Cavalier King Charles Spaniel

Health Survey Report

2025-2026

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Executive Summary

The Cavalier King Charles Spaniel (CKCS) is a popular companion dog breed, valued for its affectionate temperament and close bond with people. Like many purebred dogs, however, Cavaliers are predisposed to several health conditions, making ongoing monitoring of the breed's health essential. This report summarizes the findings of a comprehensive health survey conducted between June and September 2025 to better understand the health, management, and preventive care practices of Cavaliers in the United States and Canada.

More than 1,100 respondents provided information on over 2,000 individual Cavaliers, making this one of the largest North American surveys of the breed to date. Unlike many previous surveys, this survey collected responses from both breeders and nonbreeders (pet owners), providing a broad perspective on the health and care of Cavaliers across a wide range of households and owners. Information on key health topics was collected, including number and general health of owned Cavaliers, feeding and nutrition, vaccines and preventive medications (e.g., flea, tick, and worm prevention), health screening tests, and behavior concerns, with specific sections on heart, eye, orthopedic (hip, knee), neurologic (syringomyelia), and hearing (PSOM) health concerns of importance to Cavalier health.

Overall, the survey presents an encouraging picture. Most Cavaliers were reported to receive regular yearly veterinary care and maintain an appropriate body condition. Owners described high levels of engagement with preventive healthcare, and many breeders reported following recommended health screening practices for breeding dogs. Most of the Cavaliers were reported to originate from breeders or kennel clubs registered with well-known dog or Cavalier groups (i.e., CKCSC, AKC, CKC). At the same time, the survey confirms that several important health challenges remain for Cavaliers, particularly those related to heart disease.

Cardiac disease continues to be the most significant health concern for the breed. Heart disease was the leading reported cause of death, and myxomatous mitral valve disease (MMVD) remained the most commonly reported cardiac condition. These findings reinforce decades of research identifying MMVD as the breed's greatest health challenge and highlight the importance of routine cardiac examinations throughout a Cavalier's life. Cancer and kidney disease were the next most frequently reported causes of death. Dogs that died were reported to have lived an average of approximately 10 to 11 years, although many Cavaliers lived considerably longer.

The survey also identified important differences between breeders and non-breeders. Breeders were more likely to participate in dog shows, own multiple Cavaliers, utilize veterinary specialists (e.g., cardiologists for heart evaluations), and participate in structured Cavalier screening programs. In contrast, non-breeders were more likely to own Cavaliers solely as family pets, generally relied on their primary care veterinarians for routine healthcare, and were more likely to follow current veterinary guidelines for routine vaccination and parasite prevention. Despite these differences, both groups demonstrated high levels of veterinary engagement and commitment to their dogs' well-being.

Vaccination and parasite prevention practices were generally consistent with current veterinary recommendations, particularly for core vaccines such as rabies, distemper, and parvovirus. However, the use of some preventive measures, including leptospirosis vaccination and year-round

parasite prevention, varied considerably among respondents. These differences likely reflect regional disease risks, individual veterinary recommendations, and owner preferences, while also highlighting opportunities for continued education and outreach to breeders and non-breeders about preventive healthcare.

Feeding practices were diverse. Most owners fed commercially prepared diets, often supplemented with fresh foods, home-prepared meals, or raw diets. While these approaches reflect growing interest in individualized nutrition, they also emphasize the importance of ensuring that all diets are nutritionally balanced and that owners understand the potential food safety risks associated with raw feeding.

Behavioral concerns were reported in a minority of Cavaliers. When behavioral issues were reported, fear and anxiety were the most common. Although many owners addressed these concerns through training or home management, relatively few sought veterinary guidance, suggesting an opportunity to improve awareness of behavioral medicine and the benefits of early intervention.

Overall, eye disease, patellar luxation (slipping kneecaps), hip dysplasia, and hearing impairment appear to be present at relatively low levels within the reported Cavaliers. However, differences in screening practices between breeder and non-breeder groups highlight the importance of consistent and proactive evaluation of these conditions. Increased awareness and access to specialist screening may support more accurate detection and characterization of these conditions within the breed.

Several findings offer reasons for optimism. Most Cavaliers were reported to be in good body condition, to engage in moderate levels of activity, to receive regular veterinary care, and to benefit from attentive owners. Many breeders reported adhering to recommended health screening protocols, particularly for cardiac disease, demonstrating a strong commitment to improving the breed's long-term health. Continued collaboration among breeders, owners, veterinarians, researchers, and breed organizations will be essential to building on these efforts.

As with any voluntary survey, the findings should be interpreted with appropriate caution. Responses were owner-reported and may not always reflect confirmed veterinary diagnoses. Participation was voluntary and may not accurately represent the Cavalier population in the United States and Canada. Nevertheless, the large number of respondents and the inclusion of both breeders and pet owners provide valuable insights into the breed's current health status.

Overall, the findings demonstrate that Cavaliers continue to receive devoted care from their owners and confirm that inherited cardiac disease remains the breed's most important health challenge. Continued emphasis on responsible breeding, routine veterinary care, recommended health screening, preventive medicine, owner and breeder education, and participation in future health research will help improve the health, welfare, and longevity of Cavalier King Charles Spaniels.

Introduction

The Cavalier King Charles Spaniel (CKCS) is a popular companion breed recognized worldwide. Despite these desirable traits, the CKCS breed, like all dog breeds, is impacted by inherited and acquired health conditions. These health conditions pertinent to CKCS include myxomatous mitral valve disease, syringomyelia, and a range of orthopedic and genetic disorders. These conditions have been the focus of ongoing research and breed-specific health initiatives aimed at improving long-term health outcomes for CKCS.

Previous health surveys, including those conducted by breed clubs and academic groups, have provided valuable insight into disease prevalence and management within the CKCS population. However, many existing reports are outdated and present data in a format that can be difficult for organizations, owners, and breeders to interpret. Additionally, changes in breeding practices, veterinary care, and owner awareness over time underscore the need for updated, accessible data.

The present survey was designed to characterize the current health, management, and preventative care practices of CKCS in the United States and Canada. The goals were to better understand the current health conditions of the breed in the short term, so as to inform improvements toward the health of the breed in the long term. Unlike most breed surveys to-date, the present survey actively sought responses from both those highly engaged in CKCS activities (e.g., breeders, those that exhibit) and those that may simply own a CKCS as a pet. Both groups are important to include when assessing the breed's overall health status and provide valuable input for future directions. The survey focused on both general CKCS health information and respondents' practices, as well as detailed dog-specific health information. Respondent information included demographics, feeding practices, vaccination and preventative care, and health screening behaviors. Individual dog information included information for specific Cavaliers currently owned by respondents, notably health outcomes, and diagnoses and outcomes of key CKCS diseases.

The primary objectives of this survey were to (1) describe reported current management and healthcare practices for Cavaliers in the United States and Canada, (2) evaluate the uptake of recommended health screening and preventative measures, and (3) identify trends and differences between breeder and non-breeder groups. By presenting the findings in a structured and accessible format, this report aims to support informed decision-making among breeders, veterinarians, and owners, and to contribute to ongoing efforts to improve the health and welfare of the CKCS breed.

The present study was generously supported by grants from the Cavalier King Charles Spaniel, USA Health Foundation and ACKCS Charitable Trust. Individuals from both organizations assisted in developing the survey and distributing the online survey link; all analysis and summary of findings in this report were independently performed by Drs. Stull and Cassell (University of Prince Edward Island, Canada).

Methodology

An online survey was developed in Qualtrics, and an open link to the survey was posted on Cavalier King Charles Spaniel (CKCS) websites and social media platforms (see Appendix A for a copy of the survey tool). The survey was only available in English and was open from June 10, 2025 until September 5, 2025. All individuals 18 years of age or older, who at the time of responding to the survey, currently had one or more pure-bred Cavaliers and lived in the USA or Canada, were eligible to participate, including pet owners, breeders, and individuals who exhibit Cavaliers.

Respondents were instructed that all information requested in the survey pertained to pure-bred Cavalier King Charles Spaniel (CKCS) breed dogs (referred to as Cavaliers in the survey) and to only provide information for their own Cavaliers in the survey. No identifying information (person or CKCS) was requested. No questions required a response (individuals were able to skip any questions). Individuals were asked to complete only one survey.

Each survey collected general CKCS health information and respondents' practices (described in Part 1 in this report), as well as detailed dog-specific health information (described in Part 2 in this report). Once a respondent navigated through the respondent section, they were asked how many Cavaliers they currently owned and to provide a name identifier (known only to them) for each of their Cavaliers (a maximum of 25 dogs per respondent). This information was used to then ask a series of dog-specific questions for each of their dogs (using the previously input dog identifiers to ask questions about specific dogs). The program randomly determined the order in which the dogs were presented to the respondent to provide the requested information, reducing respondent bias. Individuals who owned 5 or fewer Cavaliers were requested to complete this process for all of their dogs. Those with more than 5 dogs were asked to complete this process for at least 5 of them.

A total of 1,589 responses were received to the survey. Individuals not meeting the inclusion criteria for the survey (e.g., reported living outside of the USA or Canada, reported not to currently own any CKCS) were removed. Individuals who did not complete at least 50% of the respondent-specific section of the survey (Part 1; prior to individual dog-specific questions) were removed. Responses deemed likely to be computer-generated (e.g., bot) based on a ReCAPTCHA score of less than 0.5, in conjunction with no free-text responses and an IP address incongruent with survey-reported location, were removed. For the individual dog-specific analysis, dog records without any responses beyond the dog name/identifier were removed from the analysis. A total of 1,110 survey responses, listing 2,018 individual dogs were retained for analysis. The data on 2,018 individual dogs came from 1,009 respondents (median: 1 dog per respondent; range: 1-25).

Free-text responses were reviewed by the report authors and coded to align with common response themes or items. Data were further systematically categorized for geographic location of respondents, Cavalier age category, and behavior concern (see Appendix C). For each question, descriptive statistics (e.g., count, percentages, mean, standard deviation, median, range) were computed to describe overall responses and grouped by self-reported breeder status (breeder of CKCS vs. not a breeder of CKCS based on survey response) and source (obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC vs. not). Given the nature of the data, no statistical tests were performed. As such, although we may

comment that one proportion was greater than another [e.g., clinical signs were more commonly reported among non-breeders (44.1%) than breeders (21.1%)], this does not imply such proportions are in fact truly different (e.g., the calculated difference may be due to random error). All analyses were completed in Stata 19.0 (College Station, TX, USA).

Information is presented by topic area. Key findings/highlights are presented, followed by applicable details and figures. To promote transparency in how the data were collected and analyzed, the full survey (questions and response options) and the constructed data tables are included in this report (Appendices A and B).

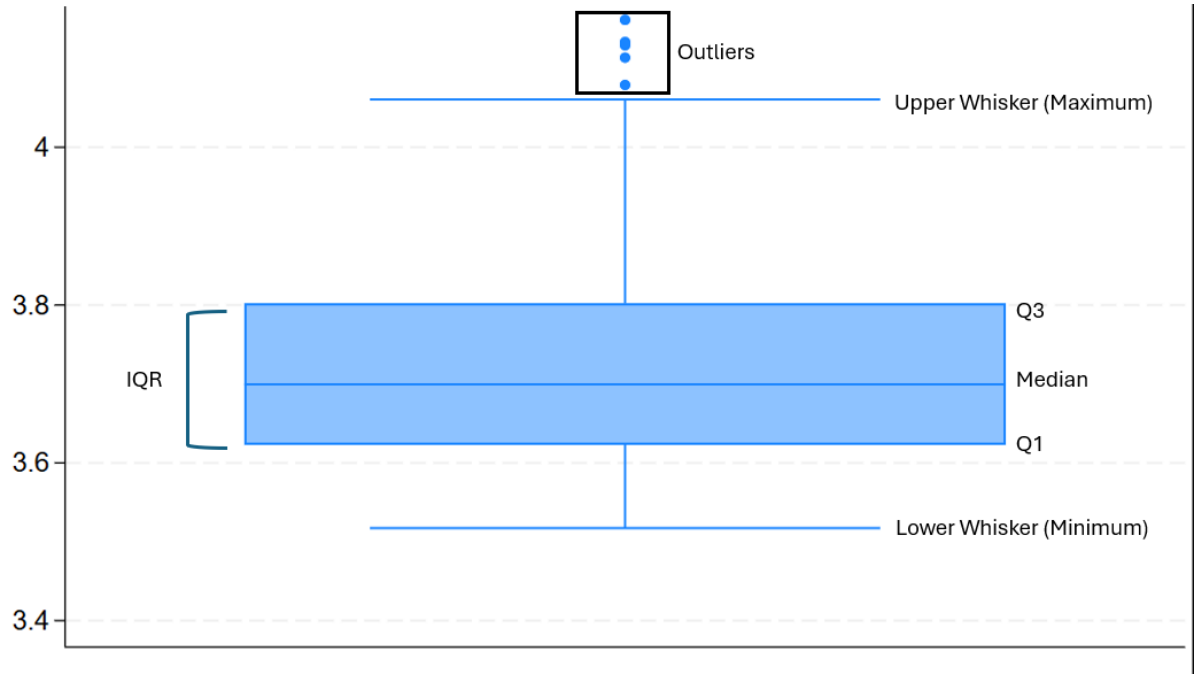
List of Abbreviations / Glossary of Terms

n = Number

% = Percent

SD = Standard Deviation

Box Plot Interpretation



Upper/Lower Whisker: Highest/Lowest non-outlier values

Q1: First quartile. The 25th percentile

Median: The middle value when data are ordered

Q3: Third quartile. The 75th percentile

IQR: Interquartile range. The difference between Q3 and Q1

Outliers: Values greater than 1.5 x IQR. Can be above Q3 or below Q1

Part One: Respondent Analysis

Section 1: Respondent Demographics

This section provides an overview of the individuals who participated in the survey, including how they were involved with Cavalier King Charles Spaniels (CKCS), where they were located, and key demographic and environmental characteristics. This information helps place the results of the survey in context and highlights the diversity of perspectives represented in the report.

Respondent Roles and Involvement with Cavaliers

A total of 1,110 eligible survey responses were recorded (see Methodology Section for details). This is a substantial increase from the 2004 American Cavalier King Charles Spaniel Club survey (313 owners). Most respondents reported owning one or more Cavalier King Charles Spaniels (CKCS) as pets, with a substantial proportion also involved in breeding and showing activities (e.g., conformation, agility). Overall, 910 of 1,104 respondents (82.4%) reported owning Cavaliers as pets, 245 (22.2%) identified as breeders, and 328 (29.7%) reported showing one or more Cavaliers.

Clear differences were observed between breeders and nonbreeders (Figure 1). Among breeders, the majority (174/245; 71.0%) reported participating in showing activities, compared with 154/857 (18.0%) of non-breeders. In contrast, nearly all non-breeders reported owning Cavaliers as pets (790/857; 92.2%), whereas this was less common among breeders (120/245; 49.0%). A small proportion of respondents (20; 1.8%) selected “other,” most commonly referring to service or therapy dogs.

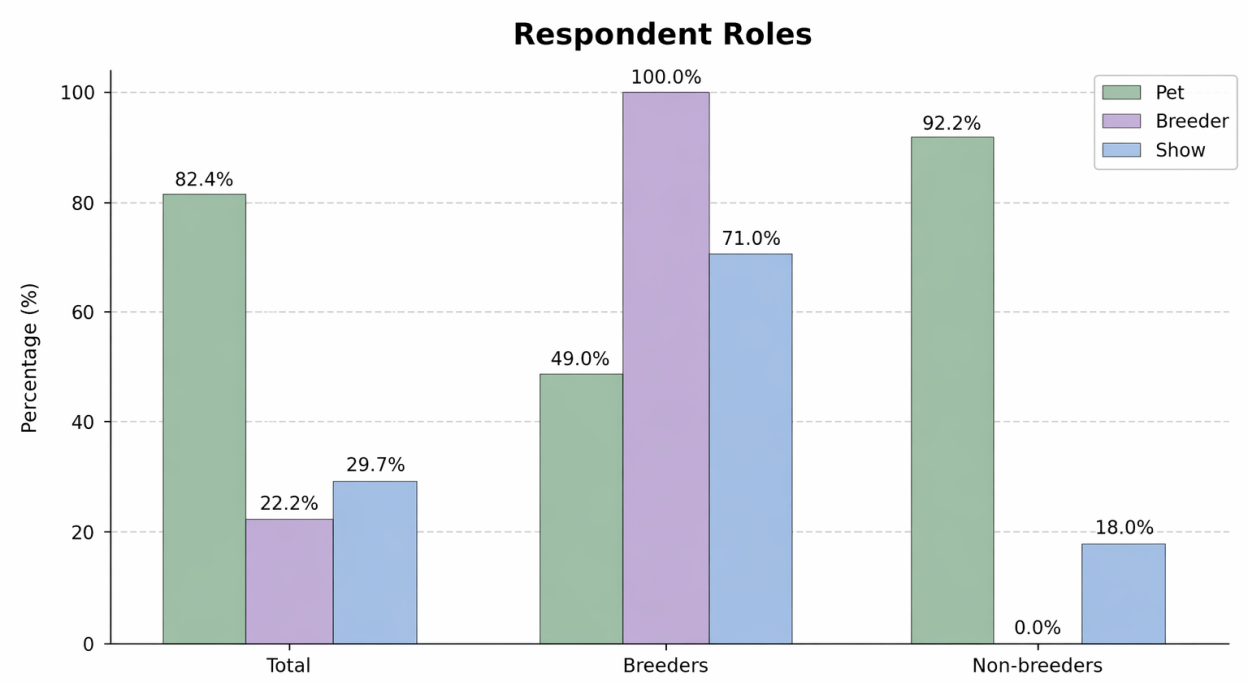


Figure 1. Respondent roles and involvement with Cavaliers reported by 1,104 owners (245 breeders and 857 non-breeders).

Types of Showing Activities

Among respondents who reported showing Cavaliers (n = 321), conformation was the most reported activity (262; 81.6%), followed by performance events (149; 46.4%).

Patterns differed between breeders and nonbreeders (Figure 2). Nearly all breeders who reported showing participated in conformation (167/171; 97.7%), while a smaller proportion reported performance events (57/171; 33.3%). In contrast, non-breeders who showed Cavaliers were more evenly distributed between conformation (95/150; 63.3%) and performance activities (92/150; 61.3%).

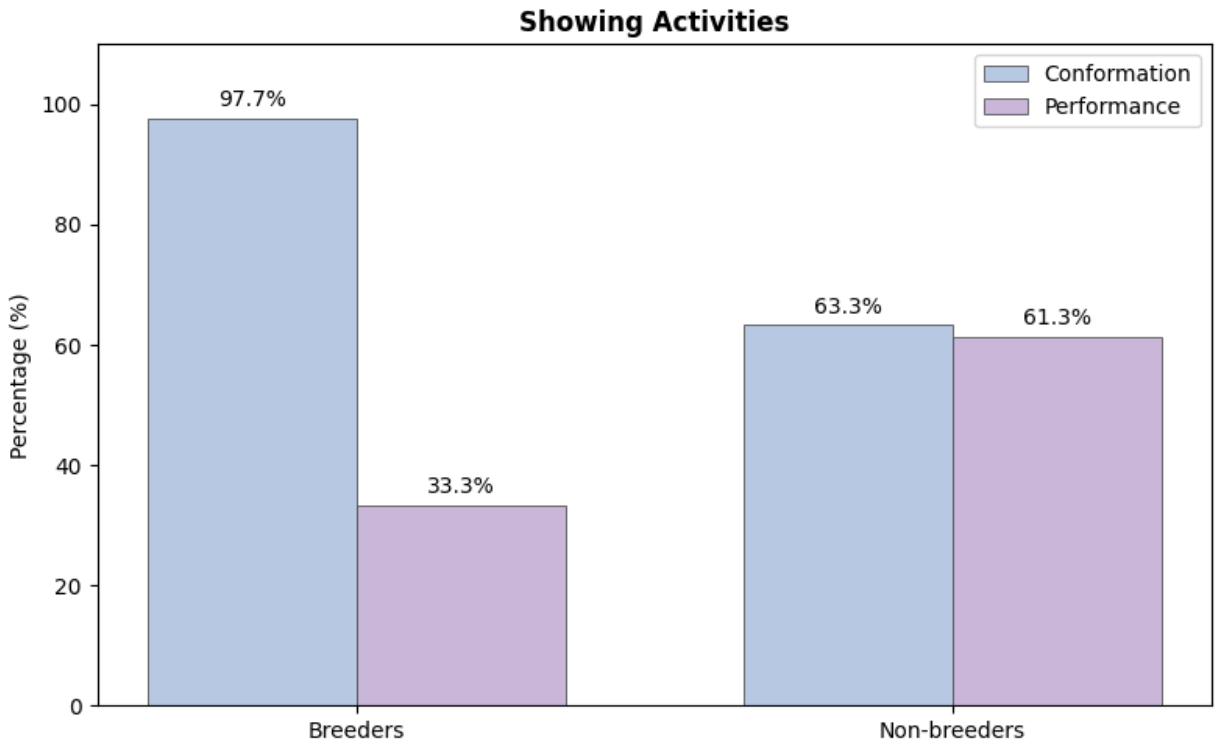


Figure 2. Types of showing activities among 321 respondents (171 breeders and 150 nonbreeders).

Geographic Distribution of Respondents

Respondents were predominantly located in the United States, with a smaller proportion residing in Canada. The survey was only open to individuals reportedly living in either of these two countries.

Overall, 1,024 of 1,103 respondents (92.8%) lived in the United States and 70 (7.2%) in Canada. This distribution was similar between breeders and non-breeders.

Regional data showed that the largest proportion of respondents lived in the South USA (381/1,101; 34.6%), followed by the Northeast (269; 24.4%), West (225; 20.4%), and Midwest (152; 13.8%). Canadian respondents were fewer and were primarily located in Central Canada (35; 3.2%) and Atlantic Canada (29; 2.6%), with very small representation from the Prairies (6; 0.5%) and West Canada (4; 0.4%); Figure 3. See Appendix C. for the categorization used for regions.

Minor differences were observed between breeders vs. non-breeders, including a slightly higher proportion of breeders in the West USA (25.6% vs. 18.9%) and a higher proportion of non-breeders in the Northeast USA (25.6% vs. 20.3%).

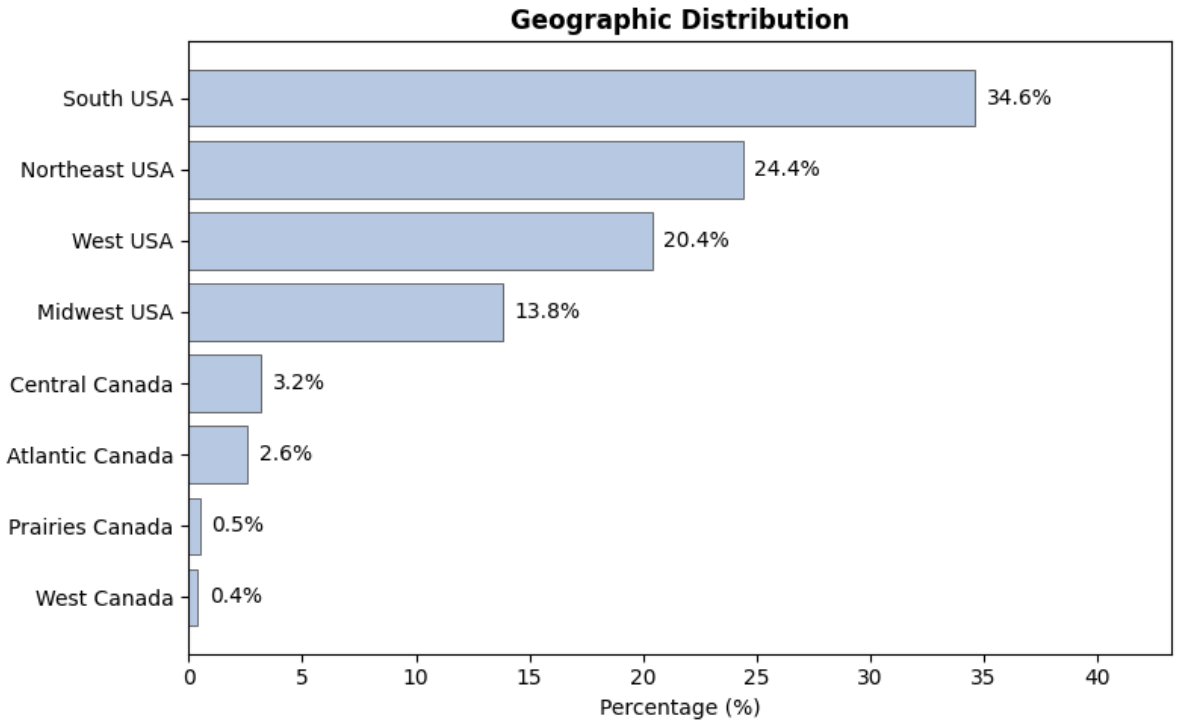


Figure 3. Geographic distribution of 1,101 respondents (see Appendix C for categorization).

Age Distribution of Respondents

Respondents ranged in age, with 70% aged 55 or older. The largest proportion of respondents was aged 65–74 years (371/1,105; 33.6%), followed by 55–64 years (243; 22.0%). Additional respondents were 75 years or older (162; 14.7%) and 45–54 years (135; 12.2%). Smaller proportions were 35–44 years (109; 9.9%), 25–34 years (62; 5.6%), and 18–24 years (4; 0.4%), while 19 (1.7%) preferred not to say.

The overall age distribution was similar between breeders and non-breeders, with 65–74 years being the most common age category in both groups.

Gender Distribution of Respondents

Most respondents identified as female, representing 93.4% of respondents (1,030 of 1,103). Smaller proportions identified as male (62; 5.6%), non-binary/third gender (4; 0.4%), or preferred not to say (7; 0.6%). This distribution was consistent between breeders and non-breeders.

Household Smoking or Vaping Exposure

Most respondents reported that no one in their household smoked or vaped in the Cavalier's environment (e.g., their housing, kennel, car when Cavaliers are present).

Across all participants, 95.7% of respondents (1,061 of 1,109) reported no one in their household smoked or vaped in the Cavalier's environment, while 48 (4.3%) reported that someone in the household did. A slightly higher proportion of breeders reported this exposure to smoking or vaping compared with non-breeders (19/245; 7.8% vs. 29/857; 3.4%).

Participation in the Dog Aging Project

The Dog Aging Project is a large longitudinal research study that aims to understand how genetic, environmental, and lifestyle factors influence aging and health in dogs. Participating voluntary-enrolled dogs are followed over time through owner surveys, health records, and biological sample collection.

Most respondents (1,040 of 1,108; 93.9%) reported no prior or current participation in the Dog Aging Project, while 32 (2.9%) reported participation and 36 (3.3%) were unsure.

Patterns were similar between breeders and non-breeders.

Note: the rationale for asking this question was to determine the level of overlap between respondents to this survey and the Dog Aging Project, from which ongoing data analyses are being performed and recommendations developed.

Section 2: General Questions About Respondents and Cavalier(s) Over the Past 5 Years

This section summarizes general ownership patterns, management practices, and health outcomes for Cavalier King Charles Spaniels (CKCS) over the past five years. This includes the number of dogs owned, their roles (e.g., pet, breeding, showing), living arrangements, and reported mortality, including age and cause of death.

Number of Cavaliers owned (Past 5 Years)

Respondents reported owning a variable number of Cavaliers over the past five years, with clear differences between breeders and non-breeders. The mean number of Cavaliers owned was 4.1 (SD 5.4), with a median of 2 (range 1–70).

Breeders reported owning substantially more Cavaliers, with a median of 8 (range 1–70) Cavaliers, compared with non-breeders, who reported a median of 2 (range 1–15); Figure 4.

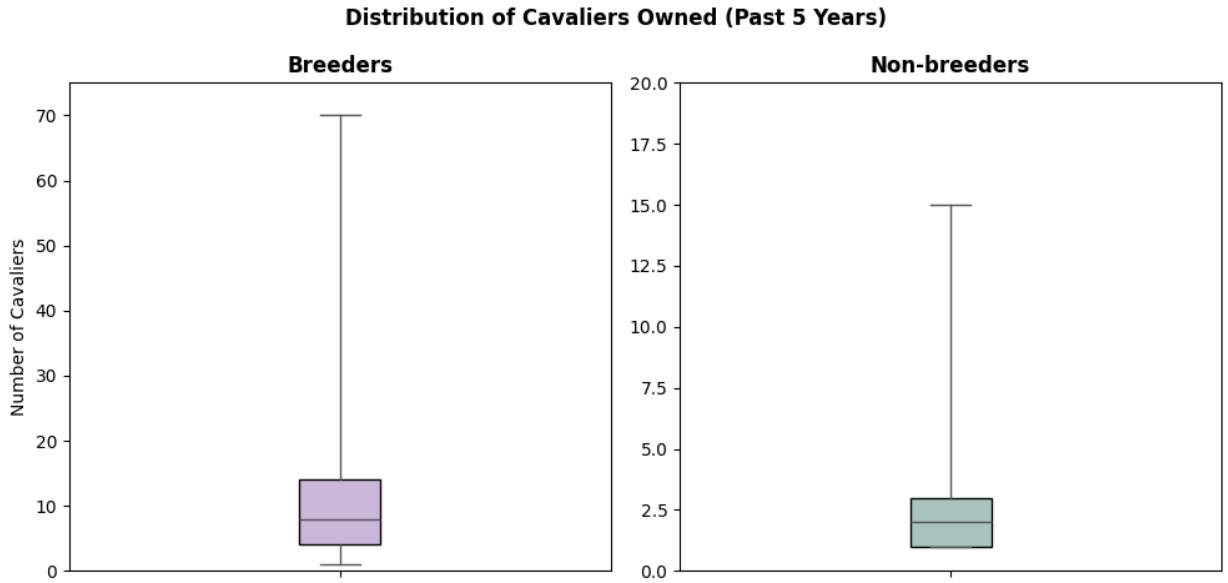


Figure 4. Distribution of the number of Cavaliers owned over the past 5 years from breeders (n=237) and nonbreeders (n=851); note different scales are used for the two figures

Roles of Cavaliers (Past 5 Years)

Respondents reported that Cavaliers owned over the past 5 years were commonly kept for multiple purposes, including as pets, for breeding, and for showing. Most CKCS were owned as pets, followed by showing and breeding.

Cavaliers owned as pets were the most common category, with a mean of 2.5 (SD 3.3) Cavaliers and a median of 2 (range 0–50). Breeders reported a higher number of pet Cavaliers (mean 4.2; SD 6.1) compared with non-breeders (mean 2.1; SD 1.6).

Ownership of Cavaliers for breeding was largely limited to breeders. Among breeders, the mean number of Cavaliers owned for breeding was 7.3 (SD 8.0; median 5), while non-breeders reported minimal involvement (mean 0.2 (SD 0.7; median 0); Figure 5.

Similarly, Cavaliers owned for showing were more common among breeders (mean 6.2, SD 7.8; median 4) compared with non-breeders (mean 0.5, SD 1.3; median 0).

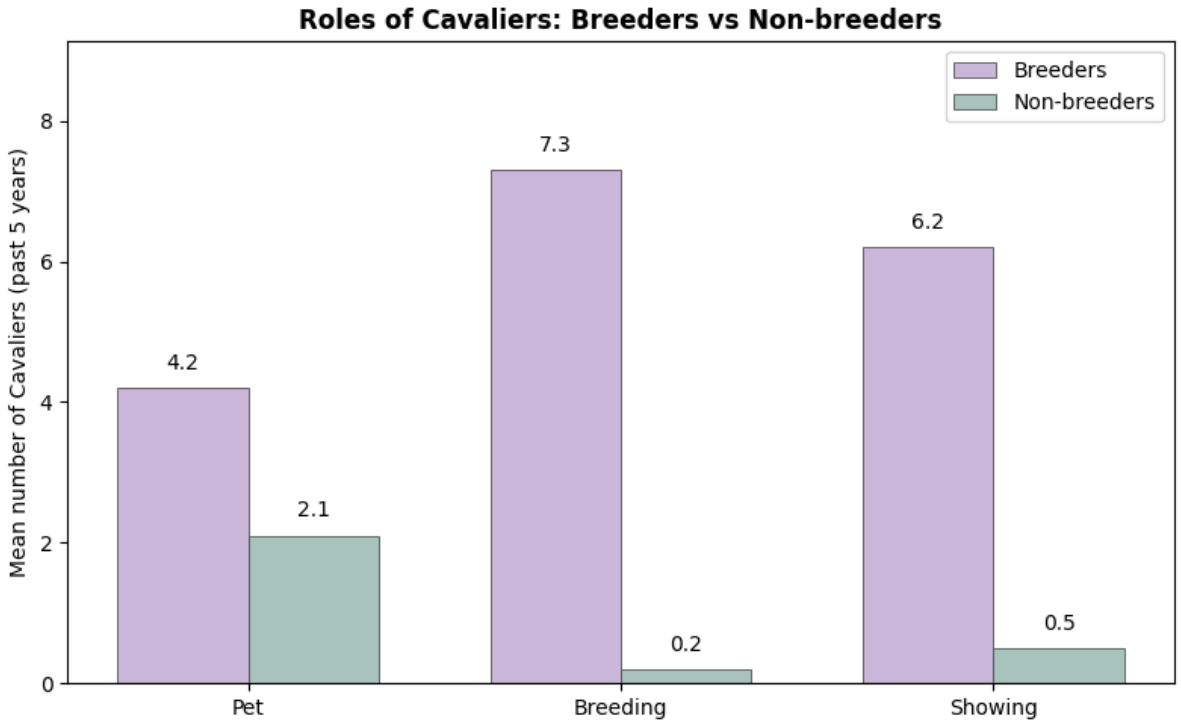


Figure 5. Mean number of Cavaliers owned by roles over the past 5 years by breeders (n=237) and non-breeders (n=848)

Living Arrangements for Owned Cavaliers (Past 5 Years)

Most Cavaliers owned by respondents over the past 5 years lived with them in their home at least some of the time. The mean number of Cavaliers living in the respondent's home was 4.1 (SD 5.9), with a median of 2 (range 0–78).

Breeders reported higher numbers of dogs living in their homes (mean 10.6, SD 9.6; median 8) compared with non-breeders (mean 2.3, SD 1.6; median 2).

When considering the number of Cavaliers living with respondents at any one time over the past 5 years, the overall mean was 3.3 (SD 3.6; median 2; range 1–30). Breeders again reported higher numbers (mean 7.5, SD 5.0; median 6) compared with non-breeders (mean 2.0, SD 1.4; median 2).

Cavalier Mortality (Past 5 years)

Over half of respondents reported that none of their Cavaliers had passed away in the past five years (577/1,105; 52.2%). In contrast, 28.0% reported that one Cavalier had passed away, and 19.8% reported that more than one had passed away.

Differences were observed between breeders and nonbreeders. Breeders were more likely to report multiple Cavaliers had died over the past 5 years (39.1%) compared with non-breeders (14.3%), while non-breeders were more likely to report no deaths (58.3% vs. 32.1%).

Age at Death (Single Cavalier Passing)

Among 306 respondents reporting the death of one Cavalier, the mean age at death was 10.7 (SD 3.4) years, with a median of 11.5 years (range 0.04–17.1); Figure 6. Age at death was similar between breeders and non-breeders.

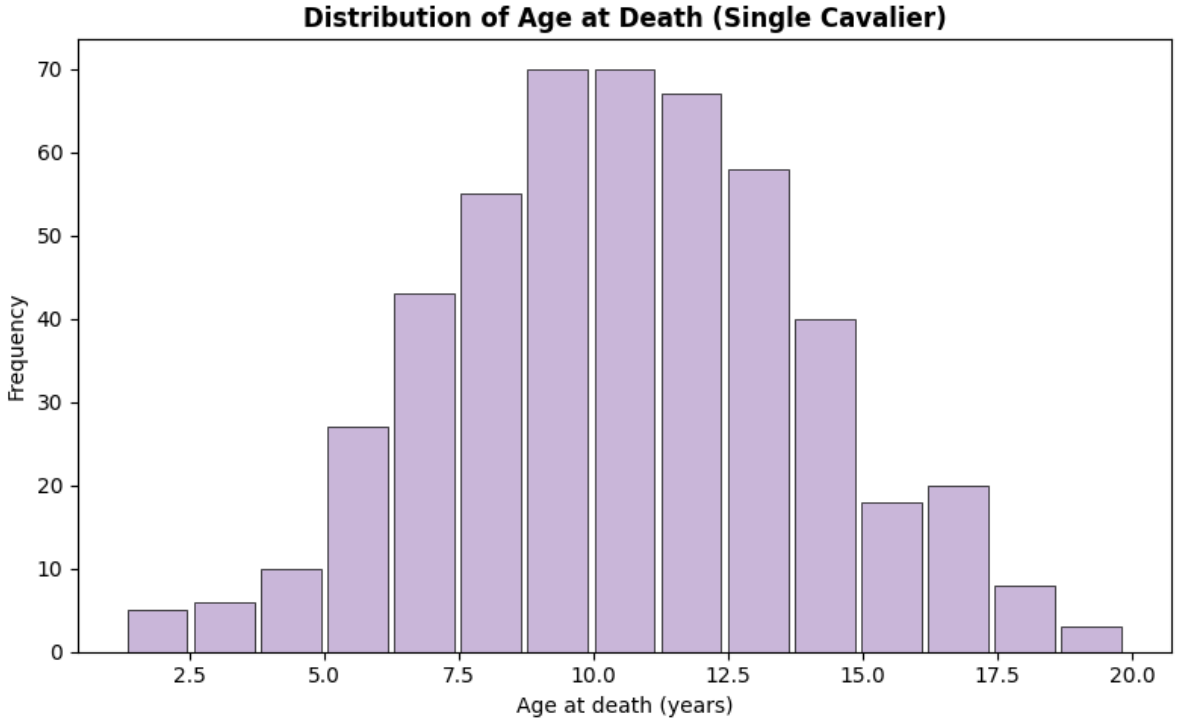


Figure 6. Distribution of age at death (single Cavalier) from 306 respondents

Cause of Death (Single Cavalier Passing Over Past 5 Years)

Of the 309 respondents who reported one of their Cavaliers had passed away over the past 5 years, 279 (90%) provided the suspected or diagnosed cause of death. Heart-related disease was the most common reported cause of death (126 of 279; 45.2%). Cancer was the second most common (52; 18.6%), followed by kidney-related disease (22; 7.9%). These findings were similar between breeders and non-breeders. Most respondents reported that the cause of death had been diagnosed by a veterinarian (253/308; 82.1%), with similar proportions between breeders (78.6%) and non-breeders (82.9%).

Longevity (age of death) was similar across the two most common causes of death (heart- and cancer-related), with those dying from kidney disease having a slightly longer life expectancy.

Age and Cause of Death (Multiple Cavaliers over the Past 5 Years)

Oldest Cavalier

Among respondents reporting multiple deaths, the oldest Cavalier had a mean age at death of 13.1 years (SD 2.3; median 13.8; range 4–17.7). Breeders reported slightly higher ages (mean 13.7, SD 2.0) compared with non-breeders (mean 12.7, SD 2.4).

Heart-related disease remained the most common cause of death (47.1%), followed by cancer (18.0%) and kidney-related disease (12.8%). Most causes of death were diagnosed by a veterinarian (80.0%).

Longevity (age of death) was similar across the two most common causes of death (heart- and cancer-related), with those dying from kidney disease having a slightly longer life expectancy.

Youngest Cavalier (over 1 year of age)

The youngest Cavaliers that passed away had a mean age at death of 9.5 (SD 3.3 years; median 10; range 1–17), with similar values between breeders and non-breeders

Heart-related disease was again the most commonly reported cause of death (44.3%), followed by cancer (15.6%) and kidney-related disease (4.7%). A small number of neurologic conditions, including Chiari-like malformation (1.0%) and syringomyelia (2.1%), were also reported. Most deaths were reported to have been diagnosed by a veterinarian (85.4%).

Longevity (age of death) was similar across the two most common causes of death (heart- and cancer-related), with those dying from kidney disease having a slightly longer life expectancy. Cavaliers that died due to syringomyelia had a shorter life span as compared to other causes of death (Figure 7).

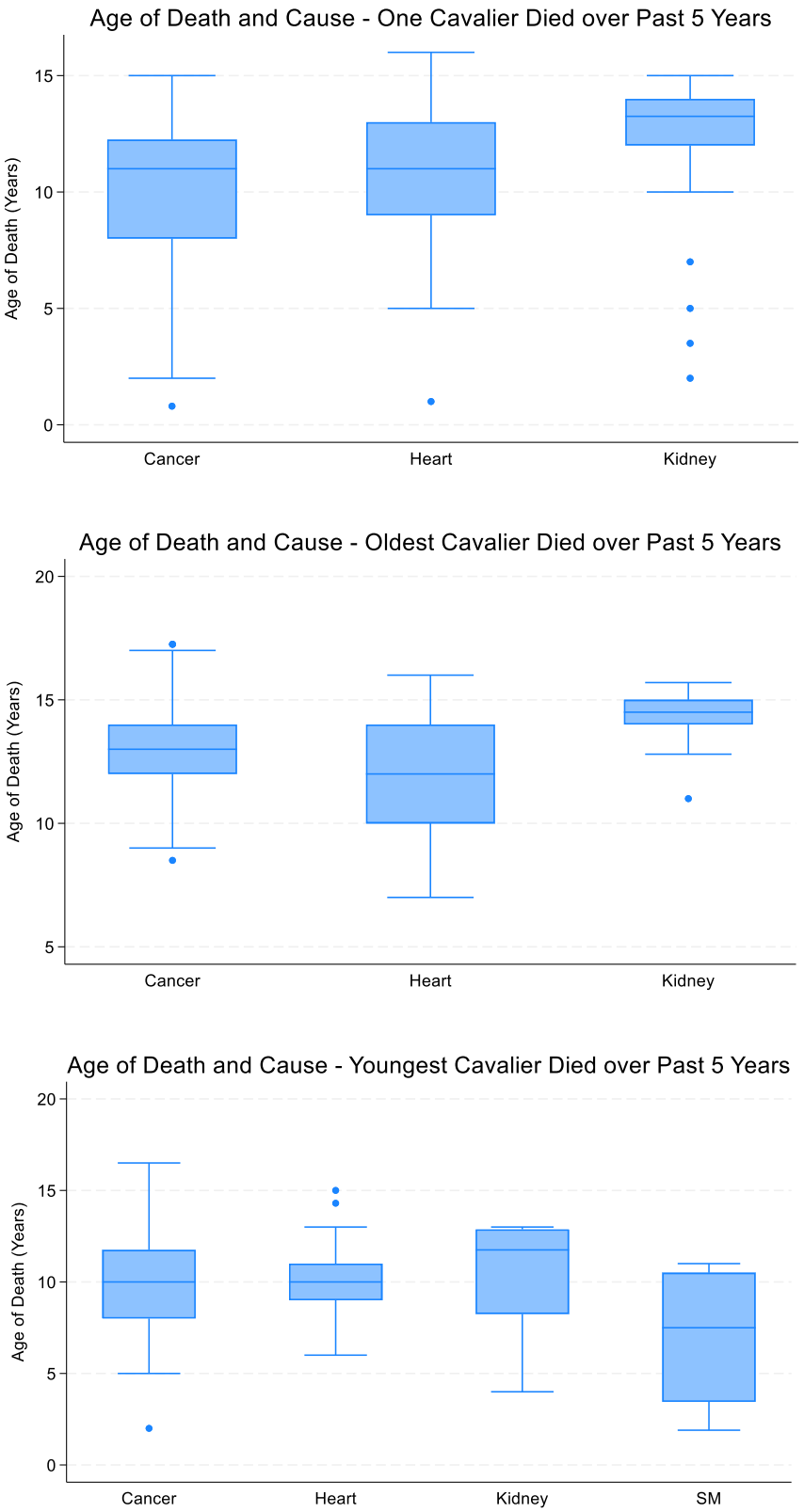


Figure 7. Age at death by cause reported by owners of a single Cavalier that died over the past 5 years and multiple Cavaliers that died over the past 5 years (youngest and oldest). SM = Syringomyelia

Section 3: Feeding and Nutrition

This section summarizes feeding practices and dietary patterns for the respondents' Cavalier King Charles Spaniels (CKCS) over the past five years. Topics include primary and secondary diet types, food sourcing, and supplementation. These findings provide insight into common nutritional approaches and variations between breeders and non-breeders.

Primary Diet Composition (Over the Past 5 Years)

Respondents were asked to identify the primary component (greatest amount) of their Cavaliers' diet over the past 5 years. Dry food (kibble) was the most commonly reported primary component of Cavaliers' diets, accounting for 648 of 1,099 responses (59.0%). This was more frequently reported by breeders (70.9%) compared with non-breeders (55.5%). Raw meat diets were the second most common primary feeding approach (12.8%), with similar proportions between breeders (14.5%) and non-breeders (12.5%). Home-prepared cooked diets were relatively common (9.0%); Figure 8.

Other diet types, including commercial fresh and mixed feeding approaches (e.g., combinations of dry, canned, and cooked diets), accounted for 10.5% of responses.

Less commonly reported primary diet types included canned food (3.2%), freeze-dried diets (3.3%), dehydrated diets (1.3%), and semimoist diets (0.9%). Leftover human food was rarely reported (0.1%).

Supplementary Feeding Practices

Most respondents reported that their Cavaliers received additional food beyond the primary diet component (751/1,108; 67.8%).

Secondary Diet Components

Among respondents who reported feeding additional food (n=745), a wide variety of secondary diet components were reported. The most common categories included canned food (15.2%), home-prepared cooked diets (15.2%), and dry food (13.7%); Figure 8.

Freeze-dried diets (13.6%) and dehydrated diets (13.7%) were also commonly reported as secondary diets. Raw meat diets accounted for 9.0% of secondary feeding practices, with higher proportions among breeders (20.2%) compared with non-breeders (5.3%).

"Other" responses accounted for 21.3% of secondary diet components, with fresh fruits and vegetables being the most frequently reported addition. This pattern was consistent across both breeders and non-breeders.

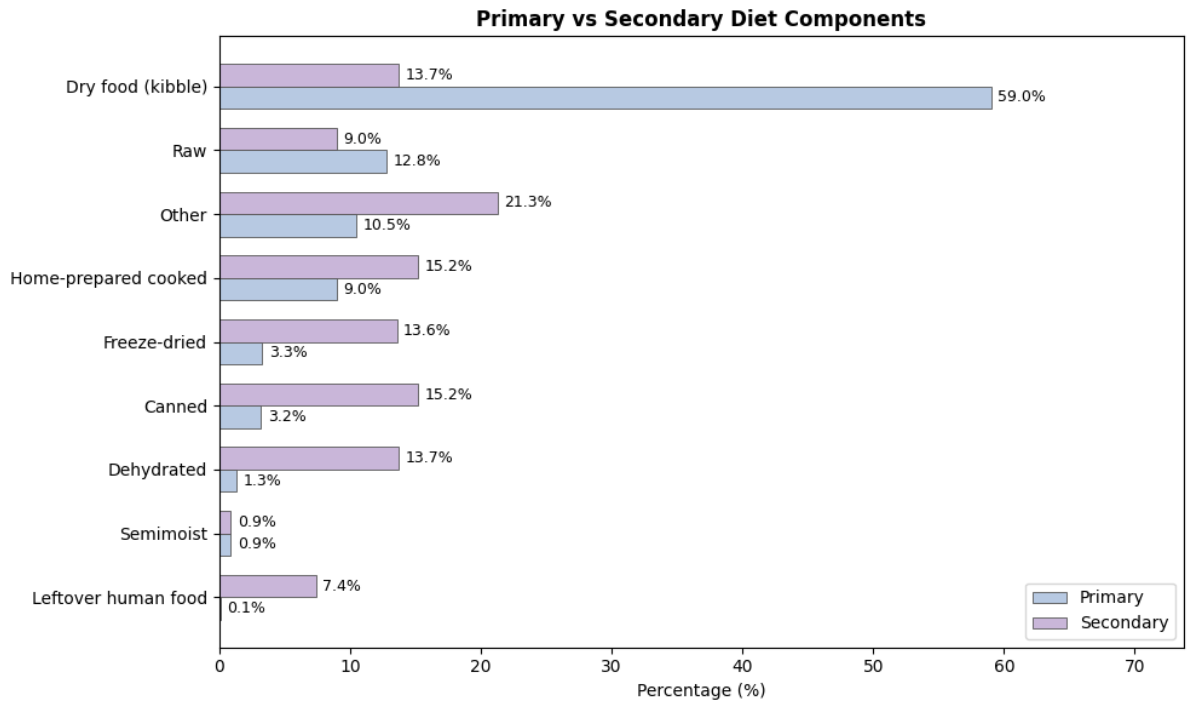


Figure 8. Reported primary (n=1,099) and secondary (n=745) diet components of Cavaliers over the past 5 years

Food Sourcing and Preparation (Primary Diet)

The majority of respondents reported that their Cavaliers' primary diet was commercially prepared (86.7%), with similar proportions among breeders (92.1%) and non-breeders (85.6%).

Home-prepared diets were reported by 9.6% of respondents. A small proportion of respondents reported feeding organic (1.7%) or grain-free (4.4%) diets.

Food Sourcing and Preparation (Secondary Diet)

Similar to primary feeding practices, commercially prepared foods were the most common source of secondary diet components (62.8%).

However, home-made feeding was more common for secondary components (31.2%) compared with primary diets. Organic (9.4%) and grain-free (5.6%) feeding practices remained relatively uncommon.

Section 4: Vaccines and Preventive Medications

This section summarizes vaccination practices and preventative healthcare measures reported by respondents for their Cavalier King Charles Spaniels (CKCS). In addition to describing reported practices, brief explanations of commonly administered vaccines and preventive measures are provided to support interpretation of the findings. Approximately 1,095 respondents (241 breeders and 847 non-breeders) responded to the vaccine and preventative medication questions.

Antibody Titer Testing

Antibody titer testing measures circulating antibodies to determine whether a dog may be protected (for instance, from earlier vaccination) against certain diseases, such as distemper and parvovirus, and can be used to guide decisions regarding booster vaccination.

Among respondents, most reported not having used titer testing in the past three years (66.9%). A smaller proportion reported using titers for all (20.6%) or some (7.0%) of their Cavaliers. There were no appreciable differences between breeders and non-breeders.

Core Vaccination Practices

Core vaccines are recommended for all dogs, regardless of lifestyle and geography, due to the severity and widespread nature of the diseases they prevent. These diseases include rabies, canine distemper, and canine parvovirus. See Figure 9 for comparisons of vaccination proportions among the core vaccines.

Rabies

Rabies is a fatal viral disease that affects the central nervous system of dogs and is transmissible to humans. Vaccination is required by law in many regions.

Most respondents reported that in the past 3 years, all of their Cavaliers over 16 weeks of age had been vaccinated against or had titers performed for rabies (83.1%). This was more commonly reported among non-breeders (86.2%) than breeders (72.4%). A small proportion reported that none of their dogs had received rabies vaccination or titers (9.8%).

Distemper

Canine distemper virus causes a systemic disease in dogs affecting the respiratory, gastrointestinal, and neurologic systems, and is associated with high morbidity and mortality.

Vaccination or titer testing for distemper in the past 3 years for Cavaliers over 16 weeks of age was reported by 78.5% of respondents. Non-breeders more frequently reported vaccinating all dogs (81.4%)

compared with breeders (68.3%), while breeders more commonly reported vaccinating only some dogs (18.5% vs. 4.9%).

Parvovirus

Canine parvovirus is a highly contagious viral disease in dogs, causing severe gastrointestinal illness, particularly in young dogs.

Overall, 74.1% of respondents reported that in the past 3 years all of their Cavaliers over 16 weeks of age had been vaccinated against or had titers run for parvovirus. Non-breeders were more likely to report vaccinating all dogs (76.1%) compared with breeders (66.9%), while breeders more frequently reported vaccinating only some dogs (17.4% vs. 4.5%).

Leptospirosis

Leptospirosis is a potentially fatal bacterial disease in dogs transmitted through contaminated water or wildlife exposure and can pose an infection risk to people.

Respondents reported that in the past year, vaccination for leptospirosis was less common than other core vaccines in Cavaliers over 16 weeks of age, with 35.1% reporting vaccination and 52.0% reporting no vaccination. Non-breeders were more likely to vaccinate all of their Cavaliers (41.1%) compared with breeders (13.9%).

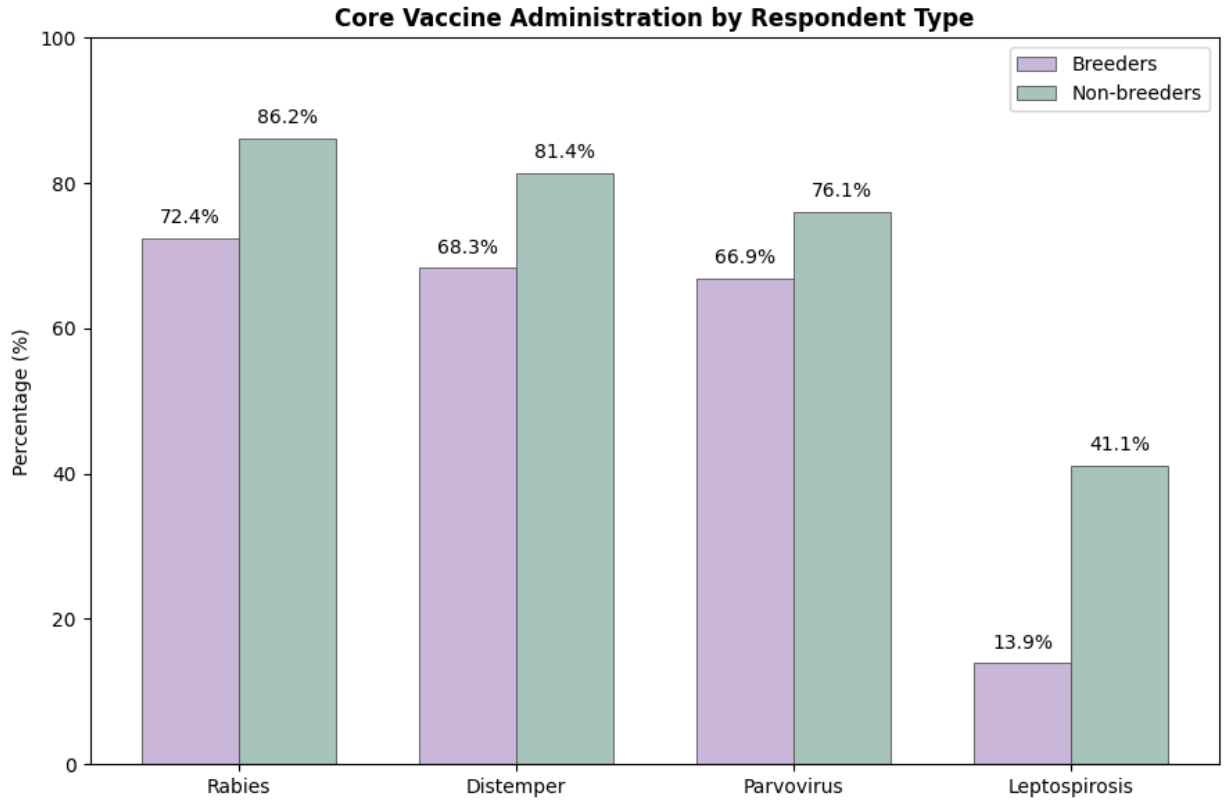


Figure 9. Reported core vaccine administration among all of their Cavaliers (1,095 respondents, 241 breeders and 847 non-breeders)

Non-core Vaccination Practices

Non-core vaccines, sometimes referred to as lifestyle vaccines, are administered based on individual dog risk factors, including geographic location, lifestyle, and exposure risk. Per manufacturer directions, non-core vaccines must be given every year to be effective.

See Figure 10 for comparisons of vaccination proportions among the non-core vaccines.

Canine Influenza

Canine influenza is a contagious respiratory disease of dogs that can spread in high-density dog environments such as kennels or dog events.

In the past year, vaccination against canine influenza was reported for all Cavaliers over 16 weeks of age by 28.8% of respondents, while 56.9% reported not vaccinating. Non-breeders were more likely to vaccinate all dogs (32.0%) compared with breeders (17.0%), while breeders were more likely to vaccinate some of their Cavaliers (15.3% vs. 3.1%).

Kennel Cough (*Bordetella*)

Bordetella bronchiseptica is a common cause of infectious tracheobronchitis in dogs, particularly in those exposed to group housing or events.

In the past year, over half of respondents (52.3%) reported vaccinating all Cavaliers over 16 weeks of age against *Bordetella*. This was more commonly reported among non-breeders (59.0%) than breeders (29.0%), while breeders were more likely to report not vaccinating (51.3% vs. 33.8%).

Lyme disease

Lyme disease is transmitted by blacklegged ticks and is regionally variable depending on tick prevalence.

Most respondents (68.2%) reported not vaccinating their Cavaliers over 16 weeks of age against Lyme disease in the past year. Vaccination of all dogs was reported by 19.2% of respondents, with higher uptake among non-breeders (23.5%) compared with breeders (3.5%).

Parainfluenza

Parainfluenza virus is a component of the canine respiratory disease complex and is often included in combination vaccines.

Vaccination against parainfluenza was reported for all Cavaliers over 16 weeks of age by 22.2% of respondents, while 53.9% reported not vaccinating. A notable proportion of respondents (20.2%) were unsure.

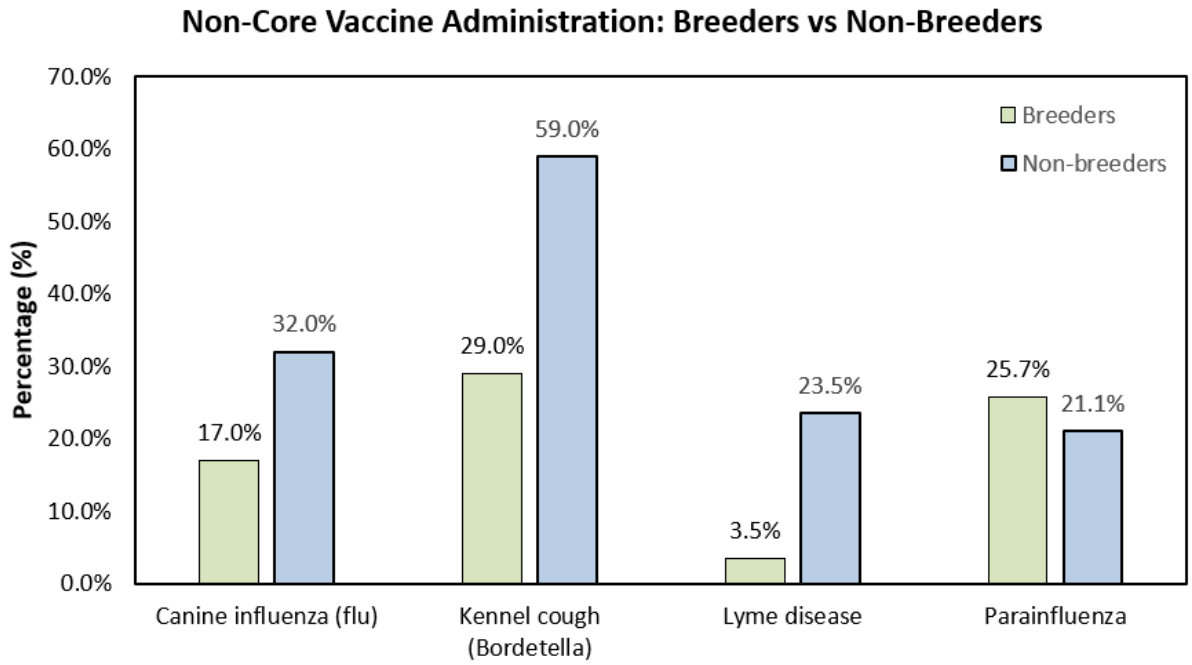


Figure 10. Non-core vaccine administration among all Cavaliers over 16 weeks of age in the past year

Flea and Tick Prevention

Flea and tick prevention reduces the risk of ectoparasite infestations and vector-borne diseases.

Approximately 1,105 respondents (244 breeders and 854 non-breeders) responded to the flea and tick prevention questions. Most respondents reported using flea and tick prevention on all their Cavaliers aged 16 weeks or older for at least part of the year (69.2%). Year-round use for all dogs was more common among non-breeders (43.3%) compared with breeders (16.0%), while breeders were more likely to report not using prevention (34.8% vs. 20.7%); Figure 11. Among those using prevention, the vast majority reported using veterinary products (88.0%), with relatively few using alternative products such as essential oils (4.9%) or other products (7.1%).

Internal Parasite (Worm) Prevention

Internal parasite prevention helps reduce the risk of gastrointestinal (GI, gut) parasites and associated disease.

Approximately 1,095 respondents (241 breeders and 847 non-breeders) responded to the intestinal parasite questions. Use of worm prevention varied widely. Approximately half of the respondents (50.1%) reported not using any worm prevention, while others reported seasonal or year-round use. Breeders

were more likely to use seasonal prevention for all of their Cavaliers (34.9%) compared with non-breeders (12.3%), while non-breeders were more likely to report no use (53.8% vs. 35.7%). Among those using worm prevention, veterinary products were most commonly reported (92.1%).

Heartworm Prevention

Heartworm disease is a potentially life-threatening parasitic infection transmitted by mosquitoes, with risk varying by geographic region.

Approximately 1,094 respondents (241 breeders and 846 non-breeders) responded to the heartworm questions. Most respondents reported using heartworm prevention for at least part of the year for at least some of their Cavaliers (74.8%). Year-round use for all of their Cavaliers was reported by 46.2% of respondents, while 24.1% reported not using heartworm prevention. Breeders were more likely to report no use (36.5%) compared with non-breeders (20.3%); Figure 11. Veterinary products were overwhelmingly the most commonly reported form of heartworm prevention (94.8%).

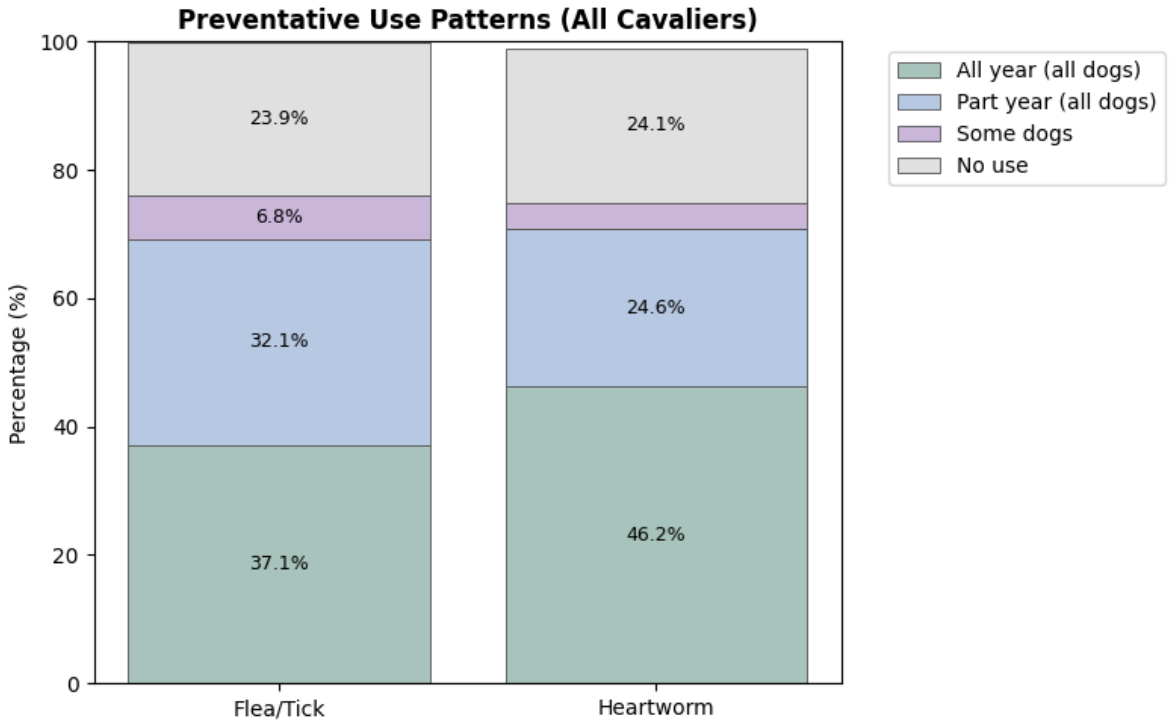


Figure 11. Patterns of preventative use in Cavaliers by 1,094 respondents. Very small proportions of respondents reported using preventatives in only some dogs on a year-round basis, therefore part of the year and all year were included as one category for 'some dogs.'

Section 5: General Health and Testing

This section summarizes health screening practices reported for Cavalier King Charles Spaniels (CKCS). Brief descriptions of commonly recommended screening tests and associated conditions are provided to support interpretation of the findings and to highlight their relevance to breed health.

Approximately 1,080 individuals (239 breeders and 833 nonbreeders) responded to the questions about general CKCS health and testing.

Routine Veterinary Care

Most respondents reported taking their Cavaliers to a veterinarian for routine health check-ups at least once per year (90.1%). This was more commonly reported among non-breeders (95.3%) compared with breeders (71.6%).

A small proportion of respondents reported less frequent visits or no routine veterinary care (3.4%), with this pattern more common among breeders (11.3%) than non-breeders (1.2%).

Cardiac Screening (Breeders Only)

Cardiac screening methods were defined as: auscultation by a general practitioner (GP) refers to routine evaluation using a stethoscope during a standard veterinary examination, while cardiologist assessment refers to evaluation by a veterinary cardiology specialist. Echocardiography (echo) refers to ultrasound imaging of the heart; routine echocardiography is performed as part of regular screening, whereas conditional echocardiography is performed only when abnormalities are identified. Mitral valve disease (MVD) is the most common inherited condition in Cavaliers, making routine cardiac screening a critical component of breeding programs.

Nearly all breeders (203/218; 99.6%) reported screening their Cavaliers for heart disease (Figure 12). Most reported performing screening at least annually (93.1%). Screening was most commonly performed by a veterinary cardiologist using auscultation (stethoscope; 86.7%), although general practitioners by auscultation (42.1%), echocardiography (conditional) only if a murmur is heard (41.2%), and echocardiogram (routine) always before breeding were also commonly reported (18.9%); as respondents were allowed to select more than one option, responses sum to greater than 100%.

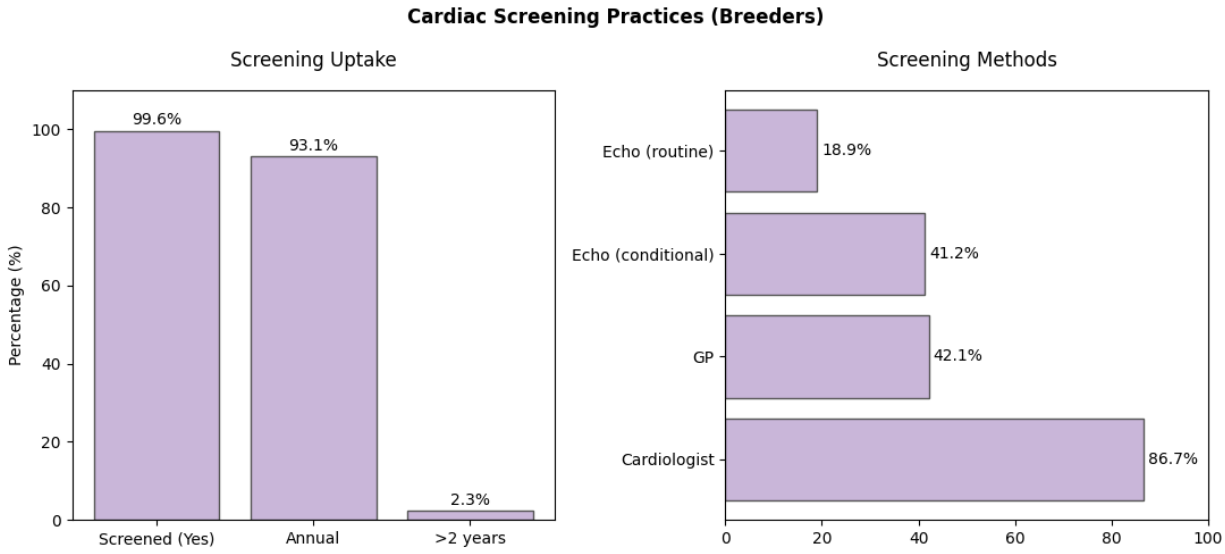


Figure 12. Cardiac screening practices among 203 breeders. See above text for definitions of the terms used.

Ophthalmic Screening (Breeders Only)

Inherited eye conditions, including cataracts and retinal disease, are important health conditions in Cavaliers and are typically assessed by veterinary ophthalmologists (i.e., specialists in eye health).

Most breeders (92.8%) reported having their Cavaliers screened for eye disease, and nearly all of those used a veterinary ophthalmologist (98.2%), indicating high uptake of specialist-based screening for this condition.

Screening Tests for Cavaliers

Respondents were asked which of the following screening tests they have completed by a veterinarian or sent out as a mail test for their Cavaliers as part of routine health and screening.

Approximately 696 individuals (209 breeders and 483 nonbreeders) responded to the questions about these specific screening tests (Figure 13).

1. Orthopedic conditions

Orthopedic screening (i.e., pertaining to the musculoskeletal system, including bones, joints, ligaments, tendons, muscles) was the most reported category of health assessment among respondents.

Patellar Luxation

Patellar luxation is a condition in which the kneecap temporarily or permanently dislocates from its normal position (slipping kneecap), potentially causing lameness or gait abnormalities. Diagnosis is based on physical examination and grading.

Assessment for patellar luxation was the most reported screening test reported by respondents, performed by 75.3%, with higher uptake among breeders (91.9%) compared with non-breeders (68.1%).

Hip Dysplasia

Hip dysplasia is a developmental condition characterized by abnormal formation of the hip joint, which can lead to osteoarthritis and reduced mobility. Screening is typically performed using radiographs (x-rays).

Hip dysplasia screening was reported by 59.8% of respondents, again with higher uptake among breeders (75.6%) compared with non-breeders (52.8%).

2. Genetic conditions

Genetic testing was widely reported, particularly among breeders, although uptake varied depending on the condition.

Dry Eye Curly Coat Syndrome (CCS)

A genetic condition affecting tear production, skin, and coat quality, often accompanied by systemic abnormalities.

Testing for CCS was reported by 36.4% of respondents, with substantially higher use among breeders (83.7%) compared with non-breeders (15.7%).

Episodic Falling Syndrome (EFS)

A breed-specific neurologic condition characterized by episodes of muscle stiffness and collapse. Diagnosis is made via genetic testing.

Testing for EFS was reported by 35.6% of respondents, with higher uptake among breeders (82.3%) compared with non-breeders (15.3%).

Degenerative Myelopathy (DM)

A progressive neurologic disease affecting the spinal cord, leading to hindlimb weakness and paralysis. Genetic testing is available to identify at-risk dogs.

Testing for degenerative myelopathy was reported by 24.4% of respondents, with higher use among breeders (54.5%) compared with non-breeders (11.2%).

3. General DNA screening panels

Commercial DNA panels can screen for multiple genetic conditions simultaneously and are often used for both breed identification and health screening.

General DNA testing for breed identification and genetic screening was reported by 29.2% of respondents, with notably higher use among breeders (58.4%) than among non-breeders (16.4%).

NEBL3 (Mitral Valve Disease marker)

NEBL3 is a genetic marker associated with increased risk of mitral valve disease in Cavaliers.

Testing for NEBL3 was reported by 16.5% of respondents, again with higher uptake among breeders (39.7%) compared with non-breeders (4.3%).

MCADD (Medium-chain acyl-CoA dehydrogenase deficiency)

A metabolic disorder that can affect energy metabolism, though less commonly reported in Cavaliers compared with other conditions.

Testing for MCADD was reported by 18.7% of respondents, with higher use among breeders (42.6%) compared with non-breeders (8.3%).

4. Neurologic and advanced screening

These tests are typically more specialized and may require advanced imaging or referral to specialists.

Syringomyelia (SM)

A neurologic condition involving fluid-filled cavities within the spinal cord, often associated with Chiari-like malformation. Diagnosis requires MRI.

MRI screening for syringomyelia was reported by 13.8% of respondents, reflecting the test's specialized nature and cost.

Primary Secretory Otitis Media (PSOM)

A condition involving mucus accumulation in the middle ear, which may cause pain or neurologic signs. Diagnosis typically requires imaging or myringotomy (i.e., short surgical procedure involving a small incision in the eardrum to drain fluid).

Screening for PSOM was reported by 6.3% of respondents.

Hearing assessment (BAER testing)

Brainstem Auditory Evoked Response (BAER) testing is used to assess hearing and identify congenital deafness.

BAER testing was reported by 3.4% of respondents, making it one of the least commonly reported screening tests.

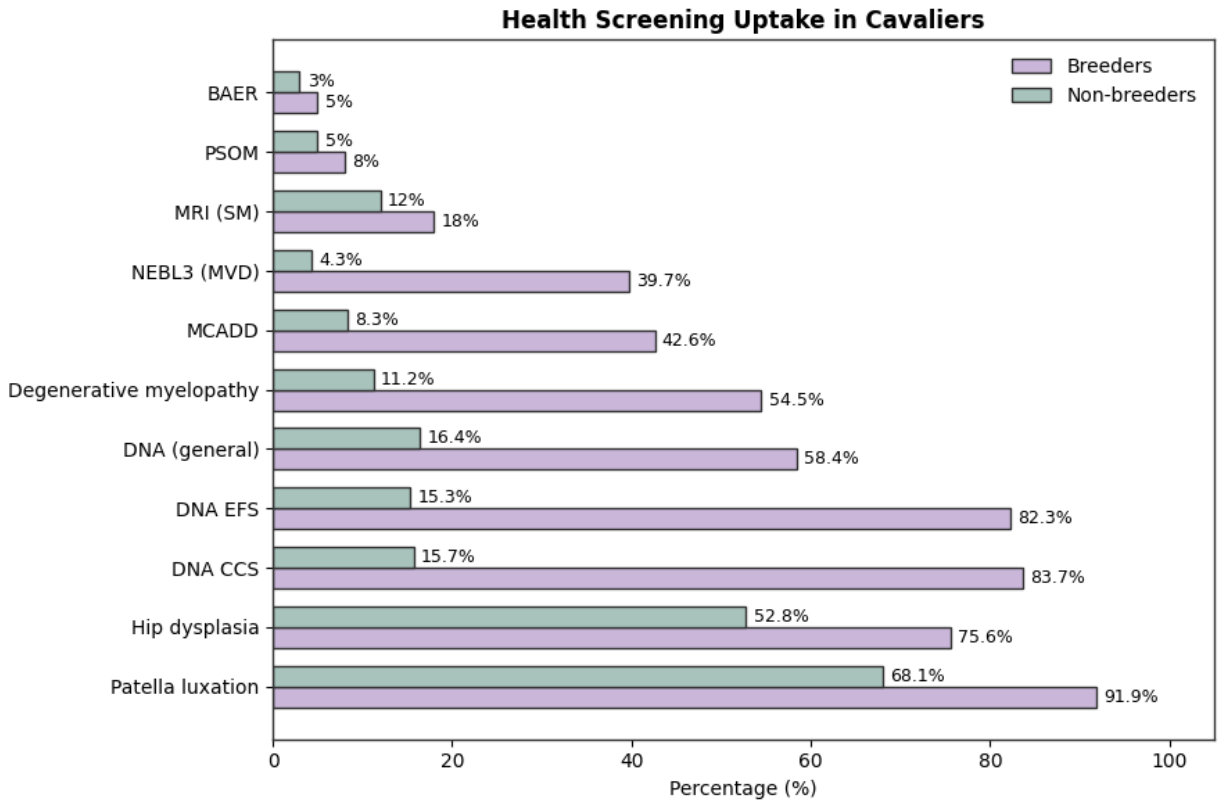


Figure 13. Health screening uptake by 696 Cavalier-owning respondents (209 breeders, 483 nonbreeders). Abbreviations defined in text above.

Submission of Screening Results (OFA)

The Orthopedic Foundation for Animals (OFA) is a non-profit organization that maintains a publicly accessible database of health screening results for companion animals. It supports standardized evaluation and reporting of genetic and orthopedic conditions, including hip dysplasia, cardiac disease, and eye disorders. Submission of results to OFA promotes transparency and allows breeders, veterinarians, and owners to make informed decisions based on documented health information.

Reported submission of health screening results to the Orthopedic Foundation for Animals (OFA) varied considerably. When analysis was restricted to respondents who reported having results available to submit, marked differences were observed between breeders and non-breeders. Nearly half of breeders (44.7%) reported always submitting results, whereas only 12.2% of non-breeders did so. In contrast, the majority of non-breeders (77.8%) reported never submitting results, highlighting a substantial gap in participation in centralized health reporting systems.

Use of Veterinary Specialists

A general practice veterinarian (GP) provides primary care, including routine examinations, vaccinations, and management of common medical conditions. In contrast, veterinary specialists have completed advanced training and board certification in specific areas (e.g. cardiology).

Approximately 1,035 individuals (212 breeders and 815 nonbreeders) responded to the questions about their use of veterinary specialists for health screening for their Cavaliers. Overall, 62.3% of respondents reported using veterinary specialists for health screening. This was nearly universal among breeders (98.6%) but less common among non-breeders (52.8%). Of those who reported using a veterinary specialist for health screening, preferences for specialist evaluation varied (Figure 14). Breeders were likely to prefer health clinics associated with Cavalier clubs (77.8%), while non-breeders more commonly preferred private appointments with specialists (66.4%).

For those who preferred health clinics sponsored by Cavalier clubs in conjunction with speciality shows for screening, breeders cited cost-effectiveness (86.3%), able to have multiple dogs examined on same day by multiple specialists (83.2%) and convenience (74.5%) as important reasons for this choice, while non-breeders cited cost-effectiveness (76.2%) as most important.

For those who preferred stand-alone health clinics offered at veterinarians' offices, breeders cited convenience (80.3%), able to have multiple dogs examined on same day by multiple specialists (79.4%), and cost-effectiveness (75.5%) as important reasons for this choice, while non-breeders were relatively split among the choices (38-46%).

For those who preferred by appointment privately with the specialists, breeders cited convenience (75.3%), able to have multiple dogs examined on same day by multiple specialists (64.9%), and cost-effectiveness (66.0%) as important reasons for this choice, while non-breeders most frequently selected 'perceived to be a better quality of examination' for this choice (50.0%).

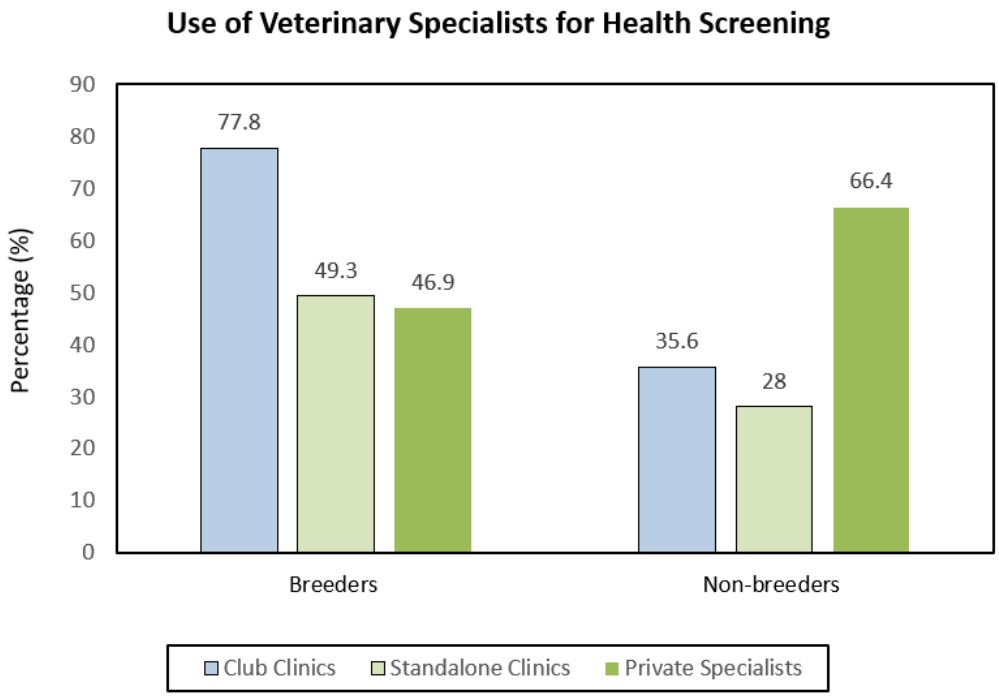


Figure 14. Preferred use of veterinary specialists for health screening among 207 breeders and 425 non-breeders.

Discussion

Section 1: Respondent Demographics

Survey respondents were predominantly owners of Cavalier King Charles Spaniels kept as companion animals, with a smaller proportion reporting involvement in breeding and showing. This distribution reflects a population largely representative of the general pet-owning community, while still capturing a meaningful subset of individuals actively engaged in breeding and breed-related activities. This pattern is consistent with broader companion animal ownership trends, in which many dogs are kept primarily as household pets rather than for breeding or competition purposes (American Veterinary Medical Association [AVMA], 2022; Canadian Animal Health Institute [CAHI], 2022).

Clear differences were observed between breeders and non-breeders in their level of involvement with Cavaliers. Breeders were more likely to report participation in showing activities and other structured aspects of breed involvement, whereas non-breeders were primarily engaged in ownership for companionship. These findings are consistent with expected patterns, as breeders are known to maintain closer ties to breed organizations, events, and formal health initiatives.

The geographic distribution of respondents was heavily weighted toward the United States, with a smaller proportion from Canada, and within-country regional differences for responses (e.g., 35% from the Southern USA). This is in line with general population demographics but may also reflect the survey's availability and outreach and should be considered when interpreting the broader applicability of the findings. As with many voluntary survey-based studies, this distribution may also reflect selection bias and uneven regional participation (Bethlehem, 2010; Dillman et al., 2014). Limited published data are available describing the demographic characteristics of Cavalier owners at this scale.

Household smoking or vaping in the environment of Cavaliers was reported infrequently among respondents (4.3%). While not a primary focus of this study, this finding is notable given the recognized associations between environmental tobacco smoke and adverse health effects in companion animals. Low reported occurrence may reflect increased awareness of these risks among pet owners or potential reporting bias.

Participation in the Dog Aging Project was also low among respondents. This suggests that, despite growing interest in canine longevity and health span, engagement with longitudinal research programs remains limited within this population. Increasing participation in such initiatives could provide valuable data to support breed-specific health research and improve understanding of aging in Cavaliers. Dedicated efforts to increase such participation in breeder and non-breeder CKCS owners are warranted.

Section 2: General Questions about Respondents and Cavalier(s) Over the Past 5 Years

Over the past five years, respondents reported owning a variable number of Cavaliers, with breeders managing substantially larger numbers of dogs compared with non-breeders. This difference is expected and reflects the nature of breeding programs, where multiple dogs may be housed or managed simultaneously.

Mortality among Cavaliers was commonly reported, with approximately half of respondents indicating that at least one dog had passed away within the past five years. Among those reporting a single death, the average age at death was approximately 10–11 years, with a slightly higher average age observed when considering the oldest dog in multi-dog households. These findings are broadly consistent with previously reported lifespan estimates for CKCS, which typically range from 10 to 14 years (O'Neill et al., 2015). Breeders were more likely to report multiple deaths within the five-year period, which potentially reflects increased population size and longer-term involvement with the breed.

Cardiac disease was the most commonly reported cause of death, followed by cancer and, less frequently, renal disease. This pattern aligns with well-documented breed predispositions, particularly the high prevalence of myxomatous mitral valve disease (MMVD) in Cavaliers (Buchanan, 2006). While direct comparison is limited by differences in study design and population structure, these findings reinforce the continued importance of cardiac health as a primary concern within the breed. Importantly, age at death was similar across the two most common causes of death (heart- and cancer-related), highlighting the expected longevity of Cavaliers, despite a diagnosed cardiac condition.

Section 3: Feeding and Nutrition

Dietary practices among respondents were diverse, although dry food (kibble) remained the most commonly reported primary diet. A notable proportion of respondents reported feeding alternative or mixed diets, including raw meat, freeze-dried, and home-prepared foods. These findings are consistent with broader trends in companion animal nutrition, where increasing numbers of owners incorporate 'non-traditional' or mixed feeding approaches alongside commercial diets (Dodd et al., 2019). The use of home-prepared and alternative diets likely reflects growing interest in individualized nutrition, although such approaches may vary in nutritional completeness. These findings highlight the importance of veterinary guidance to ensure nutritional adequacy, particularly for dogs receiving mixed or home-prepared diets.

Food sourcing was predominantly commercial, particularly for primary diets, while home-prepared feeding was more frequently reported as a secondary component. This pattern suggests that convenience and consistency guided the selection of the primary diet, whereas supplementation with alternative foods may be driven by perceived health benefits or a desire for dietary variety.

Differences in feeding practices were observed between breeders and non-breeders. Breeders were more likely to report consistent use of a primary diet type, whereas non-breeders more frequently reported varied or mixed feeding approaches. This may reflect differing priorities. Despite these differences, supplementary feeding was common across both groups, indicating that mixed feeding practices are widespread within the Cavalier population.

Although consistent with broader international canine feeding trends, feeding raw meat diets warrants comment. Between primary and secondary feeding practices, up to 22% of respondents reported feeding a raw meat diet. Such diets pose human health risks to household or other in-contact people, especially those at the extremes of age (less than 5 years, greater than 65 years), pregnant, or immunocompromised. Ensuring this information is known and steps taken to reduce risks is important for CKCS (and all pet) owners.

Section 4: Vaccines and Preventive Medicine

Vaccination practices among respondents were generally consistent with current veterinary recommendations, with high reported uptake of core vaccines including rabies, distemper, and parvovirus. However, uptake of leptospirosis vaccination was notably lower (13.9% of all their Cavaliers by breeders). Given that leptospirosis is now considered a core vaccine due to its zoonotic potential and environmental exposure risk (American Animal Hospital Association [AAHA], 2022), this difference is noteworthy and may reflect variation in perceived risk, geographic factors, or differing vaccination philosophies. The leptospirosis vaccine has historically had lower reported use than other vaccines, in part due to concerns about adverse events (i.e., side effects) following vaccination, an issue that is less common today than it was when different vaccines were available (Moore et al., 2023).

Overall, differences in vaccination practices were observed between breeders and non-breeders. Non-breeders reported consistently higher uptake across all core vaccines, including leptospirosis, whereas breeders demonstrated lower overall vaccination use, particularly for non-core vaccines. These patterns may reflect differing priorities or concerns, including vaccine hesitancy, risk perception, or breeding-related considerations.

Use of preventive medications, including flea/tick and heartworm prevention, varied among respondents. While a proportion of respondents reported consistent, year-round use, others reported seasonal use, use in only some dogs, or no use. This variability suggests that preventative practices are not uniformly applied and may be influenced by geographic location, lifestyle factors, or individual risk assessment.

The use of vaccines and preventative medications, such as tick and flea protection, in Cavaliers deserves careful monitoring as these practices are critical to Cavalier health. Vaccine and medication hesitancy are reportedly becoming more common in dog owners worldwide. Misinformation about vaccines, preventive medications, and their side effects is likely present among Cavalier owners (as it is among all dog owners) and should be further explored and addressed as needed.

Section 5: General Health and Testing

Health screening practices among respondents varied by condition. There was strong uptake observed for cardiac screening among breeders, which was reported to be nearly universal within this group. Most breeders had this evaluation performed annually for their Cavaliers and frequently used veterinary cardiologists to do so. Given the high prevalence of myxomatous mitral valve disease (MMVD) in the breed, these findings are consistent with breed-specific recommendations that promote early and regular cardiac assessment (Buchanan, 2006).

In contrast, other screening modalities, such as genetic testing and advanced diagnostics (e.g., MRI), were more variable. The majority of breeders reported use of genetic screening for well-documented inherited conditions - a very promising finding. The use of advanced imaging to screen for diseases like syringomyelia, however, was less commonly reported. This likely reflects the cost and accessibility of this modality as well as perceived clinical relevance. These patterns may reflect the prioritization of screening practices based on disease prevalence.

Clear differences were observed between breeders and non-breeders in engagement with health screening and use of specialist services. Breeders were more likely to utilize veterinary specialists and

participate in structured screening programs, including club-based initiatives. Non-breeders were still likely to report using veterinary care but were less likely to engage in formal screening or specialty services. This difference may reflect variation in access and awareness of these services, as breeders may be more closely integrated into breed-specific health networks.

Submission of health screening results to the Orthopedic Foundation for Animals (OFA) also differed substantially between the groups. When restricted to respondents who reported having results available to submit, breeders were more likely to consistently submit results. Most non-breeders reported never submitting. This finding highlights an important gap in the participation of centralized health reporting systems. Increased use of such databases could support ongoing breed health monitoring and should be actively encouraged.

Part One Key Takeaways for Breeders

Strong engagement in cardiac screening:

Cardiac screening practices among breeders were high, with most performing regular (often annual) evaluations and frequently involving veterinary cardiologists (specialists in this area). This aligns well with breed-specific health priorities.

Consistency in feeding and management practices:

Breeders were likely to report structured, consistent feeding approaches, with potential benefits for their Cavaliers.

Consistent participation in structured health programs:

Breeders were likely to engage in organized screening initiatives and utilize veterinary specialists, reflecting strong integration within breed health networks.

Variable use of broader screening modalities:

While genetic testing for key conditions was common, uptake of additional screening tools (e.g., advanced imaging or less emphasized tests) was more variable, suggesting opportunities to expand comprehensive screening approaches.

Gaps in data sharing and reporting:

Although screening is frequently performed, consistent submission of results to centralized databases (e.g., OFA) was not universal, indicating an important opportunity to improve transparency and contribute to ongoing population-level health monitoring.

Opportunities to strengthen preventative care:

Lower uptake of certain preventive measures, particularly leptospirosis vaccination and some parasite-prevention practices, suggests areas where ongoing education to address misinformation, support risk-based decision-making, and improve risk-benefit communication with veterinary professionals may be beneficial.

Part Two: Dog Analysis

The second part of the survey requested respondents to provide details about the specific CKCS they currently owned. The online survey program randomly determined the order in which the dogs were presented to the respondent to obtain the requested information, reducing the respondent's choice of which dogs to report (potentially reducing response bias). Individuals who owned 5 or fewer Cavaliers were requested to complete this process for all their dogs. Those with more than 5 dogs were asked to complete this process for at least 5 of them. Data were provided on 2,018 individual CKCS, owned by a total of 1,009 respondents (median: 1 dog per respondent; range: 1-25). This is a substantial increase from the 2004 American Cavalier King Charles Spaniel Club survey (566 dogs, owned by 313 respondents). Most (1213; 60.1%) of the CKCS in the current survey were owned by non-breeders, with 39.4% (796 dogs) owned by breeders (owners' breeding status was not available for 9 dogs).

Section 1: Dog Demographics, Health Care, and Lifestyle Characteristics

Age

Cavaliers in this study represented a broad age range, with a mean age of 6.0 years (SD 3.8) and a median of 5.4 years (range 0.01–19.2). Dogs owned by breeders were younger overall (mean 5.4 years, median 4.6 years) compared with those owned by non-breeders (mean 6.4 years, median 6.1 years); Figure 15. Based on age categories (puppy ≤ 9 months; adult > 9 months to ≤ 7 years; mature adult > 7 years to ≤ 10 years; senior > 10 years), breeders were more likely to own puppies and adult dogs, while non-breeders were more likely to own mature adult and senior dogs (Figure 16).

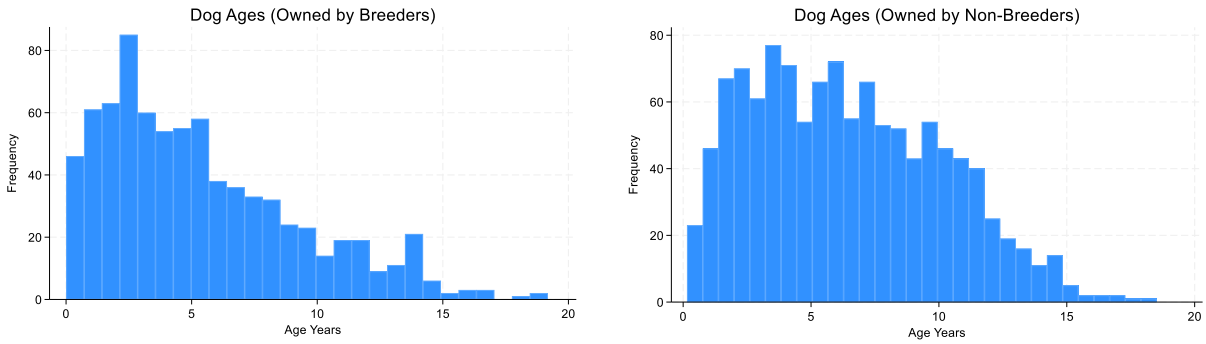


Figure 15. Age structure of dogs included in survey, by breeder status

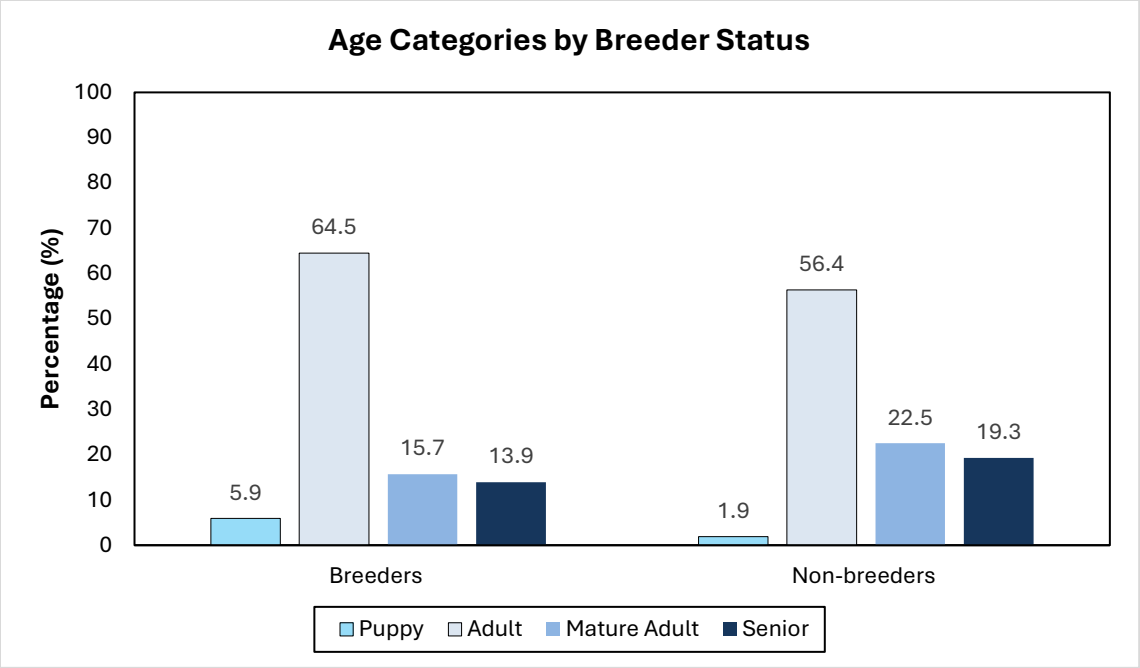


Figure 16: Age categories for 1,935 Cavaliers by breeder status (778 owned by breeders, 1,157 owned by non-breeders).

Coat Color

Blenheim was the most commonly reported coat color (52.1%), followed by Tricolor (24.9%), Ruby (12.0%), and Black and Tan (11.0%). Coat color distribution was broadly similar between breeder and non-breeder groups.

Sex and Reproductive Status

The population was slightly skewed toward females overall (57.6%), with a higher proportion reported among breeders (69.9%) compared with non-breeders (49.6%).

Marked differences were observed in the reproductive status of Cavaliers from breeders vs. non-breeders. Neutering was substantially more common among non-breeders for both males (77.8%) and females (80.4%); Figure 17. In contrast, breeder-owned dogs were far more likely to be intact, with 79.4% of males and 70.9% of females reported as intact, compared with 21.8% and 15.7% among non-breeders, respectively. Uterine sparing spays (3.9% non-breeders vs. 0.7% breeders) and vasectomies (0.3% non-breeders vs. 0.4% breeders) were uncommon.

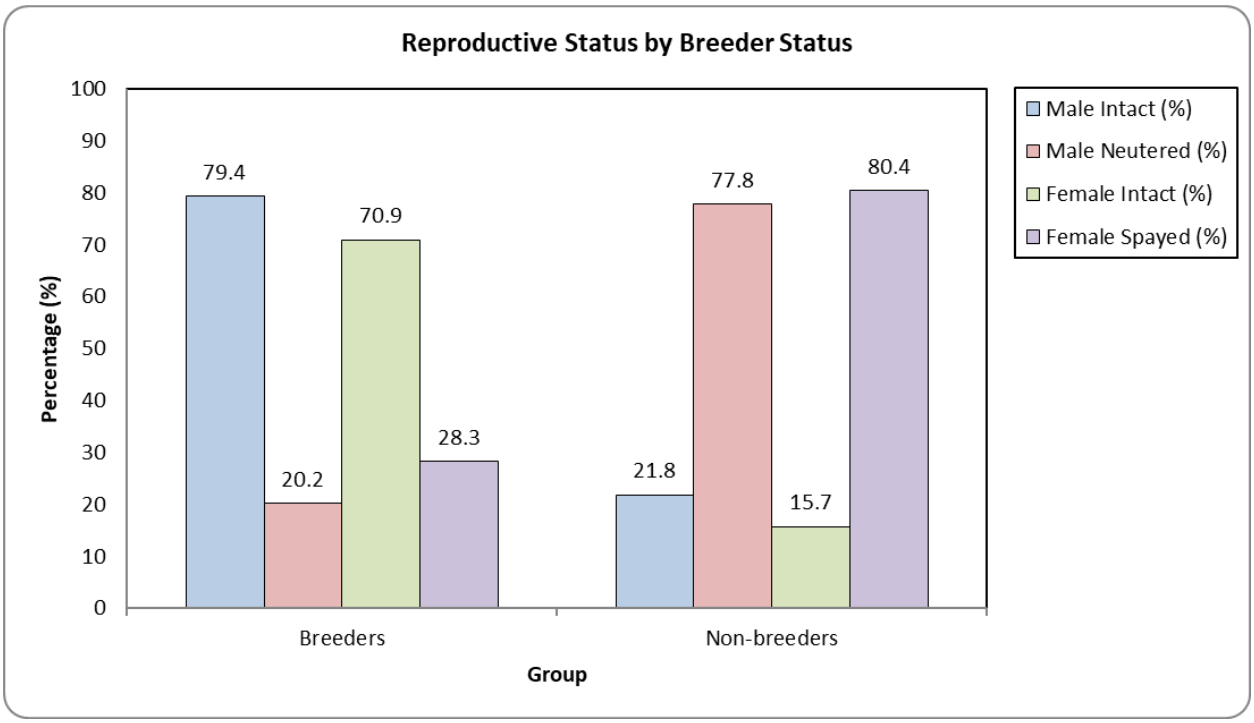


Figure 17. Reproductive status of Cavaliers, showing proportions of intact and neutered males and females, by breeder status for 2,008 dogs.

Source of Acquisition and Registration

Most Cavaliers were obtained from breeders or kennel clubs (64.4%), with this proportion higher among non-breeders (83.8%) than among breeders (34.6%); Figure 18. In contrast, breeders most commonly reported that they themselves were the source of their dogs (63.5%).

Rescue acquisition was relatively uncommon overall (7.1%) but was more frequently reported among non-breeders (11.6%) than among breeders (0.3%). The majority of dogs (87.7%) were reported to originate from breeders or kennel clubs registered with the Cavalier King Charles Spaniel Club (CKCSC), American Kennel Club (AKC), or Canadian Kennel Club (CKC), with higher reporting among non-breeders (92.3%) compared with breeders (81.6%); 9.6% of dogs did not originate from breeders or kennel clubs registered with these groups and 2.7% were unsure.

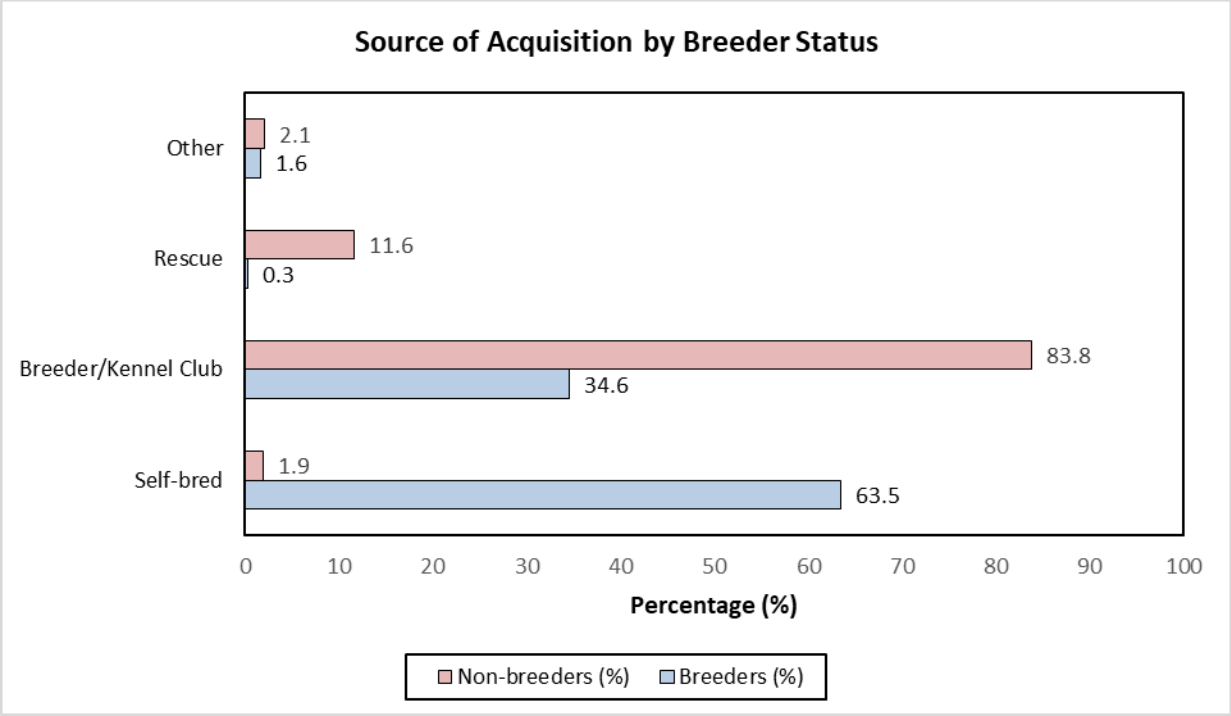


Figure 18. *Source of acquisition of Cavaliers, including breeder/kennel club, self-bred, rescue, and other sources, stratified by breeder status for 2,016 dogs.*

Veterinary Care

Veterinary care engagement was nearly universal, with 99.8% of breeder-owned dogs and 99.9% of non-breeder-owned dogs reported to have been seen by a veterinarian at some point in their life.

Most dogs had been seen by a veterinarian within the past year (95.8%); most of the remaining dogs had been seen by a veterinarian within the past 1-2 years.

Body Condition

According to owners, the majority of dogs were noted by their veterinarian to be at an appropriate body weight (91.3%). Smaller proportions were reported as overweight (4.2% breeders, 8.9% non-breeders) or underweight (1.8% breeders, 1.1% non-breeders).

Activity Level and Intensity

Most dogs were described as moderately active (62.4%), with similar proportions among breeders (56.4%) and non-breeders (66.3%). Breeders reported a higher proportion of very active dogs (26.9%) compared with non-breeders (18.9%), while dogs were less commonly reported as not active (15.6%).

Activity intensity was most commonly reported as low (walking), particularly among non-breeders (51.7%) compared with breeders (33.4%). In contrast, breeders reported higher proportions of moderate (34.0% vs. 23.7%) and vigorous activity (32.6% vs. 24.6%).

Daily Physical Activity

Cavaliers were reported to be physically active for an average of 2.4 hours per day (SD 2.0), with a median of 2 hours. Reported physical activity reduced with older age categories, with similar findings by breeders and non-breeders (Figure 19).

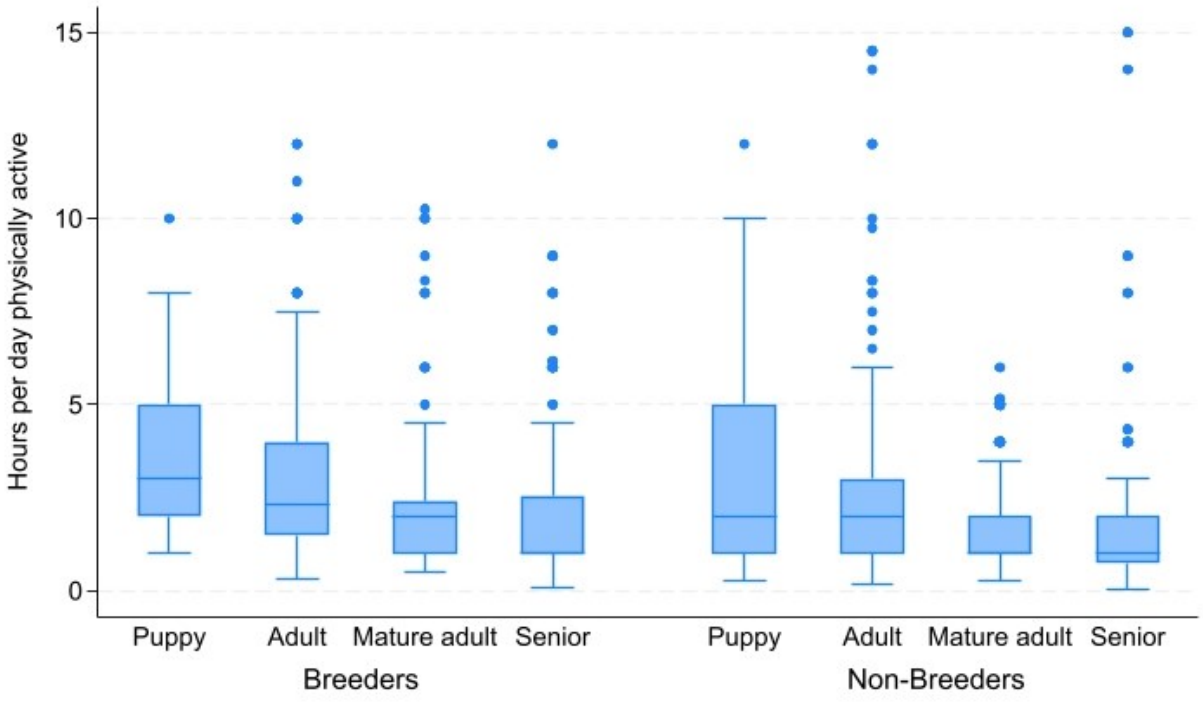


Figure 19. Over the past year, average hours physically active each day, stratified by age category and breeder status for 1,921 dogs.

Participation in the Dog Aging Project

A small number of Cavaliers (n=19) reported in this survey were also noted to have been included in the Dog Aging Project. Of those respondents to this survey who indicated they had participated in the Dog Aging Project with any of their dogs, a higher proportion of non-breeders (18/39; 46.2%) included a specific Cavalier in this survey as compared to breeders (1/11; 9.1%).

Section 2: Behavior and Training Practices in Cavaliers

Puppy Class and Training Exposure

Reported participation in puppy or basic obedience classes was variable, with 50.7% of 1,981 respondents reporting that their Cavalier had attended classes. Attendance differed between breeders and non-breeders, with non-breeders more likely to report participation (57.4%) compared with breeders (40.7%).

Behavioral Concerns

Most respondents reported no concerns regarding their Cavalier's temperament or behavior (82.3%). However, 17.7% reported concerns such as aggression, excessive barking, anxiety, or overexcitement.

Behavioral concerns were more commonly reported among non-breeders (22.9%) compared with breeders (9.6%); Figure 20.

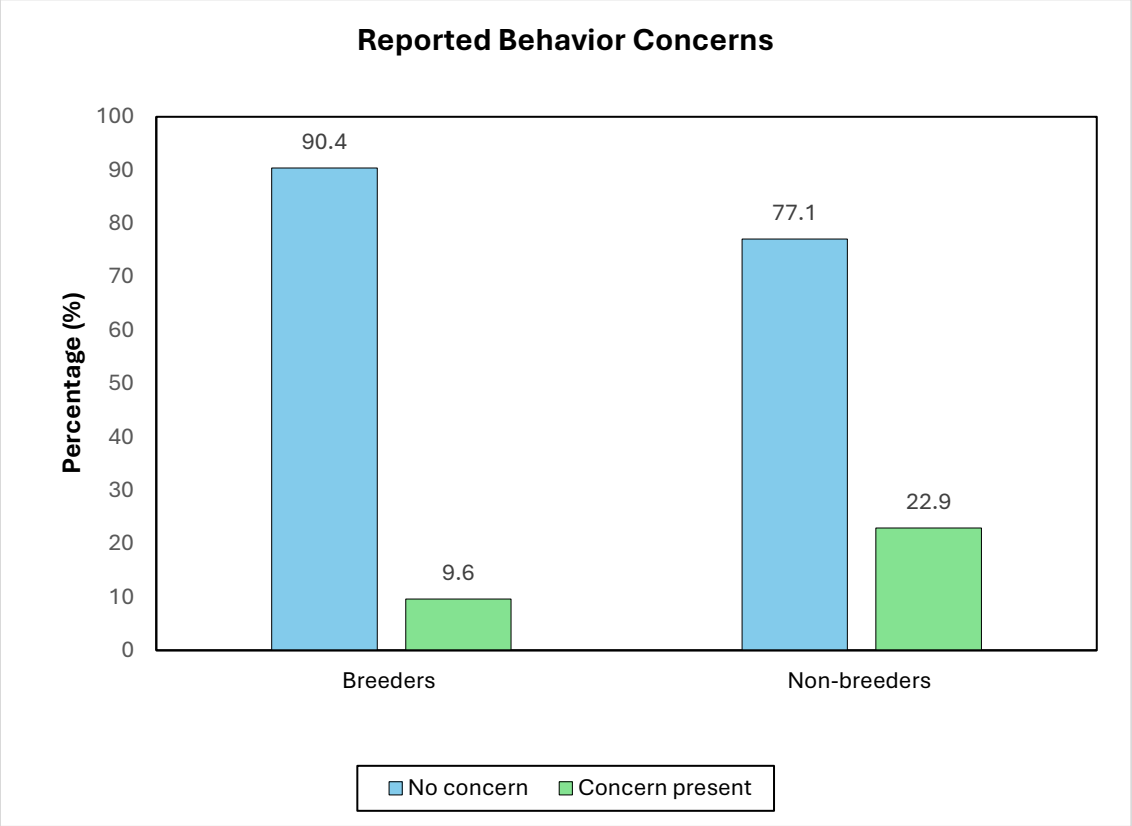


Figure 20. Distribution of behavioral concerns amongst 1,970 Cavaliers, by breeder status.

Types of Behavioral Concerns

Among 348 responses reporting behavioral concerns, the most common issues were dog-directed fear or aggression (35.1%), human-directed fear or aggression (24.1%), and non-specific fear or anxiety (23.6%). Other reported concerns included excessive barking (17.8%), overexcitement (9.5%), separation-related issues (6.6%), leash aggression (5.2%), resource guarding (7.2%), and noise aversion (4.0%); Figure 21. Due to the low number of responses, these data were not stratified by breeder status. Note: this was an open-ended question that asked respondents to list any concerns, which were then categorized using the described criteria (see Appendix C).

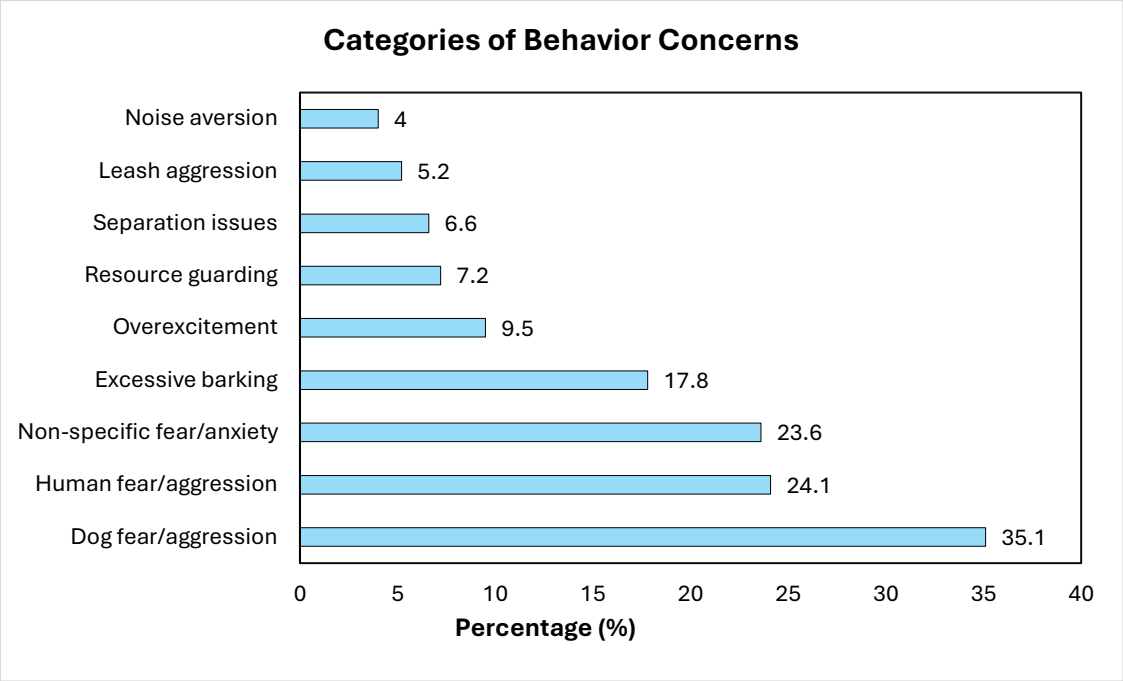


Figure 21. Categories of reported behavior concerns amongst 348 Cavaliers. See Appendix C for definitions of categories.

Veterinary Consultation for Behavioral Concerns

Among those reporting a behavioral concern for the specific Cavalier, 44.4% (of 345 responses) indicated that they had spoken to a veterinarian about the issue, while 52.8% had not. A small proportion (2.9%) did not recall. Non-breeders were more likely to report consulting a veterinarian (46.1%) compared with breeders (36.0%).

Steps Taken to Address Behavioral Concerns

Most respondents (87.5%) who reported a behavioral concern took steps to address it, while 12.5% reported no intervention; responses were similar for breeders and non-breeders.

Types of Interventions Used

Among 301 respondents who reported taking steps to address behavioral concerns in their Cavalier, the most common approach was at-home behavioral modification (69.1%). Other approaches included professional training or classes (18.3%), medication or supplements (16.9%), and consultation with a veterinary behavioral specialist (4.3%); Figure 22. Due to the low number of responses, these data were not stratified by breeder status.

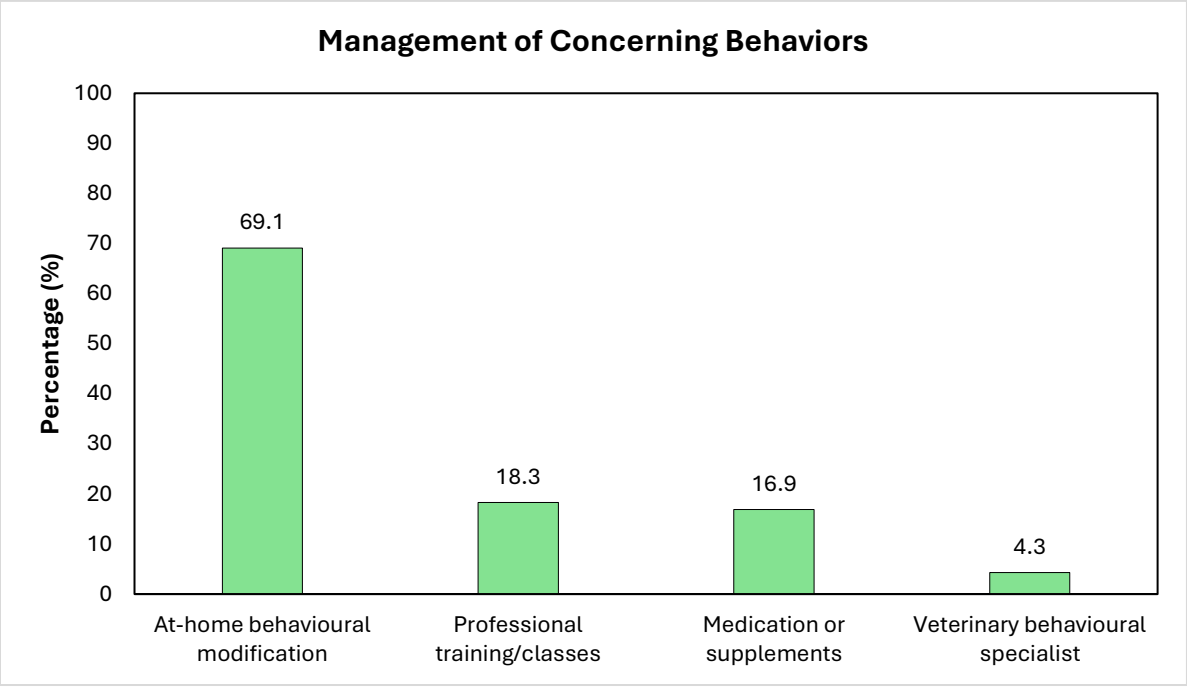


Figure 22. Reported management strategies from 301 responses for Cavaliers with behavioral concerns.

Persistence of Behavioral Concerns

Among 343 responses reporting behavioral concerns, 58.0% indicated that the issue was still a concern at the time of the survey, while 33.5% reported that it was no longer a concern; a small proportion (8.5%) were unsure. Persistence of behavioral concerns was slightly more commonly reported among non-breeders (60.2%) compared with breeders (50.0%)

Section 3: Cardiac Health and Disease in Cavaliers

Cardiac Evaluation

Most Cavaliers reported in the survey had undergone some form of cardiac evaluation by a veterinarian. Evaluation by a general practitioner was reported in 57.9% of 1,975 reported Cavaliers, while 54.6% had been evaluated by a veterinary cardiologist. A small proportion had been assessed by another type of specialist (2.3%), and few dogs had not been evaluated at all (3.4%).

Clear differences were observed between breeders and non-breeders. Breeders were more likely to report evaluation by a cardiologist (73.4%) compared with non-breeders (41.7%). In contrast, non-breeders more commonly reported evaluation by a general veterinarian (67.5%) compared with breeders (43.1%). Dogs that had not had their heart evaluated by a veterinarian were similarly reported for breeders (4.1%) and non-breeders (3.1%).

Reported Heart Murmur

Overall, 25.9% of 1,973 Cavaliers that underwent some form of cardiac evaluation by a veterinarian were reported to have been diagnosed with a heart murmur, while 73.7% had not. Heart murmurs were more commonly reported among Cavaliers from non-breeders (30.6%) compared with breeders (18.6%); Figure 23. Heart murmurs were similarly reported in Cavaliers obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC, and in those not obtained from these groups (24.4%, 20.2%).

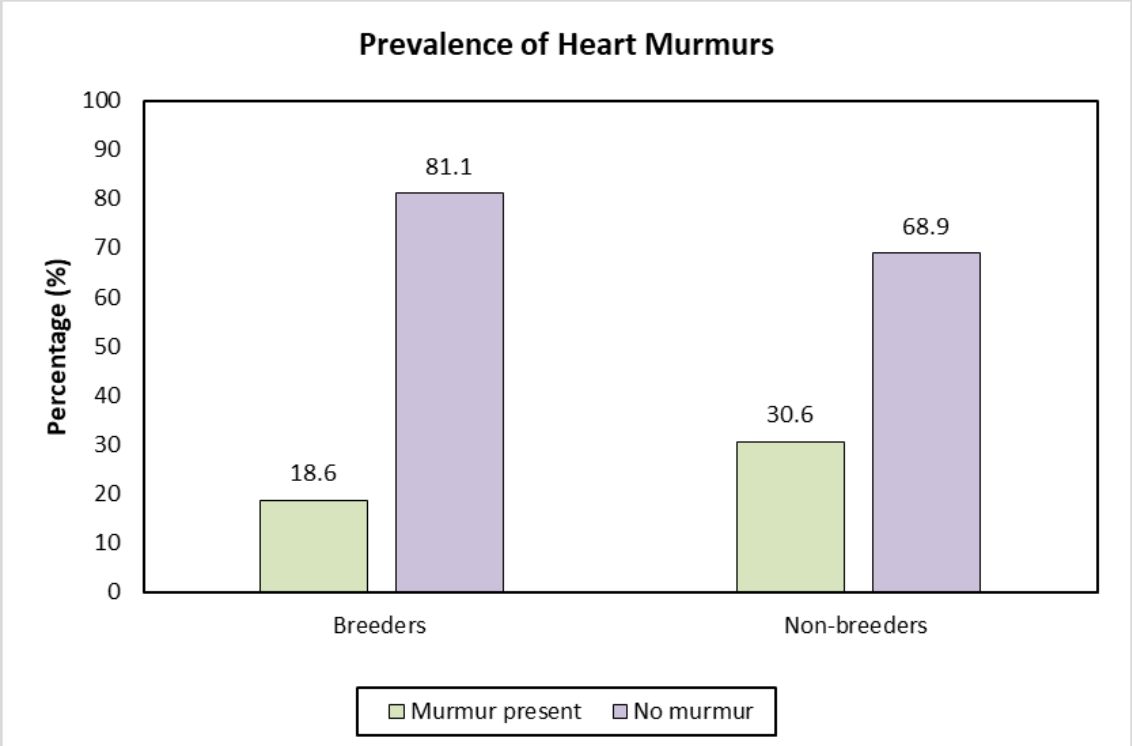


Figure 23. Reported heart murmurs in 1,973 Cavaliers that reportedly underwent some form of cardiac evaluation by a veterinarian, by breeder status.

Age at Last Evaluation Without Murmur

Prior to diagnosis of a heart murmur, 479 Cavaliers were reportedly last evaluated and reported to have no murmur at a mean age of 6.0 years (SD 2.7), with a median of 6 years (range 0–15). Breeder-owned dogs were last evaluated to have no murmur at slightly older ages (median 6.75 years) compared with non-breeder-owned dogs (median 6.0 years). Cavaliers that were obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC had a slightly lower age at last evaluation to have no murmur (n=361; median 6 years) than Cavaliers not obtained from these groups (n=35; median 7 years).

Who Diagnosed the Murmur

Among 507 Cavaliers diagnosed with a murmur, cardiologists were the most commonly reported diagnosing clinicians (67.8%), followed by general veterinarians (56.0%). Other specialists and unspecified sources were infrequently reported (4.2%). Breeders were more likely to report diagnosis by a cardiologist (81.5%) compared with non-breeders (62.4%).

Age at Murmur Diagnosis

Cavaliers (n=497) were diagnosed with a heart murmur at a mean age of 6.7 years (SD 2.7), with a median age of 6.8 years (range 0–15.5). Breeder-owned dogs were diagnosed at slightly older ages (mean 7.2 years, median 7.3 years) compared with non-breeders (mean 6.4 years, median 6.0 years).

Cavaliers obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC were diagnosed with a murmur at a younger age (n=370; 6.7 median years) than Cavaliers not obtained from these groups (n=35; 8 median years).

Use of Echocardiography

Among 505 Cavaliers diagnosed with a murmur, echocardiography was reported as part of the diagnostic process in 67.9% of dogs, while 30.7% did not receive echocardiographic evaluation. Use of echocardiography was similar among breeders and non-breeders (66.2% vs 68.5%; Figure 24) and slightly higher among Cavaliers obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC than Cavaliers not obtained from these groups (70.1% vs 62.9%).

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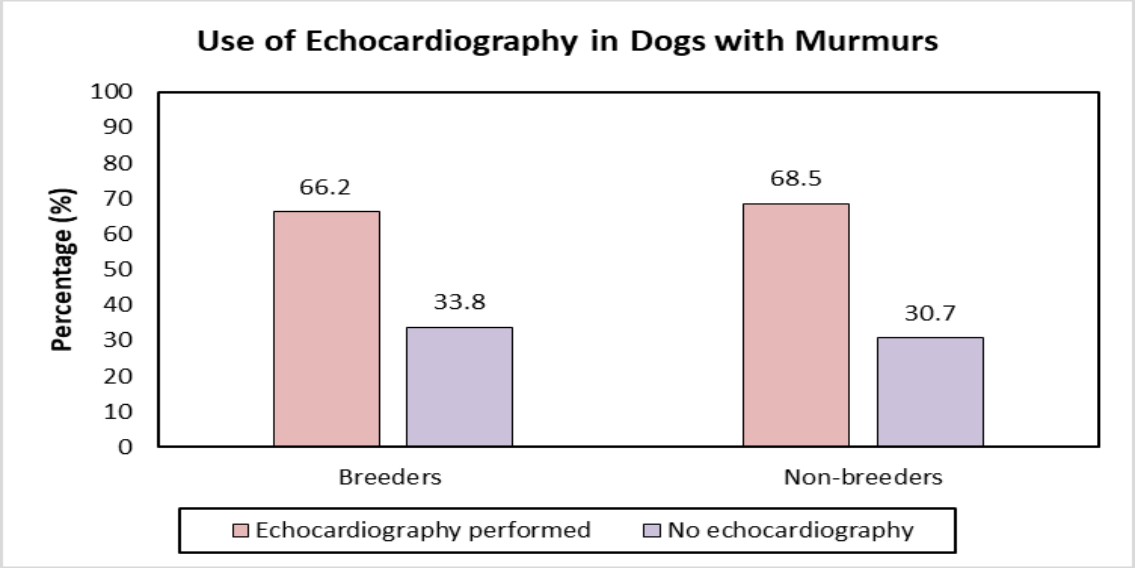

Figure 24. Use of echocardiography in 505 Cavaliers with heart murmurs to diagnose a cause, by breeder status.

Diagnosis of Mitral Valve Disease

Among 511 Cavaliers diagnosed with a murmur, 72.2% were reported to have mitral valve disease (MMVD), while 21.1% were reported not to have MMVD and 6.7% were unsure. Breeders were more likely to report a diagnosis of MMVD (79.6%) compared with non-breeders (69.1%); Figure 25. The proportion of Cavaliers diagnosed with mitral valve disease among those at-risk for the disease (incidence) increased with age (Figure 26); breeders reported a lower incidence of mitral valve disease than non-breeders for younger Cavaliers, but a higher incidence for older Cavaliers.

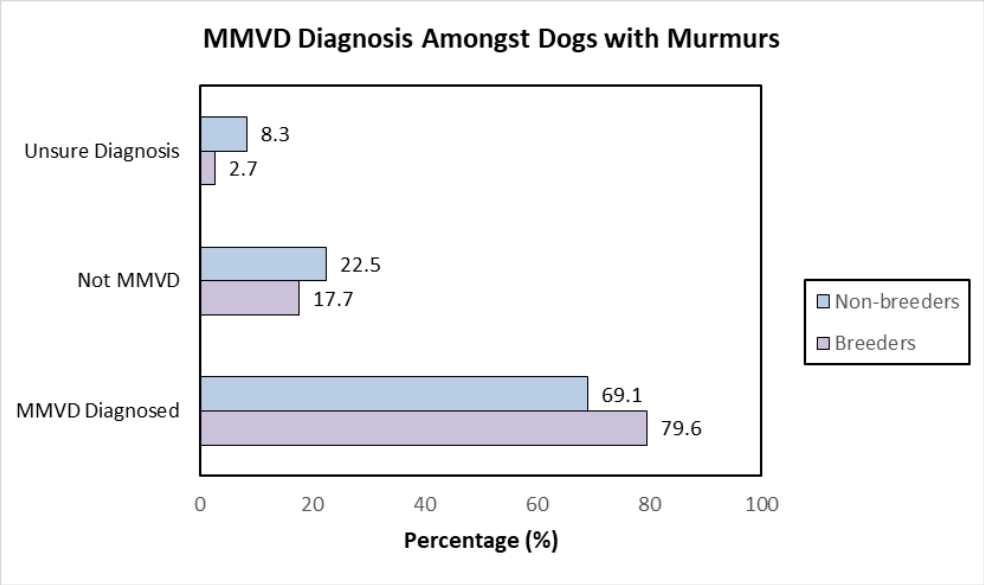

Figure 25. Frequency of MMVD being diagnosed in 511 Cavaliers (147 owned by breeders, 360 owned by non-breeders) with heart murmurs versus diagnosis of non-MMVD conditions, by breeder status. Some respondents were unsure as to the nature of diagnosis.

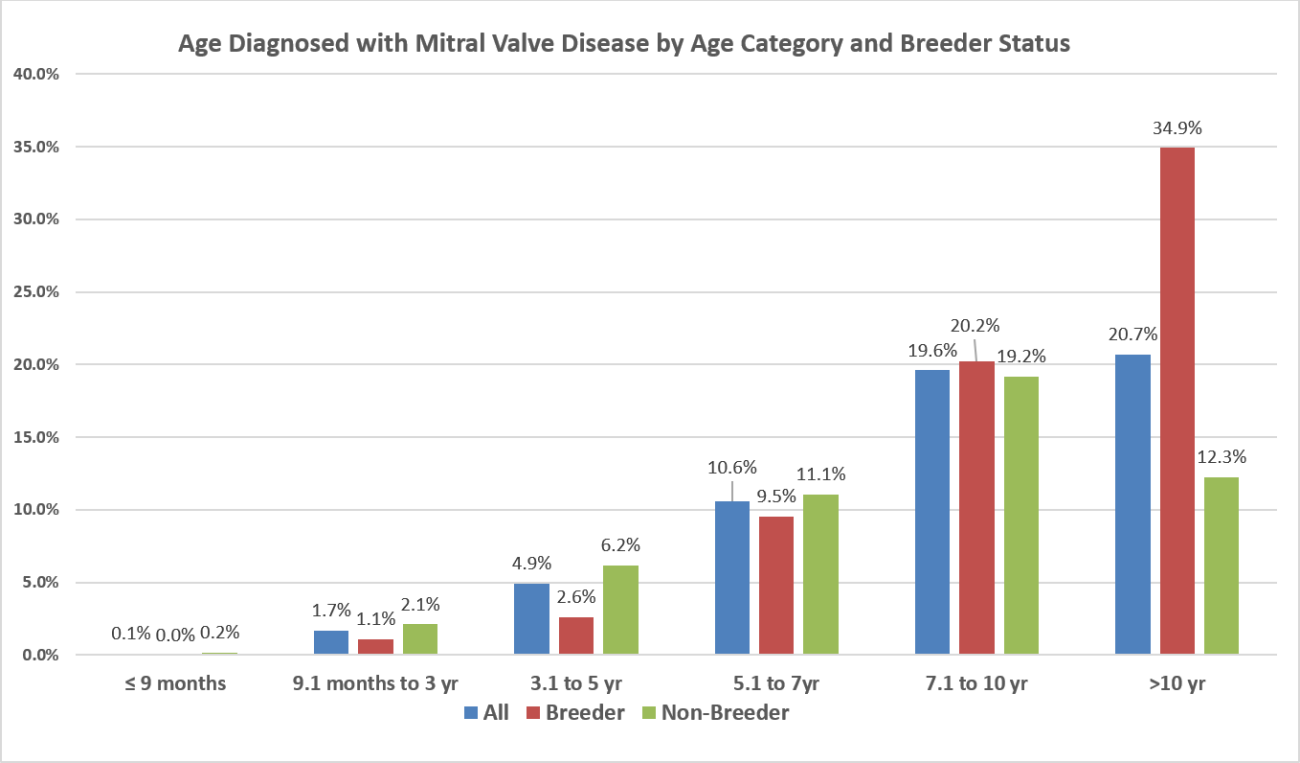

Figure 26. Age of diagnosis of mitral valve disease for 350 Cavaliers among 1944 at-risk Cavaliers, by age category when diagnosed and breeder status. Note: each Cavalier contributed to the denominator (at-risk) for each age category at and below their current age; once a Cavalier was diagnosed with mitral valve disease, they were no longer considered at-risk (did not contribute to the denominator of older age categories).

Other Causes of Heart Murmur

Among 55 dogs not diagnosed with MMVD, alternative causes of murmur were infrequently reported. Patent ductus arteriosus (PDA), physiologic murmurs, aortic regurgitation, and heart tumors were each reported in small numbers, while the majority (n=44) of cases were classified as unknown. Due to the low number of responses, these data were not stratified by breeder status.

Medical Management of Heart Disease

Among 505 dogs diagnosed with a cardiac condition, 47.3% were reported to be receiving medication for the heart condition, while 52.7% were not. Medication use was similar between breeders and non-breeders (50.0% vs 46.2%).

Types of Cardiac Medications

Among 203 Cavaliers receiving treatment, pimobendan was the most commonly reported medication (84.2%); Figure 27. Other medications included ACE inhibitors (i.e., enalapril, benazepril; 34.5%), furosemide (13.8%), and spironolactone (12.3%). Findings were similar when stratified by breeder status.

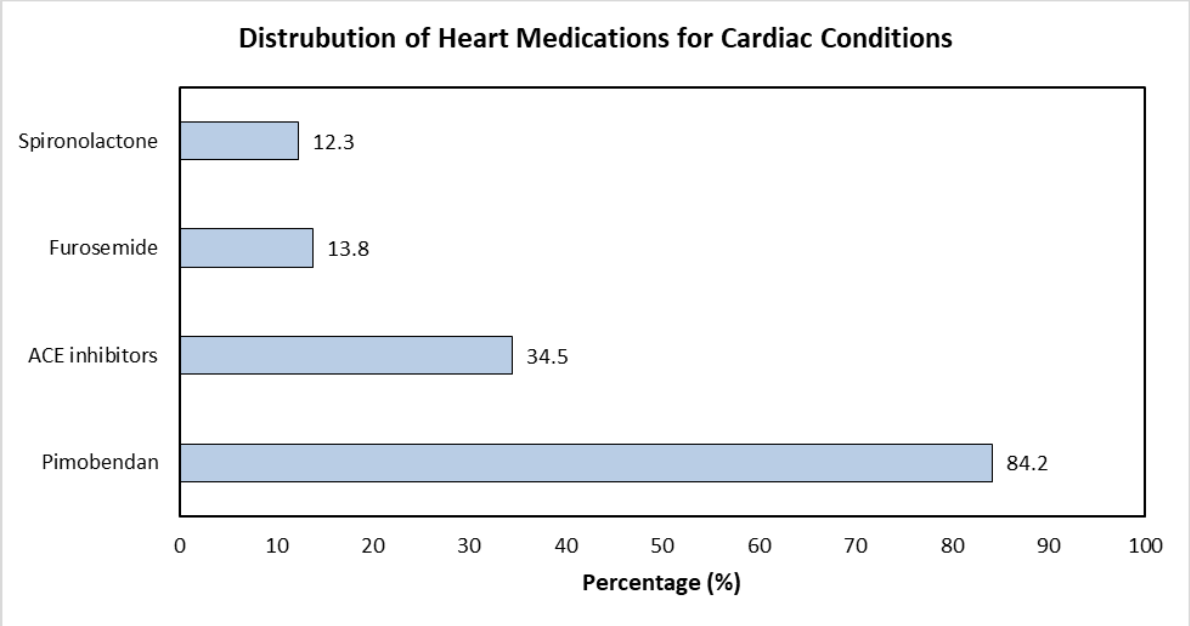

Figure 277. Distribution of common cardiac medications prescribed to 203 Cavaliers with heart conditions (including non-MMVD conditions).

Age at Initiation of Cardiac Medications

Cardiac medications were generally initiated later in life. Pimobendan was started at a mean age of 8.6 years (SD=2.3; median 8 years) for 126 dogs, ACE inhibitors at 9.0 years (SD=2.5; median 8.5 years) for 40 dogs, spironolactone at 9.2 years (SD=2.5; median 9 years) for 19 dogs, and furosemide at 10.1 years (SD=2.1; median 10 years) for 21 dogs. Breeders tended to start cardiac medications at a slightly younger age as compared to non-breeders, with the exception of furosemide for which breeders started at an older age; Figure 28.

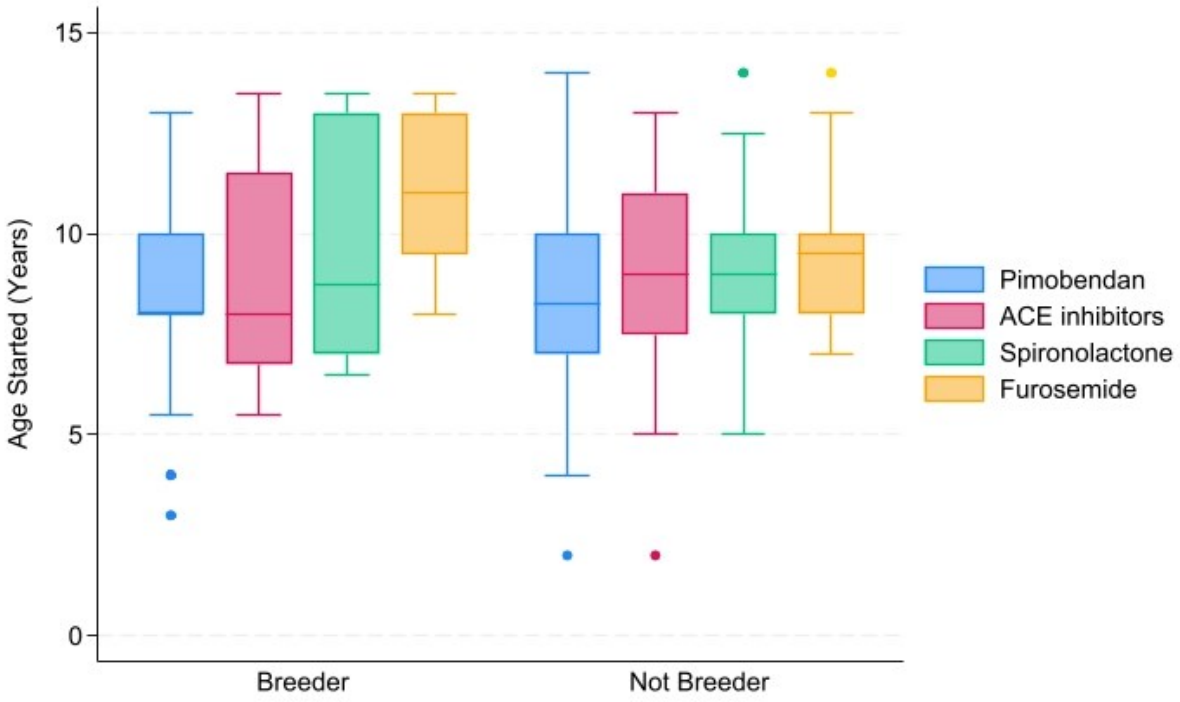

Figure 288. Age at initiation of cardiac medications for Cavaliers receiving treatment for a cardiac condition, by breeder status. The number of dogs receiving each medication varied (see text).

Section 4: Ocular Health and Disease in Cavaliers

Ophthalmologic Examination

Of 1,969 Cavaliers, just over half (53.1%) had been examined by a veterinarian specializing in eyes (ophthalmologist), while 46.1% had not. Marked differences were observed between breeders and non-breeders. Breeders were substantially more likely to report ophthalmologic examination (84.5%) compared with non-breeders (32.4%); Figure 29.

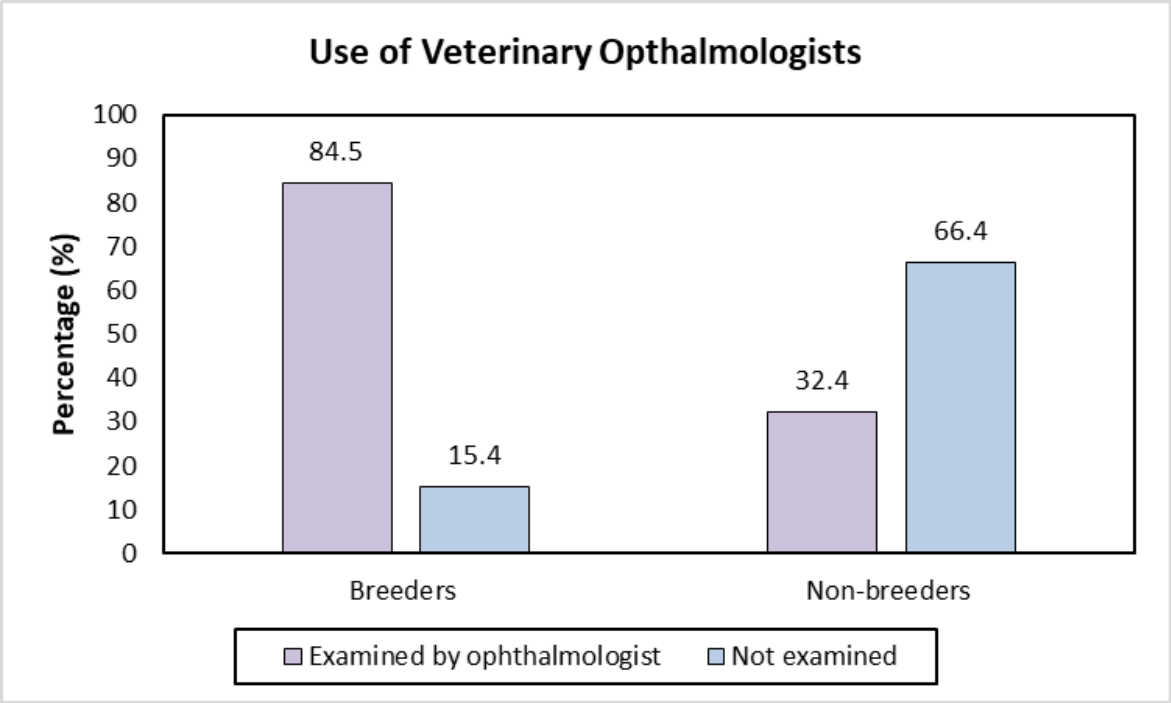

Figure 29. Reported use of veterinary ophthalmologists for 1,969 Cavaliers by breeders and non-breeders.

Detection of Eye Disease

Among dogs that had been evaluated by an ophthalmologist, 12.2% were reported to have been diagnosed with an eye disease, while 86.8% had no diagnosed condition. Eye disease was more commonly reported by non-breeders (23.5%) compared with breeders (5.7%).

Types of Eye Disease

Among 110 Cavaliers diagnosed with an eye condition by a veterinary ophthalmologist, keratoconjunctivitis sicca (KCS; dry eye) was the most commonly reported diagnosis (29.1%), followed by corneal dystrophy (23.6%) and cataracts (22.7%). Less frequently reported conditions included distichiasis (9.1%), retinal dysplasia (6.4%), pigmentary keratitis (3.6%), corneal ulceration, glaucoma (each 1.8%), nictitans gland prolapse (cherry eye; 0.9%), and imperforate puncta (0.9%); Figure 30. Due to the low number of responses, these data were not stratified by breeder status.

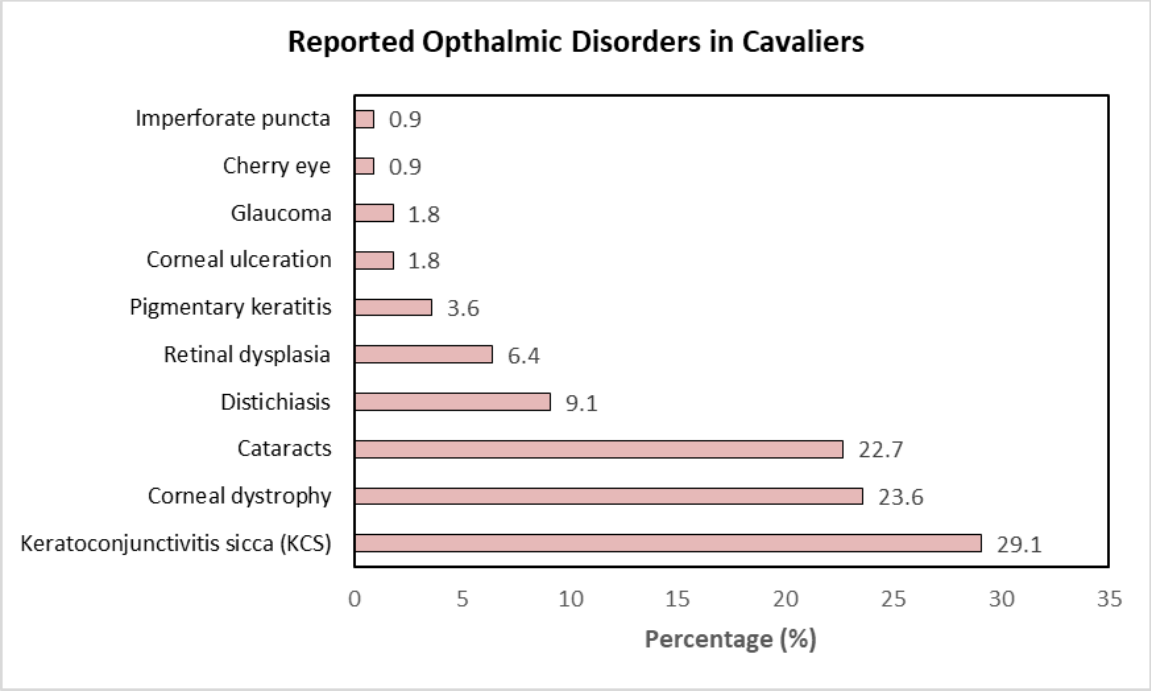

Figure 290. Frequency of ophthalmic disorders reported for 110 Cavaliers with a veterinary ophthalmologist-diagnosed eye disease.

Medical Management of Eye Disease

Among 127 Cavaliers diagnosed with an eye condition by a veterinary ophthalmologist, 39.4% were reported to have received medication for the condition, while 60.6% were not. Due to the low number of responses, these data were not stratified by breeder status.

Section 5: Patellar Luxation in Cavaliers

Occurrence of Patellar Luxation

Patellar luxation (slipping kneecaps) was reported in 5.5% of 1,964 Cavaliers, while the majority of dogs (91.2%) were reported not to be affected. A small proportion of respondents were unsure (3.3%). Patellar luxation was slightly more commonly reported among non-breeders (7.5%) compared with breeders (2.6%). The reported occurrence of patellar luxation was similar between Cavaliers obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC and those not obtained from these groups (4.6% vs. 2.3%).

Patterns of Patellar Luxation

Among 106 affected dogs, involvement of a single hind limb (50.9%) was slightly more common than bilateral involvement (49.1%). Patterns were similar between breeders and non-breeders; Figure 31.

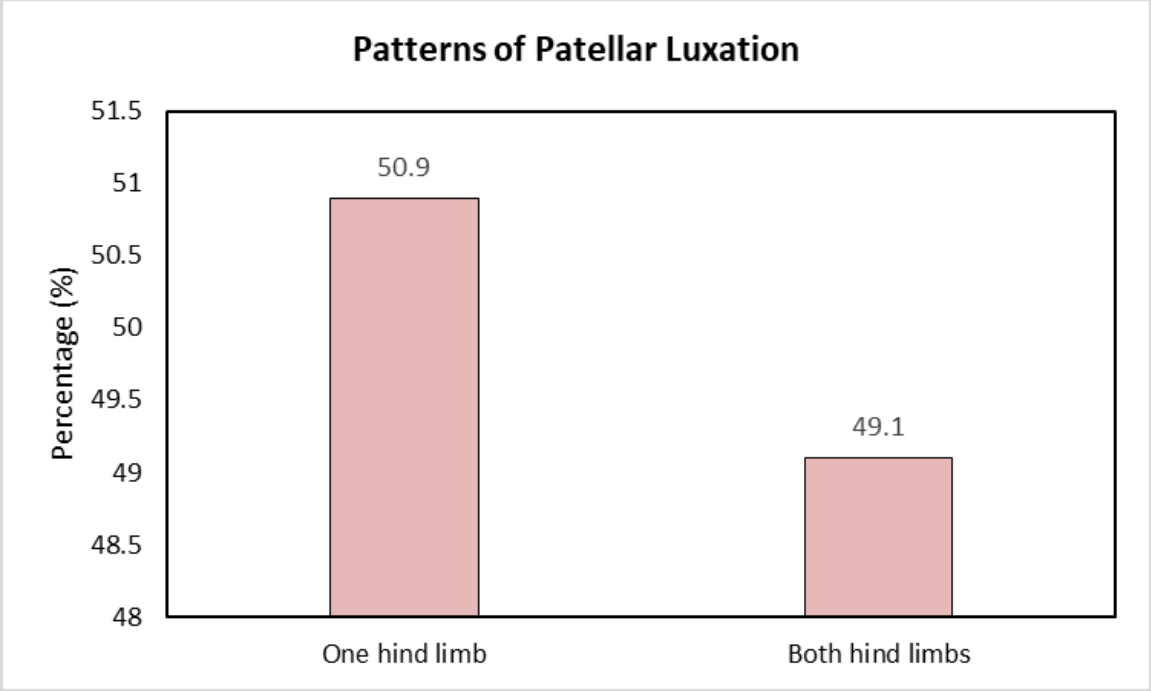

Figure 301. Frequency of patellar luxation being reported in either one or both hind limbs in 106 Cavaliers diagnosed with luxating patella(s).

Surgical Management

Most dogs diagnosed with patellar luxation had not undergone surgery (84.3%), while 15.7% had received surgical correction. A minority (8.3%) reported planning surgery in the future. Reported surgical intervention was similar between breeders and non-breeders, although breeders reported slightly lower rates of completed surgery (10.0%) compared with non-breeders (17.1%).

Age at Surgery

Among 17 Cavaliers that underwent surgical correction, the mean age at surgery was 2.1 years (SD 1.0), with a median of 2.2 years (range 0.8–4.2). Due to the low number of responses, these data were not stratified by breeder status.

Medical Management

Most dogs with patellar luxation were not receiving medication for this condition (86.1%), while 13.9% were reported to be on medications for their patellar luxation. Due to the low number of responses, these data were not stratified by breeder status.

Section 6: Syringomyelia in Cavaliers

MRI Screening for Syringomyelia

MRI screening for syringomyelia (SM) was relatively uncommon, with 9.9% of 1,965 Cavaliers reported to have undergone MRI evaluation, while the majority (88.0%) had not. A small proportion of respondents were unsure (2.0%). Reporting MRI screening was similar by breeders and non-breeders (11.2%, 9.0%); Figure 32.

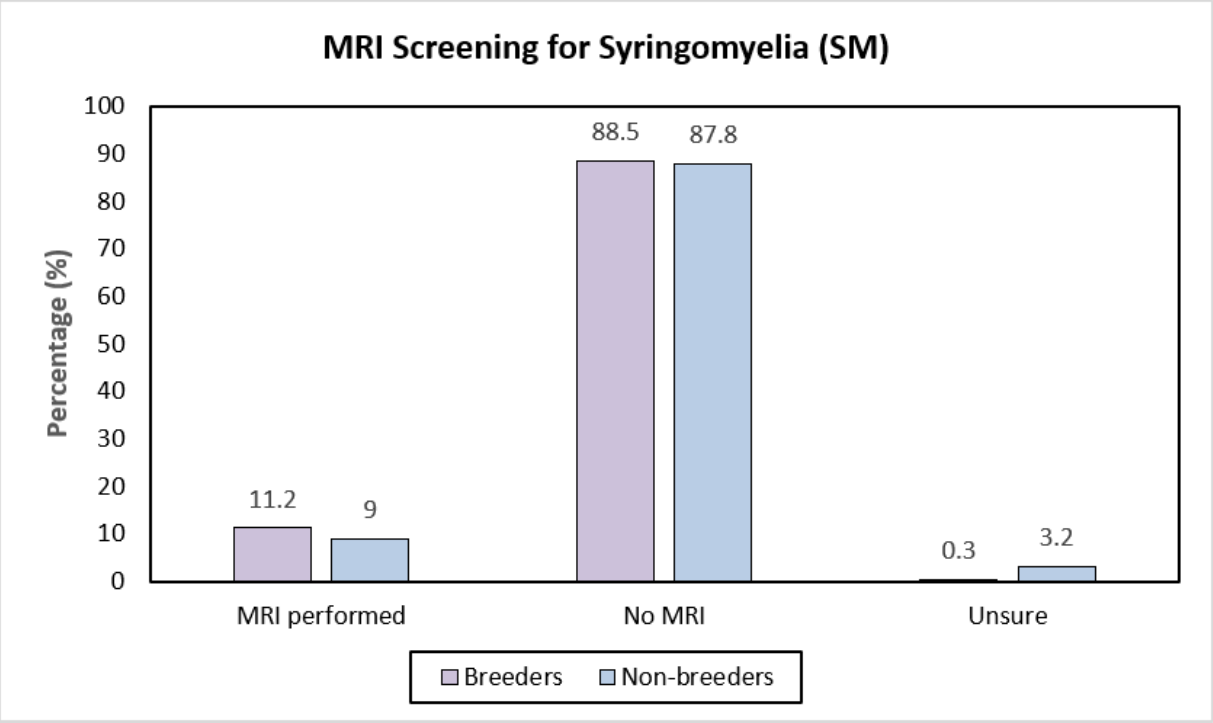

Figure 312. Frequency of using magnetic resonance imaging (MRI) among 1,965 Cavaliers screening of syringomyelia (SM), by breeder status.

Diagnosis of Syringomyelia

Among 194 dogs that underwent MRI, 34.0% were diagnosed by a veterinarian with SM. Diagnosis was more commonly reported among non-breeders (44.8%) compared with breeders (20.5%). The reported diagnosis of SM was relatively similar between Cavaliers obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC and those not obtained from these groups, although denominators were small (50/156, 32.1% vs. 4/17, 23.5%).

Clinical Signs of Syringomyelia

Among 66 dogs diagnosed with SM, most (65.2%) were reported to currently exhibit clinical signs (e.g., air scratching, pain, sensitivity). Clinical signs were more commonly reported among non-breeders (35/46, 76.1%) compared with breeders (8/19, 42.1%), although denominators were small.

Age at Onset of Clinical Signs

Among 39 Cavaliers exhibiting clinical signs of SM, signs were reported to begin at a young age, with a mean age of 2.3 years (SD 1.2) and a median of 2 years (range 0.2–4). Due to the low number of responses, these data were not stratified by breeder status.

Surgical Management

Surgical intervention for SM was uncommon. Among 66 affected Cavaliers, 7.6% had undergone surgery, and a small proportion (1.5%) of respondents reported plans for future surgery. Responses of surgical intervention were similar between breeders and non-breeders, although denominators were small.

Medical Management

Most dogs diagnosed with SM were reported to be receiving medical management (47/67; 70.2%). Use of medication differed between breeders and non-breeders, with non-breeders more likely to report medication use (78.7%) compared with breeders (47.4%), although denominators were small.

Section 7: Hip dysplasia in Cavaliers

Radiographic Screening for Hip Dysplasia

Radiographic screening for hip dysplasia was reported in 30.8% of 1,960 Cavaliers; a small proportion of respondents were unsure (2.4%). Screening differed markedly between breeders and non-breeders. Breeders were more likely to report that their dogs had undergone radiographic evaluation (49.4%) compared with non-breeders (18.6%); Figure 33.

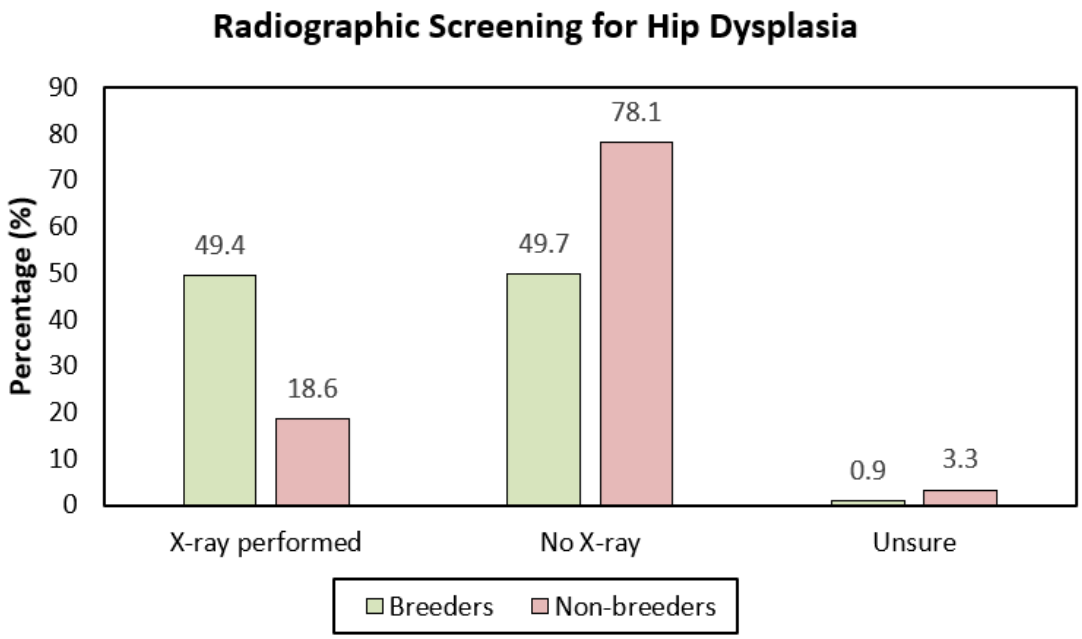

Figure 323. Frequency of radiographic investigation for hip dysplasia amongst 1,960 Cavaliers, by breeder status.

Diagnosis of Hip Dysplasia

Among 598 Cavaliers that had undergone radiographic evaluation, 8.7% were reported to have been diagnosed with hip dysplasia. Diagnosis was more commonly reported among non-breeders (15.3%) compared with breeders (5.0%). The reported diagnosis of hip dysplasia was slightly lower in Cavaliers obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC (6.6%; 33/497) than those not obtained from these groups (11.1%; 6/54).

Age at Diagnosis

Hip dysplasia was diagnosed at a relatively young age among 50 Cavaliers, with a mean age of 3.2 years (SD 2.3) and a median of 2 years (range 1–11). Breeder-owned dogs were diagnosed at a slightly younger age (median 2 years) compared with non-breeders (median 3 years).

Clinical Signs of Hip Dysplasia

Among 53 Cavaliers diagnosed with hip dysplasia, 35.9% reported currently exhibiting clinical signs such as lameness or difficulty rising; a small proportion of respondents were unsure (3.8%). Clinical signs were more commonly reported among non-breeders (15/34; 44.1%) compared with breeders (4/19; 21.1%), although denominators were small.

Impact on Mobility

Among 53 affected Cavaliers, 50.9% were reported to have normal mobility ("ability to move/run") relative to other Cavaliers of the same age. Reduced mobility was reported in a subset of dogs, including 34.0% with somewhat reduced mobility and 13.2% with greatly reduced mobility.

Breeders were more likely to report normal mobility (13/19; 68.4%) compared with non-breeders (14/35; 41.2%).

Medical and Surgical Management

Most dogs diagnosed with hip dysplasia were not receiving medication (37/51; 72.6%). Surgical intervention for hip dysplasia was rare, with 1.9% of affected Cavaliers having undergone surgery and (7.7%) reporting plans for future surgery. Due to the low number of responses, these data were not stratified by breeder status.

Section 8: Hearing and Ear Health in Cavaliers

Hearing Status

Of 1,965 Cavaliers, most (79.8%) were reported to have normal hearing, while 12.6% were reported to have reduced hearing compared with other dogs or their previous baseline. A smaller proportion (7.7%) were reported not to be able to hear.

Proportions were similar between Cavaliers owned by breeders and nonbreeders and Cavaliers obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC and those not obtained from these groups.

Veterinary Assessment of Hearing Loss

Among 397 dogs reported to have hearing deficits, most respondents (80.6%) indicated that they had not been provided with a definitive explanation by a veterinarian for the hearing loss, while 19.4% reported receiving a diagnosis. Due to the low number of responses, these data were not stratified by breeder status.

Causes of Hearing Loss

Among 59 Cavaliers with a cause identified for their hearing loss, the most reported causes were aging (50.8%) and primary secretory otitis media syndrome (PSOMS; 33.9%). Less frequently reported causes included anatomic defects, ear infections (each 5.1%), early-onset deafness (3.3%), and medication-related causes (1.7%); Figure 34. Due to the low number of responses, these data were not stratified by breeder status.

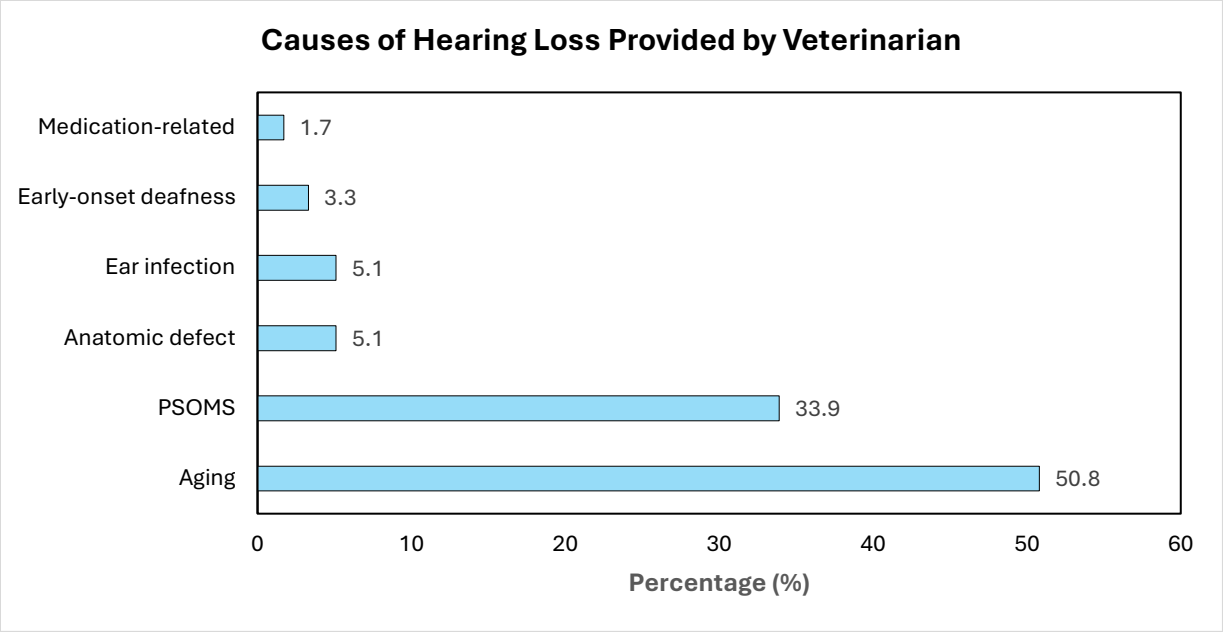

Figure 334. Reasons for hearing loss in 59 Cavaliers diagnosed by a veterinarian.

Diagnosis of PSOMS

PSOMS was diagnosed by MRI or a veterinary dermatologist in 2.3% of 1,941 Cavaliers. Frequency of PSOMS diagnosis was similar between breeders (2.1%) and non-breeders (2.4%) and Cavaliers obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC and those not obtained from these groups.

Surgical Management of PSOMS

Among 45 Cavaliers diagnosed with PSOMS, 42.2% were reported to have undergone surgical intervention. Non-breeders were more likely to report surgical intervention (16/28; 57.1%) compared with breeders (3/16; 18.8%), although denominators were small.

Medical Management of PSOMS

Among 45 Cavaliers diagnosed with PSOMS, 24.4% were reported to be receiving medication for the condition.

Discussion

Section 1: Dog Demographics, Health Care, and Lifestyle Characteristics

The Cavaliers included in this study represent a broad and diverse population with respect to age, management, and lifestyle. The overall age distribution indicates a predominantly adult population, with relatively few dogs at the extremes of age, consistent with typical companion animal populations (O'Neill et al., 2015). Most dogs were reported to be in appropriate body condition and to engage in moderate levels of activity, suggesting generally favorable health and management across the study population. Veterinary care engagement was high, with nearly all dogs reported to have been seen by a veterinarian and the vast majority receiving care within the past year, reflecting strong access to and utilization of veterinary services (American Veterinary Medical Association [AVMA], 2022).

Clear and consistent differences were observed between breeder and non-breeder populations. Dogs owned by breeders tended to be younger and far more likely to be sexually intact, reflecting the role of breeding programs and ongoing reproductive management. In contrast, non-breeder-owned dogs were more frequently neutered or spayed and tended to be older, consistent with typical companion animal ownership patterns in the United States and Canada, where most pet dogs are altered (AVMA, 2022; Canadian Animal Health Institute [CAHI], 2022). Differences in acquisition further highlight the structural distinction between these groups. Non-breeders primarily obtained dogs from breeders or kennel clubs, whereas breeders most often reported that they themselves were the source of their dogs. Despite these differences, both groups demonstrated similarly high levels of engagement with veterinary care. Additionally, most of the Cavaliers were reported to originate from breeders or kennel clubs registered with the CKCSC, AKC, or CKC.

Lifestyle differences were also evident. Breeders reported higher levels of physical activity across age categories and greater proportions of dogs engaged in moderate to vigorous activity, while non-breeders more commonly reported lower-intensity activity. These findings are consistent with previous studies demonstrating that owner lifestyle, management practices, and intended use of dogs can significantly influence activity levels (Westgarth et al., 2014). The high proportion of dogs reported to be at an appropriate body weight contrasts with broader canine population data, in which overweight and obesity are commonly reported in substantial proportions of dogs (German, 2006). This discrepancy may reflect favorable management practices within this population of Cavaliers or potential biases associated with owner-reported on-line assessments (Bethlehem, 2010).

Overall, Cavaliers in this study appeared to be generally well-managed and cared for, with high levels of veterinary care and favorable body condition reported. Consistent differences between breeder and non-breeder populations were evident across multiple domains, including age structure, reproductive management, acquisition source, and activity patterns. These findings highlight the importance of considering population subgroups when interpreting breed-level data. Furthermore, the general age structure of the Cavaliers reported in this survey, and differences in age structure between groups (e.g., breeders and non-breeders), must be considered when interpreting the results of this study. For instance, many health conditions most commonly occur in older adults – a younger group of dogs is expected to have a lower proportion of dogs diagnosed with certain health conditions than an older group of dogs,

and as such, it is not necessarily that the one group is 'healthier' than the other, but rather that the population structures are different.

Section 2: Behavior and Training Practices in Cavaliers

Behavioral concerns were reported in a minority of Cavaliers, with most respondents indicating no issues related to temperament or behavior. This finding is consistent with the breed's general reputation as a companion-oriented and sociable dog. However, a notable proportion of respondents did report concerns, most related to fear, anxiety, and aggression, highlighting that behavioral issues remain an important consideration within the breed.

Clear differences were observed between breeder and non-breeder populations. Non-breeders were more likely to report behavioral concerns, while breeders more frequently reported no concerns. These differences may reflect variation in experience, expectations, and early-life management. Breeders are more likely to be involved in early socialization and selection of breeding stock, which may influence behavioral outcomes. In contrast, non-breeders may be more likely to encounter behavioral challenges in typical home environments, where training, consistency, and exposure may vary.

Participation in training classes was moderate overall but varied by group, with non-breeders more likely to report attendance. Early training and socialization are well-established as important factors influencing behavioral development, and attendance at structured training programs has been associated with a reduced risk of behavioral problems (Casey et al., 2014). Despite this, behavioral concerns remained present in a subset of dogs despite participating in training classes, suggesting that training alone may not fully mitigate behavioral risk, particularly for fear- and anxiety-related conditions.

Among dogs with behavioral concerns, fewer than half of respondents reported consulting a veterinarian. This is consistent with previous findings that behavioral issues are underreported and under-addressed in veterinary practice, despite their significant impact on animal welfare, household safety, and the human–animal bond (Overall, 2013). Encouragingly, most respondents reported taking some form of action to address behavioral concerns, most commonly through at-home training or modification strategies. However, the use of veterinary behavioral specialists and pharmacologic interventions was relatively limited.

A substantial proportion of behavioral concerns were reported to persist over time, particularly among non-breeders. This suggests that while intervention is common, it may not always be sufficient to fully resolve behavioral issues. Persistence of behavioral concerns may reflect the chronic nature of certain conditions, particularly those related to fear and anxiety, which often require long-term, multimodal management, often with input and guidance from a specialist (Overall, 2013).

Overall, while most Cavaliers were reported to have no behavioral concerns, a meaningful subset of dogs exhibited behavioral issues, particularly related to fear and anxiety. Due to the nature of the survey, it was not possible to determine the severity of the reported behavioral issues; such categorization may have provided further insight into findings and importance. Differences between breeder and non-breeder

populations highlight the potential influence of early-life management, training, and owner experience. These findings emphasize the importance of early socialization, appropriate training, and increased engagement with animal professionals to support optimal behavioral outcomes.

Section 3: Cardiac Health and Disease in Cavaliers

Cardiac disease remains one of the most important health concerns for Cavalier and their owners, and the findings of this study are consistent with this well-established breed predisposition. A substantial proportion of Cavaliers in the survey were reported to have a heart murmur, and most of these cases were attributed to myxomatous mitral valve disease (MMVD), the most common cardiac condition affecting the breed (Buchanan, 2006). The age at diagnosis observed in this study aligns with previous reports, indicating that MMVD commonly develops in middle-aged to older dogs, although earlier onset can occur in Cavaliers compared with other breeds (Buchanan, 2006).

Clear differences were observed between breeder and non-breeder populations. Non-breeders reported a slightly higher proportion of dogs with heart murmurs. When adjusting for differences in population structure between Cavaliers from breeders and non-breeders, breeders appeared to report a lower incidence of mitral valve disease than non-breeders for younger Cavaliers, but a higher incidence for older Cavaliers. Breeders were also substantially more likely to utilize veterinary cardiologists for evaluation, whereas non-breeders more commonly relied on general practitioners. These findings likely reflect differences in screening practices and access to specialized care and may contribute to variation in detection and reporting. Increased use of specialist screening among breeders is consistent with breed club recommendations emphasizing early and regular cardiac evaluation.

Despite differences in screening practices, echocardiography use was relatively similar across groups of dogs with identified murmurs, suggesting that once a cardiac abnormality is detected, diagnostic follow-up is comparable. However, the greater reliance on general veterinary evaluation among non-breeders may affect the timing and accuracy of initial detection, as auscultation alone may not detect early or subclinical disease.

Most murmurs were attributed to MMVD, consistent with the breed's known predisposition. While most dogs with cardiac disease were not receiving medication at the time of the survey, those that were being treated were commonly managed with pimobendan, reflecting current best practices of care for dogs with clinically significant MMVD. The age at initiation of cardiac medications in this study suggests that treatment is generally introduced later in the disease course, consistent with recommendations to initiate therapy based on disease stage rather than the presence of a murmur alone (American College of Veterinary Internal Medicine [ACVIM], 2019).

Overall, these findings reinforce the high prevalence and clinical importance of cardiac disease in Cavaliers and suggest meaningful differences in screening practices and diagnostic pathways between breeders and non-breeders. Increased access to and utilization of specialized cardiac screening may support earlier detection and more standardized management across the broader population.

Section 4: Ocular Health and Disease in Cavaliers

Ocular disease was reported in a relatively small proportion of Cavaliers, despite a high proportion being evaluated by a veterinary ophthalmologist; most dogs were reported to have no identified abnormalities. The most reported conditions, including keratoconjunctivitis sicca (KCS), corneal dystrophy, and cataracts, are consistent with previously described ocular conditions in the breed (Gelatt & MacKay, 2005). Overall, these findings suggest that while ocular disease is present in the breed, it may not be a primary health concern compared with other conditions, such as cardiac disease.

Clear differences were observed between breeder and non-breeder populations in the use of ophthalmologic screening. Breeders were substantially more likely to report evaluation by a veterinary ophthalmologist, whereas non-breeders more commonly reported no specialist examination. Despite this, non-breeders reported a higher proportion of Cavaliers diagnosed with ocular disease. This pattern may reflect differences in screening practices, case selection, or reporting, and raises the possibility of detection or reporting bias. Breeders may be more likely to screen routinely, including in clinically normal dogs, while non-breeders may be more likely to seek specialist care in response to clinical signs in their Cavaliers.

Overall, ocular disease appears to be present at relatively low levels within this population of Cavaliers; however, substantial differences in screening practices between breeder and non-breeder groups highlight the importance of consistent and proactive ophthalmologic evaluation. Increased awareness and access to specialist screening may support more accurate detection and characterization of ocular conditions within the breed.

Section 5: Patellar Luxation in Cavaliers

Patellar luxation was reported in a relatively small proportion of Cavaliers in this survey, suggesting it may be less prevalent in this population than in other small and toy breeds, where the condition is commonly reported. The nearly equal distribution of unilateral and bilateral involvement is consistent with previous descriptions of the condition, in which bilateral disease is frequently observed.

Differences between breeder and non-breeder populations were evident, with non-breeders reporting a slightly higher proportion of dogs with patellar luxation compared with breeders. This may reflect differences in breeding selection practices, as orthopedic conditions such as patellar luxation are commonly considered in breeding decisions. Alternatively, differences in reporting or diagnostic practices may contribute, particularly if non-breeders are more likely to present dogs for evaluation when clinical signs are present.

Most affected dogs had not undergone surgical correction, with only a small proportion reported to have received surgery or to have plans for surgical intervention. This likely reflects the variable clinical severity of patellar luxation, as mild cases may be managed conservatively or remain clinically irrelevant. The relatively young age at surgery among those treated is consistent with current approaches, where surgical correction is often pursued earlier in life for dogs with clinically important or progressive disease.

Overall, patellar luxation appears to be relatively uncommon in this population of Cavaliers, with most cases managed conservatively. Differences between breeder and non-breeder populations suggest that selection practices and management approaches may influence both prevalence and clinical impact, although further investigation would be required to fully characterize these effects.

Section 6: Syringomyelia in Cavaliers

Syringomyelia (SM) remains a significant and well-recognized neurological condition in Cavaliers, and the findings of this study are consistent with the breed's established predisposition. Despite this, MRI screening was reported in a relatively small proportion of dogs, indicating that definitive diagnostic evaluation remains uncommon in the broader population. This likely reflects the cost and limited availability of advanced imaging, as well as the need for general anesthesia, which may restrict routine screening.

Among dogs that underwent MRI, a substantial proportion were diagnosed with SM, supporting the notion that imaging is often pursued in dogs with clinically consistent signs, rather than as a screening tool. The early age of onset of clinical signs observed in this study is consistent with previous reports describing SM as a condition that, when it does occur, often manifests in young adult Cavaliers (Sparks et al., 2018).

Clear differences were observed between breeder and non-breeder populations. Non-breeders reported a higher proportion of Cavaliers diagnosed with SM and were more likely to report ongoing clinical signs, while breeders less frequently reported clinical signs. These findings may reflect differences in screening, case selection, or reporting, as well as potential effects of breeding practices aimed at reducing disease prevalence. However, given the low overall occurrence of MRI screening, these differences should be interpreted with caution.

Most dogs diagnosed with SM were managed medically, with surgical intervention reported only rarely. This is consistent with current clinical practice, where medical management is often the primary approach, particularly when signs are mild or progressive but not severe. Surgical treatment is typically reserved for more severe or refractory cases and may not be widely pursued due to cost, availability, and variable outcomes (Hechler & Moore, 2018).

Overall, these findings highlight the continued importance of SM as a health concern in Cavaliers, while also underscoring the limitations in screening and diagnosis within the general population. The low occurrence of MRI screening, combined with the high proportion of clinically affected dogs among those evaluated, suggests that SM may be underdiagnosed. Increased access to diagnostic imaging and continued emphasis on breeding strategies may support improved detection and management of this condition within the breed.

Section 7: Hip dysplasia in Cavaliers

Hip dysplasia was reported in a relatively small proportion of Cavaliers in this study, suggesting it may not be a primary orthopedic concern in the breed compared with larger breeds, where the condition is more commonly reported. The age at diagnosis observed in this study was consistent with the variable clinical

presentation of hip dysplasia, which may be identified early in life, or later as degenerative joint disease develops.

Clear differences were observed between breeder and non-breeder groups, with breeders reporting substantially higher rates of radiographic screening. This likely reflects the use of screening programs in breeding animals, where evaluation of hip conformation is commonly incorporated into selection decisions. In contrast, non-breeders were less likely to report radiographic evaluation, suggesting that screening in the general population is more likely to be performed in response to clinical signs rather than as a preventive measure.

Among screened dogs, the reported proportion of Cavaliers with hip dysplasia was relatively low, particularly among breeder-owned dogs. This may reflect the impact of selective breeding practices aimed at reducing the incidence of orthopedic disease. However, as with other conditions in this study, differences in screening practices may also influence the reported proportion with hip dysplasia, with lower screening frequency potentially contributing to underdiagnosis in non-breeder populations and more lenient screening increasing the denominator and reducing the proportion with the condition.

Most dogs diagnosed with hip dysplasia were reported to have minimal or no clinical impairment, with a substantial proportion maintaining normal mobility. Surgical intervention was rare, and medical management was reported in a minority of cases, suggesting that the condition is often mild or conservatively managed in this population. Overall, hip dysplasia appears to occur at relatively low levels in Cavaliers, with limited clinical impact in most cases. However, marked differences in screening practices between breeder and non-breeder populations highlight the importance of proactive evaluation in accurately assessing disease prevalence and guiding breeding and management decisions.

Section 8: Hearing and Ear Health in Cavaliers

Hearing impairment was reported in a notable proportion of Cavaliers in this study, although most dogs were described as having normal hearing. Among those with reported deficits, most cases lacked a clearly identified underlying cause, suggesting that hearing loss is often undiagnosed or uninvestigated in the general population. This is consistent with broader challenges in veterinary practice, where a definitive diagnosis of hearing loss may require specialized testing, such as brainstem auditory evoked response (BAER), which is not routinely available or performed.

When a cause of hearing loss was identified, aging and primary secretory otitis media syndrome (PSOMS) were the most reported causes. Age-related hearing loss is well recognized in dogs and is consistent with the progressive nature of sensorineural degeneration. PSOMS, a condition characterized by the accumulation of mucus within the middle ear, has been described in Cavaliers and may contribute to both hearing impairment and other clinical signs.

The overall reported proportion of Cavaliers with PSOMS in this survey was low, with similar proportions reported in breeder and non-breeder groups. However, this finding should be interpreted with caution, as diagnosis of PSOMS typically requires advanced imaging or myringotomy and may therefore be underrepresented in populations with limited diagnostic investigation. Among dogs diagnosed with

PSOMS, surgical intervention was reported in a subset of cases, whereas most dogs did not receive medical therapy, suggesting variability in management approaches.

Differences between breeder and non-breeder populations were relatively limited in this section compared with other conditions, although non-breeders were more likely to report more severe hearing deficits and a higher occurrence of surgical intervention for PSOMS. As with other findings in this survey, these differences may reflect variation in recognition, reporting, or access to diagnostic and treatment options rather than true differences in disease prevalence.

Overall, hearing impairment appears to be present in a subset of Cavaliers, although the underlying causes are often not clearly defined. The low occurrence of definitive diagnosis highlights the challenges associated with evaluating hearing loss. Increased awareness of breed-associated conditions such as PSOMS, along with improved access to diagnostic testing, may support more accurate identification and management of hearing-related conditions in this population.

Part Two Key Takeaways for Breeders

Cardiac Health
Cardiac disease, particularly myxomatous mitral valve disease (MMVD), remains the most important health concern in Cavaliers. Continued emphasis on routine cardiac screening, especially by veterinary cardiologists, and use of such information to inform breeding programs are critical.

Value of Proactive Screening
Differences between breeder and non-breeder populations suggest that proactive screening practices (cardiac, orthopedic, ophthalmologic) may contribute to lower reported disease prevalence in breeding groups (and higher prevalence in non-breeding groups).

Syringomyelia (SM)
SM remains a significant breed-specific condition, but low rates of MRI screening suggest it may be underdiagnosed. Increased consideration of advanced imaging in clinically suspect Cavaliers may improve detection.

Orthopedic Health
Orthopedic conditions such as patellar luxation and hip dysplasia were reported at relatively low levels, but continued selection against affected individuals remains important to maintain this trend.

Ocular Health
Ocular disease was reported at low levels overall; however, consistent ophthalmologic screening remains important, particularly given variability in detection between populations.

Behavior and Temperament
Behavioral concerns were present in a subset of dogs, particularly among non-breeders. Early socialization, appropriate training, and selection for stable temperament should remain priorities in breeding programs.

Hearing and PSOMS

Hearing impairment and PSOMS may be underrecognized due to limited diagnostic investigation. Awareness of subtle clinical signs and consideration of diagnostic evaluation may support improved identification.

Consistency in Health Monitoring

Across multiple conditions, differences in screening and diagnostic practices highlight the importance of consistent, proactive health monitoring in accurately assessing disease prevalence and supporting long-term breed health.

Limitations

As with all survey-based studies, the findings are subject to several limitations. Data were self-reported and could not be independently verified, introducing the potential for recall bias and inaccurate reporting. Participation was voluntary from a convenience sample, which may have resulted in selection bias toward respondents who are more engaged in their dogs' health care (Bethlehem, 2010). Multiple dogs may come from the same household, reflecting the same levels of environmental exposures, husbandry practices, and preventive care. Dogs included in the study may not represent the general Cavalier population in terms of age structure, husbandry, health status, and receipt of medical attention and care. As such, findings must be interpreted with caution and differences observed between groups (e.g., dogs owned by breeders vs. non-breeders) may reflect one or more of these fundamental differences (e.g., different age structure) and not necessarily a true difference attributed to being in that group. Older Cavaliers have had more time to develop diseases, and, as such, the age structure affects reported disease occurrence. Differences in screening practices between breeder and non-breeder groups may have influenced reported disease occurrence, particularly for conditions requiring advanced diagnostics such as syringomyelia, PSOMS, and certain ocular diseases.

A reduction in response numbers was observed in later sections of the survey, particularly for condition-specific screening questions, likely reflecting survey fatigue or the increased complexity of the questionnaire format. Consequently, these findings may overrepresent individuals with greater engagement in health screening practices (non-response bias). Finally, the geographic distribution of respondents was weighted toward specific regions, which may limit the generalizability of results to regions with differing veterinary practices and access to care.

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Appendix A. Cavalier King Charles Spaniel Breed Health Survey

Cavalier King Charles Spaniel (CKCS) Breed Health Study You are invited to participate in a study conducted by Dr. Jason Stull (University of Prince Edward Island) regarding the health of the Cavalier King Charles Spaniel (CKCS) breed. The study involves a survey designed to better understand the current health conditions of the breed in the short-term, improve the health of the breed in the long-term, and ensure we are taking the appropriate actions on behalf of the breed now in the face of increasing legislative efforts against breeding purebred dogs. This work is funded by the Cavalier King Charles Spaniel, USA Health Foundation and ACKCS Charitable Trust. Anyone 18 years of age or older that currently has one or more pure-bred Cavaliers and lives in the USA or Canada is eligible to participate. Pet owners, breeders, and individuals who exhibit their Cavaliers are all encouraged to participate. Cavaliers living as family companions are as important to this study as show and breeding dogs. Please feel free to forward the survey invitation to others you believe to be eligible for the study. Even if you have recently taken a Cavalier survey, if you are eligible, please complete this survey. We are taking specific efforts so that the results of this study highlight Cavalier health in the USA/Canada. This will allow us to determine if current Cavalier breeding recommendations and health practices are on the right track and learn where there might be room for improvement. There are no right or wrong answers in the survey - we are just gathering information. Future studies will build off information gathered in this survey so your involvement now is critical. The survey will take approximately 10 to 25 minutes to complete, depending on the number Cavaliers you own. The survey is voluntary, and all answers are confidential. No identifying or individual results will be released. You will not be contacted about your results or participation. By entering this survey, you indicate that you have read the information provided and consent to participate. There are no direct benefits to you, but results will improve our understanding of the health status and concerns of Cavaliers and identify priorities for future health initiatives. You may choose to skip any question(s) you do not want to answer. You can stop completing the survey at any time. If you have any questions about the survey, you may contact Dr. Stull at 902-566-6006 or jstull@upei.ca. A summary of the results will be available at https://ackcscharitabletrust.org/ upon completion of the study. Data will be retained until publication of results, then answers will be deleted. Only the researcher listed above will have access to the individual survey data. This study has been reviewed by the UPEI Research Ethics Board for compliance with federal guidelines for research involving human participants and determined to be exempt. **To begin the survey please click the forward arrow at the bottom of the page.**

Page Break

Q3 All information requested in this survey pertains to **pure-bred** Cavalier King Charles Spaniel (CKCS) breed dogs (referred to as **Cavaliers** for the remainder of the survey). Please only provide information for your Cavaliers in this survey.

End of Block: Default Question Block

Start of Block: Your details

Q6 Which of the following best describes you and your Cavaliers? (choose all that apply)

- ☐ I own one or more Cavaliers as a pet
- ☐ I am a breeder of Cavaliers
- ☐ I show (e.g., conformation, agility) one or more Cavaliers
- ☐ Other (list): _____

Display this question:
If Q6 = I show (e.g., conformation, agility) one or more Cavaliers

Q7 Do you show your Cavaliers in (choose all that apply)

- ☐ Conformation
- ☐ Performance
- ☐ Other (list): _____

Q9 Where do you live?

- ○ City: _____
- ○ State/Province: _____
- ○ Country: _____

Q10 How old are you:

- ○ 18-24 years
- ○ 25-34 years
- ○ 35-44 years
- ○ 45-54 years
- ○ 55-64 years
- ○ 65-74 years
- ○ 75 years or older
- ○ Prefer not to say

Q11 Which best describes you:

- ○ Male
- ○ Female
- ○ Non-binary / third gender
- ○ Prefer not to say

Q12 Does someone who lives in your house smoke or vape in the Cavalier environment (e.g., their housing, kennel, car when Cavaliers are present)?

- ○ Yes
- ○ No

Q13 Have you participated in the Dog Aging Project with any of your Cavaliers?

- ○ Yes
- ○ No
- ○ Unsure

End of Block: Your details

Start of Block: General Questions

Q14 **Section 2 – General Questions about you and your Cavalier(s) over the past 5 years**

Q16 Within the past 5 years, how many Cavaliers have you owned:

_____

Q17 For these Cavaliers, how many have you (may list a dog in more than 1 category):

- Owned as a pet: _____
- Owned for breeding: _____
- Owned for showing (e.g., conformation, performance):

_____

Q18 Over the last 5 years, of the Cavalier(s) that you owned

- How many lived with you in your own home at least some of the time

_____

- On average, how many lived with you at one time

_____

Q21 Over the past 5 years, have any of your Cavaliers passed away (died or euthanized/put to sleep)?

- Yes, one passed away
- Yes, more than one passed away
- No

Display this question:
If Q21 = Yes, one passed away

Q22 For your Cavalier that passed away in the past 5 years:

- ○ What age were they when they passed?

_____

- ○ What was the suspected or diagnosed cause of death?

_____

- ○ What medication(s) were they on at the time of passing?

_____

Display this question:
If Q21 = Yes, one passed away

Q125 For your Cavalier that passed away in the past 5 years, was the cause of death diagnosed by a veterinarian?

- ○ Yes
- ○ No

Display this question:
If Q21 = Yes, more than one passed away

Q23 For your oldest Cavalier that passed away in the past 5 years:

- ○ What age were they when they passed:

_____

- ○ What was the suspected or diagnosed cause of death?

_____

- ○ What medication(s) were they on at the time of passing?

_____

Display this question:
If Q21 = Yes, more than one passed away

Q128 For your oldest Cavalier that passed away in the past 5 years, was the cause of death diagnosed by a veterinarian?

- ○ Yes
- ○ No

Display this question:
If Q21 = Yes, more than one passed away

Q127 For your youngest Cavalier (over 1 year old) that passed away in the past 5 years:

- What age were they when they passed:
  _____
- What was the suspected or diagnosed cause of death?
  _____
- What medication(s) were they on at the time of passing?
  _____

Display this question:
If Q21 = Yes, more than one passed away

Q126 For your youngest Cavalier (over 1 year old) that passed away in the past 5 years, was the cause of death diagnosed by a veterinarian?

- Yes
- No

End of Block: General Questions

Start of Block: Feeding and Nutrition

Q25 **Section 3 – Feeding and Nutrition**

Q26 Which of the following has been the primary component (greatest amount) of your Cavaliers' diet over the past 5 years:

- ○ Dry food (also known as kibble or extruded dog food)
- ○ Canned (with a high moisture content in a pouch, plastic tray, or can)
- ○ Freeze-dried
- ○ Raw (made with raw meat ingredients that are not cooked)
- ○ Semidry or semimoist (higher moisture content than kibble but less than canned)
- ○ Dehydrated
- ○ Home-prepared cooked diet (owner-prepared diet made with cooked components)
- ○ Left-over human food
- ○ Other (list) _____

Q27 Regarding the primary component of their food, is this (select all that apply):

- ☐ Commercially prepared (purchased from a company)
- ☐ Home-made (made at home)
- ☐ Organic
- ☐ Grain free

Q28 In addition to the primary component, do your Cavaliers get another type of food in their diet?

- ○ Yes
- ○ No

Display this question:
If Q28 = Yes

Q30 Which of the following has been the secondary component (second greatest amount) of your Cavaliers' diet over the past 5 years:

- ○ Dry food (also known as kibble or extruded dog food)
- ○ Canned (with a high moisture content in a pouch, plastic tray, or can)
- ○ Freeze-dried
- ○ Raw (made with raw meat ingredients that are not cooked)
- ○ Semidry or semimoist (higher moisture content than kibble but less than canned)
- ○ Dehydrated
- ○ Home-prepared cooked diet (owner-prepared diet made with cooked components)
- ○ Left-over human food
- ○ Other (list) _____

Display this question:
If Q28 = Yes

Q29 Regarding the secondary component of their food, is this (select all that apply):

- ☐ Commercially prepared (purchased from a company)
- ☐ Home-made (made at home)
- ☐ Organic
- ☐ Grain free

End of Block: Feeding and Nutrition

Start of Block: Vaccines and Preventive Medications

Q31 **Section 4 – Vaccines and Preventive Medications**

Q32 In the past 3 years, have you run titers for distemper virus or parvovirus on your Cavalier(s) to decide if you need to give them a booster vaccine?

- ○ Yes, for all of my Cavaliers
- ○ Yes, for some of my Cavaliers
- ○ No
- ○ Not sure

Q33 In the past 3 years, have your Cavalier(s) over 16 weeks of age been vaccinated against or had titers run for the following?

	Yes - all of my Cavaliers	Yes - some of my Cavaliers	No	Not Sure
Rabies	○	○	○	○
Distemper	○	○	○	○
Parvovirus	○	○	○	○

Q34 In the past 1 year, have your Cavalier(s) over 16 weeks of age been vaccinated against the following?

	Yes - all of my Cavaliers	Yes - some of my Cavaliers	No	Not Sure
Canine influenza (flu)	○	○	○	○
Kennel cough (Bordetella)	○	○	○	○
Leptospirosis	○	○	○	○
Lyme disease	○	○	○	○
Parainfluenza	○	○	○	○

Q35 Do you use flea/tick prevention medications or products on your Cavaliers over 16 weeks of age for at least part of the year?

- ○ Yes – all of my Cavaliers part of the year (e.g., seasonal)
- ○ Yes – all of my Cavaliers all year
- ○ Yes - some of my Cavaliers part of the year (e.g., seasonal)
- ○ Yes - some of my Cavaliers all year
- ○ No
- ○ Not sure

Display this question:
If Q35 != No
And Q35 != Not sure

Q130 Which flea/tick prevention medications or products do you use on your Cavaliers?

_____
_____
_____
_____
_____

Q37 Do you use worm (internal parasite) prevention medications on your Cavalier(s) for at least part of the year?

- ○ Yes – all of my Cavaliers part of the year (e.g., seasonal)
- ○ Yes – all of my Cavaliers all of the year
- ○ Yes - some of my Cavaliers part of the year (e.g., seasonal)
- ○ Yes - some of my Cavaliers all of the year
- ○ No
- ○ Not sure

Display this question:
If Q37 != No
And Q37 != Not sure

Q131 Which worm (internal parasite) prevention product(s) do you use?

_____
_____
_____
_____
_____

Q114 Do you give heartworm preventative to your Cavalier(s)?

- Yes - all my Cavalier(s) part of the year (e.g., seasonal)
- Yes - all my Cavalier(s) all year
- Yes – some of my Cavalier(s) part of the year (e.g., seasonal)
- Yes – some of my Cavalier(s) all year
- No
- Unsure

Display this question:
If Q114 != No
And Q114 != Unsure

Q117 Which heartworm preventative do you use:

_____
_____
_____
_____
_____

End of Block: Vaccines and Preventive Medications

Start of Block: General Health and Testing

Q119 Section 5 – General Health and Testing

Q120 On average, how often are your Cavaliers taken to the veterinarian for routine general health check-ups?

- ○ About once a year or more frequently
- ○ About once every 2 years
- ○ About once every 3 years
- ○ Less frequently than every 3 years
- ○ I do not take my Cavalier(s) to a veterinarian for routine general health check-ups

---

Display this question:
If Q6 = I am a breeder of Cavaliers

Q140 For your Cavalier(s) that have not already been diagnosed with heart disease, do you have them checked for heart disease?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q140 = No

Q141 What are the main reasons you do not have them checked for heart disease? (check all that apply)

- ☐ No heart specialists (cardiologists) in my area
- ☐ Do not think it is useful
- ☐ Too expensive
- ☐ Unable to get an appointment
- ☐ Other (list) _____

Display this question:
If Q140 = Yes

Q142 How often are they checked for heart disease?

_____

Display this question:
If Q140 = Yes

Q143 How are they checked for heart disease? (check all that apply)

- ☐ Veterinarian specializing in heart disease (cardiologist) by auscultation (stethoscope)
- ☐ General practitioner veterinarian by auscultation (stethoscope)
- ☐ Echocardiogram (only if a murmur or unusual heart beat/sound is heard)
- ☐ Echocardiogram (always before breeding)
- ☐ Other (explain) _____

Display this question:
If Q6 = I am a breeder of Cavaliers

Q144 For your Cavalier(s) that have not already been diagnosed with eye disease, do you have them checked for eye disease?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q144 = Yes

Q145 Are they checked by a veterinarian specializing in eye disease (ophthalmologist)?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q120 != I do not take my Cavalier(s) to a veterinarian for routine general health check-ups

Q132 As part of routine health and screening, which of the following do your Cavaliers generally have completed by a veterinarian or sent out as a mail in test? (choose all that apply)

- ☐ Assessment for patella luxation (slipping kneecap)
- ☐ Assessment for hip dysplasia
- ☐ MRI test for syringomyelia (condition that causes fluid-filled cavities to form in a dog's spinal cord)
- ☐ General DNA test for breed identification and genetic screenings (such as Embark DNA)
- ☐ DNA test for Dry Eye Curly Coat syndrome (also known as rough coat syndrome; genetic condition that affects the skin, eyes, claws, and coat of some Cavaliers)
- ☐ DNA test for episodic falling syndrome (EFS; genetic condition where the dog experiences sudden episodes of muscle stiffness, causing them to freeze or fall)
- ☐ DNA test for degenerative myelopathy
- ☐ DNA test for NEBL3 (to predict mitral value heart disease)
- ☐ Test for MCADD (medium-chain acyl-CoA dehydrogenase deficiency)
- ☐ Screening for Primary Secretory Otitis Media Syndrome (PSOMS)
- ☐ Hearing test, such as Brainstem Auditory Evoked Response (BAER) test
- ☐ Other (list) _____

Display this question:
If Q120 != I do not take my Cavalier(s) to a veterinarian for routine general health check-ups

Q133 Over the past 5 years, when you have results from health screening tests for your Cavaliers, have you submitted them to the Orthopedic Foundation for Animals (OFA)

- Always
- Often (50% of the time or greater)
- Sometimes (less than 50% of the time)
- Never
- I have not had results from health screening tests in the past 5 years

---

Display this question:
If Q6 = I am a breeder of Cavaliers

Q134 Do you provide health clearances on the sire and dam to Cavalier puppy buyers?

- Always
- Sometimes
- Never

Display this question:
If Q120 != I do not take my Cavalier(s) to a veterinarian for routine general health check-ups

Q135 Do you use veterinary specialists for health screening for your Cavalier(s)?

- Yes
- No
- Unsure

Display this question:
If Q135 = Yes

Q124 Which of the following options do you prefer to have your Cavaliers' health cleared by specialists in their respective fields? (check all that apply)

- ☐ Health clinics sponsored by Cavalier Clubs in conjunction with Specialty shows
- ☐ Stand alone health clinics offered at veterinarians' offices
- ☐ By appointment privately with the specialists

Display this question:
If Q124 = Health clinics sponsored by Cavalier Clubs in conjunction with Specialty shows
Or Q124 = Stand alone health clinics offered at veterinarians' offices
Or Q124 = By appointment privately with the specialists

Q125 What are the most important reasons you choose regarding your preference for health clinics with shows, stand alone health clinics, or by private appointment, as you indicated in your previous question? (check all that apply)

- ☐ More convenient
- ☐ More cost effective
- ☐ Can have multiple dogs examined on the same day by different specialists
- ☐ Perceived to be a better quality examination
- ☐ Not previously aware of the other options
- ☐ Other (please list): _____

End of Block: General Health and Testing

Start of Block: Number Cavaliers

Q39 Section 6 - Details about Individual Cavaliers

Q153 The following questions are for each Cavalier that you currently own (family companions, those you exhibit, currently or previously in a breeding program). The questions are to be answered for a specific Cavalier. The questions will then be repeated for your next Cavalier. The program will randomly choose which of your Cavaliers you answer questions about first, second, and so on. Please follow this carefully. You may answer this section of the survey for as many Cavaliers as you own (up to 25). If you

own 5 or fewer Cavaliers, please answer for each of your Cavaliers (complete this section 1 to 5 times depending on the number of dogs you own).

Q146 How many Cavaliers do you currently have? Insert a number.

_____

End of Block: Number Cavaliers

Start of Block: Cavalier Names

Q147 For each of your Cavaliers, write its name or identifier here. You can use any identifier you would like as long as you can remember which of your dogs it is for. The identifier is only being used in the survey to prompt you for information specific to this Cavalier and will be removed following data collection. All information is CONFIDENTIAL and ANONYMOUS. Information provided will not be able to

be tracked back to an identifiable person and individual Cavalier information will not be shared with anyone outside of the University research team.

○ Cavalier 1 _____

Display this choice:
If DogNumber >= 2

○ Cavalier 2 _____

Display this choice:
If DogNumber >= 3

○ Cavalier 3 _____

Display this choice:
If DogNumber >= 4

○ Cavalier 4 _____

Display this choice:
If DogNumber >= 5

○ Cavalier 5 _____

Display this choice:
If DogNumber >= 6

○ Cavalier 6 _____

Display this choice:
If DogNumber >= 7

○ Cavalier 7 _____

Display this choice:
If DogNumber >= 8

○ Cavalier 8 _____

Display this choice:
If DogNumber >= 9

○ Cavalier 9 _____

Display this choice:
If DogNumber >= 10

○ Cavalier 10 _____

Display this choice:
If DogNumber >= 11

○ Cavalier 11 _____

Display this choice:
If DogNumber >= 12

○ Cavalier 12 _____

Display this choice:
If DogNumber >= 13

Cavalier 13 _____

Display this choice:
If DogNumber >= 14

Cavalier 14 _____

Display this choice:
If DogNumber >= 15

Cavalier 15 _____

Display this choice:
If DogNumber >= 16

Cavalier 16 _____

Display this choice:
If DogNumber >= 17

Cavalier 17 _____

Display this choice:
If DogNumber >= 18

Cavalier 18 _____

Display this choice:
If DogNumber >= 19

Cavalier 19 _____

Display this choice:
If DogNumber >= 20

Cavalier 20 _____

Display this choice:
If DogNumber >= 21

Cavalier 21 _____

Display this choice:
If DogNumber >= 22

Cavalier 22 _____

Display this choice:
If DogNumber >= 23

Cavalier 23 _____

Display this choice:
If DogNumber >= 24

Cavalier 24 _____

Display this choice:
If DogNumber >= 25

Cavalier 25 _____

End of Block: Cavalier Names

Start of Block: Indiv dog questions

Display this question:
If Loop all: Q152 != No

Q40 Please answer the following questions specifically for your Cavalier that you referred to as **${lm://Field/2}**.

Display this question:
If Loop all: Q152 != No

Q41 Please fill in the following:

- Date of Birth (month, year) _____
- Color _____

Display this question:
If Loop all: Q152 != No

Q148 Sex of this Cavalier

- Male
- Female

Display this question:
If Q148 = Male

Q46 Is this Cavalier

- Neutered (testicle removed)
- Had a vasectomy
- Intact

Display this question:
If Q148 = Female

Q47 Is this Cavalier

- ○ Spayed (uterus removed)
- ○ Uterine Spared Spay
- ○ Intact

Display this question:
If Loop all: Q152 != No
And Q13 = Yes

Q42 Has this Cavalier previously been included in the Dog Aging Project?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Loop all: Q152 != No

Q43 Where did you get this Cavalier?

- ○ I am the breeder
- ○ Breeder or kennel club
- ○ Rescue
- ○ Pet Store
- ○ Other - explain: _____

Display this question:
If Q43 = Breeder or kennel club

Q150 Was the breeder or kennel club where you got this Cavalier registered with CKCSC, AKC, or CKC?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q43 = I am the breeder

Q149 Do you own a registered kennel under CKCSC, AKC, or CKC?

- ○ Yes
- ○ No

Display this question:
If Loop all: Q152 != No

Q44 Has your Cavalier been seen by a veterinarian at any point in its life?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q44 = Yes

Q45 How long ago was this Cavalier last seen by a veterinarian?

- ○ Within the last year
- ○ 1-2 years ago
- ○ 2-3 years ago
- ○ Greater than 3 years ago

Display this question:
If Q44 != No
And Loop all: Q152 != No

Q48 According to your veterinarian, this Cavalier is currently

- ○ Underweight
- ○ An appropriate body weight
- ○ Overweight
- ○ Unsure

Display this question:
If Loop all: Q152 != No

Q49 Choose the best description of this Cavalier's lifestyle over the past year

- ○ Not active
- ○ Moderately active
- ○ Very active

Display this question:
If Loop all: Q152 != No

Q50 Over the past year, when your Cavalier is being active what is the average intensity of that activity?

- ○ Low (walking)
- ○ Moderate (jogging)
- ○ Vigorous (sprinting, such as fetching or playing Frisbee)

Display this question:
If Loop all: Q152 != No

Q123 Over the past year, on average how much time per day was your Cavalier physically active? Insert numbers for hours or minutes.

- ○ Average hours per day _____
- ○ Average minutes per day _____

Display this question:
If Loop all: Q152 != No

Q59 Has this Cavalier attended puppy class or basic obedience classes

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Loop all: Q152 != No

Q60 Have you ever had any concerns about this Cavalier's temperament or behavior toward strangers, other dogs, or new places (such as aggression, excessive barking, overly excited, anxious, fearful)?

- ○ No
- ○ Yes - please list your concern(s) _____

Display this question:
If Q60 = Yes - please list your concern(s)

Q61 Have you spoken to a veterinarian about this issue?

- ○ Yes
- ○ No
- ○ Do not recall

Display this question:
If Q60 = Yes - please list your concern(s)

Q62 Did you take steps to resolve this behavior?

- ○ No
- ○ Yes - what steps did you take? _____

Display this question:
If Q60 = Yes - please list your concern(s)

Q63 Is this behavior still a concern?

- ○ Yes
- ○ No
- ○ Unsure

Page Break

Display this question:
If Loop all: Q152 != No

Q64 Questions about this Cavalier's (${lm://Field/2}) heart

Display this question:
If Loop all: Q152 != No

Q126 Has a veterinarian evaluated this Cavalier's heart to determine if there are signs of a heart murmur (an extra sound or unusual noise heard with a stethoscope during a heartbeat) or heart disease? (Choose all that apply)

- ