

CANADIAN & AMERICAN MANCHESTER TERRIER CLUBS

Results

2018 General Health Survey

Manchester Terrier and English Toy Terrier



The Canadian and American Manchester Terrier Club Health Committees would like to thank all of the owners and breeder from around the world who contributed to this project through completion of the Manchester Terrier/English Toy Terrier General Health Survey. We are sure you will agree that the survey reveals interesting and important information about our global community as well as each breed/variety sub-population.

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Overview

Background

From February 1- March 31, 2018, the Canadian and American Manchester Terrier Clubs administered a comprehensive online survey of Manchester Terrier, Toy Manchester Terrier and English Toy Terrier owners and breeders. The survey was modeled after the [2002 North American Manchester Terrier health survey](#), which established a baseline incidence of know canine diseases and conditions in the North American population.

Survey Administration

The General Health Survey was delivered electronically via a web-based interface hosted by SurveyMonkey.com. The survey was promoted weekly on Facebook across the survey period with additional promotion completed through partner club newsletters and membership-wide emails.

Respondents were asked to complete a survey for all dogs alive as of the date the survey was complete or who had died since January 1, 2002. In this way, the survey covers a 16 year period allowing for comparison to the 2002 survey, which covered a 15 year period.

Breeds/Varieties

All owners and breeders of Manchester Terriers and English Toy Terriers around the world were invited to complete the General Health Survey. In order to provide meaningful results, this summary includes observations about the entire population worldwide as well as breakdowns according to the following established sub-populations:

- Standard Manchester Terriers (North America)
- Toy Manchester Terriers (North America)
- English Toy Terriers (outside North America)
- Manchester Terriers (UK/FCI) (outside of North America)

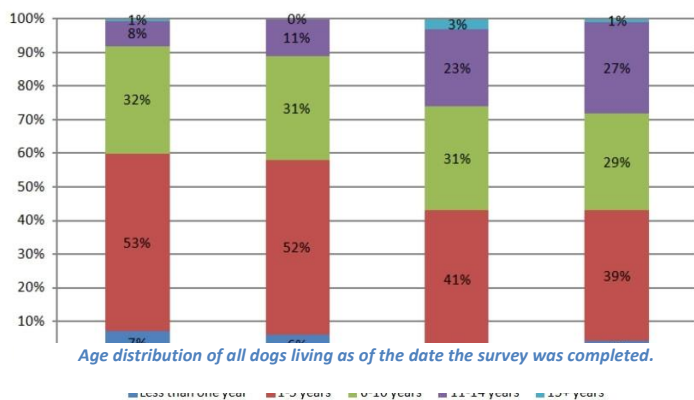
Demographics

A total of 1,171 surveys were completed, with all surveys providing complete information on health-related questions.

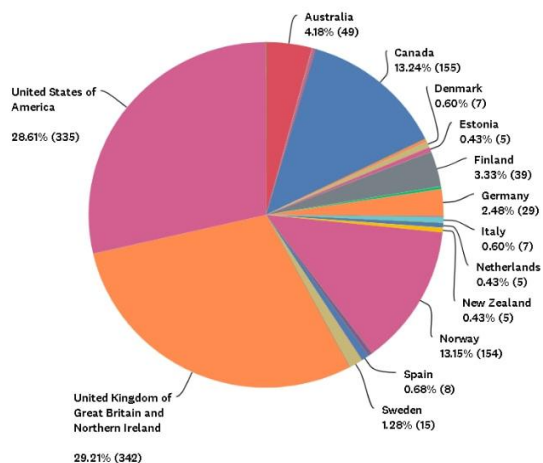
Owners were asked to identify themselves as Pet/Companion Owners or Breeders/Exhibitors.

Considering all breeds/varieties examined in the survey, 52% (612) of dogs were owned by Pet/Companion Owners and 48% (559) by Breeders/Exhibitors.

Age Distribution (Living)



Geographical Location (All)

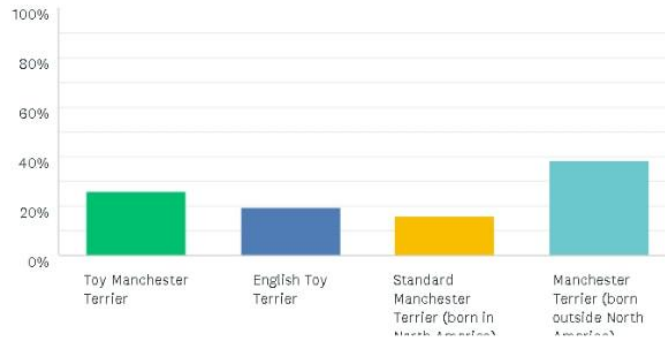


OBSERVATION

Breeders/Exhibitors were almost 2x more likely to indicate that their dog had none of the standard health conditions listed in the survey than Pet/Companion owners (29% vs 16%).

My dog is a(n):

Answered: 1,171 Skipped: 0

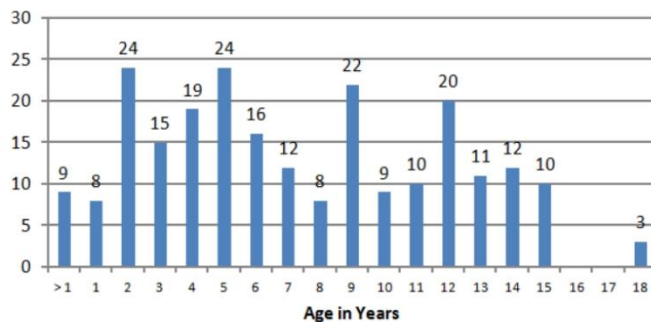


ANSWER CHOICES	RESPONSES
▼ Toy Manchester Terrier	25.96% 304
▼ English Toy Terrier	19.58% 229
▼ Standard Manchester Terrier (born in North America)	15.88% 186
▼ Manchester Terrier (born outside North America)	38.60% 452
TOTAL	1,171

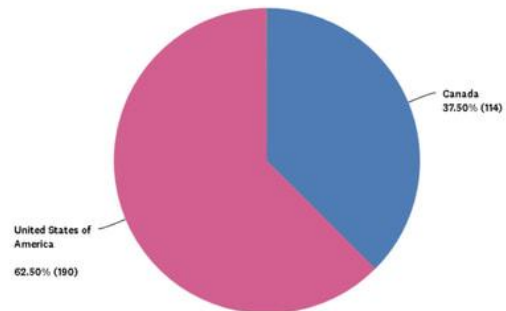
Toy Manchester Terriers

- 304 surveys were completed for Toy Manchester Terriers.
- 46% of the surveys were completed by Pet/Companion owners and 54% by Breeders/Exhibitors.
- 42% of the dogs reported on were male and 58% were female.
- 62% of TMTs reported on in the survey were born in the United States and 38% were born in Canada.
- The median age of living Toy Manchester Terriers reported on in the survey was 7 years and among all TMTs reported on in the survey was 8 years.¹

TMT: Age Distribution (Living)



Geographical Location (TMT)

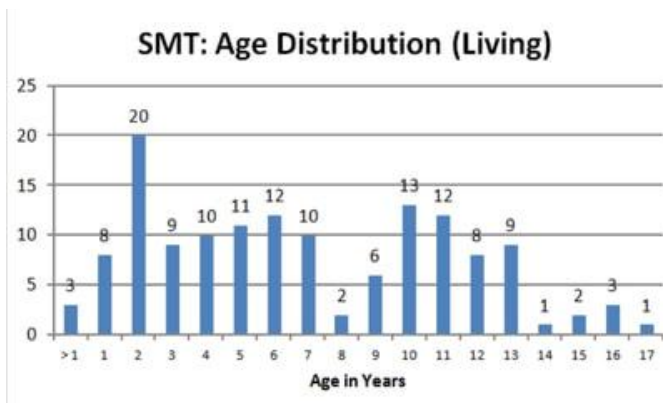


¹ For calculation purposes, dogs aged less than 1 year were assigned a value of 0.5 years.

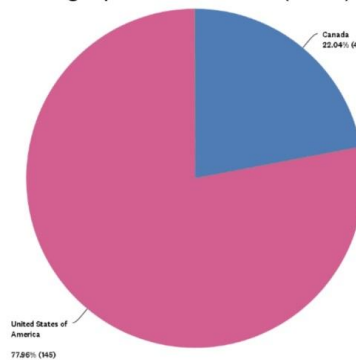


Standard Manchester Terriers

- 186 surveys were completed for Standard Manchester Terriers.
- 49% of the surveys were completed by Pet/Companion owners and 51% by Breeders/Exhibitors.
- 51% of the dogs reported on were male and 49% were female.
- 78% of SMTs reported on in the survey were born in the United States and 22% were born in Canada.
- The median age of living Standard Manchester Terriers reported on in the survey was 6 years and among all SMTs reported on in the survey was 8 years.¹



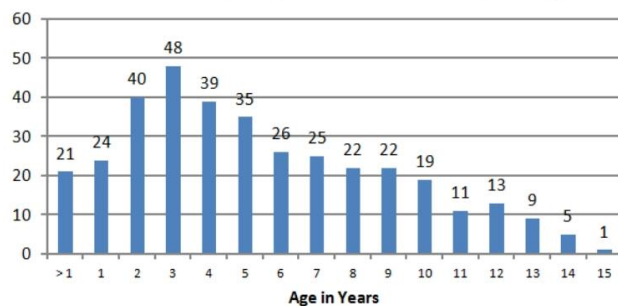
Geographical Location (SMT)



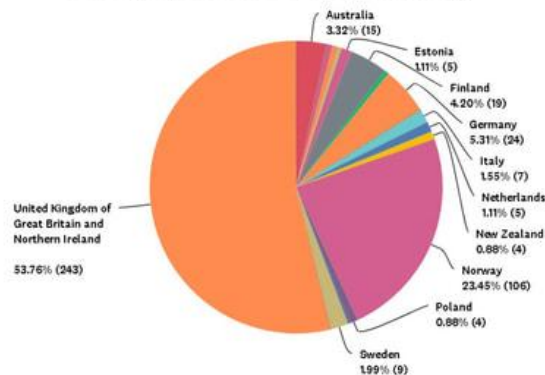
Manchester Terriers (UK/FCI)

- 452 surveys were completed for Manchester Terriers (UK/FCI).
- 44% of dogs reported on were male and 56% were female.
- The majority of respondents came from the United Kingdom (54%), followed by Norway (23%), Germany (5%), Finland (4%) and Australia (3%).
- The median age of living Manchester Terriers (UK/FCI) reported on in the survey was 5 years and among all MTs reported on in the survey was also 5 years.¹

MT (UK/FCI): Age Distribution (Living)

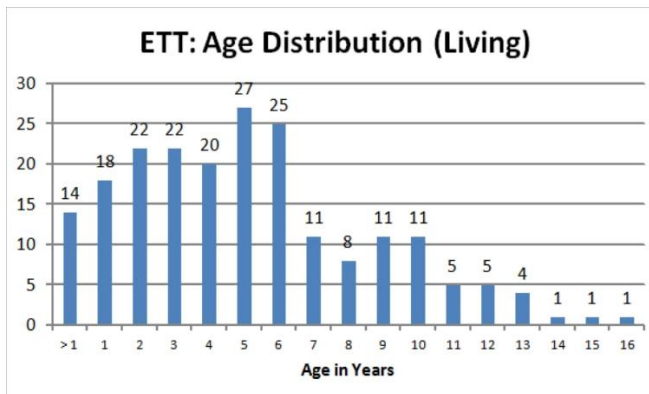


Geographical Location (MT)

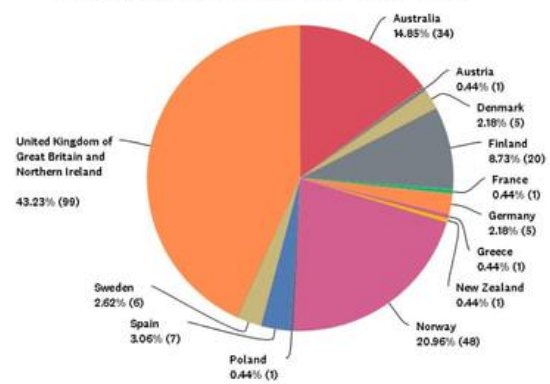


English Toy Terriers

- 229 surveys were completed for English Toy Terriers.
- 54% of the surveys were completed by Pet/Companion owners and 46% by Breeders/Exhibitors.
- 48% of dogs reported on were male and 52% were female.
- The majority of respondents came from the United Kingdom (43%), followed by Norway (21%), Australia (15%), Finland (9%), Spain (3%) and Sweden (3%).
- The median age of living English Toy Terriers reported on in the survey was 5 years and among all ETTs reported on in the survey was also 5 years.¹



Geographical Location (ETT)



Longevity and Cause of Death

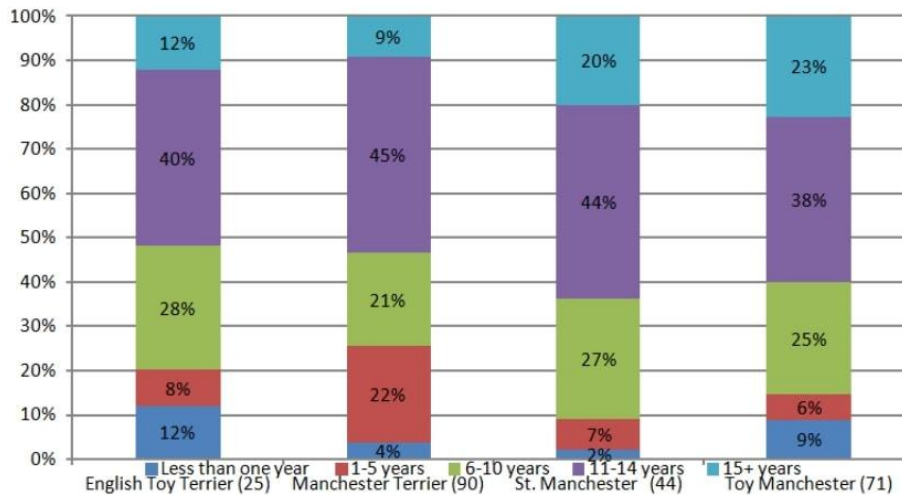
Of the 1,171 surveys completed, 20% (231) were completed for dogs that are deceased.

Considering the entire population surveyed:

- The proportion of deceased versus living dogs was consistent at 20-24% across all varieties/groups with the exception of English Toy Terriers, where deceased dogs represented just 10% of surveys submitted.
- According to the American Kennel Club, the average lifespan of medium-sized dogs is 10-13 years. At 9.6 years, average age of death in Manchester Terrier (UKI/FCI) was slightly below this range and was also 1.5-2 years lower than all other varieties/groups examined in this survey.
- Toy Manchester Terriers had the highest number of deaths at less than one year of age among all varieties/groups examined in this survey. Half of these six dogs died of Juvenile Dilated Cardiomyopathy, a condition for which a DNA test is now available.
- Standard Manchester Terriers had the highest proportion of deaths above age 11 (64%) and the highest median age at death (12.5), while Toy Manchesters had the highest proportion of deaths over age 15 (23%).
- Among dogs who lived to age 11+, Toy Manchesters and English Toy Terriers had the highest median age at death (14 years).

Please note: In calculations of mean (average) and median ages of death throughout this analysis, accidental deaths and deaths at less than one year of age were not included.

Age at Death (%)



Distribution of death by age range across all breeds/varieties surveyed.

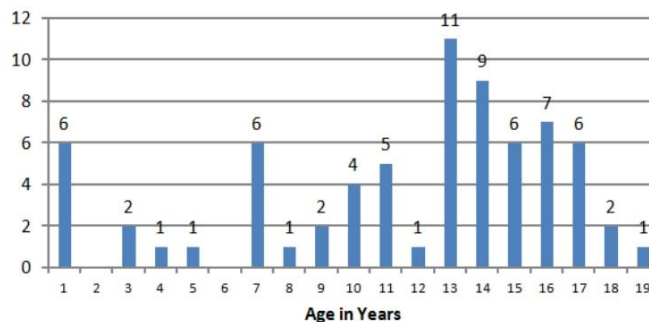
Toy Manchester Terrier Deaths

23% (71) of Toy Manchesters reported on in the survey were deceased. Owners provided a total of 33 different causes of death, with four identifying two or more contributing conditions and five not specifying a cause of death.

In total, five deaths were attributed to accident/injury, 50 to disease/infection and 11 to “old age”.

Overall, average age at death in Toy Manchesters was 11.8 years and median age at death was 12 years.

TMT: Age at Death



61% (41) of all TMT deaths reported were in dogs aged 11 or above, with a median age at death in this group of 14 years. Of note, among surveys completed for dogs that are still living, an additional 66 were completed for dogs aged 11 or above, bringing the total number of Toy Manchesters aged 11 or above reported on in the health survey to 109 (35% of all TMT surveys).

Median age at death for female Toy Manchesters was 12 years and for males was 13 years.

Causes of Death (All Deaths)							
English Toy Terrier (25)		Manchester Terrier (90)		Standard Manchester (45)		Toy Manchester (71)	
1. "Old Age"	8 (32%)	1. "Old Age"	19 (21%)	1. Cancer	10 (22%)	1. Cancer	13 (18%)
2. Accident	3 (12%)	2. Kidney	18 (20%)	2. Heart Issue	7 (15.5%)	2. Kidney Issue	11 (15%)
3. Cancer	2 (8%)	3. Cancer	15 (17%)	3. "Old Age"	6 (13%)	2. "Old Age"	5 (7%)
3. Heart (murmur/valve)		3. Accident		3. Digestive Issue		3. Congestive Heart Failure	
Deaths at age 11 years or above							
13 (52%)		48 (53%)		29 (64%)		43 (61%)	

Causes of Death (Age 10 and under)							
English Toy Terrier (11*)		Manchester Terrier (42)		Standard Manchester (16*)		Toy Manchester (29)	
1. Accident	2	1. Kidney Issue	13 (31%)	1. Accident	4	1. Digestive Issue	6 (21%)
1. Cancer		2. Accident		1. Cancer		1. Kidney Issue	
		3. Cancer/Tumor	8 (19%)	2. Heart Issue	3	2. Cancer	5 (17%)
			7 (17%)			3. Accident	3 (10%)
						3. JDCM	

*Not a statistically significant population sample



All Reported Causes of Death in Toy Manchester Terriers

- Cancer/Tumor (14)
 - Lymphoma (3)
 - Gum (2)
 - Unknown/Unspecified (2)
 - Adenocarcinoma (1)
 - Brain Tumor (1)
 - Gastric (1)
 - Hemangiosarcoma (1)
 - Jaw (1)
 - Squamous Cell (2)
- Kidney (11)
 - “Kidney Failure/Disease” (6)
 - Glomerulonephritis (2)
 - Kidney Disease (1)
 - Lyme Nephritis (1)
- Protein-Losing Nephropathy (1)
- Heart Issue (8)
 - Congestive Heart Failure (5)
 - Juvenile Dilated Cardiomyopathy (3)
 - Unknown/Unspecified (2)
- Old Age (11)
- Gastrointestinal Issues (5)
 - Intestinal Lymphangiectasia (3)
 - Protein-Losing Enteropathy (2)
- Accidental Death (5)
 - Coyotes (2)
 - Eating Chocolate (1)
- Heat Stroke (1)
- Unspecified (1)
- Liver Disease/Failure (3)
- Autoimmune: Unspecified (2)
- Diabetes (2)
- Arthritis (1)
- Hyperparathyroid (1)
- Megaesophagus/Esophageal Stricture (1)
- Stroke (1)
- Tracheal Collapse (1)
- Xanthinuria (1)

Notes:

- Cancer: Four of 14 cases of cancer/tumor were identified in dogs that died at age 7-10 years. Median age at death among TMT cancer/tumor cases was 12 years.
- Kidney: Six of 11 kidney related deaths in Toy Manchesters were in dogs aged 6-10 years (median 8 years). Overall median age at death among TMTs from kidney-related issues was 10 years.
- Heart: All TMT cases of congestive heart failure were reported in dogs aged 10+ years. Median age at death was 14 years. All cases of Juvenile Dilated Cardiomyopathy were in dogs age less than one year.
- Digestive: All TMT deaths associated with gastrointestinal issues were in dogs aged 3-9. Average age at death was 7 years.
- Accident: Average age of accidental death in TMTs was 7.5 years.
- Old Age: The description “old age” was given as a cause of death in free text by owners using their own criteria and should not be viewed as an objective measurement.

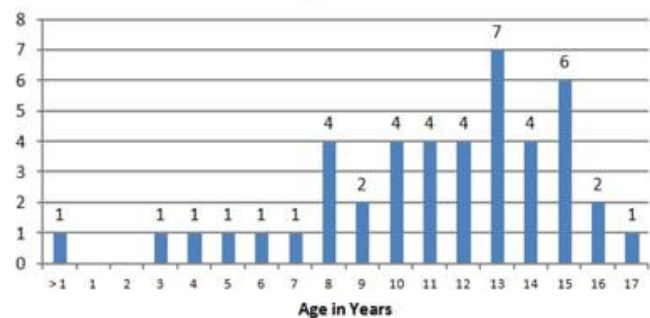
Standard Manchester Terrier Deaths

44 (24%) of 186 Standard Manchesters reported on in the survey were deceased. Owners provided a total of 28 causes of death, with five identifying two or more contributing conditions and three not specifying a cause of death.

In total, four deaths were attributed to accident/injury, 32 to disease/infection and five to “old age”.

Overall, average age at death in Standard Manchesters was 11.5 years and median age at death was 12.5. The disparity between these numbers reflects that, while a significant number SMTs did die at an advanced age, those who died in middle age tended to do so at a proportionately lower age. Overall, however, it should be noted that 64% (28) of SMT death reported were in dogs aged 11 or above, with a median age at death in this group of 13

SMT: Age at Death



years. This represents the largest proportion of deaths over age 11 among the breeds/varieties examined in this survey (compared to 61% in Toy Manchesters, 53% in Manchester Terriers – UK/FCI and 52% in English Toy Terriers). Among surveys completed for dogs that are still living, an additional 36 were completed for dogs aged 11 or above, bringing the total number of Standard Manchesters aged 11 or above reported on in the health survey to 64 (34% of all SMT surveys).

Median age at death for female Standard Manchesters was 13 years and for males was 12.5 years.

