mask
7) Black Brindle	7) Less than one third body color
8) Brown Brindle	8) White Mask
9) Red Brindle	9) White Mask, White Markings
10) Fawn Brindle (or Blue Brindle)	10) White Mask-for dogs that are self masked with white markings
11) Silver Brindle	
12) Brown, Black Overlay	
13) Red, Black Overlay	
14) Fawn, Black Overlay	
15) Silver, Black Overlay	
16) Black, Brown Undercoat	
17) Black, Red Undercoat	
18) Black, Fawn Undercoat	
19) Black, Silver Undercoat	
20) White, Red Shading	

4. For bitches only, has this dog ever had a litter: yes no

If yes, please complete following table:

Litter #	Month/Year	# Live born	# Still born	# Weaned	# Euthanized* (congenital defects)	Breeding (use code below)
#1						
#2						
#3						
#4						

For Breeding, please use the following code:

1=natural; 2=artificial insemination-fresh semen; 3=artificial insemination-chilled semen

4=artificial insemination-frozen semen

*If puppies were euthanized due to congenital defects, what kind of congenital defects occurred?

Congenital Defect	Yes	No
Microphthalmos		
Cleft palate		
Wobbler's syndrome		
Other (specify) _____		

5. Where did you obtain this dog:

- | | |
|--|---|
| <input type="checkbox"/> bred yourself | <input type="checkbox"/> breeder (kennel) |
| <input type="checkbox"/> breeder (home) | <input type="checkbox"/> adopted from private owner |
| <input type="checkbox"/> shelter or rescue | <input type="checkbox"/> pet store |
| <input type="checkbox"/> service dog | <input type="checkbox"/> other (specify) _____ |

6. For what purpose was this dog bred?

- | | |
|---------------------------------------|--|
| <input type="checkbox"/> conformation | <input type="checkbox"/> companion/pet |
| <input type="checkbox"/> obedience | <input type="checkbox"/> agility |
| <input type="checkbox"/> tracking | <input type="checkbox"/> herding |
| <input type="checkbox"/> assistance | <input type="checkbox"/> therapy |

7. State or country in which this dog spent most of its lifetime: _____

8. As a puppy (< 9 months), what rate of growth did you try to achieve:

maximum average slow don't know

9. As a puppy (< 9 months), would you characterize your dog as:

obese overweight average/optimum underweight

As a puppy (< 9 months), was your Akita fed puppy food: yes no

If yes, at what age was your Akita switched to adult food? _____ months

10. As an adult (>9 mo.), what was the dog's usual: _____ weight (lb.) _____ height (in)

11. As an adult (>9 mo.), would you characterize your dog as:
 _____ obese _____ overweight _____ average/optimum weight _____
 underweight

12. As an adult (>9 mo.), would you characterize your dog as:
 _____ large boned _____ medium boned _____ small boned

13. Please record the **number of times** each food type was fed in the appropriate boxes, based on your dog's adult (9 mos.- 7 yr.) and senior (>7 yr.) diet:

Type of Food	Frequency of Feeding					
	Daily		Weekly		Monthly	
	Adult	Senior	Adult	Senior	Adult	Senior
Dry						
Canned						
Home prepared						
Table scraps						
Other (specify)						

14. For the **commercial foods** fed daily for the longest period of time, write in the code for the first four ingredients as stated on the label. ***Do not include water as an ingredient.***

Dry Food Codes	
(1)	Red meat (meal/by product) – e.g., beef, lamb, venison
(2)	White meat (meal/by product) – e.g., chicken, turkey, pork, duck
(3)	Plant origin – e.g., soy, rice, corn, wheat, millet, oat, potato
(4)	Fiber/fat
(5)	Fish or fish meal
(6)	Eggs
(7)	Other

Dry Food codes 1)_____ 2)_____ 3)_____ 4)_____

If you do not have the label available, what is the
 Brand _____ & Specific Food Type _____