Causes of Death (All Deaths)							
English Toy Terrier (25)		Manchester Terrier (90)		Standard Manchester (45)		Toy Manchester (71)	
1. "Old Age"	8 (32%)	1. "Old Age"	19 (21%)	1. Cancer	10 (22%)	1. Cancer	13 (18%)
2. Accident	3 (12%)	2. Kidney	18 (20%)	2. Heart Issue	7 (15.5%)	2. Kidney Issue	11 (15%)
3. Cancer	2 (8%)	3. Cancer	15 (17%)	3. "Old Age"	6 (13%)	2. "Old Age"	5 (7%)
3. Heart (murmur/valve)		3. Accident		3. Digestive Issue		3. Congestive Heart Failure	
Deaths at age 11 years or above							
13 (52%)		48 (53%)		29 (64%)		43 (61%)	

Causes of Death (Age 10 and under)							
English Toy Terrier (11*)		Manchester Terrier (42)		Standard Manchester (16*)		Toy Manchester (29)	
1. Accident	2	1. Kidney Issue	13 (31%)	1. Accident	4	1. Digestive Issue	6 (21%)
1. Cancer		2. Accident		1. Cancer		1. Kidney Issue	
		3. Cancer/Tumor	8 (19%)	2. Heart Issue	3	2. Cancer	5 (17%)
			7 (17%)			3. Accident	3 (10%)
						3. JDCM	

*Not a statistically significant population sample

All Reported Causes of Death in Standard Manchester Terriers

- Cancer/Tumor (11)
 - Unknown/Unspecified (4)
 - Lymphoma (2)
 - Splenic (2)
 - Adenocarcinoma (1)
 - Adrenal (1)
 - Gastric (1)
- Heart Issue (7)
 - Unknown/Unspecified (3)
 - Dilated Cardiomyopathy (2)
 - Congestive Heart Failure (1)
 - Murmur (1)
- Old Age (6)
- Accidental Death (4)
 - Hit by car (1)
 - Poison – Yew (1)
 - Unspecified (2)
- Kidney (3)
 - "Kidney Failure/Disease" (2)
 - Secondary to IBD (1)
- Cushing's Disease (2)
- Liver Disease/Failure (2)
- Seizure: Unspecified (2)
- Addison's Disease (1)
- Autoimmune: Unspecified (2)
- Brain Bleed (1)
- Cerebellar Abiotrophy (1)
- Diabetes (1)
- Hepatic Encaphalopathy secondary to Liver Disease (1)
- Irritable Bowel Disease (1)
- Pancreatitis (1)
- Pneumonia (1)

Notes:

- Cancer: Four of 11 cases of cancer/tumor were in dogs that died at age 8-10 years. Median age at death among SMT cancer/tumor cases was 12 years.
- Heart: Three of seven heart related deaths in Standard Manchesters were in dogs aged 6-9 years. Median age at death in remaining cases was 13 years.
- Accident: Average age of accidental death in SMTs was 6 years.
- Old Age: The description "old age" was given as a cause of death in free text by owners using their own criteria and should not be viewed as an objective measurement.

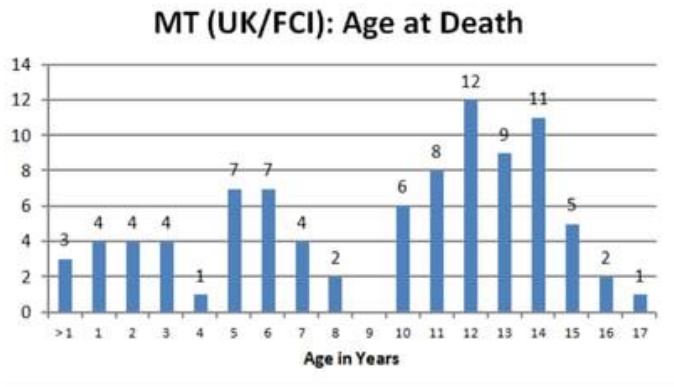


Manchester Terrier (UK/FCI) deaths

90 (20%) of 452 Manchester Terriers (UK/FCI) reported on in the survey were deceased. Owners provided a total of 34 causes of death, with five identifying two or more contributing conditions and two not specifying a cause of death.

In total, 10 deaths were attributed to accident/injury, 59 to disease/infection and 19 to “old age”.

Overall, average age at death in Manchester Terriers (UK/FCI) was 9.6 years and median age at death was 11 years. These figures represent the lowest average and median ages of death according to both calculations (e.g., median ages of death were 12.5 years in Standard Manchesters and 12 years in English Toy Terriers).



53% (48) of MT deaths reported were in dogs aged 11 or above, with a median age at death in this group of 13 years. Additionally, among surveys completed for dogs that are still living, 39 were completed for dogs aged 11 or above, bringing the total number of Manchesters aged 11 or above reported on in the health survey to 87 (19% of all MT surveys).

Median age at death for female Manchesters was 11 years and for males was 12 years.

Causes of Death (All Deaths)							
English Toy Terrier (25)		Manchester Terrier (90)		Standard Manchester (45)		Toy Manchester (71)	
1. "Old Age"	8 (32%)	1. "Old Age"	19 (21%)	1. Cancer	10 (22%)	1. Cancer	13 (18%)
2. Accident	3 (12%)	2. Kidney	18 (20%)	2. Heart Issue	7 (15.5%)	2. Kidney Issue	11 (15%)
3. Cancer	2 (8%)	3. Cancer	15 (17%)	3. "Old Age"	6 (13%)	2. "Old Age"	5 (7%)
3. Heart (murmur/valve)		3. Accident		3. Digestive Issue			
						3. Congestive Heart Failure	
Deaths at age 11 years or above							
13 (52%)		48 (53%)		29 (64%)		43 (61%)	

Causes of Death (Age 10 and under)							
English Toy Terrier (11*)		Manchester Terrier (42)		Standard Manchester (16*)		Toy Manchester (29)	
1. Accident	2	1. Kidney Issue	13 (31%)	1. Accident	4	1. Digestive Issue	6 (21%)
1. Cancer		2. Accident		1. Cancer		1. Kidney Issue	
		3. Cancer/Tumor	8 (19%)	2. Heart Issue	3	2. Cancer	5 (17%)
			7 (17%)			3. Accident	3 (10%)
						3. JDCM	

*Not a statistically significant population sample



All Reported Causes of Death in Manchester Terriers (UK/FCI)

- “Old Age” (19)
- Kidney (18)
 - Acute renal failure (5)
 - Chronic renal failure (3)
 - “Kidney failure” (9)
 - Leishmaniasis (1)
- Cancer/Tumor (17)
 - Lymphoma (4)
 - Mast Cell (3)
 - Splenic (2)
 - Unknown/Unspecified (2)
 - Chondrosarcoma (1)
 - Arachnoid Tumor (1)
 - Brain Glioma (1)
 - Mammary (1)
- Muscle (1)
- Osteosarcoma (1)
- Accidental Death (10)
 - Road/traffic related (5)
 - Dog attack/fight (2)
 - Injury (1)
 - Ate towel (1)
 - Unspecified (1)
- Pancreatitis (5)
- Stroke (5)
- Temperament (3)
- Autoimmune Hemolytic Anemia (2)
- Gastrointestinal Issues (2)
 - Intestinal infection (1)
 - Unknown/Unspecified (1)
- Heart - unspecified (2)
- Liver-unspecified (2)
- Anesthetic reaction (1)
- Arthritis (1)
- Bloat (1)
- Pulmonary fibrosis (1)
- Seizure (1)
- Vaccination reaction (1)

Notes:

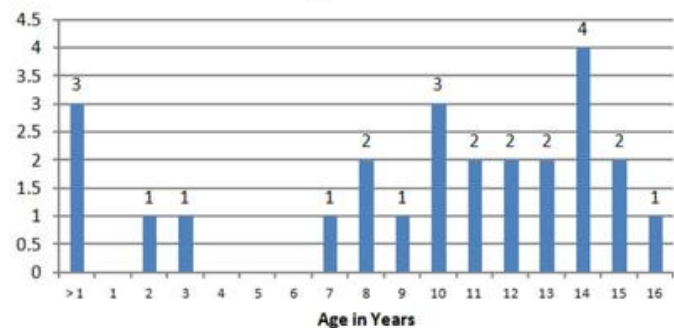
- Old Age: The description “old age” was given as a cause of death in free text by owners using their own criteria and should not be viewed as an objective measurement.
- Kidney: 13 of 18 kidney related deaths in Manchester Terriers (UK/FCI) were dogs aged 7 or less, with a median age at death in this group of 4 years. Median age at death in the remaining five cases spanned 11-16 years, with a median age at death of 11.5 years.
- Cancer: seven of 17 cases of cancer/tumor were in Manchester Terriers (UK/FCI) who died at less than 8 years of age. This group included all four cases of Lymphoma. Median age at death among all MT cancer/tumor cases was 11.5 years.
- Accident: Average age of accidental death in Manchester Terriers (UK/FCI) was 7 years.

English Toy Terrier Deaths

25 (11%) of 229 English Toy Terriers reported on in the survey were deceased. Owners provided a total of 15 different causes of death, with one identifying two or contributing conditions and two not specifying a cause of death. In total, three deaths were attributed to accident/injury, 12 to disease/infection and eight to “old age”.

Overall, average age at death in English Toy Terriers was 11 years and median age at death was 12 years, indicating minor clustering at higher and lower age ranges. 52% (13) of ETT deaths reported were in dogs aged 11 or above, with a median age at death in this group of 14 years. Additionally, among surveys completed for dogs that are still living, 17 were completed for dogs aged 11 or above, bringing the total number of ETTs aged 11 or above reported on in the health survey to 24 (10% of all ETT surveys).

ETT: Age at Death



Causes of Death (All Deaths)							
English Toy Terrier (25)		Manchester Terrier (90)		Standard Manchester (45)		Toy Manchester (71)	
1. "Old Age"	8 (32%)	1. "Old Age"	19 (21%)	1. Cancer	10 (22%)	1. Cancer	13 (18%)
2. Accident	3 (12%)	2. Kidney	18 (20%)	2. Heart Issue	7 (15.5%)	2. Kidney Issue	11 (15%)
3. Cancer	2 (8%)	3. Cancer	15 (17%)	3. "Old Age"	6 (13%)	2. "Old Age"	5 (7%)
3. Heart (murmur/valve)		3. Digestive Issue		3. Congestive Heart Failure			
Deaths at age 11 years or above							
13 (52%)		48 (53%)		29 (64%)		43 (61%)	

Causes of Death (Age 10 and under)							
English Toy Terrier (11*)		Manchester Terrier (42)		Standard Manchester (16*)		Toy Manchester (29)	
1. Accident	2	1. Kidney Issue	13 (31%)	1. Accident	4	1. Digestive Issue	6 (21%)
1. Cancer		2. Accident		1. Cancer		1. Kidney Issue	
		3. Cancer/Tumor	8 (19%)	2. Heart Issue	3	2. Cancer	5 (17%)
			7 (17%)			3. Accident	3 (10%)
						3. JDCM	

*Not a statistically significant population sample

All Reported Causes of Death in English Toy Terriers

- "Old Age" (8)
 - Murmur (1)
- Accidental Death (3)
 - Broken bone/spine (2)
 - Unspecified (1)
- Cancer/Tumor (2)
 - Lymphoma (1)
 - Liver (1)
- Heart Issue (2)
 - "Valve dysfunction" (1)
- Acute kidney failure (1)
- Atrophy of masticatory muscle (1)
- Cushing's Disease (1)
- Epileptic seizures (1)
- Gastrointestinal Issue (1)
- Hereditary cataract (1)
- Pancreatitis (1)
- Stroke (1)

Notes:

- Old Age: The description "old age" was given as a cause of death in free text by owners using their own criteria and should not be viewed as an objective measurement.

*When considering information on causes of death, readers should keep in mind that at just 25 dogs, the ETT sample size is extremely small and cannot be considered representative or significant. This is particularly true for the sample of dogs aged less than 10 years, which encompasses just 11 dogs.



Condition Categories

Cancer/Tumor

Of the 1,171 surveys completed, 6.7% (78) reported a condition in the cancer or tumors category.

Considering the entire population surveyed:

- Reports of cancer/tumor were relatively consistent across populations surveyed, ranging from 6.6 – 8% of all dogs surveyed in the TMT, SMT and MT (UK/FCI) populations. While overall rates in ETTs appear lower at first glance, when living dogs are considered in isolation the rates are consistent across all breeds/varieties.
- The most commonly reported type of cancer overall was lymphoma, with 12 cases reported across all breeds/varieties surveyed. All 12 cases were reported in deceased dogs with 11 of these owners attributing death to lymphoma. Although comparisons are difficult when dealing with small numbers, median age of lymphoma death was 5.5 years in Manchester Terriers (UK/FCI) (4) as compared to 11 years in Standard Manchesters (3) and 15 years in Toy Manchesters (3).
- The second most commonly reported type of cancer/tumor overall was Mast Cell Tumor. Seven of nine mast cell tumour cases were reported in Manchester Terriers (UK/FCI), and the third most commonly reported was Oral Papillomatosis, with seven cases total.
- Cancer/Tumors appear to affect Manchester Terriers of all breeds/varieties at older ages. While information on age of onset wasn't specifically gathered, this conclusion was supported by indicators like age at death in deaths attributed to cancer/tumors, age at death among all dogs reporting cancer/tumor and current age of living dogs reporting cancer/tumors.
- Manchester Terriers (UK/FCI) may be affected by cancer/tumor at a slightly younger age as compared to other breeds/varieties surveyed. Age at death among deceased Manchesters reporting cancer/tumor was 1.5 years lower and age of living dogs reporting cancer/tumors was also lower as compared to Toy and Standard Manchester Terriers. This difference is heavily influenced by the younger age at death from lymphoma observed in Manchester Terriers (UK/FCI), where all four cases reported were fatal in dogs aged 5-7 years.
- 25-30% of Toy and Standard Manchester Terrier owners reporting cancer/tumor, identified their dog's type of cancer as unknown (2) or indicated that cancer was suspected but was unconfirmed through veterinary investigation (4). This number may reflect inherent flaws in surveys based on owner reported disease and/or the advanced ages of dogs at diagnosis. By comparison, just one Manchester Terrier (UK/FCI) owner and one English Toy Terrier owner reported their dogs' cancer as unknown or unconfirmed.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- | | |
|---|---|
| • Adenocarcinoma (malignant tumor formed from glandular structures in skin tissue) | • Malignant Melanoma (a form of skin cancer) |
| • Basal Cell Tumor (tumor originating in deep skin layer known as the basal epithelium) | • Mammary Cancer (cancer of the mammary glands) |
| • Chondrosarcoma (cartilage tumor) | • Mast Cell Tumor (skin tumor consisting of mast cells) |
| • Epulis (excessive gum tissue growth) | • Melanoma |
| • Gastric Cancer (cancer of the digestive track) | • Muscle Cancer |
| • Hemangiosarcoma (cancer of the blood vessels) | • Oral Papillomatosis (tumor or wart of the mouth) |
| • Leukemia (cancer of the blood cells) | • Osteosarcoma (cancer of the bone) |
| • Lymphoma/lymphosarcoma (cancer of the lymph glands) | • Pituitary Tumors |
| | • Squamous Cell Carcinoma (a form of skin cancer, usually affecting the toes) |

Toy Manchester Terriers

Respondents reported 14 types of cancer/tumor in a total of 25 Toy Manchesters (8%). The most commonly identified type was Lymphoma, which affected four individuals (1.3%). Additional types of cancer reported include three dogs with Squamous Cell Carcinoma (1%), three with Oral Papillomatosis (1%), two with Gastric Carcinoma (0.6%), two with Melanoma (0.6%), and one case each of Adenocarcinoma, Chondrosarcoma, Epulis, Hemangiosarcoma, Mammary Cancer, Mast Cell Tumor, Osteosarcoma and Pituitary Tumor (0.3%). One case of benign mammary tumors was identified under “other”.

Although respondents were not always specifically asked to identify the location of cancer within the body, a small percentage of owners volunteered this information, indicating that three TMTs had cancer of the liver and one each had cancer in the brain, jaw, spleen or tonsil. As this information wasn’t gathered for all dogs, however, it should not be considered representative.

19 of the 25 Toy Manchesters reporting cancer were deceased as of the date the survey was completed. Although no questions about age of onset were asked, median age at death among the 19 dogs was 13 years, with 17 of the 19 (89%) aged 10 years of age or older at death. Among the 14 dogs whose death was wholly or partially attributed to cancer, 10 fell in the same age range, with a median age at death of 12 years. Additionally, of the six living TMTs reported to have cancer/tumor, five (83%) were over age 10 as of the date the survey was completed. All of these numbers suggest strongly that cancer or tumor cases generally occurred in Toy Manchesters at an older age or, if diagnosed at a younger age, were not fatal. Of note, two deaths attributed to cancer in TMTs aged less than 10 years were identified as secondary to protein-losing enteropathy.

**It should be noted that six owners, representing 24% of the 25 TMTs reporting cancer/tumor, identified their dog’s type of cancer as unknown (2) or indicated that cancer was suspected but was unconfirmed through veterinary investigation (4). This is significant for two reasons. First, cancer was identified in the survey as the most common cause of death in Toy Manchester Terriers, with almost 20% (14 of 71) of TMT deaths reported as resulting directly from cancer and with tumors implicated in several others. At least four of the 14 cancer-related deaths were in dogs with suspected but unconfirmed cancer, underlining that causes of death cited by owners in the survey provide a representational approximation only rather than exact statistics and diagnoses. Second, the median age at death among all TMT deaths attributed to cancer was 12 years and among those with unknown/unconfirmed diagnoses was 14 years. The higher median age in unknown/unconfirmed cases likely reflects a general decrease in veterinary investigation corresponding to advanced age. Understandably, both veterinarians and owners are less likely to thoroughly investigate specific causes of illness and disease in elderly dogs, therefore we should expect that accuracy in owner reported health conditions will decrease as the age of their dog increases. This should be kept in mind when reviewing all survey results, given that fully 35% of TMTs reported on in the survey were aged 11 or above.

Standard Manchester Terriers

Respondents reported 16 types of cancer/tumor in a total of 16 Standard Manchesters (8.6%). The most commonly identified type was Lymphoma, which affected three individuals (1.6%). Additional types of cancer reported include two dogs with Oral Papillomatosis (1%), and one each with Adenocarcinoma, Gastric Cancer, Hemangiosarcoma, Leukemia and Malignant Melanoma (0.5%). One case of adrenal gland tumor was identified under ‘other’.

Although respondents were not always specifically asked to identify the location of cancer within the body, a small percentage of owners volunteered this information, indicating that two SMTs had cancer of the spleen and one each had cancer in the bone (suspected) and adrenal gland. As this information wasn’t gathered for all dogs, however, it should not be considered representative.



13 of the 16 Standard Manchesters reporting cancer were deceased as of the date the survey was completed. Although no questions about age of onset were asked, median age at death among the 13 dogs was 13 years, with 10 of the 13 (77%) aged 10 years of age or older at death. Among the 11 dogs whose death was wholly or partially attributed to cancer/tumor, eight fell in the same age range, with a median age at death of 12 years. These numbers suggest strongly that cancer or tumor cases generally occurred in Standard Manchesters at an older age or, if diagnosed at a younger age, were not fatal. Of note, of the three living SMTs reported to have cancer/tumor, one was aged 13 years and the other two were aged one and two years respectively. Both younger dogs were reported to have Oral Papillomatosis (a tumor or wart of the mouth).

**It should be noted that five owners, representing over 1/3 of the 16 SMTs reporting cancer/tumor, identified their dog's type of cancer as unknown (3) or indicated that cancer was suspected but was unconfirmed through veterinary investigation (2). First, cancer was identified in the survey as the most common cause of death in Standard Manchester Terriers, with 25% (11 of 44) of SMT deaths reported as resulting directly from cancer. Four of the 11 cancer-related SMT deaths were in dogs with suspected but unconfirmed cancer, underlining that causes of death cited by owners in the survey provide a representational approximation only rather than exact statistics and diagnoses. Second, the median age at death among all SMT deaths attributed to cancer was 12 years and among those with unknown/unconfirmed cases was 14 years. The higher median age in unknown/unconfirmed cases likely reflects a general decrease in veterinary investigation corresponding to advanced age. Understandably, both veterinarians and owners are less likely to thoroughly investigate specific causes of illness and disease in elderly dogs, therefore we should expect that accuracy in reporting of health conditions will decrease to some degree as age increases. This should be kept in mind when reviewing all survey results, give that almost 35% of SMTs reported on in the survey were aged 11 or above.

Manchester Terriers (UK/FCI)

Respondents reported 17 types of cancer/tumor in a total of 30 Manchesters (6.6%). The most commonly identified type was Mast Cell Tumor, which affected seven individuals (1.5%). Additional types of cancer reported included four dogs with Lymphoma (0.8%), two dogs each with Basal Cell Tumor and Muscle Cancer (0.4%), and one each with Chondrosarcoma, Mammary Cancer, Melanoma, Oral Papillomatosis, and Osteosarcoma (0.2%). In the 'other' category, two cases of "cancer of the spleen" were identified along with one case each of brain glioma, benign skin tumor, benign mammary tumor, liver tumors, "tumors around internal organs", "grade 2 malignant tumor in the abdomen" and "euthanasia whilst undergoing surgery to end suffering due to recurrence of arachnoid tumor causing syringomyelia" – no specific type of cancer cell was associated with these reports. One additional respondent indicated cancer was confirmed by blood test, but the dog was euthanized before final diagnosis.

Although owners were not specifically asked to identify the location of cancer within the body, a small percentage volunteered this information, indicating that two MTs had cancer/tumor in the spleen, two in the abdomen, and one each had cancer in the liver, skin and brain. As this information was not gathered for all dogs, however, it should not be considered representative.

21 of 29 Manchesters reporting cancer were deceased as of the date the survey was completed. Although no questions about age of onset were asked, median age at death among the 21 deceased dogs was 11.5 years, with 14 of the 21 (67%) aged 10 years of age or older at death. Among the 17 dogs whose death was wholly or partially attributed to cancer/tumor, median age at death was 11 years with 10 dogs aged 10 years or older at death. These numbers suggest that cancer or tumor cases generally occurred in Manchester Terriers at an older age or, if diagnosed at a younger age, were not fatal. It should be noted, however, that overall age at death among deceased Manchesters reporting cancer/tumor was 1.5 years lower and age at death attributed to cancer/tumor was 1 year lower in Manchester Terriers (UK/FCI) as compared to Toy and Standard Manchester Terriers. This difference is

heavily influenced by the younger age at death from lymphoma observed in Manchester Terriers (UK/FCI) where all four cases occurred in dogs aged five to seven years. Ages among the seven living MTs reported to have cancer/tumor were also younger than expected, with one dog aged 15 years and the remainder aged eight years of age or less (median age: 7 years). While three of these dogs reported benign tumors of the skin or mammary tissue, the other four reported incidents of Mast Cell Tumor, Basal Cell Carcinoma and Muscle Cancer. These numbers indicate that cancer/tumor rates, age of onset and mortality in Manchester Terriers (UK/FCI) may warrant additional monitoring and/or investigation.

English Toy Terrier Deaths

Respondents reported five types of cancer/tumor in a total of eight English Toy Terriers. Types of cancer reported included two dogs with Mammary Cancer (0.9%), two with Mast Cell Tumor (0.9%), and one each with Adenocarcinoma, Lymphoma and Oral Papillomatosis (0.4%). One case was identified as an unknown type of cancer occurring in the liver.

Two of the eight ETTs reporting cancer were deceased as of the date the survey was completed, with both owners attributing their dog's death to cancer/tumor. Although no questions about age of onset were asked, the two deceased dogs were aged nine and ten at death. Of the six living ETTs reported to have cancer/tumor, three were aged 11 and above and three were aged six or seven. In the cases involving younger dogs, the types of cancer reported were Adenocarcinoma, Mammary Cancer and Mast Cell Tumor.

Lower rates of cancer/tumor among ETTs overall as compared to other breeds/varieties examined in this survey are as expected given the lower median age of ETTs reported on in the survey (5 years as compared to 8 years in Toy and Standard Manchester Terriers) and the significantly lower proportion of deaths reported on in this population (11% of surveys were completed for deceased ETTs as compared to 20-24% in Toy Manchesters, Standard Manchesters and Manchester Terriers - UK/FCI). With this in mind, in order to properly contextualize ETT results, rates of disease among the proportion of living dogs provide the best comparison. In this instance, owners reported cases of cancer/tumor in living ETTs at a rate of 3% (6 of 204) as compared to 2.6% in Toy Manchesters (6 of 233), 2.1% in Standard Manchester Terriers (3 of 142) and 1.9% in Manchester Terriers - UK/FCI (7 of 362).

Digestion/Gastroenterology

Conditions listed in the Digestion/Gastroenterology category were reported in 22.7% (235) of 1,171 surveys completed across all breeds/varieties, making it the third most reported among physical health categories.

Considering the entire population surveyed:

- Conditions listed in the Digestive System/Gastroenterology category were reported by a low of 16% of English Toy Terrier owners to a high of 28% of Standard Manchester Terrier owners.
- Rates of digestive issues reported by companion owners vs. breeders/exhibitors ranged from just 4-7%, indicating both groups have similar experiences.
- Impacted Anal Glands affected 9.9% (116) of dogs across all breeds/varieties, making it the second most common health issue reported in the entire survey. This condition:
 - Disproportionately affected Manchester Terriers (UK/FCI) where owners reported the disease at a rate of 16.8%. Both Standard Manchester Terriers and English Toy Terriers also reported relatively high rates at 9.7% and 6.6%, respectively, with Toy Manchester owners reporting the condition in just 2.3% of their dogs.
 - Was reported more often in females than males. Overall, impacted anal glands were reported in 7% of all dogs and 12% of all females. In Manchester Terriers (UK/FCI), the condition was reported in 21% of females compared to 11% of males.
- Bilious Vomiting Syndrome, described as episodes of vomiting bile, was the second most common issue reported with 4.9% (57) of owners reporting the condition across all breeds/varieties. This condition disproportionately affected Standard Manchesters (12.9%) with owners reporting it at almost 2.5x the rate of Toy Manchesters (5.3%) and almost 5x the rate of Manchester Terriers (2.7%) and ETTs (2.6%).
- Intestinal Lymphangiectasia was reported only in the Toy Manchester population (2.6%), while the related condition of Protein-Losing Enteropathy was reported primarily in TMTs and SMTs (1.3% and 1.1% compared to 0% of MTs and 0.4% ETTs).

Comparisons Across Variety Groups

Each breed or variety examined had at least one digestive condition in which levels were markedly higher as compared to the others. While there is always a danger in making comparisons only among this small group, doing so can provide insight into differences among our breed/variety sub populations as well as possible differences in veterinary/owner diagnoses. It is possible that biases in veterinary testing and diagnosis, breeder/owner self-diagnoses, etc. may have played a role in selection of one diagnosis over another in families of condition with similar symptoms.

Notable disparities include the following:

- Toy Manchester Terriers:
 - Intestinal Lymphangiectasia only observed in TMTs
 - Protein-Losing enteropathy almost completely exclusive to TMT and SMTS
 - 3x more likely to report Chronic Diarrhea
- Standard Manchester Terriers:
 - 2.5 – 5x more likely to report Bilious Vomiting Syndrome
 - 2x more likely to report Irritable Bowel Disease
 - Highest rate of Pancreatitis
 - Protein-losing enteropathy was almost completely exclusive to TMTs and SMTs

- Manchester Terriers (UK/FCI):
 - Rate of Impacted anal glands almost 7% higher than breed average and some 10-15% higher than ETTs and TMTs.
- English Toy Terriers:
 - 2x more likely to report Colitis
 - 2x more likely to report Hemorrhagic Gastroenteritis

*When reviewing results for this category, please keep in mind that an error in survey structure resulted in Pancreatitis being erroneously listed in both the Digestive and Liver/Pancreas categories. To reflect actual reports, figures are reported in summaries for both categories, however, are only included in category totals for the Liver/Pancreas category.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- | | |
|---|--|
| <ul style="list-style-type: none"> • Bilious Vomiting Syndrome (episodes of vomiting bile) • Colitis (inflammation of the inner lining of the colon) • Coprophagia (stool eating) • Chronic Diarrhea • Esophageal Diverticula (sacs or pouches on the wall of the esophagus) • Gastric Dilation and Volvulus (bloat/torsion) • Hemorrhagic Gastroenteritis (rapid onset of hemorrhagic (bloody) stool) • Hiatal Hernia (esophageal hernia) • Impacted Anal Glands • Intestinal Lymphangiectasia (dilation of lymph vessels resulting in lymph leakage into the small intestine) | <ul style="list-style-type: none"> • Irritable Bowel Disease (chronic inflammation of the intestines causing persistent diarrhea and/or vomiting) • Megacolon (abnormally dilated colon) • Megaesophagus (enlarged or dilated esophagus) • Pancreatitis • Perineal Hernia (hernia involving the pelvic floor) • Pica (hunger for substances not fit for food) • Peritonitis (inflammation of the membrane that line the abdomen) • Protein Losing Enteropathy (PLE) (intestinal protein loss resulting in a failure to absorb sufficient protein present in the animal's diet) • Ulcerative Colitis (inflammatory bowel disease causing chronic inflammation and ulcers in the digestive track) |
|---|--|

Toy Manchester Terriers

The most common conditions affecting Toy Manchester Terriers in the Digestive System/Gastroenterology category were Chronic Diarrhea, which was reported in 5.2% (16) of Toy Manchesters, and Bilious Vomiting Syndrome, which was reported in 4.9% (15) of Toy Manchesters.

Additional conditions reported included 12 cases of Coprophagia (3.9%); eight cases each of Intestinal Lymphangiectasia, Irritable Bowel Disease and Pancreatitis* (2.6%); seven dogs with Impacted Anal Glands (2.3%); four cases each of Colitis and Protein-losing Enteropathy (1.4%); two cases each of Chronic Constipation, Esophageal Stricture, and Hemorrhagic Gastroenteritis (0.7%); and, one case each of Megaesophagus and Pica (0.3%).

In the 'other' section, owners also identified one case each of lymphoplasia; ascites; episodic constipation; and, 'reflux issues with a sensitive stomach' (0.3%). One owner also used this space to report a case of suspected but unconfirmed Protein-losing Enteropathy.



It should be noted that:

- Intestinal Lymphangiectasia was reported only in the Toy Manchester population.
- Reports of Protein-Losing Enteropathy were almost wholly limited to Toy and Standard Manchester Terriers
- Toy Manchester owners were up to 5x more likely to report chronic diarrhea (5.3% compare to 1.1% in SMTs, 0.4% in MTs and 1.8% in ETTs).

Influencing Factors

A number of factors likely affected owner reporting for this category:

- 1) Several of the digestive issues listed in this category have common symptoms like vomiting and diarrhea. Some of the conditions listed are also closely related and may even be considered forms of one another (i.e., Irritable/Inflammatory Bowel Disease may be a pre-cursor to Protein-Losing Enteropathy, Intestinal Lymphangiectasia is considered a form of PLE, etc.). Others present subtle clinical differences, increasing the likelihood that the same issue may be diagnosed differently by individual veterinarians (i.e., colitis versus irritable bowel). As a result, reporting of multiple conditions was more common in this category than most others.
- 2) The likelihood of owners self-diagnosing general digestive issues based solely on the condition descriptions provided in the survey is high, particularly in the case of general issues like vomiting, diarrhea, irritable bowel disease, etc.

Associated Deaths

Five Toy Manchesters were reported to have died from digestive issues, representing 7% of all reported Toy Manchester deaths. Three of the dogs died from Intestinal Lymphangiectasia and two from Protein-Losing Enteropathy (as noted above, IL is considered a form of PLE.) Age at death ranged from three to nine years with an average age at death of 7.2 years.

Relation to Other Conditions

Digestive issues are difficult to consider in isolation. In addition to conditions listed in the Digestive System/Gastroenterology category, food allergies should also be considered. Unfortunately, the survey did not explore this topic in sufficient detail. Among other shortcomings, the questions did not distinguish between sensitivities causing gastric versus skin responses or sensitivities versus true allergies. In total, 12 owners reported “food allergies” (as described in the survey). Taking into account only cases where owners reported allergies and either specifically indicated a gastric component or indicated gastric disturbances elsewhere in the survey, we can link 6 cases to gastric disturbances with confidence. This number, which represents 1.9% of the sample size, should not be taken as completely representative however, as this information was not available for all dogs identified with allergies.

It should also be noted that some interplay between gastrointestinal and concurrent kidney and/or liver issues may have been present and might warrant additional investigation or observation. Four owners of Toy Manchesters reported dogs with concurrent kidney and digestive issues; three reported concurrent digestive issues and elevated liver enzymes; and, one reported concurrent digestive and kidney issues with elevated liver enzymes. When considering these results, please keep in mind that elevated liver enzymes was not a standard choice on the survey and collection of information on this phenomenon relied wholly on owners voluntarily including it in the ‘other’ box. As a result, it is possible that more dogs may have had elevated liver enzymes concurrent with conditions listed in the survey.

The possibility of a link between these conditions is further strengthened when results in other varieties are considered as a total of 12 dogs with concurrent digestive and kidney issues; three with concurrent digestive issues



and elevated liver enzymes; and, three with concurrent digestive and kidney issues as well as elevated liver enzymes were identified across all breed/varieties examined in the survey.

Follow-up

Additional surveying is recommended to:

- Investigate gastrointestinal issues in Toy Manchester Terriers (including possible concurrent conditions).
- Provide more information on allergies in the breed as a whole.

OBSERVATION

While reported rates of many conditions in the category increased – sometimes dramatically – in this survey as compared to results from the 2002 General Health Survey, rates of one condition fell substantially. In 2002, the most common condition reported in the digestion category was Coprophagia (stool eating), which was found in 13.5% of Manchesters. In 2018, the Behaviour was reported in just 4.5% of the same combined TMT and SMT population.

Something we can all be happy about!

Standard Manchester Terriers

The most common conditions affecting Standard Manchester Terriers in the Digestive System/Gastroenterology category were Bilious Vomiting Syndrome, which was reported in 12.9% (24) of Standard Manchesters, and Impacted Anal Glands, which were reported in 9.7% (18) of Standard Manchesters.

Additional conditions reported included 10 cases of Coprophagia (5.4%); nine cases of Pancreatitis* (4.8%); eight cases of Irritable Bowel Disease (4.3%); four cases of Colitis (2.3%); two cases each of Chronic Diarrhea and Protein-Losing Enteropathy (1.1%); and, one case each of Esophageal Stricture and Hemorrhagic Gastroenteritis (0.5%).

In the ‘other’ section, three owners identified dogs with chronic or occasion issues with sensitive stomach in the morning (two owners indicated their dogs would refuse food and two also reported associated vomiting). Two owners reported their dog eats too fast and vomits; and one clarified that the bilious vomiting reported was more like regurgitation of food.

Looking more closely at the group of dogs reporting impacted anal glands, the condition was reported in 12 females (13% of SMT females) compared to 6 males (6.5% of SMT males). This trend was consistent when compared to the entire breed/variety population reporting the same condition, where impacted anal glands were reported in 7% of dogs and 12% of females.

It should be noted that:

- Reports of Protein-Losing Enteropathy were almost wholly limited to Toy and Standard Manchester Terriers.

- Standard Manchester owners were 2.5 – 5x more likely to report Bilious Vomiting Syndrome (12.9% compared to 5.3% of TMTs, 2.7% of MTs and 2.6% of ETTs).
- SMT owners were 2x more likely to report Irritable Bowel Disease (4.3% compare to 2.6% in TMTs, 0.2% in MTs and 1.8% in ETTs).

Influencing Factors

A number of factors likely affected owner reporting for this category:

1. Several of the digestive issues listed in this category have common symptoms like vomiting and diarrhea. Some of the conditions listed are also closely related and may even be considered forms of one another (i.e., Irritable/Inflammatory Bowel Disease may be a pre-cursor to Protein Losing Enteropathy while Intestinal Lymphangiectasia is considered a form of PLE), and still others may present subtle clinical differences increasing the likelihood that the same issue may be diagnosed differently by individual veterinarians (i.e., colitis vs. irritable bowel). As a result, reporting of multiple conditions was more common in this category than most others.
2. The likelihood of owners self-diagnosing general digestive issues based solely on the condition descriptions provided in the survey is high, particularly in the case of general issues like vomiting, diarrhea, irritable bowel disease, etc.

Associated Deaths

One Standard Manchester was reported to have died from digestive issues, with Pancreatitis and Diabetes cited as cause of death at age 11.

Relation to Other Conditions

Digestive issues are difficult to consider in isolation. In addition to conditions listed in the Digestive System/Gastroenterology category, food allergies should also be considered. Unfortunately, the survey did not explore this topic in sufficient detail. Among other shortcomings, the questions did not distinguish between sensitivities causing gastric versus skin responses or sensitivities versus true allergies.

In total, eight owners reported “food allergies” (as described in the survey.) Taking into account only cases where owners reported allergies and either specifically indicated a gastric component or indicated gastric disturbances elsewhere in the survey, we can link 6 cases to gastric disturbances with confidence. This number, which represents 2.2% of the sample size, should not be taken as completely representative however, as this information was not available for all dogs identified with allergies.

It should also be noted that some interplay between gastrointestinal and concurrent kidney and/or liver issues may have been present and might warrant additional investigation or observation. Six owners of Standard Manchesters reported dogs with concurrent kidney and digestive issues; two reported concurrent digestive issues and elevated liver enzymes; and, two reported concurrent digestive and kidney issues with elevated liver enzymes. When considering these results, please keep in mind that elevated liver enzymes was not a standard choice on the survey and collection of information on this phenomenon relied wholly on owners voluntarily including it in the ‘other’ box. As a result, it is possible that more dogs may have had elevated liver enzymes concurrent with conditions listed in the survey.

The possibility of a link between these conditions is further strengthened when results in other varieties are concerned as a total of 12 dogs with concurrent digestive and kidney issues; three with concurrent digestive issues and elevated liver enzymes; and, three with concurrent digestive and kidney issues as well as elevated liver enzymes were identified across all breed/varieties examined in the survey.

Follow-up

- Investigate gastrointestinal issues in Standard Manchester Terriers (including possible concurrent conditions).
- Investigate impacted anal glands in Manchester Terriers.

Manchester Terriers (UK/FCI)

The most common condition affecting Manchester Terriers (UK/FCI) in this category is Impacted anal glands, which affected 76 Manchester Terriers (16.81%) – making it the most commonly reported issue for this breed in the entire survey.

Other conditions reported included 14 cases of Pancreatitis (3.1%); 13 cases of Coprophagia (2.9%); 12 cases of Biliary Vomiting Syndrome (2.7%); three cases of Hemorrhagic Gastroenteritis (0.7%); two cases each of Colitis, Chronic Constipation, and Chronic Diarrhea (0.4%); and one case each of bloat/torsion, Hiatal Hernia, Irritable Bowel Syndrome, Megaesophagus, Pica, Peritonitis and Ulcerative Colitis (0.2%).

In the ‘other’ section, owners identified three cases of chronic vomiting and diarrhea (with one owner indicating successful treatment was antibiotics and a prescription diet and another indicating exploratory surgery revealed ‘inflammation of the intestine’). Other comments included reports of one case each of ‘esophageal dysmotility’; a fatal infection of the small intestine; vomiting when stressed or after missing a meal; a dog who lost weight and white blood cells at age eight; a sensitive stomach; and, a dog who was ‘unhealthy underweight’ and ‘could not gain weight no matter what she ate’.

Looking more closely at the group of dogs reporting impacted anal glands, the condition was reported in 54 females (21% of MT – UK/FCI females) compared to 22 males (11% of MT – UK/FCI males). Though not as pronounced, this trend was consistent when compared to the entire breed/variety population reporting the same condition, where impacted anal glands were reported in 7% of dogs and 12% of females.

Associated Deaths

Seven Manchester Terriers (UK/FCI) were reported to have died from digestive issues, with three attributed to pancreatitis; two to pancreatitis and kidney failure; one to an infection of the small intestine, and one to bloat/torsion. Three of the deaths occurred in six-year-old dogs, with the remainder aged 12-14 at death.

Relation to Other Conditions

Digestive issues are difficult to consider in isolation. In addition to conditions listed in the Digestive System/Gastroenterology category, food allergies should also be considered. Unfortunately, the survey did not explore this topic in sufficient detail. Among other shortcomings, the questions did not distinguish between sensitivities causing gastric versus skin responses or sensitivities versus true allergies.

In total, eight owners reported “food allergies” (as described in the survey). Taking into account only cases where owners either specifically indicated a gastric component or indicated gastric disturbances elsewhere in the survey, we can link eleven cases to gastric disturbances with confidence. This number, which represents 2.4% of the MT (UK/FCI) sample, should not be taken as completely representative however, as this information was not available for all dogs identified with allergies.

Follow-up

Additional surveying is recommended to:

- Investigate impacted anal glands in Manchester Terriers

English Toy Terrier Deaths

The most common condition affecting English Toy Terriers in this category is Impacted anal glands, which affected 15 ETTs (6.6%)

Other conditions reported included six cases each of Bilious Vomiting Syndrome and Colitis (2.6%); five cases of Coprophagia (2.2%); four cases each of Chronic Diarrhea, Hemorrhagic Gastroenteritis and Irritable Bowel Disease (1.8%); two cases of Pancreatitis; and, one case each of bloat/torsion, Pica, Peritonitis and Protein-Losing Enteropathy (0.4%).

In the ‘other’ section, owners identified one case each of susceptibility to infections of the digestive track; ‘need for a low-fat diet and bottled water’; diaphragmatic hernia due to injury; occasional diarrhea; episodes of vomiting bile without diagnosis; episodes of vomiting blood; and, inability to ‘build up body condition’.

It should be noted that English Toy Terrier owners were:

- 2x more like to report Colitis (2.6% compared to 1.3% in TMTs, 2.1% in SMTs and 0.4% in MTs); and,
- 2x more likely to report Hemorrhagic Gastroenteritis (1.8% compared to 0.7% in TMTs, 0.5% in SMTs and 0.7% in MTs).

Associated Deaths

Two English Toy Terriers were reported to have died from digestive issues, with chronic diarrhea cited as cause of death in one dog at age 8 and pancreatitis listed as cause of death in a 14 year old dog.

Relation to Other Conditions

Digestive issues are difficult to consider in isolation. In addition to conditions listed in the Digestive System/Gastroenterology category, food allergies should also be considered. Unfortunately, the survey did not explore this topic in sufficient detail. Among other shortcomings, the questions did not distinguish between sensitivities causing gastric vs. skin responses or sensitivities versus true allergies.

In total, eight owners reported “food allergies” (as described in the survey.) Taking into account only cases where owners reported allergies and either specifically indicated a gastric component or indicated gastric disturbances elsewhere in the survey, we can link five cases to gastric disturbances with confidence. This number, which represents 2.2% of the sample size, should not be taken as completely representative however, as this information was not available for all dogs identified with allergies.

Ear/Hearing

Conditions listed in the Ear/Hearing category were reported in 8.5% (99) of 1,171 surveys completed across all breeds/varieties.

Considering the entire population surveyed:

- Deafness related to advanced age had a consistent age of onset across all breeds/varieties of approximately 12 years of age.
- Age-related deafness appeared to disproportionately affected Toy Manchesters, however a direct comparison can only be made with Standard Manchester Terriers as the age of the MT (UK/FCI) and ETT populations skewed significantly younger (for example, while 35% of TMTs reported on were aged 11 years or above, just 10% of ETTs fell in the same age range and the ETT sample was also smaller).
- Unilateral or bilateral hearing loss that was not related to age was reported in 2.4% of MTs and 2.2% of SMTs as compared to 0.4% of ETTs and 0% of TMTs.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- Chronic Ear Infections
- Deafness (Unilateral – one ear)
- Deafness (Bilateral – both ears)
- Deafness related to advanced age

Toy Manchester Terriers

Deafness related to advanced age affected 38 Toy Manchesters, representing 12.5% of the total surveyed population and 35% of the 109 Toy Manchesters reported on in the survey who were 11 years of age or older. 34 owners provided information pointing to median age at onset of 12 years.

No Toy Manchesters were identified as having bilateral or unilateral deafness that was not age related.

Other ear related problems in Toy Manchester Terriers included one dog with chronic ear infections (0.3%) and one owner who indicated in the 'other' section that his/her dog's ears required regular cleaning and drops.

Standard Manchester Terriers

Deafness related to advanced age affected nine Standard Manchesters, representing 4.8% of the total surveyed population and 14% of the 64 Standard Manchesters reported on in the survey who were 11 years of age or older. Seven owners provided information pointing to a median age at onset of 12 years.

In addition, two (1.1%) Standard Manchesters were identified as having bilateral deafness that was not age related and two more (1.1%) as having unilateral deafness that was not related to age. Information on age of onset was provided for two individuals who were both deaf in both ears (bilateral) at birth. The owner of one explained that, though the dog regained hearing by 18 months according to BAER testing, her verbal skills did not develop and she was reactive when processing some sounds and tones.

Five Standard Manchester Terriers were reported with chronic ear infections (2.7%).



Manchester Terrier (UK/FCI)

Deafness related to advanced age affected 20 Manchester Terrier (UK/FCI), representing 4.4% of the total surveyed population and 23% of the 87 Manchesters reported on in the survey who were 11 years of age or older. Eighteen owners provided information pointing to median age at onset of 12 years.

An additional seven (1.5%) Manchesters were identified as having bilateral deafness that was not age related and four more (0.9%) as having unilateral deafness that was not related to age. Information on age of onset was provided for two individuals. One was bilaterally deaf with BAER testing showing “complete deafness in one ear and 85% in the other” at six weeks. The other showed signs of deafness at 4 weeks with a veterinary diagnosis of “cochlear deafness, pigmentation cells in the ear that disappear soon after birth.” While age at onset data was not provided for all dogs, it is interesting to note that three of the four dogs with unilateral hearing loss were three years old and the fourth was seven years old as of the date the survey was completed, with one of the bilaterally deaf dogs (not reported above) aged two years old. From this ancillary data we can confirm with confidence that at least six of the 11 Manchester Terriers (UK/FCI) reported to have unilateral or bilateral hearing loss were affected at a young age.

Other ear related problems in Manchester Terriers (UK/FCI) included two dogs with chronic ear infections (0.4%) and one owner who used the ‘other’ section to report ear rim necrosis “worsening in cold conditions (winter)”.

English Toy Terriers

Deafness related to advanced age affected five English Toy Terriers, representing 2.2% of the total surveyed population and 21% of the 24 ETTs reported on in the survey who were/are 11 years of age or older. All five owners provided information pointing to median age at onset of 12 years. An additional one (0.4%) ETT was identified as having bilateral deafness that was not age related, with his owner indicating he was born deaf.

Two English Toy Terriers were reported with chronic ear infections (0.9%).

Endocrinology

Conditions listed in the Endocrinology category were reported in 4.2% (49) of 1,171 surveys completed across all breeds/varieties.

Considering the entire population surveyed:

- Incidence of endocrine disease was not consistent across all breeds/varieties examined, with North American rates at 9.7% of Standard Manchester Terriers and 6.9% for Toy Manchesters compared to just 1.5% in Manchester Terriers (UK/FCI) and 1.3% in English Toy Terriers.
- The most common disorder reported was hypothyroid, which was seen in 24 dogs total, representing 2% of the overall population. This disease was most common in Standard Manchester Terriers at a rate of 5.4% compared to 2.6% of Toy Manchesters and 1% or less in Manchester Terriers and ETTs.
- In 2002, the rate of hypothyroid reported in the combined Toy and Standard Manchester Terrier population was 2.6%. In 2018, the rate among Toy Manchesters was also 2.6% but rose to 5.4% among Standard Manchesters.
- Cushing's Disease and Diabetes Mellitus were the second and third most common issues reported, affecting less than 1% of the total population.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- Addison's Disease (lower than normal production of hormones, such as cortisol, by the adrenal glands)
- Cushing's Disease (excess cortisol levels caused by a pituitary tumor)
- Diabetes Insipidus ("water diabetes" – inability to regulate water metabolism, characterized by excessive thirst and increased/dilute urine)
- Diabetes Mellitus ("sugar diabetes" – excessive sugar in the blood and urine due to inability to use insulin)
- Hyperthyroidism (increase activity of the thyroid gland)
- Hyperparathyroidism (increased activity of the parathyroid gland)
- Hypothyroidism (deficient activity of the thyroid gland)
- Insulinoma (insulin producing tumor)

Toy Manchester Terriers

The most common conditions affecting Toy Manchester Terriers in the Endocrinology category were Hypothyroid, which was reported in 8 (2.6%) Toy Manchesters, and Cushing's Disease, which was reported in 4 (1.3%) Toy Manchesters. Additional conditions reported included two cases of Diabetes Mellitus (1%) and one case each of Diabetes Insipidus, Hyperthyroid and Hyperparathyroid (0.3%). An additional case of diabetes was identified as cause of death in a 12-year-old dog, however the type was not indicated in the body of the survey.

In the 'other' section, one owner identified a suspected but unconfirmed case of Cushing's Disease; a dog with high autoimmune markers that may have pointed to Addison's Disease; and a dog with short-term diabetes insipidus and incontinence resulting from a reaction to oral steroids.

The rate of hypothyroid in Toy Manchesters reported in the 2018 general health survey is unchanged as compared to the rate reported in the 2002 general health survey (which combined Toy and Standard Manchesters together).

Associated Deaths

Three Toy Manchesters died from conditions listed in the Endocrinology section, with two dogs dying of Diabetes (one diabetes mellitus and the other not identified) both at age 12. One Toy Manchester also died of Hyperparathyroid at age 12.



Standard Manchester Terriers

The most common condition affecting Standard Manchester Terriers in the Endocrinology category was Hypothyroid, which was reported in 10 (5.4%) Standard Manchesters and Cushing's Disease, which was reported in 5 (2.15%) dogs. Additional conditions reported included three cases of Diabetes Mellitus (1.6%), two cases of Hyperthyroid (1.1%), and one case of Addison's Disease (0.5%).

In the 'other' section, one owner explained that Addison's Disease in his/her dog resulted from a reaction to treatment of Cushing's Disease. Another owner explained that Cushing's Disease in his/her dog was caused by tumors on the adrenal gland and resolved once the tumors were removed. And a third owner indicated that their dog's symptoms have prompted their veterinarian to test for Cushing's Disease several times but the results so far have been negative.

Associated Deaths

Three Standard Manchesters died from conditions listed in the Endocrinology section, with one dog dying of Cushing's Disease at age 17; one dying of "Cushing's Disease/Addison's Disease/Old Age" at age 15; and, one Standard Manchester dying of Pancreatitis/Diabetes at age 11.

Manchester Terriers (UK/FCI)

The most common condition reported for Manchester Terrier (UK/FCI) in the Endocrinology category was Hypothyroid, which was reported in 1.1% (5) of Manchesters. Cushing's Disease was reported in 0.4% (2) dogs. No other conditions were reported in this category.

Associated Deaths

No Manchester Terriers (UK/FCI) were reported to have died from conditions listed in the Endocrinology section.

English Toy Terriers

The most common condition reported for English Toy Terriers in the Endocrinology category was Cushing's Disease, which was reported in 0.9% (2) of ETTs. One case each of Diabetes Mellitus and Hypothyroid were also reported (0.4%). No other conditions were reported in this category.

Associated Deaths

One English Toy Terrier was reported to have died from Cushing's Disease at age 8.

Eyes

Conditions listed in the Eye category were reported in 16.3% (191) of 1,171 surveys completed across all breeds/varieties, making it the fourth most reported among physical health categories.

Considering the entire population surveyed:

- As expected, “eye/sight changes related to advanced age” were reported at significantly higher rates in Toy Manchesters (12.5%) and Standard Manchester (11.3%) as compared to Manchester Terriers (3.3%) and English Toy Terrier (3.1%). The difference observed is due in large part to the demographics of the surveyed population. Median age at onset for age-related eye/vision changes was consistent across all breeds/varieties surveyed at 11-12 years, however just 10% of English Toy Terrier and 19% of Manchesters reported an were 11 years of age or older, compared to 35% of TMTs and 34% of SMTs.
- Conjunctivitis was reported at slightly elevated rates in the Manchester Terrier (UK/FCI) population with 4% of owners reporting at least one eye infection during their dog’s lifetime as compared to 1% in TMTs, 0.4% in ETTs, and 0.3% in SMTs.
- Rates of all eye disease in the category are likely heavily affected by the amount of standard eye screening done by breeders/exhibitors as part of breeding clearances. As respondents who completed the survey were not asked whether testing was associated with clearances or in response to observed symptoms, it is impossible to measure the impact of eye issues reported on a wide scale.

*When reviewing results for this category, please keep in mind that some conditions listed lend themselves to higher rates of owner diagnosis based on descriptions provided. This is particularly true of night blindness and cataracts, as age-related nuclear sclerosis and cataracts are frequently confused. As no information was collected on whether diagnoses were made by a veterinarian, we must consider that reporting of these conditions may not be as accurate as reports of conditions that are less likely to be solely owner identified.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- | | |
|--|--|
| • Cataracts (cloudiness of opacity of the lens) | • Keratoconjunctivitis Sicca (dry eye) |
| • Conjunctivitis (severe allergic reaction or infection of the eye) | • Lens Luxation (dislocation of the lens) |
| • Ectropion (rolling outward of all or part of the edge of an eyelid) | • Night blindness (inability or extreme difficulty seeing at night or in low light) |
| • Entropion (rolling inward of all or part of the edge of an eyelid) | • Persistent Pupillary Membrane (strands of fetal tissue remaining on the eye after birth) |
| • Eye/Sight changes related to advanced age | • Progressive Retinal Atrophy (PRA) (degeneration of the retina causing progressive vision loss) |
| • Detached retina | • Prolapsed Gland of the Third Eyelid (also known as Cherry Eye) |
| • Distichiasis (eyelash grows from an abnormal spot on the eyelid) | • Trichiasis (in-grown eyelashes) |
| • Ectopic Cilia (one or several hairs growing abnormally on the underside of the upper or lower eye lid) | • Ulcerated Cornea |
| • Glaucoma (build-up of fluid causing pressure in eye ball) | • Vitreous Degeneration (degeneration of the fluid filling the eye) |

Toy Manchester Terriers

The most common conditions affecting Toy Manchester Terriers in the Eye category were “eye/sight changes related to advanced age”, which affected 12.5% (37) of Toy Manchesters, and Cataracts, which were reported in 10.5% (32) of Toy Manchesters. Additional conditions reported included seven cases each of Night blindness and Persistent Pupillary Membrane (2.3%), four cases of Keratoconjunctivitis Sicca (1.3%), three cases of Conjunctivitis (1%), two cases of Glaucoma (0.7%), and one case each of Lens Luxation, Progressive Retinal Atrophy, Ulcerated Cornea, and Vitreous Degeneration (0.3%).

In the ‘other’ section, owners reported one case of hyperpigmentation in the eye, one case of uveitis (inflammation of the uvea – middle layer of the eye), and one eye injury.

32 of 38 owners who reported “eye/sight changes related to advanced age” provided information pointing to a median overall age at onset for eye changes of 12 years, with reported ages ranging from a low of eight years to a high of 15 years. Eye sight changes related to age accounted for at least half of all reported cases of cataracts, three of the seven cases of night blindness, and one case of glaucoma and ulcerated cornea (both noted in the same dog).

Among the 16 reports of cataracts associated with age-related changes to the eye, the median age at onset was 11 years. In the remaining 16 reports of cataracts, age of onset was provided for just two dogs (affected at ages three and six), however it is interesting to note that an additional five dogs reported to have cataracts were aged 4-6 years as of the date the survey was completed. From this ancillary data we can confirm with confidence that at least seven of the 32 Toy Manchesters reporting cataracts (22% of all cases) were affected at less than six years of age. In the ‘other’ space provided, one of these owners linked the dog’s cataracts to prolonged steroid use while another noted a diagnosis of juvenile cataracts at age three.

Looking more closely, all seven cases of Persistent Pupillary Membrane, 11 of the 16 cases of cataracts where age-related changes were not also selected, and the only cases of Lens Luxation, Progressive Retinal Atrophy and Ulcerated Cornea were identified in dogs owned by Breeders/Exhibitors. These findings may suggest diagnosis through screening aids like the Canine Eye Registration Foundation (CERF) rather than based on symptoms alone – findings supported by testing habits reported in the [2017 Breeder’s Survey](#). This is important as it may point to additional sources of detailed information on eye health. Because only a small number of breeders/exhibitors provided information on “age of onset”, it is also possible that eye condition diagnosed through screening at a young age do not have/have little impact on the dog’s day-to-day life. Determining when or if diagnosed conditions begin to affect dogs would be an important indicator of the impact of conditions for which testing is available.

Finally, it should be noted that Toy Manchester owners tended to report multiple eye conditions in the same dog at a higher rate in the eye category than is typical in other categories and at a higher rate for this category as compared to other breeds or varieties surveyed. Not including reports of “eye changes related to age”, 14 of 46 dogs reported multiple eye conditions with 11 reporting two conditions, two reporting three conditions and one owner reporting five eye conditions. As a result, these 14 dogs reported almost half of all specific eye conditions noted in the TMT survey results above.

Follow-up

- Additional investigation of reports available through organized registries or databases is recommended;
- If additional surveying on eye conditions is pursued, an effort should be made to distinguish between age at diagnosis and age at which symptoms are observed for cataracts in Toy Manchesters.



Standard Manchester Terriers

The most common condition affecting Standard Manchester Terriers in the Eye category were Cataracts, which were reported in 11.8% (22) of Standard Manchesters, and “eye/sight changes related to advanced age”, which affected 11.3% (21) of Standard Manchesters. Additional conditions reported included two cases of Keratoconjunctivitis Sicca and Night blindness (1.1%), and one case each of Conjunctivitis, Ectropion Persistent Pupillary Membrane, and Trichiasis (0.3%). No conditions were reported in the ‘other’ category.

16 of 22 owners who reported “eye/sight changes related to advanced age” provided information pointing to a median overall age at onset of 11 years, with ages ranging from a low of nine years to a high of 14 years. Eye sight changes related to age accounted for at least 1/3 of all reported cases of cataracts.

Among the seven reports of cataracts associated with age-related changes to the eye, the median age at onset was 10 years. In the remaining 15 reports of cataracts, age of onset was provided for zero (0) dogs. In the ‘other’ space provided, one of the owners noted eye changes were associated with diabetes.

Looking more closely at results reported, it should be noted that the only cases of Ectropion, Persistent Pupillary Membrane and Trichiasis were reported by Breeders/Exhibitors, suggesting diagnosis through screening aids like the Canine Eye Registration Foundation (CERF) rather than based on symptoms alone. This is important as it may point to additional sourced of detailed information on eye health. Additionally, just two of the 15 cases of cataracts not related to age were reported by Breeders/Exhibitors, which may be significant when it is considered that 100% of SMT breeders who responded to the [2017 Breeder’s Survey](#) indicated that they ‘always’ or ‘most always’ complete eye exams as part of regular screening. Even so, because no information on age of onset for non-age-related cataracts was provided, the impact of the condition on quality of life cannot be assessed. Determining when or if diagnosed conditions begin to affect dogs would be an important indicator of the impact of conditions for which testing is available.

Follow-up

- Additional investigation of reports available through organized health registries or databases is recommended;
- If additional surveying on eye conditions is pursued, information on age at diagnosis and age at which symptoms are observed will provide important insight into cataracts in Standard Manchester Terriers.

Flashback to 2002

When results of the 2018 health survey are compared to results of the 2002 survey, reported cases of cataracts in the combined Toy and Standard Manchester population increased from 1.4% to 11%, and night blindness increased from 0.7% to 1.8%. Reports of most other conditions measured in both studies remained consistent.

Several factors may have impacted results relating to cataracts. First, the 2002 survey was conducted almost entirely among breeders/exhibitors, with little to no input from companion owners. Second, eye changes related to age was not offered as an option on the original survey. A 2003 follow-up study focusing specifically on cataracts, however, concluded that average age of onset for cataract symptoms was 9 years. Finally, the use of eye testing as a screening tool for breeder/exhibitors has dramatically increased since 2002, when 58% of breeders indicated they never CERF’d eyes as compared to the [2017 Breeder Survey](#), where 88% of TMT breeders and 100% of the SMT breeder indicate that they always or most always CERF eyes.

As the old saying goes... you won’t know something is there if you never look for it! Given the dramatic increase in screening, it would not be surprising if there were an increase in the reported number of minor issues with little impact on sight OR issues that can only be observed by an ophthalmologist that may otherwise have gone unnoticed.



Manchester Terrier (UK/FCI)

The most common conditions affecting Manchester Terriers (UK/FCI) in the Eye category were Conjunctivitis, which affected 4% (18) MTs, and “eye/sight changes related to advanced age” and Cataracts, which both affected 3.3% (15) of Manchesters.

Additional conditions reported included six cases of Glaucoma (1.3%), five cases of Keratoconjunctivitis Sicca (1.1%), two cases each of Night blindness and Ulcerated Cornea (0.4%), and one case each of Detached Retina, Persistent Pupillary Membrane, and Vitreous Degeneration (0.2%).

In the ‘other’ section, owners reported one case of “Third eyelid is too tight (hair and dirt gets stuck under and causes infection)”, and one case of “dry eye syndrome, and skin allergy to certain meadow plants.”

Nine of the 15 owners who reported “eye/sight changes related to advanced age” provided information pointing to a median overall age at onset for eye changes of 11 years, with reported ages ranging from a low of nine years to a high of 16 years.

Eye/sight changes related to age was selected as an option for two of all reported cases of cataracts. Among the 13 reports of cataracts where age-related changes to the eye was selected, age of onset was provided for zero (0) dogs. Advanced age was noted in four of six cases of glaucoma.

It should be noted that reports of eye issues were low among Manchester breeder/exhibitors as compared to other breeds/varieties examined in this study. While it is possible this may indicate fewer eye problems in the breed/variety, it may also reflect lower rates of standardized eye clearances as part of pre-breeding testing, which is consistent with the results of the [2017 Breeder’s Survey](#).

English Toy Terrier

The most common condition affecting English Toy Terriers in the Eye category were Cataracts, which affected 7.4% (17) of ETTs and “eye/sight changes related to advanced age”, which affected 3.1% (7) of ETTs. Cataracts were the fourth most common health-related condition reported among ETTs in the survey.

Additional conditions reported included two cases of Night blindness (0.87%), and one case each of Conjunctivitis, Distichiasis, Keratoconjunctivitis Sicca, and Vitreous Degeneration (0.4%).

In the ‘other’ section, owners reported one case of episcleritis (inflammation of the episclera tissue of the eye); one case of anisocoria (unequal size pupils); on dog with iris atrophy (associated with vitreous Degeneration); and, one report of an “eye removed due to trauma”.

5 of 7 owners who reported “eye/sight changes related to advanced age” provided information pointing to a median overall age at onset of 12 years, with reported ages ranging from a low of 11 years to a high of 15 years.

Eye sight changes related to age was selected as an option for just four of all reported cases of cataracts. Among the 13 reports of cataracts where age-related changes to the eye was not selected, age of onset was provided for zero (0) dogs.

As has been noted in other areas of the survey, the low overall age of ETTs reported on in the survey is expected to affect results for this category. Because just 10% of dogs reported on were over age 11, for example, lower rates of age-related eye issues should be expected in comparison to other breeds/varieties surveyed.

Follow-up

- As results of the [2017 Breeder's Survey](#) indicates that eye testing/screening is widely practiced by English Toy Terrier breeders/exhibitors, additional investigation of reports available through organized health registries or databases is recommended.



Heart/Cardiology

Conditions listed in the Heart category were reported in 9.1% (107) of 1,171 survey completed across all breeds/varieties surveyed.

Considering the entire population surveyed:

- Heart murmurs were the most commonly reported condition across all breeds/varieties in this category, with rates ranging from approximately 4% in English Toy and Manchester Terriers (UK/FCI) to approximately 7% for Toy and Standard Manchesters.
- In dogs reporting an issue in the heart category, both median age at death and median age of still living dogs were advanced in Toy and Standard Manchesters. While this information does not offer direct insight into age of onset, impact on quality of life, etc. it does suggest that these conditions may appear later in life (i.e., congestive heart failure) or do not have significant impact on length of life (i.e., heart murmurs). Sample sizes for MTs and ETTs were too small to analyze in this way.
- When results of the 2018 health survey are compared to results of the [2002 survey](#), reported cases of heart murmurs in the combined Toy and Standard Manchester population increased from 2.72% to 6.7%. Additional research would be required to determine factors influencing the increase. While it is possible that the increase reflects a genuine increase in incidence of this condition, a variety of other factors like age, frequency of heart clearances and testing, and the inclusion companion owners rather than just breeders may play a role.

Follow-up

Given the relatively consistent reports of heart murmurs across all breeds/varieties surveyed, breeders may wish to explore this condition in more detail.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- Arrhythmia (abnormal heart rhythm)
- Atrial Septal Defect (hole/separation in septal wall separating right and left atria)
- Congestive/Chronic Heart Failure
- Dilated Cardiomyopathy (diseased heart muscle/enlarged heart, weakened muscle cannot pump blood properly)
- Hypertrophic Cardiomyopathy (enlargement or thickening of the walls of one or more heart chambers)
- Juvenile Dilated Cardiomyopathy (JDCM) (arrhythmic heart disease seen primarily in TMTs)
- Murmur (abnormal blood flow through heart valves)
- Myocardial Infarction (heart attack)
- Structural Defect (i.e., a hole in the heart or other structural deformity)
- Valve Dysfunction

Toy Manchester Terriers

The most significant cardiac condition affecting Toy Manchester Terrier was a heart murmur, with 20 identified cases representing 6.6% of the surveyed population.

Other cardiac conditions affecting Toy Manchester Terriers included eight case of Arrhythmia (2.6%), six cases of Congestive/Chronic Heart Failure (2%), three cases of fatal Juvenile Dilated Cardiomyopathy (1%), and one case each of Dilated Cardiomyopathy and Hypertrophic Cardiomyopathy (0.3%).

In the 'other' category, one owner indicated a young dog died of "symptoms similar to JDCM, though not conclusive. Pup suffered heat stroke."; one owner indicated when treating arrhythmia, the dog does not respond to atropine; and, one owner explained the "Some arrhythmia was diagnosed prior to an emergency spay. After analysis by a cardiologist it determined it was not significant. There will be no ill effects during the surgery."

Looking more closely at dogs affected by heart murmurs, 13 of the 20 dogs were living as of the date of the survey and seven were deceased. Congestive heart failure was identified as the cause of death in three of the seven cases, while the others listed non-cardiac causes of death. Median age at death among the seven deceased dogs was 14 years. Among living dogs, median age as of the date the surgery was completed was 13 years, which is significant only as a data point for potential impact on length of life. In the comments section, one owner of a dog with a heart murmur indicated it was diagnosed at age 13 and one owner explained that, after seeing several specialists, the veterinarian concluded the "the dog only has a murmur when very stressed; his not age 14 years old." Of not, 80% of owners reporting heart murmurs were companion owners and 20% were breeder/exhibitors.

Following on the above, it is of interest that the relative age of the 35 Toy Manchesters reporting issues in the heart category is relatively advance. The median age of affected TMTs living as of the date of the survey was 13 years and, excluding deaths from JDCM, the median age at death for those who were deceased was 13.5 years. While this information does not offer insight into age of onset, impact of quality of life, etc. it does suggest indirectly that Toy Manchesters tend to be affected by heart related conditions at an advanced age or that the condition(s) do not have a significant impact on length of life. This is supposition based on circumstantial evidence, however, and should not be viewed as firm conclusion. Even so, it may explain the larger number of affected dogs in the North American population given the difference in median age between the older North American population sample versus the younger European sample.

In total, nine Toy Manchesters were reported to have died from conditions listed in the Heart section, with five dogs dying of Congestive/Chronic Heart Failure, one of Mitral Valve Disease and three of Juvenile Dilated Cardiomyopathy. While age of onset was not provided for most dogs, should be noted that advanced age was clearly indicated in the first six cases listed. Median age at death in these six dogs was 14 years with all dogs aged 10 years and above.

Associated Deaths

Three Toy Manchester were reported to have died of Juvenile Dilated Cardiomyopathy. As expected, all three deaths occurred at less than one year of age. One Toy Manchester died of a stroke.

Follow-up

- Given the relatively consistent reports of heart murmurs across all breeds/varieties surveyed, breeders may wish to explore this condition in more detail.

Standard Manchester Terriers

The most significant cardiac condition affecting the Standard Manchester Terriers was a heart murmur, with 13 identified cases representing 7% of the surveyed population.

Other cardiac conditions affecting Standard Manchester Terriers included four cases of Congestive/Chronic Heart Failure (2.15%), three cases each of Arrhythmia and Valve Dysfunction (1.6%), and one case each of Dilated Cardiomyopathy and Myocardial Infarction (0.5%)



In the ‘other’ category, one owner identified an unconfirmed case of cardiomyopathy at age six (not reported on survey) and another associated valve dysfunction with pulmonary stenosis.

Looking more closely at dogs affected by heart murmurs, seven of the 13 dogs were living as of the date of the survey and six were deceased. General heart issues were identified as the cause of death in three of the seven cases, while the other listed non-cardiac causes of death. Median age at death among the seven deceased dogs was 14 years. Among the living dogs, median age as of the date of the survey was completed was 11 years, which is significant only as a data point for potential impact on length of life.

In the comments section, the following notes were made for dogs with heart murmurs:

- “Heart murmur was diagnosed as a puppy and went away after 6 months”;
- “Prolapsed mitral valve, Congestive Heart Failure and a grade 4-5 murmur” diagnosed at age 13.5 years (the dog lived to age 15);
- “Grade 3 heart murmur... because of the torn chordae tendineae of his mitral valve” diagnosed at age eight (the dog lived to age 15);
- “Tricuspid valve leaks. Her heart is slightly enlarged. Murmur is a grade 3. She this Murmur since she came to me at age 7”;
- After seeing several specialists, the veterinarian concluded that “the dog only has a murmur when very stressed; he is now age 14 years old.”
- “He had valveoplasty done at 2 ½ years of age.”

Five owners voluntarily listed the grade of their dog’s murmur. One dog had a Grade 1 murmur, two dogs had Grade 3 murmurs and two dogs have Grade 5 murmur. 60% of owners reporting heart murmurs were companion owners and 40% were breeders/exhibitors.

Following on the above, it is of interest that the relative age of the 23 Standard Manchesters reporting issues in the heart category is relatively advanced. The median age of affected SMTs living as of the date of the survey was 11 years and the median age at death for those who deceased was 12.5 years. While this information does not offer insight into age of onset, impact on quality of life, etc., it does suggest indirectly that Standard Manchesters tend to be affected by heart related conditions at an advanced age or that the condition(s) do not have a significant impact on length of life. This is supposition based on circumstantial evidence, however, and should not be viewed as a firm conclusion. Even so, it may explain the larger number of affected dogs in the North American population given the difference in median age between the older North American population sample versus the younger European sample.

Associated Deaths

In total, seven Standard Manchesters were reported to have died from conditions listed in the Heart section, with two dogs reported to have died of Dilated Cardiomyopathy, one of Congestive Heart Failure, one generally attributed to a heart murmur, and three unknown or unspecified heart issues. While age of onset was not provided for most dogs, should be noted that the median age at death in these seven dogs was 12 years, with dogs aged 6-9 at death and four aged 12-15 years.

Follow-up

- Given the relatively consistent reports of heart murmurs across all breeds/varieties surveyed, breeders may wish to explore this condition in more detail.

Manchester Terriers (UK/FCI)

The most significant cardiac condition affecting Manchester Terriers (UK/FCI) was a heart murmur, with 20 identified cases representing 4.4% of the surveyed population.

Other cardiac conditions affecting Manchester Terriers included four cases of Arrhythmia (0.9%), three cases of Congestive/Chronic Heart Failure (0.7%), two cases each of Dilated Cardiomyopathy and Valve Dysfunction (0.4%), and one case each of Atrial Septal Defect, Hypertrophic Cardiomyopathy and Myocardial Infarction (0.2%). In the 'other' category, one owner identified a case of aortic stenosis in a dog that was two years old when the survey was completed.

In the 'other' category, one owner identified a case of aortic stenosis in a dog that was two years old when the survey was completed.

Looking more closely at dogs affected by heart murmurs, 14 of the 20 dogs were living as of the date of the survey and six were deceased. Heart issues were identified as the cause of death in none of the deceased dogs, who collectively had a median age at death of 14 years. Among living dogs, median age as of the date the survey was complete was 5 years, which is significant only as a data point regarding early diagnosis. Regardless, age of onset and age at death samples were too small to provide an indication of age or quality of life implications.

In the comments section, two owners indicated the murmur was detectable as a puppy and disappeared with age, two owners indicated their dog had a 'light'/Grade 1 murmur. 67% of owners reporting heart murmurs were companion owners and 33% were breeders/exhibitors.

Associated Deaths

In total, two Manchester Terriers (UK/FCI) were reported to have died from conditions listed in the Heart section, both of unspecified heart issues. Additionally, five owners reported that their dog died of stroke.

Follow-up

- Given the relatively consistent reports of heart murmurs across all breeds/varieties surveyed, breeders may wish to explore this condition in more detail.

English Toy Terriers

The most significant cardiac condition affecting English Toy Terriers was a heart murmur, with 9 identified cases representing 3.9% of the surveyed population.

Other cardiac conditions affecting English Toy Terriers included one case each of Arrhythmia, Atrial Septal Defect, Congestive Heart Failure, and Valve Dysfunction (0.4%).

In the 'other' category, one owner identified a case of mitral valve prolapsed and another owner identified a case of "Myxomatous mitral valve degeneration (from birth)" in a dog that died at age 16.

Looking more closely at dogs affected by heart murmurs, 5 of the 9 dogs were living as of the date of the survey and 4 were deceased. Heart issues were identified as the direct cause of death in one case (a puppy less than one year of age who owner listed "Grady 5 heart murmur and digestive issues" as cause of death), with the remaining deaths attributed to old age or stroke. Median age at death among the four deceased dogs was 13 years. Among living dogs, median age as of the date the survey was completed was 10 years, which is significant only as a data point regarding potential impact on longevity. Regardless, age of onset and age at death samples were too small to provide an indication of age or quality of life implications.

In the comments section, one owner voluntarily identified the murmur as a Grade 4 murmur and another as a Grade 5 murmur. No other information on grade or severity was provided. 53% of owners reporting heart murmurs were companion owners and 47% were breeder/exhibitors.

Associated Deaths

In total, two English Toy Terriers were reported to have died from conditions listed in the Heart section, one of unspecified heart issues and the second attributed in part to a Grade 5 murmur. Additionally, one owner reported that their dog died of stroke.

Follow-up

- Given the relatively consistent reports of heart murmurs across all breeds/varieties surveyed, breeders may wish to explore this condition in more detail.

Hematology/Blood

Conditions listed in the hematology and blood disorder category were the least reported across all survey categories with just 1% (12) of 1,171 surveys completed reporting hematology/blood disorders.

This result was consistent across all breeds/varieties examined in this the survey.

**Note: When reviewing results for this category, please keep in mind that some confusion existed in reporting of von Willebrand's Disease. The survey asked respondents to identify only dogs who had experienced a bleeding episode as a result of this condition, however some cases of vWD status as a carrier of the disease were reported in the box provided. Where contact information was available, attempts were made to verify each case; all who provided clarification identified an error and confirmed that their dog had not experienced a bleeding episode. Remaining cases (i.e., where no response to emails were received or where no contact information was available) are listed below as reported, but should be viewed with the above in mind.*

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- Auto Immune Hemolytic Anemia (the immune system attacks its own red blood cells)
- Von Willebrand's Disease (a disorder that impairs the body's ability to make blood clots)
- Immunoproliferative enteropathy (abnormally reactive immune system, may affect the large or small intestine, the liver, the endocrine system, the kidneys, and the skin)

Toy Manchester Terriers

One Toy Manchester Terrier (0.3%) was reported to have experienced a bleeding episode resulting from von Willebrand's Disease (see above*). No other conditions were identified in this category.

No conditions were identified in the comments sections for this category.

Standard Manchester Terriers

One Standard Manchester Terrier (0.5%) was reported to have Auto Immune Hemolytic Anemia.

Respondents also used the comments section in this category to report one case of chronic anemia with no known source (0.5%) and one dog with unexplained nosebleeds (0.5%).

Manchester Terriers (UK/FCI)

Three Manchester Terriers (0.7%) were reported to have Auto Immune Hemolytic Anemia. All three affected dogs were female and two were reported to have died from the disease at ages 3 and 5, respectively.

Two Manchester Terriers (0.4%) were reported to have experienced a bleeding episode resulting from von Willebrand's Disease (see above*) and one MT (0.2%) was reported to have Immunoproliferative enteropathy (defined as an abnormally reactive immune system affecting the large or small intestine, the liver, the endocrine system, the kidneys, and the skin).

No conditions were identified in the comments sections for this category.

English Toy Terrier

In the comments section for this category, one English Toy Terrier (0.4%) was reported to have experienced anemia associated with lymphoma. No other conditions were identified in this category.

Infectious Disease

Conditions listed in the Infectious Disease category were reported in 3.4% (4) of 1,171 surveys completed across all breeds/varieties.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- Brucellosis (sexually transmitted disease)
- Coccidiosis (single-cell intestinal parasite)
- Giardia Infection (intestinal protozoal infection)
- Heart Worm
- Herpes Virus (sexually transmitted disease)
- Leptospirosis
- Lyme Disease
- Meningitis
- Parvovirus

Toy Manchester Terriers

Infectious diseases reported in Toy Manchester Terriers included nine cases of Giardia (3%), four cases of Coccidiosis (1.3%), two cases each of Heart Worm and Lyme Disease (0.7%), and one case of Parvovirus (0.3%).

In the ‘other’ section, owners reported one case each of toxoplasmosis, canine circovirus, and “Positive exposure to distemper verified by blood titre.”

Associated Deaths

One Toy Manchester death was attributed to infectious disease with a 2-year-old male TMT dying of a Blastomycosis fungal infection.

Standard Manchester Terriers

Infectious diseases reported in Standard Manchester Terriers included five cases of Giardia (2.7%) and one case each of Coccidiosis, Heart Worm and Lyme Disease (0.5%).

In the ‘other’ section, owners reported one case each of ehrlichiosis (a tick-borne infectious disease), kennel cough, and “a bout of nail infections that required the removal of a couple of nails completely”

Associated Deaths

Zero Standard Manchester deaths were attributed to infectious disease.

Manchester Terrier (UK/FCI)

Infectious diseases reported in Manchester Terriers included three cases of Giardia (0.7%), two cases of Lyme Disease (0.4%), and one case each of Leptospirosis and Parvovirus (0.2%).

In the ‘other’ section, owners reported one case each of toxoplasmosis, Rocky Mountain Spotted Fever (a tick-borne infectious disease), and Leishmaniasis (a parasitic infection).

Associated Deaths

One Manchester Terrier death was attributed to infectious disease with an 11 year old male dying of “kidney failure due to leishmaniasis.”

English Toy Terrier

Infectious diseases reported in English Toy Terriers included two cases of Giardia (0.9%) and one case of meningitis (0.4%).

In the 'other' section, one owner reported a severe toxocara canis infection (a type of round worm).

Associated Deaths

Zero ETT deaths were attributed to infectious disease.

Kidney/Urinary

Conditions listed in the Kidney/Urinary category were reported in 7.2% (84) of 1,171 surveys completed across all breeds/varieties.

Considering the entire population surveyed:

- The incidence of serious kidney disease is noteworthy in all breeds/varieties with the exception of English Toy Terriers.
- Kidney disease was the leading cause of death in Manchester Terriers (UK/FCI) behind the generalized term *Old Age* and the second most common cause of death in Toy Manchester Terriers behind cancer.
- Median age at death from kidney conditions/diseases was markedly low in Manchester Terriers (UK/FCI) at just 5 years and was 9 years in Toy Manchesters. Although the number of deaths attributed to kidney disease was lower in Standard Manchesters, this variety also had a noteworthy cohort of dogs affected by serious kidney conditions at a young age.
- Excluding ETTs, if we consider the serious conditions of amyloidosis, renal failure and glomerulonephritis together:
 - 44 dogs were affected, representing over 6% of the combined population for these three groups.
 - Almost 2/3s of the dogs were 10 years of age or less (at death, as of the date of the survey or at diagnosis).
 - Among affected dogs aged less than 10 years, just four of 27 were living as of the date of the survey, indicating a high degree of mortality associated with kidney issues, even when diagnosed in younger dogs.
- Kidney disease may be associated with other issues. Across the entire population surveyed, 12 dogs were reported with concurrent digestive and kidney issues; three with concurrent digestive issues and liver enzymes; and three with concurrent digestive and kidney issues plus elevated liver enzymes.
- In 2002, the most significant kidney issues reported in the combined Toy and Standard Manchester population were Amyloidosis (0.68%) and Oxalate Stones (0.78%). Chronic Renal Failure was reported in just 0.29% of dogs. In 2018, only one case Amyloidosis was reported (0.2%), 0 cases of Oxalate Stones were reported, and reports of chronic renal failure increased to 2.2% of the combined population (not including other kidney issues or reports of acute kidney failure cited in comments).

Follow-up

- Additional surveying is recommended to investigate kidney issues in the entire population, with a focus on dogs affected at less than 10 years of age and including possible concurrent conditions.
- Many kidney issues were not specifically attributed to a disease process but rather to general “kidney failure”. Increased investigation by breeders/owners, including necropsies of deceased dogs, is highly recommended.
- Possible associations among diseases within the kidney category and with other conditions must be explored. It is highly recommended that information on dogs affected by kidney issues (and possible related digestive and liver issues) be systemically collected for analysis. Central collection of diagnostic test results, pedigrees and/or DNA may be helpful in aiding future study.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- Amyloidosis – renal (protein deposits in kidney tissue)
- Bladder Stones: Cystine Stones
- Bladder Stones: Oxalate Stones
- Bladder Stones: Struvite Stones
- Bladder Stones: Xanthine Stones
- Chronic Renal Failure (aka Chronic Kidney disease – progressive loss in kidney function over a period of months or years)
- Glomerulonephritis (acute inflammation of the kidney, typically caused by an immune response)
- Incontinence
- Prostate Infection

Toy Manchester Terriers

The most common conditions affecting Toy Manchester Terriers in the Kidney/Urinary category were Incontinence, which was reported in 2.6% (8) of Toy Manchesters and Chronic Renal Failure, which was reported in 1.6% (5) Additional conditions reported included four cases of Glomerulonephritis (1.3%), two cases of Prostate Infection (0.7%), and one case each of Amyloidosis and Xanthinuria (0.3%).

In the ‘other’ section, owners also identified:

- A dog who formed calcium crystals in his urine beginning at age seven (controlled with diet);
- A dog with frequent urinary tract infections as a puppy;
- A dog with acute renal failure who died suddenly at age 8
- A dog who died of “kidney failure” at age 6 (cause of death noted as Protein-losing Enteropathy and kidney failure);
- Two cases of kidney disease associated with Lyme Disease (one concurrent with Glomerulonephritis);
- A case of Protein-losing Nephropathy;
- Two dogs with Proteinuria (protein in urine); and,
- A dog born with only one kidney and one uterine horn.

11 Toy Manchesters were reported to have died from conditions listed in the Kidney/Urinary section, with five dogs dying of “Kidney Failure/Disease” (four non-specific and one associated with amyloidosis), two from Glomerulonephritis, one from Protein-losing Nephropathy, one from Protein-losing enteropathy with kidney failure, and one from Lyme Nephritis. Taken as a group, kidney issues were the second most common cause of death in Toy Manchester behind cancer. Median age at death of kidney issues was 9 years, with seven of eleven dogs dying at age 6-10. In this younger cohort, two dogs died of disease associated with protein loss at age six one of xanthinuria (age 6), two of kidney failure/chronic renal failure at age 8, one of lyme nephritis (age 9) and one of glomerulonephritis (age 10).

Incontinence appears to be a condition seen most often in elderly dogs. Three owners identified age as the cause in their comments and median current age or age at death among this group was 15 years. All affected dogs were spayed or neutered, and six of the eight dogs were female.

Of concern in the kidney section is the presence of a cohort of dogs seemingly affected by serious kidney disease at a relatively young age. If we consider the conditions of amyloidosis, chronic or acute renal failure and glomerulonephritis together, over 50% (8) of the 15 affected dogs were aged 5-10 years at death or as of the date of

the survey (with just two dogs in the group alive at ages 5 and 9). These 16 affected dogs represent over 5% of the total Toy Manchester population surveyed, meaning that some 2.5% of Toy Manchesters reported on in the survey were affected by serious kidney disease before age 10.

Associated Deaths

Overall, nine Toy Manchester owners reported “kidney failure” (2.9%), with five cases listed as chronic renal failure, one as Amyloidosis, two noted as acute kidney failure in the comments, and one simply described as “kidney failure”. Eight of the nine dogs were deceased as of the date of the survey with a median age at death in this group of 12 years. Reporting of acute kidney failure is significant because the survey did not provide acute kidney failure as an option. In future surveys, this option should be provided as whether the disease progresses slowly or comes on acutely may provide important information.

Relation to Other Conditions

As was noted in the digestive section, some interplay between kidney disease and gastrointestinal and/or liver issues may have been present and might warrant additional investigation or observation. Four owners of Toy Manchesters reported dogs with concurrent kidney and digestive issues; three reported concurrent digestive issues and elevated liver enzymes; and, one reported concurrent digestive and kidney issues with elevated liver enzymes. When considering these results, please keep in mind that elevated liver enzymes was not a standard choice on the survey and collection of information on this phenomena relied wholly on owners voluntarily including it in the ‘other’ box. As a result, it is possible that more dogs may have elevated liver enzymes concurrent with conditions listed in the survey.

The possibility of a link between these conditions is further strengthened when results in other varieties are considered as a total of 12 dogs with concurrent digestive and kidney issues; three with concurrent digestive issues and elevated liver enzymes; and, three with concurrent digestive and kidney issues as well as elevated liver enzymes were identified across all breeds/varieties examined in the survey.

Follow-up

- Additional surveying is recommended to investigate kidney issues in the entire population, with a focus on dogs affected at less than 10 years of age and including possible concurrent conditions.
- Many kidney issues were not specifically attributed to a disease process but rather to general “kidney failure”. Increased investigation by breeders/owners, including necropsies of deceased dogs, is highly recommended.
- Possible associations among disease within the kidney category and with other conditions must be explored. It is highly recommended that information on dogs affected by kidney issues (and possibly related digestive and liver issues) be systematically collected for analysis. Central collection of diagnostic test results, pedigrees and/or DNA may be helpful in aiding future study.

Standard Manchester Terriers

The most common condition affecting Standard Manchester Terriers in the Kidney/Urinary category was Chronic Renal Failure, which was reported in 3.2% (6) of Standard Manchester Terriers. Additional conditions reported included five dogs with incontinence (2.7%) and two dogs with Glomerulonephritis (1.1%).

In the ‘other’ section, owners also identified three dogs with urinary tract infections; a dog with unspecified kidney issues who is fed a specialized renal diet; a dog with proteinuria and extreme food allergies who “almost died of kidney failure at 1 yr old”; and, a case of Protein-losing Nephropathy diagnosed at age 8.



Looking at the group of dogs reporting incontinence, while three were older (aged 12 -17), two affected dogs were 7 years old as of the date of the survey. All affected dogs were spayed or neutered and three of the five dogs were female.

Overall, seven Standard Manchester owners reported “kidney failure” (3.7%), with six cases listed as chronic renal failure, and one described as kidney failure associated with proteinuria and food allergies. All of these dogs were deceased as of the date of the survey (not all deaths were attributed to kidney issues) with a median age at death in this group of 12 years.

Of concern in the kidney section is the presence of a cohort of dogs seemingly affected by serious kidney disease at a relatively young age. If we consider the conditions of chronic renal failure/general kidney failure and glomerulonephritis together, over 50% (5) of the 9 affected dogs were aged less than 9 years old at death, as of the date of the survey or at diagnosis according to owner notes. These nine affected dogs represent almost 5% of the total Standard Manchester population surveyed, meaning that some 2.7% of Standard Manchesters reported on in the survey were affected by serious kidney disease before age 9.

Associated Deaths

Three Standard Manchesters were reported to have died from conditions listed in the Kidney/Urinary section, with all three described in the survey as Chronic Renal Failure (one of which was attributed to irritable bowel disease and drug side effects). While two of the dogs were older (aged 12 and 13 at death), one dog who died of “Stage 4 Kidney failure. Necropsy showed it was congenital” was less than one year of age at death.

Relation to Other Conditions

As noted in the digestive section, some interplay between kidney disease and gastrointestinal and/or liver issues may have been present and might warrant additional investigation or observation. Six owners of Standard Manchesters reported dogs with concurrent kidney and digestive issues, and two more reported concurrent digestive and kidney issues with elevated liver enzymes. When considering these results, please keep in mind that elevated liver enzymes was not a standard choice on the survey and collection of information on this phenomenon relied wholly on owners voluntarily including it in the ‘other’ box. As a result, it is possible that more dogs may have had elevated liver enzymes concurrent with conditions listed in the survey.

The possibility of a link between these conditions is further strengthened when results in other varieties are considered as a total of 12 dogs with concurrent digestive and kidney issues; three with concurrent digestive issues and elevated liver enzymes; and, three with concurrent digestive and kidney issues as well as elevated liver enzymes were identified across all breeds/varieties examined in the survey.

Follow-up

- Addition surveying is recommended to investigate kidney issues in the entire population, with a focus on dogs affected at less than 10 years of age and including concurrent conditions.
- Many kidney issues weren’t specifically attributed to a disease process but rather to general “kidney failure”. Increased investigation by breeders/owners, including necropsies of deceased dogs, is highly recommended.
- Possible associations among diseases within the kidney category and with other conditions must be explored. It is highly recommended that information on dogs affected by kidney issues (and possibly related digestive and liver issues) be systematically collected for analysis. Central collection of diagnostic test results, pedigrees and/or DNA may be helpful in aiding future study.

Manchester Terrier (UK/FCI)

The most common condition affecting Manchester Terriers (UK/FCI) in the Kidney Urinary category was Chronic Renal Failure, which was reported in 3.1% (14) of Manchester Terriers. Additional conditions reported included eight dogs with Incontinence (1.8%), five dogs with Glomerulonephritis (1.1%), and one dog with Amyloidosis (0.2%).

In the ‘other’ section, owners also identified:

- Three dogs with acute kidney failure;
- Three dogs with enlarged prostates;
- A dog born with just one kidney;
- A dog with leishmaniasis associated with chronic renal failure; and,
- One dog with polydipsia (obsessive drinking)

Looking at the group of dogs reporting incontinence, six of the eight dogs were aged 11-16 at death or as of the date of the survey. All but one of the affected dogs were spayed or neutered and five of the dogs were male.

In total, 19 Manchester owners reported kidney failure (4.2%). 18 of the 19 dogs were deceased as of the date of the survey with a median age at death in this group of 5 years. Just one 7-year-old dog was living with chronic renal failure/glomerulonephritis as the date of the survey. Three owners specifically identified their dog as suffering from acute kidney failure in the comments section, which is significant because the survey did not provide acute kidney failure as an option. Four more owners reporting chronic renal failure also described extremely short illnesses. In future surveys, this acute versus chronic disease must be distinguished as whether the disease progresses slowly or comes on acutely may provide important information.

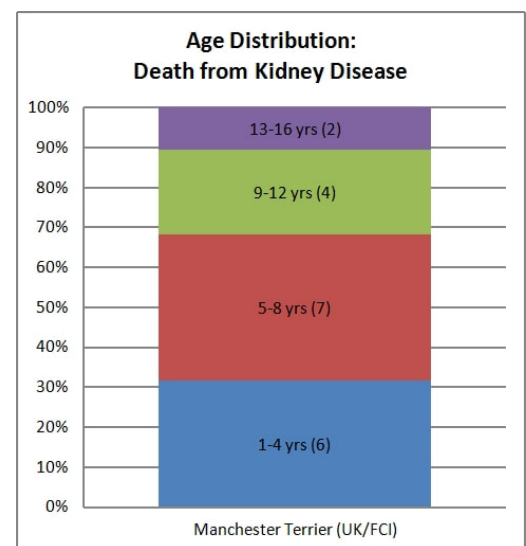
Of concern in the kidney section is the presence of such a large number of dogs affected by serious kidney disease at a relatively young age. If we consider the conditions of Amyloidosis, Chronic or Acute renal failure and Glomerulonephritis together, 70% (14) of the 20 affected dogs were 7 years of age or younger at death or as of the date of the survey. These 20 affected dogs represent over 4% of the total Manchester population surveyed, meaning that some 3% of Manchester Terriers (UK/FCI) reported on in the survey were affected by serious (and in the case of Manchester Terriers, almost universally fatal) kidney disease before age 7.

Associated Deaths

19 Manchester Terrier (UK/FCI) were reported to have died from conditions listed in the Kidney/Urinary section, with 18 dogs dying of “Kidney Failure” (four specified as acute and three as chronic) and one from kidney failure attributed to Leishmaniasis. Taken as a group, kidney issues were the most common cause of death in Manchester Terriers where a specific disease was identified (i.e., not including the generalized term “old age”). Median age at death of kidney issues was 5 years, with 13 of the 18 dogs dying at less than 7 years of age. In this younger cohort, all 13 deaths were attributed to kidney failure.

Follow-up

- Additional surveying is recommended to investigate kidney issues in the entire population, with a focus on dogs affected at less than 10 years of age and including possible concurrent conditions.



- Many kidney issues were not specifically attributed to a disease process but rather general “kidney failure”. Increased investigation by breeder/owners, including necropsies of deceased dogs, is highly recommended.
 - Possible associations among diseases within the kidney category and with other conditions must be explored. It is highly recommended that information on dogs affected by kidney issues (and possible related digestive and liver issues) be systematically collected for analysis. Central collection of diagnostic test results, pedigrees and/or DNA may be helpful in aiding future study.
-

English Toy Terriers

Reporting of kidney-related issues was low in English Toy Terriers, with two cases each of incontinence and prostate infection (0.9%), and one case each of cystine bladder stones and struvite bladder stones (0.4%).

Associated Deaths

In the ‘other’ section, owners identified one female who died of acute kidney failure at age 10. This was the only English Toy Terrier death attributed to a condition in the kidney/urinary category.

Liver/Pancreas

Conditions listed in the Liver/Pancreas category were reported in 4.4% (51) of 1,171 surveys completed across all breeds/varieties.

Considering the entire population surveyed:

- With the exception of English Toy Terriers, pancreatitis was a notable finding in all three other breeds/varieties. Almost 5% of Standard Manchester Terrier owners reported this disease and Pancreatitis was the #5 leading cause of death in Manchester Terriers (UK/FCI)..
- Liver disease may be associated with other issues. Across the entire population surveyed, 12 dogs were reported with concurrent digestive and kidney issues; three with concurrent digestive issues and elevated liver enzymes; and three with concurrent digestive and kidney issues plus elevated liver enzymes.
- Elevated liver enzymes was not listed as a condition in the survey. Nevertheless, seven North American owners volunteered this finding spontaneously, including five Toy Manchester owners. In future surveys and/or investigations of liver-related issues it would be advisable to collect information on this.

Follow-up

- Additional surveying is recommended to investigate possible associations among diseases within the liver/pancreas category and the kidney and gastrointestinal categories.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- Amyloidosis – hepatic (protein deposits in liver tissue)
- Cholangiohepatitis (inflammation of liver, bile duct, gall bladder)
- Cholecystitis (gall bladder infection)
- Cholelithiasis (gall stones)
- Cirrhosis/Fibrosis of Liver
- Exocrine Pancreatic Insufficiency (decreased pancreatic enzyme production)
- Hepatic Encephalopathy (nervous system abnormality due to liver-related ammonia buildup in blood)
- Hepatitis (chronic liver inflammation/infection)
- Pancreatitis (inflammation of pancreas)
- Portosystemic Shunt (liver disease caused by abnormal blood flow)

Toy Manchester Terriers

The most common condition affecting Toy Manchester Terriers in the Liver/Pancreas category was Pancreatitis, which was reported in 2.6% (8) of Toy Manchesters. Additional conditions reported included two cases each of Cholangiohepatitis and Exocrine Pancreatic Insufficiency (0.7%), and one case of Cirrhosis/Fibrosis of Liver (0.3%).

In the ‘other’ section, owners also identified five dogs with elevated liver enzymes (one also showing increased bile acid concentrations); three dogs with liver cancer; and, two dogs with liver decline or failure (no cause indicated).

While the reports of five Toy Manchesters (1.6%) with elevated liver enzymes was interesting, it is not possible to determine significance based on this survey. Elevated liver enzymes was not provided as a disease/condition choice on the survey, so collection of information on this phenomenon relied wholly on owners voluntarily including it in the ‘other’ box. As a result, it is possible that more dogs may have had elevated liver enzymes than were reported. None of the owners reporting high liver enzymes indicated any other liver issues on their surveys, however per the

above it is impossible to determine if the dogs reporting liver issues did or did not have high liver enzymes at any point.

Associated Deaths

Three Toy Manchesters were reported to have died from conditions in the Liver/Pancreas category. Three dogs died of liver issues (one non-specific at age 16; one associated with Cirrhosis/Fibrosis of Liver at age 6; and one associated with Cholangiohepatitis at age 13). Liver and Pancreatic issues were also implicated in the death of an 8-year-old male attributed primarily to kidney failure.

Relation to Other Conditions

As was noted in the digestive section, some interplay between liver/pancreatic disease and gastrointestinal and/or kidney issues may be present and might warrant additional investigation or observation. Three owners of Toy Manchesters reported concurrent digestive issues and elevated liver enzymes; one reported concurrent digestive and kidney issues with elevated liver enzymes; and four reported dogs with concurrent kidney and digestive issues.

The possibility of a link between these conditions is further strengthened when results in other varieties are considered. A total of 12 dogs with concurrent digestive and kidney issues; three with concurrent digestive issues and elevated liver enzymes; and, three with concurrent digestive and kidney issues as well as elevated liver enzymes were identified across all breed/varieties examined in the survey.

Follow-up

- Additional surveying is recommended to investigate possible associations among diseases within the liver/pancreas category and the kidney and gastrointestinal categories.

Standard Manchester Terrier

The most common condition affecting Standard Manchester Terriers in the Liver/Pancreas category was Pancreatitis, which was reported in 4.8% (9) of Standard Manchesters. Additional conditions reported included two cases each of Cholangiohepatitis and Hepatitis (1.1%), and one case each of Cirrhosis/Fibrosis of the Liver, Exocrine Pancreatic Insufficiency and Portosystemic Shunt (0.5%).

In the 'other' section owners also identified two dogs with elevated liver enzymes.

Standard Manchesters reported the highest proportional rate of Pancreatitis among the breeds/varieties reported on in this survey (4.8% compared to 3.1% in MTs, 2.6% in TMTs and 0.9% in ETTs). It is impossible based on current data to determine age at which dogs were affected.

Associated Deaths

Three Standard Manchesters were reported to have died from conditions in the Liver/Pancreas category. One dog died at 11 of Pancreatitis and Diabetes; one at age 14 with liver damage described/attributed to Cirrhosis/Fibrosis; and, one died at age 13 of "liver disease & hepatic encephalopathy". The last dog was reported in the survey to have had Hepatic Encephalopathy, Hepatitis, Pancreatitis and Portosystemic Shunt.

Relation to Other Conditions

As was noted in the digestion section, some interplay between gastrointestinal and concurrent kidney and/or liver issues may have been present and might warrant additional investigation or observation. Six owners of Standard Manchesters reported dogs with concurrent kidney and digestive issues, and two more reported concurrent digestive and kidney issues with elevated liver enzymes.



Follow-up

- Additional surveying is recommended to investigate possible associations among diseases within the liver/pancreas category and the kidney and gastrointestinal categories.
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Manchester Terrier (UK/FCI)

The most common condition affecting Manchester Terriers (UK/FCI) in the Liver/Pancreas category was pancreatitis, which was reported 3.1% (14) of Manchesters. Additional conditions reported included one case each of Cholecystitis, Cholelithiasis and Hepatitis.

In the ‘other’ section, owners also identified one dog with liver cancer.

Associated Deaths

Seven Manchester Terrier (UK/FCI) were reported to have died from conditions in the Liver/Pancreas category. Five dogs died of Pancreatitis, with three attributed to pancreatitis alone and two to pancreatitis and kidney failure together. Two of the dogs were 6 years old and three were 12-14 years old. Two dogs were also reported to have died from “liver problems” at 10 and 12 years of age. One dog’s owner explained the liver issues were attributed to medication taken to treat an injured leg.

English Toy Terriers

Two ETT owners reported cases of pancreatitis (0.9%).

In the ‘other’ section, owners identified one dog with liver cancer.

Associated Deaths

Two English Toy Terriers died from conditions in this category, with one 9-year-old female dying of liver cancer and one 14-year-old female dying from “inflammation of the pancreas.”

Mouth and Teeth

Conditions listed in the Mouth and Teeth category were reported in 23.5% (276) of 1,171 surveys completed across all breeds/varieties surveyed, making it the second most reported issue among all categories and the highest reported among physical health categories.

Considering the entire population surveyed:

- Poor dental health resulting in abscess or extractions was reported at significantly higher rates in Toy Manchesters and English Toy Terriers than Standard Manchester or Manchester Terriers (UK/FCI).
 - While overall rates of reporting in English Toy Terriers appear to be lower, this is largely a function of the younger average age of ETTs compared to TMTs. When statistics are considered as a proportion by age range, however, the results indicate that the rate of dental disease is similarly high in Toy Manchesters and English Toy Terriers, with ¼- 1/3 of dogs affected by the time they are 6-10 years old and more that 2/3s affected by 11+ years of age.
 - Just 5% of Standard Manchester owners reported abscess or extractions as a result of poor oral health by the 6-10 year age range, however that rate rises to almost 40% in the 11-15 year category – making dental health a serious concern for senior aged dogs.
- English Toy Terrier owners were more than 2x more likely than any other breed/variety surveyed to report that their dog had an underbite.

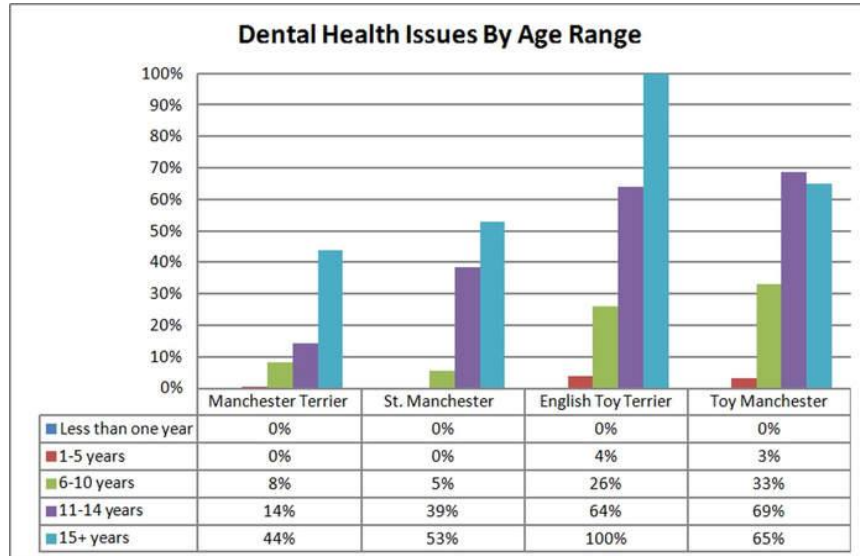
Follow-up

- Additional surveying could be undertaken to learn more about when dental issues begin to appear in all breeds/varieties, methods and frequency of owner cleanings and general best practices.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- | | |
|--|---|
| • Dental Abscess | • Oral Papillomatosis (tumor or wart o the mouth) |
| • Misaligned bite: overshot | • Removal of teeth by veterinarian as a result of gingivitis, gum disease or poor oral health |
| • Misaligned bite: undershot | • Salivary Gland Cyst |
| • Malocclusion (one side of jaw misaligned, also known as wry mouth) | • Salivary Gland Infection |



Dental health issues segmented by age group for all breeds/varieties surveyed.

Toy Manchester Terriers

The most common condition affecting Toy Manchester Terriers in the Mouth and Teeth category was “removal of teeth by a veterinarian as a result of gingivitis, gum disease or poor oral health,” which was reported in 33% (100) of Toy Manchesters. Additional conditions reported included 23 cases of Dental Abscess (7.6%), four dogs with Salivary Gland Cysts (1.3%), and three with Oral Papillomatosis (0.9%). 10 owners (3.3%) indicated their dogs had overbites and seven (2.3%) said their dogs had underbites.

In the ‘other’ section, owners also identified four dogs with teeth removed for reasons not related to poor dental health (i.e., retained puppy teeth, broken teeth, etc.); and, four dogs with general dental health problems but no indication of extractions

The survey provides limited data on dental health issues, as follows:

1. It offers no information on factors influencing dental health, such as how often owners brush, how often teeth are checked or cleaned by veterinarians, etc.
2. It does not measure ages at which dental health issues first appeared or when extractions become necessary.
3. Raw data does not compensate for demographic differences among the breeds/varieties surveyed. English Toy Terriers and Manchester Terriers (UK/FCI), for example, tended to be younger (mean age of 5 years among all respondents) while Toy and Standard Manchesters were proportionately older (mean age of 8 years among all respondents).

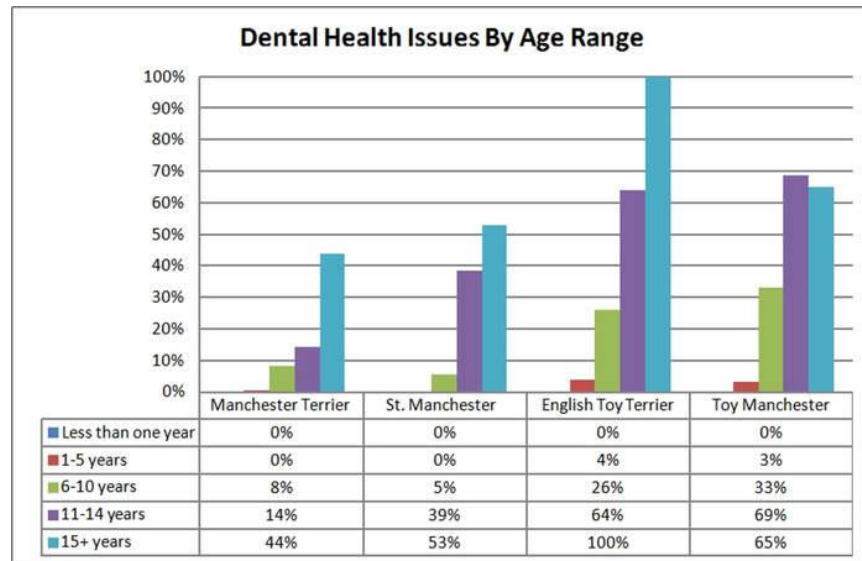
We cannot address issue #1 with further surveying, however we gain some limited insight into the other points by looking at the age of the dogs as of the date of the survey or their date of death. While this approach does not identify when issues *first appear*, it can indirectly indicate in broad strokes ages by which dental issues *have appeared*. To correct for this disparity, the number of dogs reporting either dental abscess or removal of teeth as a result of poor oral health were calculated as a percentage of the total number of dogs in each age category per breed/variety (see above chart and graph). The results indicate that the rate of dental disease is similarly high in Toy Manchesters and English Toy Terriers, with 1/4 - 1/3 of dogs affected by age 6-10 and more than 2/3s by 11+ years of age.



Given this is the single largest physical health condition reported for Toy Manchesters, additional investigation could provide useful insights for the breeding community and to inform preventative advice and guidance provided to new owners. Even without additional research, however, owners of Toy Manchesters should pay special attention to dental health beginning at an early age.

Follow-up

- Additional surveying could be undertaken to learn more about when dental issues generally begin to appear in this breed/variety, methods and frequency of owner cleanings, and best practices.



Dental health issues segmented by age group for all breeds/varieties surveyed.

Standard Manchester Terriers

The most common condition affecting Standard Manchester Terriers in the Mouth and Teeth category was “removal of teeth by a veterinarian as a result of gingivitis, gum disease or poor oral health”, which was reported in 15% (28) of Standard Manchesters. Additional conditions reported included eight cases of Dental Abscess (4.3%), two cases each of Oral Papillomatosis and Salivary Gland Cysts (1.1%), and one case of Salivary Gland Infection (0.5%). Additionally, two owners (1.1%) indicated their dogs had overbites and one (0.5%) said their dog had an underbite.

In the ‘other’ section, owners also identified four dogs with teeth removed for reasons not related to poor dental health (i.e., retained puppy teeth, crowding/misalignment, etc.)

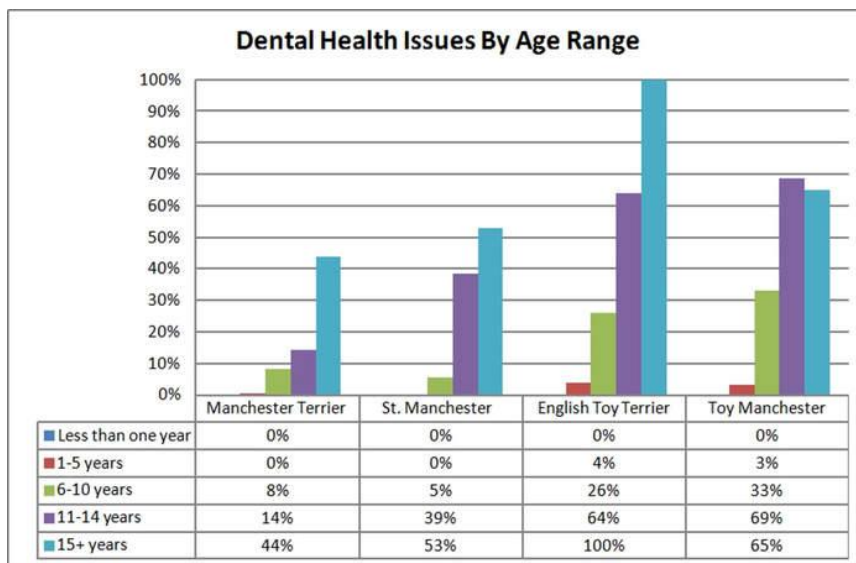
Rates of dental disease appear to be lower in Standard Manchesters than in Toy Manchesters or English Toy Terriers, with just 5% of owners reporting abscess or extractions as a result of poor oral health by the 6 -10 year age range. Rates do rise significantly to almost 40% in the 11 -15 year category, however, making this a serious concern for senior aged SMTs.

Given this is the single largest physical health condition reported for senior Standard Manchesters, additional investigation could provide useful insights for the breeding community and to inform preventative advice and guidance provided to new owners. Even without additional research, however, owners of Standard Manchesters should pay special attention to dental health beginning at an early age.



Follow-up

- Additional surveying could be undertaken to learn more about when dental issues generally begin to appear in this breed/variety, methods and frequency of owner cleanings, and best practices.



Dental health issues segmented by age group for all breeds/varieties surveyed.

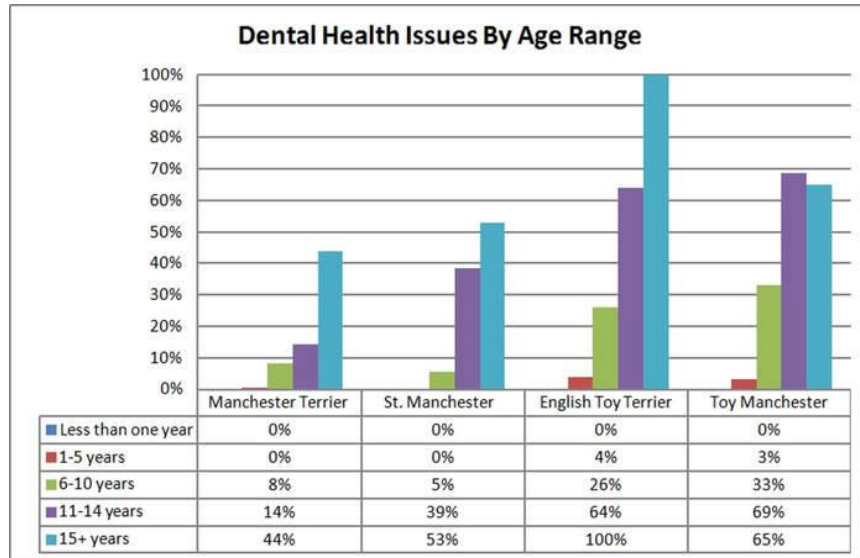
Manchester Terrier (UK/FCI)

The most common condition affecting Manchester Terrier (UK/FCI) in the Mouth and Teeth category was “removal of teeth by a veterinarian as a result of gingivitis, gum disease or poor oral health,” which was reported in 5.1% (23) of Manchester Terriers. Additional conditions reported included five cases of Dental Abscess (1.1%), and one case each of Oral Papillomatosis and Salivary Gland Cyst (0.2%). Two owners (0.4%) indicated their dogs had overbites and three (0.7%) said their dogs had underbites.

In the ‘other’ section, owners also identified one dog with teeth removed for reasons not related to poor dental health; and, one dog who had a non-malignant lump removed from the upper jaw at age seven.

Rates of dental disease appear to be lower in Manchester Terrier (UK/FCI) than in Toy Manchesters or English Toy Terriers, with just 8% of owners reporting abscess or extractions as a result of poor oral health by the 6 -10 year age range. Rates rose slightly to almost 15% in the 11 -15 year category, however, making this a noteworthy concern for senior age dogs. As a preventative measure, owners of Manchester Terrier (UK/FCI) should pay special attention dental health beginning at an early age.





Dental health issues segmented by age group for all breeds/varieties surveyed.

English Toy Terriers

The most common condition affecting English Toy Terriers in the Mouth and Teeth category was “removal of teeth by veterinarian as a result of gingivitis, gum disease or poor oral health,” which was reported in 17.5% (40) of ETTs. Additional conditions reported included eight cases of Dental Abscess (3.5%), and one case of Oral Papillomatosis (0.4%). Four owners (1.8%) indicated their dogs had overbites and 11 (4.8%) said their dogs had underbites.

In the ‘other’ section, owners also identified three dogs with teeth removed for reasons not related to poor dental health (i.e., retained puppy teeth, broken teeth, etc.).

The survey provides limited data on dental health issues, as follows:

1. It offers no information on factors influencing dental health, such as how often owners brush, how often teeth are checked or cleaned by veterinarians, etc.
2. It does not measure ages at which dental health issues first appeared or when extractions became necessary.
3. Raw data does not compensate for demographic differences among the breeds/varieties surveyed. English Toy Terrier and Manchester Terriers (UK/FCI) reported on in the survey, for example, tended to be younger (mean age of 5 years among all respondents) while Toy and Standard Manchesters were proportionately older (mean age of 8 years among all respondents).

We cannot address issue #1 with further surveying, however we can gain some limited insight into the other points by looking at the age of the dogs as of the date of the survey or their date of death. While this approach does not identify when issues *first appear*, it can indirectly indicate in broad strokes ages by which dental issues *have appeared*. To correct for this disparity, the number of dogs reporting either dental abscess or removal of teeth as a result of poor oral health were calculated as a percentage of the total number of dogs in each age category per breed/variety (see above chart and graph).

While overall rates of reporting in English Toy Terriers appear to be lower, this is largely a function of the younger average age of ETTs compared to TMTs. Results indicate that the rate of dental disease is similarly high in Toy

Manchesters and English Toy Terriers, with 1/4 – 1/3 of dogs affected in the 6 -10 year range and more than 2/3s of owners reporting dental health issues resulting in abscess or extractions by 11+ years of age.

Given this is the single largest physical health condition reported for English Toy Terriers, additional investigation could provide useful insights for the breeding community and to inform preventative advice and guidance provided to new owners. Even with additional research, however, owners of ETTs should pay special attention to dental health beginning at an early age.

Associated Deaths

One English Toy Terrier died from conditions in this category with a 10-year-old male dying of “Atrophy of the masticatory muscle”.

Follow-up

- Additional surveying could be undertaken to learn more about when dental issues generally begin to appear in this breed/variety, methods and frequency of owner cleanings, and best practices.

Neurology

Conditions listed in the Neurology category were reported in 5.4% (63) of 1,171 surveys completed across all breeds/varieties.

Considering the entire population surveyed:

- Seizures were the most commonly reported neurological condition/symptom across all breeds/varieties examined. Coincidence with epilepsy reports was low.
 - Age of onset for seizure was not provided consistently, however analysis of owner provided details and age of animals at death or as of the date of the survey indicates the likely existence of two groups – one affected late in life and associated with advanced age, and the other affected at a much earlier age.
 - 2.6% of English Toy Terrier owners reported that their dog had at least one seizure and half of those dogs were affected between 18 weeks and 7 years of age.
- Conditions relating to loss of coordination (ataxia, degenerative myelopathy and polymyositis) were reported in 11 Standard Manchesters, representing 6% of all Standard Manchester reported on in the survey. 2/3s of these cases were diagnosed in dogs aged less than 7 years of age.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- Ataxia: Cerebellar (loss of coordination of the limbs, head and/or trunk as a result of damage to the cerebellum area of the brain)
- Ataxia: Sensory (progressive loss of coordination of the limbs, head, and/or trunk as a result of compression of the spinal cord)
- Ataxia: Vestibular (loss of coordination of the limbs, head, and/or trunk as a result of damage to the vestibulocochlear nerve)
- Degenerative Myelopathy (degeneration of sheaths protecting nerve fibres)
- Epilepsy
- Hydroencephalitis (“water on the brain”)
- Polymyositis (muscle disorder affecting the skeletal muscles)
- Seizures
- Tremors

Toy Manchester Terriers

Neurological conditions reported in Toy Manchester Terriers included six cases of Seizures (2.0%), four cases of non-specific Ataxia (1.3%), three cases each of Epilepsy and Tremors, and one case each of Cerebellar Ataxia, Vestibular Ataxia, and Hydroencephalitis (0.3%).

In the ‘other’ section, owners reported one case of “dementia at age 14” and one dog with “Lumbo-Sacral Stenosis after injury.”

With regard to Epilepsy and Seizures, only one owner reported both conditions in a single dog. Age of onset was not reported for any dogs with Epilepsy and for seizures was reported for two dogs at ages 5 and 4 . One dog’s seizures were secondary to a brain tumor and the other was reported to have had just one witnessed seizure. Although age of onset and quality of life impacts cannot be determined based on survey information, among the eight dogs reporting Epilepsy or Seizure, median age at death or as of the date of the survey was 13.5 years.

For ataxia, three of four owners reporting general ataxia explained it occurred in 13 -14 year old dogs and in one case was resolved after a few weeks. Although age of onset was not reported, one case of Vestibular Ataxia was reported in a Toy Manchester that was affected at some time before age 8.



Associated Deaths

One Toy Manchester death was attributed to neurological issues, with a 13-year-old male dying of a stroke.

Standard Manchester Terriers

Neurological conditions reported in Standard Manchester Terriers included seven cases of Seizures (3.8%), five cases of non-specific Ataxia (2.7%), four cases of Cerebellar Ataxia (2.2%), two cases of Degenerative Myelopathy, and one case each of Epilepsy, and Polymyositis (0.5%).

In the ‘other’ section, owners reported:

- One dog with a “brain bleed”;
- One dogs with drug sensitivities causing seizures;
- One dog with rear lameness associated with a suspected but undiagnosed case of “degenerative myelopathy”, and,
- One dog with “sudden unexplained loss of movement of extremities at age 2”.

With regard to Seizures, no owners reported Epilepsy and Seizure in the same dog meaning seizure activity in Standard Manchesters was not attributed by owners to this condition. Several owners provided insight into suspected causes, which included:

- Advanced age (x2 dogs)
- Isolated seizure as a result of low blood sugar associated with Diabetes Mellitus
- Drug Reaction

Two dogs were specifically reported to have had seizures at relatively young ages. One dog had regular seizures from age 4 months to 7 years and again from age 14 on, while the other had three witnessed seizures at some point before age 5.

Looking at neurological issues reported broadly, conditions related to loss of coordination (ataxia, degenerative myelopathy and polymyositis) were reported in 11 Standard Manchesters, representing 6% of all Standard Manchesters reported on in the survey. While specific age of onset was provided for few of these dogs, using the information provided in combination with observation of age of dogs at death or as of the date of the survey, it appears that at least 7 of the dogs were diagnosed before age 8, including four diagnosed before age 5. The existence of the younger cohort of dogs warrants increased awareness among breeders.

Two of five owners reporting general ataxia indicated a suspected but unspecified autoimmune cause while a third was associated with Cushing’s/Addison’s Disease and advanced age. Three of the four cases of Cerebellar Ataxia were diagnosed at less than 6 years of age, with one of the dogs diagnosed at 4 months.

Associated Deaths

Four Standard Manchester deaths were attributed to neurological issues, with one 3 year old female dying of a brain bleed, a 13 and 15 year old female and male dying of seizures (unspecified cause), and one 11 year old female dying of Cerebellar Abiotrophy.

Follow-up:

Given indications of the existence of a cohort of Standard Manchester Terriers affected at a young age by conditions characterized by motor deficits, breeders may wish to explore the associated family of diseases and symptoms in more detail to determine whether commonalities exist.



Manchester Terriers (UK/FCI)

Neurological conditions reported in Manchester Terriers (UK/FCI) included three cases each of Epilepsy, Seizures and Tremors (0.7%), two cases of non-specific Ataxia (0.4%), and one case of Vestibular Ataxia (0.2%).

In the 'other' section, owners reported:

- Two dogs with symptoms similar to Bells Palsy in humans (a male and female, both age 5 years);
- Two dogs with back injuries (one born with a broken back, the other damaged discs in an accident at age 10);
- One dog with syringomyelia secondary to an arachnoid tumor;
- One dog with signal canal infection; and,
- One dog with brain damage resulting from a toxoplasmosis infection.

With regard to Epilepsy and Seizures, only one owner reported both conditions in a single dog. Age of onset was not reported for any dogs with Epilepsy and in only one dog with seizures where activity was associated with end of life at less than one year of age as a result of a vaccine reaction. One dog's seizures were secondary to a brain tumour.

Associated Deaths

Six Manchester Terrier deaths were attributed to neurological issues, with one 14 year old male dying of seizures associated with epilepsy and five dogs dying of "stroke" at ages ranging from 10-14 years (median age of 11years).

English Toy Terriers

Neurological conditions reported in English Toy Terriers included six cases of Seizures (2.6%) and three cases of epilepsy (1.3%).

With regard to Epilepsy and Seizures, only one owner reported both conditions in a single dog. Two owners of dogs with seizures indicated the condition appeared late in life while another reported that epileptic seizures developed at 18 weeks of age. Although age of onset and quality of life impacts cannot be accurately determined based on survey information, among the eight dogs reporting Epilepsy or Seizure, median age at death or as of the date of the survey was 8.5 years, reflecting a decisive split with four dogs affected at some point between 18 weeks and 7 years and four between ages 10 and 16. While small, the existence of this younger cohort of dogs warrants increased awareness among breeders.

Associated Deaths

Two ETT deaths were attributed to neurological issues, with one 13-year-old female dying of a stroke and one 19-week-old male dying of seizures associated with epilepsy.

Follow-up

Given indication of the existence of a cohort of English Toy Terriers affected at a young age by conditions characterized by seizures, breeders may wish to explore the associated family of diseases and symptoms in more detail.

Skeleton & Muscles

Conditions listed in the Skeleton and Muscles category were reported in 12% (141) of 1,171 surveys completed across all breeds/varieties.

Considering the entire population surveyed:

- Arthritis was the most common reported skeletal/muscular condition across all breeds/varieties. Higher rates observed in Toy and Standard Manchester Terriers may reflect the higher median age of the surveyed population in these two populations.
- Almost 50% of the 141 dogs reporting conditions in this category reported arthritis, osteoarthritis, or rheumatoid arthritis. Although age of onset and quality of life impacts cannot be determined based on survey information, high median age at death or as of the date of the survey suggests these may be issues most commonly found in older dogs.
- Luxated Patella were the second most common physical condition reported by English Toy Terrier owners, behind “Removal of teeth resulting from poor oral health.”
 - Reports of luxated patella were proportionately almost 4x higher among English Toy Terrier than Standard Manchester Terriers and almost 5x higher than Toy Manchester Terriers.
 - In ETTs, most cases of luxated patella were reported by pet owners. Information on grade of luxation, symptoms and/or effect on quality of life were not measured in this survey.
- In North America, Legg-Calve-Perthes Disease and Luxated Patella have traditionally been considered issues more common in Toy Manchesters. While 2002 survey results did not break issues down by variety, in the 2018 survey owners reported both conditions at similar proportional rates in Toy and Standard Manchesters. Reports of Legg-Calve-Perthes Disease were slightly higher in TMTs (2% versus 1.1%) and reports of Luxated Patella were slightly higher in Standard Manchesters (2.2% vs 1.6%). That said, the Standard Manchester Terrier sample size was only slightly more than half the size of the Toy Manchester sample size, meaning that a small number of cases represents a larger percentage. Even so, SMT breeders may find this observation of interest and worthy of further surveillance.

Follow-up

- Breeders of English Toy Terriers may wish to investigate luxated patella in more detail to determine factors such as grade, treatment, symptoms/impacts on quality of life, etc.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- | | |
|--|--|
| • Arthritis | • Legg-Calve-Perthes (deterioration of the femur head) |
| • Cranial Cruciate Ligament Tear/Rupture | • Osteoarthritis (degenerative joint disease) |
| • Elbow Dysplasia | • Panosteitis (Pano) |
| • Hip Dysplasia | • Rheumatoid Arthritis |
| • Luxated Patellas (slipping knee caps) | |

Toy Manchester Terriers

Skeletal and Muscle conditions reported in Toy Manchester Terriers included 26 cases of Arthritis (8.6%), six cases of Legg-Calve-Perthes Disease (2.0%), five cases of Luxated Patella (1.6%), three cases of Osteoarthritis (1%), and one case of elbow dysplasia (0.3%).

In the 'other' section, owners reported:

- One dog that is bow-legged in front;
- One dog with a non-specific front leg deformity;
- One dog who holds a rear leg up while running, but examination by multiple veterinarians has not revealed a cause;
- One dog with a malformed shoulder joint; and,
- One dog with "popping joints".

With regard to arthritis and osteoarthritis, although age of onset and quality of life impacts cannot be determined based on this survey, among the 27 TMTs reporting these conditions, median age at death or as of the date of the survey was 13 years, with just three dogs aged less than 10 years old. This would seem to suggest these issues are most commonly found in older dogs.

Associated Deaths

One Toy Manchester death was attributed to Skeletal/Muscle issues, with a 12-year-old male's cause of death listed as "severe arthritis".

Standard Manchester Terriers

Skeletal and Muscle conditions reported in Standard Manchester Terriers included 18 cases of Arthritis (9.7%), four cases of Luxated Patella (2.2%), three cases of Osteoarthritis (1.6%), two cases each of Legg-Calve-Perthes Disease and Rheumatoid Arthritis (1.1%), and one Cranial Cruciate Ligament Tear/Rupture (0.5%).

In the 'other' section, owners reported:

- Two breaks/fractures. One unspecified, the other a "tibial tuberosity avulsion fracture at 3.5 months old" (knee injury);
- One "suspected immune-mediated polyarthropathy";
- One "calcified tendons bilaterally on both trochanters" (tendons over hips) diagnosed at age 6;
- One "partial tear in both calf muscles";
- One congenital cyst on the spine resulting in half of the dog's discs being removed. No lasting impact;
- One surgery to remove bone spurs from front leg;
- One "Bilateral Iliopsoas tension when overly athletic" (muscle located along the lower spine and groin area);
- One suspected but unconfirmed luxating patella; and,
- One dog "unable to manage stairs, sofa, bed, etc" at age 12 with no known cause.

With regard to reported cases of arthritis, osteoarthritis, and rheumatoid arthritis, although age of onset and quality of life impacts cannot be determined based on this survey, among the 20 dogs reporting these conditions, median age at death or as of the date of the survey was 13.5 years, with zero (0) dogs aged less than 10 years old. This would seem to suggest these issues are most commonly found in older dogs.

Associated Deaths

One Standard Manchester death was attributed to Skeletal/Muscle related issues, with a 12-year-old male euthanized as a result of inability to manage daily physical activities and loss of mental acuity.

Flashback to 2002

When results of the 2018 health survey are compared to results of the 2002 survey:

- Rates of reported arthritis (including arthritis, rheumatoid arthritis and osteoarthritis) increased drastically from 0.9% in 2002 to 9.6% of the combined population in 2018. As these conditions may be age related and as information on age was not collected in 2002, further analysis is not possible.
- Reports of Legg-Calve-Perthes Disease remained relatively consistent at 1.5% in 2002 and 1.6% in 2018.
- Reports of Luxated Patella increased very slightly from 1.2% in 2002 to 2.1% in 2018

Manchester Terriers (UK/FCI)

Skeletal and Muscle conditions reported in Manchester Terriers included 12 cases of Arthritis (2.7%), six cases of Luxated Patella (1.3%), four cases each of Cranial Cruciate Ligament Tear/Rupture and Osteoarthritis (0.9%), three cases of Elbow Dysplasia (0.7%), and one case each of Hip Dysplasia, Panosteitis and Rheumatoid Arthritis (0.2%).

In the ‘other’ section, owners reported one dog with a “terrier hop” at age 18 with “spinal constriction”; one dog with its “last of pair of the ribs underdeveloped”; and, one dog with “undefined back pain”.

With regard to reported cases of arthritis, osteoarthritis, and rheumatoid, arthritis, although age of onset and quality of life impacts cannot be determined based on this survey, among the 16 dogs reporting these conditions, median age at death or as of the date of the survey was 12 years, with three dogs aged less than 10 years old. This would seem to suggest these issues are most commonly found in older dogs.

English Toy Terriers

Skeletal and Muscle conditions reported in English Toy Terriers included 18 cases of Luxated Patella (7.9%), five cases of Arthritis (2.2%), and one case each of Cranial Cruciate Ligament Tear/Rupture and Legg-Calve-Perthes Disease (0.4%).

In the ‘other’ section, owners reported:

- One dog with a sudden spinal injury;
- One dog with poor muscle coordination (age three as of date of survey);
- One dog with possible herniated disc but no lasting effect;
- One dog with an “intermittent skip in back leg” with no know cause. Treated with massage therapy and resolved;
- One dog with spondylosis at age 8; and,
- One dog with atrophy of masticatory (chewing) muscles.

Luxated Patella was the #2 most common physical health issue reported by ETT owners in the survey, behind ‘Removal of teeth due to poor oral health’. The significantly higher reported rate of Luxated Patella in ETTs as compared to other breed/groups examined in this survey may be a reflection of increased attention to this condition among breeders. In the 2017 Breeder’s Survey, 100% of ETT breeders surveyed indicated they always or most always screen breeding stock for Luxated Patella. Testing among ETT breeders is also different compared to North American patella testing, for example, with all dogs scored on a standardized scale. As a result of these factors, it is not surprising that ETT breeder have a higher awareness of patella issues generally. Nevertheless, it is important to note that fully 12 of the 18 cases of Luxated Patella in ETTs were reported by pet owners and not breeders, decreasing the likelihood that cases were identified through routine screening of breeding stock. As it is impossible to determine the age of onset, presence/severity of symptoms or impact on quality of life, additional surveying on this topic may be worthwhile.

With regard to arthritis, although age of onset and quality of life impacts cannot be determined based on survey information, among the five dogs reporting these conditions, median age at death or as of the date of the survey was 13 years, with just one dog aged less than 10 years old. This would seem to suggest this is an issue most commonly found in older dogs.

Associated Deaths

One English Toy Terrier death was attributed to Skeletal/Muscle related issues, with a 10-year-old male’s cause of death listed as “Atrophy of masticatory muscle.”

Reproduction

Conditions listed in the Reproduction category were reported in 14% (163) of 1,171 surveys completed across all breeds/varieties.

Considering the entire population surveyed:

- No significant issues were observed at the level of individually reported results. Those interested should refer to the [2017 Breeder's Survey](#) for more information on reproduction in these breeds/varieties.
- When survey data is restricted to females who were not spayed before 6 months of age, 15.9% of all breeds/varieties covered by this survey experienced an observable false pregnancy.*
 - Reports varied widely by breed/variety, from a low of 5.6% of eligible female Toy Manchesters to 12.9% of English Toy Terriers, 16.1% of Standard Manchesters and 23.8% of Manchester Terriers (UK/FCI).

**Please note: There is no indication that false pregnancy represents a health risk, this information is presented as a data point only.*

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- | | |
|--|---|
| • Abortion –spontaneous | • Mastitis (infection of the mammary glands) |
| • Cryptorchidism (no testicles descends) | • Pyometra (infection of the uterus, often caused by hormonal changes related to estrus or heat cycles) |
| • Monorchidism (only one testicle descends) | • Metritis (bacterial infection of the uterus, following birth, abortion or breeding; often associated with retained fetuses or placentas) |
| • Dystocia (ineffective contractions during labor) | • Umbilical Hernia (protrusion of the abdominal lining, abdominal fat or a portion of the intestine through the area around the “belly button”) |
| • Eclampsia/Toxemia (toxic pregnancy) | |
| • False Pregnancy | |
| • Hermaphroditism (presence of gonadal tissue for both sexes) | |
| • Infertility-female | |
| • Infertility – male | |
| • Inguinal Hernia (an outpouching of skin in the area of the inguinal ring such as a scrotal hernia) | |

Toy Manchester Terriers

Reproduction conditions reported in Toy Manchester Terriers included nine cases of False Pregnancy (3%), five cases each of Monorchidism and Pyometra (1.6%), two cases each of Spontaneous Abortion and Infertility-female (0.7%), and one case each of Mastitis and Umbilical Hernia (0.3%).

In the ‘other’ section, owners reported one female who gave birth prematurely; one female with irregular seasons; and, one female “born with only one reproductive horn and one kidney. The one horn that she had was filled with fluid, one ovary was formed normal and the other was floating not attached to anything”.

Looking more closely at reports of observable false pregnancy, when survey data is limited only to eligible dogs (i.e., females who were not spayed before 6 months of age), the reported rate is 5.6% (9 of 162). There is no indication that false pregnancy represents a health risk, this information is presented as a data point only.

Standard Manchester Terriers

Reproduction conditions reported in Standard Manchester Terriers included 14 cases of False Pregnancy (7.5%), two cases each of Monorchidism and Umbilical Hernia (1.1%), Infertility-female, Infertility-male and Mastitis (0.5%).

In the ‘other’ section, owners reported:

- One female who lost a litter with “midline defects”.

Looking more closely at reports of observable false pregnancy, when survey data is limited only to eligible dogs (i.e., females who were not spayed before 6 months of age), the reported rate is 16.1% (14 of 87). There is no indication that false pregnancy represents a health risk, this information is presented as a data point only.

Manchester Terriers (UK/FCI)

Reproduction conditions reported in Manchester Terriers included 60 cases of False Pregnancy (13.3%), 11 cases of Umbilical Hernia (2.4%), eight cases of Pyometra (1.8%), three cases each of Dystocia, Infertility-female and Mastitis (0.7%), two cases of Monorchidism (0.4%), and one case each of Inguinal Hernia (0.2%).

In the ‘other’ section, owners reported one female with vaginitis.

Looking more closely at reports of observable false pregnancy, when survey data is limited only to eligible dogs (i.e., females who were not spayed before 6 months of age), the reported rate is 23.8% (60 of 252). There is no indication that false pregnancy represents a health risk, this information is presented as a data point only.

Associated Deaths

One Manchester Terrier death was attributed to Reproductive causes, with a female dying at age three from an anesthetic reaction during a cesarean section.

English Toy Terriers

Reproduction conditions reported in English Toy Terriers included 15 cases of False Pregnancy (6.6%), five cases of Pyometra (2.2%), two cases each of Spontaneous Abortion and Monorchidism (0.9%), and one case each of Cryptorchidism, Infertility-female, Infertility-male, and Mastitis (0.4%).

Looking more closely at reports of observable false pregnancy, when survey data is limited only to eligible dogs (i.e., female who were not spayed before 6 months of age), the reported rate is 12.9% (15 of 116). There is no indication that false pregnancy represents a health risk, this information is presented as a data point only.

Respiration

Conditions listed in the Respiratory Category were reported in 2.6% (30) of 1,171 surveys completed across all breeds/varieties surveyed.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- Bronchitis
- Epistaxis (nose bleeds)
- Laryngeal Disease (diseases of larynx)

Toy Manchester Terriers

Respiratory conditions reported in Toy Manchester Terriers included three cases of Bronchitis (1%) and one case of Laryngeal Disease (0.3%).

In the 'other' section, owners reported one dog with tracheal collapse appearing at age 12; two dogs who sneeze/reverse sneeze; and, a puppy who wheezed but outgrew it.

Associated Deaths

One Toy Manchester Terrier death was attributed to Respiratory causes, with a female dying at age 14 from tracheal collapse.

Standard Manchester Terriers

Respiratory conditions reported in Standard Manchester Terriers included one case each of Bronchitis, Epistaxis and Laryngeal Disease (0.5%).

In the 'other' section, owners reported:

- One dog with interstitial lung disease described as "progressive, probably immune-mediated";
- One dog with chronic rhinitis diagnosed at age 11;
- One dog with lung congestion; and,
- One dog who reverse sneezes.

Manchester Terriers (UK/FCI)

Respiratory conditions reported in Manchester Terriers included one case each Bronchitis and Epistaxis (0.2%).

In the 'other' section, owners reported:

- One dog with pneumonia at age 15;
- One dog with pneumonia related to kennel cough at 1 wk to 6 months;
- One dog with allergy-related lung issues requiring treatment with an inhaler;
- One dog with pulmonary effusion related the Leptospirosis vaccine;
- Two dogs with shortness of breath, one related to exercise in hot weather and the other to a diagnosed heart condition; and,
- One dog with pulmonary fibrosis.

Associated Deaths

Two Manchester Terrier deaths were attributed to Respiratory causes, with one female dying at less than one year of age as a result of Idiopathic pulmonary effusion related to a reaction to the Leptospirosis vaccine and one male dying at age eight from arthritis and pulmonary effusion.

English Toy Terriers

Respiratory conditions reported in English Toy Terrier included one case of Bronchitis (0.4%).

In the 'other' section, owners reported one dog with pneumonia related to kennel cough at 4 weeks to 6 months.

Skin

Conditions listed in the Skin Category were reported in 21.9% (256) of 1,171 surveys completed across all breeds/varieties, making it the third most common physical health issue reported (behind items in the Mouth and Teeth category and the Digestive System category).

Considering the entire population surveyed:

- The most common condition in this category was Alopecia (hair loss) relating to Pattern Baldness, which was reported in 9% (105) of all dogs reported on in the survey.
- In total, the conditions of Pattern Baldness, Pinnal Alopecia, Post-Injection Alopecia and Season Alopecia were reported in 12% (140) dogs.
- Overall rates of conditions in the Alopecia family were high across all breeds/varieties covered, but were not consistent:
 - 7% of Manchester Terrier (UK/FCI) and Standard Manchester Terrier owners reported a condition in the Alopecia family, with companion owners more than 2x as likely (12%) to report a hair loss condition as breeders/exhibitors (5%).
 - 12% of English Toy Terrier owners reported an Alopecia. No difference was observed in reporting among owner categories.
 - 18% of Toy Manchester Terrier owners reported a condition in the Alopecia family. While conditions in the entire family were reported at roughly equal rates among TMTs, companion owners were 3x more likely to report Pattern Baldness (23%) than breeders/exhibitors (6.7%).
 - No difference in reports of Alopecias were observed among the sexes, with the exception of owners of male Manchester Terriers (UK/FCI) who were almost 2x as likely (9.5%) to report a condition in the Alopecia family as owners of females (4.5%)

**When analyzing results for this section, it should be considered that the likelihood of owners self-diagnosing some of the conditions listed based solely on the condition descriptions provided in the survey is high, particularly in the case of alopecias, demodex and atopic dermatitis. This is not to say that these reports are not valid, but rather that strict criteria or veterinary input were not required and that additional, more rigorous investigation may be warranted in instances where condition reports are high.

Relation to Other Conditions

Some skin issues are difficult to consider in isolation. In addition to conditions listed in the Skin category, food and environmental allergies should also be considered. Unfortunately, the survey did not explore this topic in sufficient detail. Among other shortcomings, the questions did not distinguish between sensitivities causing gastric vs. skin responses or 'sensitivities' vs. true allergies.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- Atopic Dermatitis (also known as allergic inhalant dermatitis, atopy, atopic eczema and immune-mediated skin hypersensitivity)
- Alopecia – Pattern Baldness (hair loss in front of and behind the ears, on the neck, chest, belly and back of thighs)
- Alopecia – Pinnal (hair loss affecting the ears)
- Alopecia – post injection (patch of hair loss confined to an area of recent rabies vaccination)
- Alopecia – Seasonal (also called seasonal flank alopecia and light responsive alopecia; affects primarily the flanks/sides or bridge of the nose and corresponds to season changes)
- Demodex – Localized (isolated lesions caused by the demodex mange mite)
- Demodex – General (lesions caused by the demodex mange mite involving the entire body or region of the body)
- Demodex – Puppy (localized lesions appearing in puppy and adolescence only)
- Ehler’s Danlos Syndrome (connective tissue disorder)
- Elephantitis (hard skin, general baldness, skin may crack)
- Discoid Lupus Erythematosis (DLE) (autoimmune disease affect the basal cell layer of the skin)
- Puppy Strangles/Strep Infection
- Pyoderma (bacterial skin infection characterized by lesions and pustules)
- Sebaceous Cysts (fatty skin cysts)
- Symmetrical Lupoid Onychodystrophy (SLO) (autoimmune disease affecting toe nails/claws)

Toy Manchester Terriers

The most common conditions affecting Toy Manchester Terriers in the Skin category were Alopecia attributed to Pattern Baldness, which was reported in 14.1% (43) of Toy Manchesters, Season Alopecia, which was reported in 5.3% (16) of dogs, and Atopic Dermatitis reported in 3.6% (11) of TMTs.

Additional conditions reported included 10 cases of Sebaceous Cysts (3.3%), seven cases each of Pinnal Alopecia and Demodex-Puppy (2.3%), three cases of Post-Injection Alopecia (1%), two cases of Demodex-Localized (0.7%), and one case each of Demodex-General, Pyoderma and Symmetrical Lupoid Onychodystrophy (0.3%).

In the ‘other’ section, owners reported a puppy with a staph infection at 12 weeks; a dog who broke out in hives in the summertime as a puppy; a dog with long-standing hairloss that improved with age; a litter affected by circular patterns of hair loss at 8 weeks (resolved with treatment); a dog with patchy baldness; a dog with pre-cancerous skin masses; and, a dog with skin tags.

Overall, 18% (56) of owners reported at least one form of alopecia in their Toy Manchester Terrier, including 3% who reported two or more forms. Alopecia as a general category was reported roughly equally in males (15%) and females (13%) and by both breeders (16%) and companion owners (20%), however companion owners were 3x more likely to report Alopecia attributed to Pattern Baldness (23%) than breeders/exhibitors (6.7%). As no standardized criteria was provided for assessing the conditions and as rates of owner diagnosis based on condition descriptions was expected to be high for this family of conditions (see note above), it is unknown if this difference reflects a different ratio of clinical symptoms, differing levels of owner tolerance/perception, different care or lifestyle, or any other bias.

Standard Manchester Terriers

The most common conditions affecting Standing Manchester Terriers in the Skin category were Alopecia attributed to Pattern Baldness, which was reported in 7% (13) of Standard Manchesters, Seasonal Alopecia, which was reported in 3.8% (7) of dogs, and Atopic Dermatitis reported in 3.2% (6) of SMTs.

Additional conditions reported included five cases of Sebaceous Cysts (2.7%), three cases of Symmetrical Lupoid Onychodystrophy (1.6%), and one case of Demodex-Localized (0.5%).

In the 'other' section, owners reported three dogs with age-related warts/lumps; three dogs with patchy hair loss (one related to Cushing's Disease); one dog with a cyst on the end of its tail which disappeared without treatment; a dog with hyperkeratosis (abnormal thickening of the out layer of the skin); one dog who had a fungal infection around the vulva and may have seasonal skin sensitivities; one dog requiring a procedure to remove 2.3" of detritus under skin on face; and, one case of ringworm.

Overall, 8.6% (16) of owners reported at least one form of alopecia in their Standard Manchester Terrier, including 1.5% who reported two forms. Alopecia as a general category was reported roughly equally in males and females, however companion owners were more likely to report an Alopecia (12%) than breeders/exhibitors (5%). As no standardized criteria was provided for assessing the conditions and as rates of owner diagnosis based on condition descriptions was expected to be high for this family of conditions (see note above), it is unknown if this difference reflects a different ratio of clinical symptoms, differing levels of owner tolerance/perception, different care or lifestyle, etc. or any other bias.

Manchester Terriers (UK/FCI)

The most common conditions affecting Manchester Terriers (UK/FCI) in the Skin category were Alopecia attributed to Pattern Baldness, which was reported in 7% (31) of Manchester Terriers, Seasonal Alopecia, which was reported in 3.5% (16) of dogs, as well as both Atopic Dermatitis and Sebaceous Cysts reported in 2.4% (11) of MTs.

Additional conditions reported included seven cases of Pinnal Alopecia (1.5%), four cases each of Demodex-Puppy and Pyoderma (0.9%), and one case of Demodex-Localized (0.2%).

In the 'other' section, owners reported one case of Color Dilution Alopecia; two dogs with age-related lipomas; one dog with a small cyst on its head; two dogs with dry skin on the tips of the ears; and, a dog with furunculosis (infection of the hair follicle leading to abscess) in her paws with no known cause.

Overall, 9% (41) of owners reported at least one form of alopecia in their Manchester Terrier, including 1.7% who reported two or more forms. While roughly the same number of Alopecias were reported in males and females, as a proportion of each sex reported on in the survey, owners of male Manchester Terriers were almost twice as likely (9.5%) to report a condition in the Alopecia family as owners of females (4.5%). Additionally, companion owners were more likely to report Alopecia (12%) than breeders/exhibitors (5%). This trend was particularly evident with Pattern Baldness, where just 0.5% of Manchester Terrier breeders reported the condition compared to 9% of companion owners. As no standardized criteria was provided for assessing these conditions and as rates of owner diagnosis based on condition descriptions was expected to be high for this family of conditions (see note above), it is unknown if this difference reflects a different ratio of clinical symptoms, differing levels of owner tolerance/perception, different care or lifestyle, etc. or any other bias.

English Toy Terrier

The most common conditions affecting English Toy Terriers in the Skin category were Alopecia attributed to Pattern Baldness, which was reported in 7.9% (18) of English Toy Terriers, Demodex-Puppy, which was reported in 6.5% (15) of ETTs, and Seasonal Alopecia reported in 5.2% (12) of ETTs.

Additional conditions reported included eight cases each of Demodex-Localized and Atopic Dermatitis (3.5%), two case each of Pinnal Alopecia and Sebaceous Cysts, Demodex-Puppy, and one case each of Post-Injection Alopecia and Demodex-General (0.4%).

In the 'other' section, owners reported three dogs with skin allergies (one to bleach, one to mites, one to hay and birch pollen); one case of candidiasis (yeast infection) on its front leg; one dog with coat loss related to low thyroid/Cushing's Disease; one dog with skin tags; and, one dog with lipomas.

Overall, 11.8% (27) of owners reported at least one form of alopecia in their English Toy Terrier, including 2.6% who reported two or more forms. Roughly the same proportion of alopecias were reported in males and females and by breeder/exhibitors and companion owners. As no standardized criteria was provided for assessing these conditions and as rates of owner diagnosis based on condition descriptions was expected to be high for this family of conditions (see note above), it is unknown if reporting reflects a different ratio of clinical symptoms, differing levels of owner tolerance/perception, different care or lifestyle, etc. or any other bias.

Temperament and Behaviour

Behaviours listed in the Temperament and Behaviour category were reported in 36% (422) of 1,171 surveys completed across all breeds/varieties.

Considering the entire population surveyed:

- Separation anxiety was the most commonly reported behavioural issue across all categories listed followed by Aggression toward other dogs and Excessive Barking.
- The experiences of companion owners and breeder/exhibitors were very different.
 - Overall, 52% of companion owners reported at least one of the behaviours listed in this category compared to 19.7% of breeders/exhibitors.
 - TMT companion owners were at least 2x as likely to report every behaviour listed and were 10x more likely to report separation anxiety than breeder/exhibitors.
 - SMT companion owners were 3x as likely to report almost every behaviour listed and were 4x as likely to report Excessive Barking than breeder/exhibitors.
 - MT (UK/FCI) companion owners were 4x as likely to report most behaviours in most categories than breeder/exhibitors.
 - ETT companion owners were 4x as likely to report several of the behaviours listed than breeder/exhibitors.
 - Rates of Aggression toward people were consistent across all four breeds/varieties surveyed at 4-5% -- and so was the disparity in responses for companion owners versus breeders. Across the board, companion owners reported this behaviour 4x more often than breeders/exhibitors, with the difference largest in ETTs where companion owners reported it almost 7x more often than breeders/exhibitors.

****When considering results in this section, it is extremely important to remember that assessments were made wholly and completely by owners. The survey did not ask owners to assess the severity of an issue, impacts on their dog's life, their enjoyment of their pet, etc. but rather simply to state whether or not they felt the behaviour was present. No direction, explanation or criteria were outlined for any behaviours listed, therefore personal perception of whether a behaviour is present and whether or not it is "excessive" is dependent completely on individual opinions, frames of references, experience, etc. This category is meant to provide insight into the perceived experiences of owners and how they feel about their dog's behaviour.**

Follow-up:

- While results in this section provide an interesting indicator. More discussion and inquiry is strongly advised across all breeds/varieties examined in this survey.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- | | |
|--------------------------------|--|
| • Aggression toward people | • Fear biting (my dog has bitten a person) |
| • Aggression toward other dogs | • Separation Anxiety |
| • Excessive Barking | • Submissive Urination |
| • Excessive Fearfulness | |

Toy Manchester Terriers

At least one of the behaviours listed in the Temperament category was reported by 34% (103) of all Toy Manchester Terrier owners surveyed.

Rates of reported behavioural issues was sometimes markedly different between companion owners and breeders/exhibitors, with 52.5% (73 of 139) of TMT pet owners reporting at least one behavioural issue compare to 18% (30 of 165) of breeders/exhibitors.

Toy Manchester Terrier Behaviours	All	Companion	Breeder/Exhibitor
Aggression toward people	4.3%	7.2%	1.8%
Aggression toward other dogs	11.8%	17.3%	7.3%
Excessive Barking	10.9%	15.1%	7.3%
Excessive Fearfulness	4.6%	7.9%	1.8%
Fear biting (my dog has bitten a person)	3%	6.5%	0%
Separation Anxiety	13.5%	26.6%	2.4%
Submissive Urination	1%	2.2%	0%

Standard Manchester Terriers

At least one of the behaviours listed in the Temperament category was reported by 44% (82) of all Standard Manchester Terrier owners surveyed.

Rates of reported behavioural issues was sometimes markedly different between companion owners and breeders/exhibitors, with 60.8% (56 of 92) of SMT pet owners reporting at least one behavioural issue compared to 28.7% (27 of 94) of breeders/exhibitors.

Standard Manchester Terrier Behaviours	All	Companion	Breeder/Exhibitor
Aggression toward people	5.4%	8.7%	2%
Aggression toward other dogs	15.5%	18.5%	12.8%
Excessive Barking	14.4%	21.7%	7.5%
Excessive Fearfulness	6.4%	9.8%	3.2%
Fear biting (my dog has bitten a person)	3.7%	6.5%	1%
Separation Anxiety	17.6%	27.2%	8.5%
Submissive Urination	2%	3.3%	1%

Manchester Terriers (UK/FCI)

At least one of the behaviours listed in the Temperament category was reported by 38% (176) of all Manchester Terrier (UK/FCI) owners surveyed.

Rates of reported behavioural issues was sometimes markedly different between companion owners and breeders/exhibitors, with 51.5% (133 of 258) of MT pet owners reporting at least on behavioural issue compared to 21% (41 of 194) of breeders/exhibitors.

Manchester Terrier (UK/FCI) Behaviours	All	Companion	Breeder/Exhibitor
Aggression toward people	5.1%	7.75%	1.5%
Aggression toward other dogs	17.3%	21.3%	12%
Excessive Barking	11.1%	16.2%	4.1%
Excessive Fearfulness	10.4%	15.5%	3.6%
Fear biting (my dog has bitten a person)	3.1%	4.3%	1.5%
Separation Anxiety	12%	17.8%	4.1%
Submissive Urination	1.5%	2.7%	0%

Associated Deaths

Three Manchester Terrier deaths were attributed to temperament or behaviour, with a 6 year old female’s death associated with aggression; a 10 year old male euthanized as a result of "stress and fear"; and a female euthanized at less than one year of age as a result of “mental status”.

English Toy Terriers

At least one of the behaviours listed in the Temperament category was reported by 29% (65) of all English Toy Terrier owners surveyed.

Rates of reported behavioural issues was sometimes markedly different between companion owners and breeders/exhibitors, with 40% (49 of 106) of ETT pet owners reporting at least one behavioural issue compared to 15% (16 of 123) of breeders/exhibitors.

English Toy Terrier Behaviours	All	Companion	Breeder/Exhibitor
Aggression toward people	3.9%	6.5%	0.9%
Aggression toward other dogs	11%	13.8%	7.5%
Excessive Barking	10%	15.5%	3.8%
Excessive Fearfulness	2.6%	3.3%	1.9%
Fear biting (my dog has bitten a person)	2.2%	3.3%	0.9%
Separation Anxiety	9.6%	15.5%	2.8%
Submissive Urination	0.4%	0%	0.9%

Toxicity and Immunology

Conditions listed in the Toxicity and Immunology category were reported in 9% (105) of 1,171 surveys completed across all breeds/varieties.

Considering the entire population surveyed:

- Food allergies/sensitivities were the most commonly reported issued in this category, however the survey did not adequately explore the topic. While some owners did identify a source of the dog's reaction, few identified both a suspected source and described symptoms, so it is impossible to link potential allergens to types of reaction in even so general a way as to distinguish between skin and digestive issues.
- Vaccination allergies were also reported. Although not all owners indicated the specific vaccination their dog displayed a reaction or sensitivity to, among those who did, the rabies vaccination was the most commonly cited and the most common reaction described was persistent lump lasting for an extended time (many months) sometimes with associated localized hair loss.

Conditions

The following conditions are referenced in the analysis for the section. The explanation for each disease or condition provided in the survey is included here for reference:

- Ivermectin Toxicity/Sensitivity
- Filarobits Toxicity/Sensitivity
- Program Sensitivity (flea product)
- Advantage Sensitivity (flea product)
- Frontline Sensitivity (flea product)
- Vaccination Allergy
- Food Allergy

Toy Manchester Terriers

Toxicity and Immunology conditions reported in Toy Manchester Terriers included 12 cases of Food Allergies (4%) and 11 cases of Vaccination Allergies (3.6%).

Sensitivities to specific medications included:

- Advantage: 2 (0.7%)
- Ivermectin: 1 (0.3%)
- Program: 1 (0.3%)
- Frontline: 1 (0.3%)

Additional medication sensitivities and reactions identified in the 'other' box, included:

- Surolan (ear drops) x 1
- Tramadol x 1
- Unspecified flea/tick or heartworm medication x 3

Among dogs reporting a vaccination allergy, specific reactions described in the 'other' box included:

- Kennel Cough vaccine x 1
- Leptospirosis vaccine x 1
- Rabies Vaccine x 4

Looking more closely at the 12 reported cases of Food Allergies, specific allergies described in the 'other' box included:

- Cherries x 1
- Protein (not specific) x 2
- Wheat/Grain x 2

Unfortunately, the survey did not explore the topic of allergies in sufficient detail. Among other shortcomings, the questions did not distinguish between sensitivities causing gastric versus skin responses or 'sensitivities' versus true allergies. Addition investigation of allergies and sensitivities (food and environmental) may be worthwhile.

Standard Manchester Terriers

Toxicity and Immunology conditions reported in Standard Manchester Terriers included 8 cases of Food Allergies (4.3%) and 6 cases of Vaccination Allergies (3.2%).

Sensitivities to specific medication included:

- Frontline: 4 (2.2%)
- Advantage: 1 (0.5%)
- Program: 1 (0.5%)

Additional sensitivities and reactions identified in the 'other' box, included:

- Fentanyl x 1
- Rimadyl x 1
- Bee Sting x 1

Among dogs reporting a vaccination allergy, specific reaction described in the 'other' box included:

- Rabies vaccine x 4

Looking more closely at the 8 reported cases of Food Allergies, specific allergies described in the 'other' box included:

- Wheat x 4

Unfortunately, the survey did not explore the topic of allergies in sufficient detail. Among other shortcomings, the questions did not distinguish between sensitivities causing gastric versus skin responses or 'sensitivities' versus true allergies. Addition investigation of allergies and sensitivities (food and environmental) may be worthwhile.

Manchester Terrier (UK/FCI)

Toxicity and Immunology conditions reported in Manchester Terriers included 18 cases of Food Allergies (4%) and 6 cases of Vaccination Allergies (1.3%).

Sensitivities to specific medications included:

- Frontline: 3 (0.7%)
- Advantage: 3 (0.7%)
- Ivermectin: 1 (0.2%)

Additional sensitivities and reactions identified in the 'other' box, included:

- Serento x 1
- Drontal x 1
- Fipronil x 1
- Milbemax x 1
- Acardi x 1

Among dogs reporting a vaccination allergy, specific reactions described in the 'other' box, included:

- Chicken x 3
- Protein (not specific) x 2
- Grain x 2
- Dairy x 1

Unfortunately, the survey did not explore the topic of allergies in sufficient detail. Among other shortcomings, the questions did not distinguish between sensitivities causing gastric versus skin responses or 'sensitivities' versus true allergies. Addition investigation of allergies and sensitivities (food and environmental) may be worthwhile.

Associated Deaths

One Manchester Terrier (UK/FCI) death was attributed to a vaccination reaction. A female MT aged less than one year of age died of pulmonary effusion and seizures resulting from a reaction to Lepto 4 vaccine.

English Toy Terriers

Toxicity and Immunology conditions reported in English Toy Terriers included 8 cases of Food Allergies (3.5%) and 6 cases of Vaccination Allergies (2.6%).

Sensitivities to specific medications included:

- Frontline: 2 (0.9%)
- Advantage: 1 (0.45%)
- Ivermectin: 1 (0.45%)
- Program: 1 (0.45%)

Additional sensitivities and reactions identified in the 'other' box, included:

- Drontal x 1

Among dogs reporting a vaccination allergy, specific reactions described in the 'other' box, included:

- Kennel Cough vaccine x 1

Looking more closely at the 8 reported cases of Food Allergies, specific allergies described in the 'other' box included:

- Chicken x 1
- Protein (not specific) x 1
- Grain x 2
- Yeast x 1

Unfortunately, the survey did not explore the topic of allergies in sufficient detail. Among other shortcomings, the questions did not distinguish between sensitivities causing gastric versus skin responses or 'sensitivities' versus true allergies. Addition investigation of allergies and sensitivities (food and environmental) may be worthwhile.