Canned Food Codes:	
(1)	Red meat– e.g., beef, lamb, venison
(2)	White meat– e.g., chicken, turkey, pork, duck
(3)	Plant origin – e.g., soy, rice, corn, wheat, millet, oat, potato
(4)	Meat by product
(5)	Other

Canned Food codes 1)_____ 2)_____ 3)_____ 4)_____

If you do not have the label available, what is the
 Brand _____ & Specific Food Type _____

15. Check the **home prepared foods** fed daily or weekly, and indicate whether or not the food was cooked or served raw:

Home Prepared Foods Fed:	Frequency		How Prepared	
	Daily	Weekly	Cooked	Raw
(1) Vegetables				
(2) Fruit				
(3) Red meat (e.g., beef, lamb)				
(4) White meat (e.g., chicken, turkey, pork)				
(5) Fish				
(6) Other meat (e.g., venison)				
(7) Yogurt			NA	
(8) Eggs				
(9) Pasta				
(10) Bones				
(11) Dairy			NA	
(12) Other (specify) _____				

16. Please **check the boxes** based on the supplements given your dog as an adult (9 mos.- 7 yr.) and senior (>7 yr.):

Type of Supplement	Supplements Given					
	Daily		Weekly		Monthly	
	Adult	Senior	Adult	Senior	Adult	Senior
Vitamin / Multivitamins						
Minerals						
Cartilage supplement (e.g., glucosamine)						
Food Supplement (e.g., vinegar, garlic)						
Other (specify) _____						

Type of water used most of the time (> 50% of the time) – Please select **one** type:

Type of Water	Water Treatment					
	Filtered		Chlorinated		Softened	
	Yes	No	Yes	No	Yes	No
Municipal						
Well						
Bottled						
Other (specify) _____						

17. On average, how many shows a year did/does this dog attend (choose a typical year during which the dog was actively competing):

___ agility ___ obedience ___ tracking ___ conformation

18. How is your dog primarily housed (*more than 50% of the time*):

___ in a crate in the house ___ kennel (indoor) ___ free in the house
 ___ kennel (inside/outside) ___ fenced yard ___ garage
 ___ Other (specify) _____

19. Does your dog sleep on your bed

____ never ____ sometimes ____ usually

20. What is the current vital status of this dog:

____ alive ____ died ____ euthanized

21. If died, date of death: ____ month ____ day ____ year

Cause of Death Codes for Question 22	
(1)	Malignant neoplasm (cancer) Use the codes on page 10 for ◆ Type of tumor code ◆ Location code
(2)	Old age, dementia
(3)	Heart failure
(4)	Kidney failure
(5)	Liver failure
(6)	Gastric dilatation volvulus (bloat)
(7)	Musculoskeletal / arthritis
(8)	Autoimmune disease
(9)	Neurological / epilepsy
(10)	Trauma
(11)	Infection
(12)	Endocrine disease
(13)	Other (specify) _____
(14)	Unknown

22. If died, what was the cause?

Write in the number from the above chart for the cause of death: _____

If cause of death was a malignant neoplasm (cancer), use the codes from Page 10:

◆ Type of Tumor Code _____

◆ Location Code _____

23. If died, was the above cause of death verified by a veterinarian: ____ yes ____ no

24. If died, was an autopsy performed: ____ yes ____ no

25. Age at death of parents: Dam ____ years ____ unknown
 Sire ____ years ____ unknown

III. Personality and Temperament

How would you rank your dog on a scale of 1 to 10 for each of the following characteristics? Please circle *one number* in each row:

	Never (Low)			Sometimes				Always (High)		
	1	2	3	4	5	6	7	8	9	10
1. Active or energetic (activity level)	1	2	3	4	5	6	7	8	9	10
2. Excitable	1	2	3	4	5	6	7	8	9	10
3. Aggressive to dogs	1	2	3	4	5	6	7	8	9	10
4. Aggressive to people	1	2	3	4	5	6	7	8	9	10
5. Submissive to dogs	1	2	3	4	5	6	7	8	9	10
6. Submissive to people	1	2	3	4	5	6	7	8	9	10
7. Fearful of people	1	2	3	4	5	6	7	8	9	10
8. Fearful of environmental changes*	1	2	3	4	5	6	7	8	9	10
9. Happy	1	2	3	4	5	6	7	8	9	10
10. Trainable	1	2	3	4	5	6	7	8	9	10

* Environmental changes include thunder, guns, firecrackers, other loud noises, etc.

IV. Health Related Conditions

- ◆ For the **Malignant Neoplasms (Cancer)** question on the next page (p.11), use the codes from the following table. First select a code for the *Tumor Type* and then select a code for the *Location*. **Write these two codes in the chart on next page.**

Codes for <u>Tumor Type</u>	Codes for <u>Location</u>
1. Adenocarcinoma	A. Bladder
2. Chondrosarcoma (cartilage)	B. Bone
3. Fibrosarcoma	C. Brain
4. Hemangiosarcoma	D. Digits
5. Interstitial cell tumor	E. Eye
6. Liposarcoma	F. Heart
7. Lymphoma (Lymphosarcoma)	G. Intestine
8. Malignant giant cell tumor	H. Kidney
9. Mast cell tumor	I. Liver
10. Melanoma	J. Lung
11. Mesothelioma	K. Lymph nodes
12. Myeloma	L. Mouth
13. Neuroblastoma	M. Muscle
14. Neurofibrosarcoma	N. Nasal cavity
15. Osteosarcoma	O. Nerve
16. Seminoma	P. Ovary
17. Sertoli cell tumor	Q. Pancreas
18. Squamous cell carcinoma	R. Prostate
19. Transitional cell carcinoma	S. Skin
20. Transmissible venereal tumor	T. Spleen
21. Carcinoma, unspecified	U. Testes
22. Sarcoma, unspecified	V. Uterus
23. Other (specify) _____	W. Other (specify) _____

1. For each of the conditions listed below, please indicate those that affected your dog, the **age at first diagnosis**, whether a veterinarian confirmed that diagnosis, and if the condition was treated, cured, or a recurrent problem. Room is provided for you to list additional conditions.

For the **malignant neoplasms**, please use the **tumor type codes** and **location codes** from the table on the preceding page. For the **non-malignant neoplasms**, please use the **location codes** from the table on the preceding page.

Condition	Age at Onset	Diagnosed by Veterinarian		Treated		Cured		Recurrent Problem	
	Years	Yes	No	Yes	No	Yes	No	Yes	No
Malignant Neoplasms (Cancer) Write in Codes from Page 10									
Tumor Type Code ____									
Location Code ____									
Tumor Type Code ____									
Location Code ____									
Tumor Type Code ____									
Location Code ____									
Tumor Type Code ____									
Location Code ____									
Tumor Type Code ____									
Location Code ____									
Non-malignant Neoplasms									
Lipoma									
Location Code ____									
Papilloma (wart)									
Location Code ____									
Histiocytoma									
Location Code ____									
Other Non-malignant									
_____ Location Code ____									

Condition	Age at Onset	Diagnosed by Veterinarian		Treated		Cured		Recurrent Problem	
	Years	Yes	No	Yes	No	Yes	No	Yes	No
Cardiovascular									
Heart failure-unknown cause									
Cardiomyopathy									
Heartworm Infection									
Heart arrhythmia									
Heart murmur									
Pulmonic stenosis									
Subaortic stenosis									
Valve dysfunction									
Ventricular septal defect									
Other _____									
Allergies									
Allergic dermatitis due to:									
Fleas									
Food									
Inhaled allergens									
Pond/lake water									
Flea dip/insecticide									
Atopic rhinitis									
Insect bites									
Anesthesia									
Antibiotic/sulfa									
Other Allergy _____									
Endocrine									
Hypothyroid									
Hyperthyroid									
Cushing's (hyperadrenal)									
Addison's (hypoadrenal)									

Condition	Age at Onset	Diagnosed by Veterinarian		Treated		Cured		Recurrent Problem	
	Years	Yes	No	Yes	No	Yes	No	Yes	No
Endocrine continued									
Diabetes mellitus									
Pancreatic insufficiency									
Pancreatitis									
Other _____									
Gastrointestinal									
Bloat without torsion									
Bloat with torsion									
Esophageal disorder									
Gastritis (chronic or intermittent)									
Excessive vomiting									
Excessive diarrhea									
Excessive flatulence									
Malabsorbtion									
Liver disease									
Colitis									
Foreign body									
Other _____									
Hematologic									
Hemophilia									
Autoimmune hemolytic anemia									
Chronic anemia									
Thrombocytopenia (or platelet dysfunction)									
von Willebrand's disease									
Bone marrow failure									
Other _____									

Condition	Age at Onset	Diagnosed by Veterinarian		Treated		Cured		Recurrent Problem	
	Years	Yes	No	Yes	No	Yes	No	Yes	No
Urinary Tract / Renal									
Kidney disease									
Kidney failure									
Bladder stones									
Bladder infection(s)									
Urinary incontinence									
Other _____									
Neurological									
Seizures of unknown origin (epilepsy)									
Seizures of known origin									
Wobbler syndrome									
Dementia (senility)									
Nerve degeneration									
Tremors - generalized									
Head tilt									
Myasthenia gravis									
Other _____									
Musculoskeletal									
Eosinophilic panosteitis									
Osteochondritis dissecans									
Hip dysplasia									
Elbow dysplasia									
Spondylosis									
Degenerative disk disease- weakness or paralysis									
Anterior cruciate ligament tear									
Arthritis (autoimmune)									
Arthritis (not autoimmune)									

Condition	Age at Onset	Diagnosed by a Veterinarian		Treated		Cured		Recurrent Problem	
	Years	Yes	No	Yes	No	Yes	No	Yes	No
Musculoskeletal continued									
Patella luxation									
Other _____									
Eyes									
Corneal dystrophy									
Progressive retinal atrophy									
Cataracts									
Glaucoma									
Entropion									
Ectropion									
Prolapsed 3 rd eyelid									
Distichiasis									
Injury									
Uveitis									
Iris cyst									
Other _____									
Ears									
Hematoma									
Hearing problem									
Chronic or intermittent infection									
Other _____									
Reproductive									
<u>Female</u>									
Infertility									
Failure to carry to term									
Irregular heat cycles									
Chronic false pregnancy									

Condition	Age at Onset	Diagnosed by a Veterinarian		Treated		Cured		Recurrent Problem	
	Years	Yes	No	Yes	No	Yes	No	Yes	No
Reproductive Female <small>continue</small>									
Difficult whelping (dystocia)									
Mastitis									
Pyometra									
Uterine inertia									
Insufficient milk									
Malformed puppies									
Poor mothering instinct									
<u>Male</u>									
Infertility									
Cryptorchidism									
unilateral									
bilateral									
Enlarged prostate									
Lack of libido									
Abnormal semen									
Testicular atrophy									
Other _____									
Skin/Coat									
Dull and dry									
Seborrhea									
Pigment abnormalities									
Coat color change									
Sebaceous cysts									
Sebaceous adenitis									
Hot spots									
Lick granuloma									
Discoid lupus									

Condition	Age at Onset	Diagnosed by a Veterinarian		Treated		Cured		Recurrent Problem	
	Years	Yes	No	Yes	No	Yes	No	Yes	No
Skin/Coat continued									
Lupus erythematosus									
Pemphigus foliaceus									
Dermatomyositis									
Demodectic mange-localized									
Demodectic mange-generalized									
Sarcoptic mange									
Uveodermatologic syndrome (VKH)									
Other _____									
Trauma/Accidents									
Fracture/broken bone									
Lameness requiring treatment (not due to fracture or cruciate tear)									
Laceration requiring stitches									
Other _____									
Infections/Infestations									
Bacterial									
Anal sacculitis									
Pneumonia									
Prostatitis									
Cystitis									
External ear (otitis externa)									
Tonsillitis									
Septicemia									
Lyme disease									
Interdigital infection									
Other _____									

Condition	Age at Onset	Diagnosed by a Veterinarian		Treated		Cured		Recurrent Problem	
	Years	Yes	No	Yes	No	Yes	No	Yes	No
Viral									
Parvovirus									
Corona virus									
Distemper									
Tracheobronchitis(kennel cough)									
Other _____									
Fungal									
Ringworm									
Yeast									
Other _____									
Parasitic									
Fleas									
Giardia									
Coccidia									
Roundworms									
Hookworms									
Whipworms									
Tapeworms									
Other _____									
Oral									
Abnormal dentition									
Missing teeth									
Malocclusion (bite problem)									
Enamel hypoplasia									
Other _____									

Condition	Age at Onset	Diagnosed by Veterinarian		Treated		Cured		Recurrent Problem	
	Years	Yes	No	Yes	No	Yes	No	Yes	No
Behavior Problems									
Fear aggression									
Dominance aggression									
Inappropriate urination									
Separation anxiety									
Other _____									
Congenital (birth) defects									
Umbilical hernia									
Cleft lip or palate									
Patent ductus arteriosus (PDA)									
Tetralogy of Fallot									
Other _____									

2. Please check the appropriate boxes according to your dog's vaccination schedule:

Type of Vaccination	Frequency of Vaccination				
	Yearly	Every 2 years	Every 3 years	Sporadic (based on titers)	Never
Rabies					
Distemper					
Parvovirus					
Leptospirosis					
Lyme disease					
Kennel cough					
Other _____					

3. Frequency of routine worming:

___ Yearly ___ Every 2 years ___ Every 3 years ___ Sporadic ___ Never

Use of heartworm preventative:

___ Daily ___ Monthly ___ Spring to Fall ___ Sporadic ___ Never

4. Please **check** the appropriate boxes based on your dog's exposure to chemicals and pesticides:

Type of Exposure	Frequency of Exposure				Product Name
	Weekly	Monthly	Sporadic	Never	
Contact with lawn chemicals					Not Applicable
Tick/Flea dips					
Tick/Flea products applied as drops on skin					
Tick/Flea products as pill					
Tick/Flea shampoos					
Tick/Flea sprays					
Tick/Flea - other Specify					
Swimming					Not Applicable
Pool					Not Applicable
Fresh water					Not Applicable
Salt water					Not Applicable

5. Was this dog ever involved in an automobile accident that required treatment by a veterinarian:
 yes no
6. Did this dog ever receive professional counseling or behavior modification for a behavior problem?
 yes no
7. Was this dog ever medically treated for a behavior problem? yes no
8. Was euthanasia ever considered for a behavior problem? yes no
9. Has this dog ever had any adverse drug reactions? yes no
 - a. If yes, what was the specific drug involved: _____
 - b. Was this drug reaction diagnosed by a veterinarian ? yes no
 - c. How old was the dog when this adverse drug reaction occurred? ___ years ___ months
10. Was this dog ever hospitalized for any health-related conditions other than those noted in the table starting on page 11? yes no
11. If YES, please specify

V. Additional Comments

Please use the bottom of this page, if needed, to tell us anything about the health of this dog that was not covered in the questionnaire.

If you would like this dog entered into a future ACA health and longevity survey or study, please indicate your willingness to participate by providing the information below.

Dog's registered name: _____

Dog's call name: _____

Your name: _____

Your address: _____

number street city state zip

Your telephone number: _____

area code number

The above information will be kept at Purdue University and will remain **confidential**.

Thank you for your participation in this health survey of Akitas. Please return your questionnaires to Purdue University in the envelope provided by **June 1, 2000**. Be assured that all information will be kept strictly confidential and names of participants will not be released.

After Dr. Glickman analyzes the data at Purdue University, a detailed report will be sent to the Akita Club of America for distribution.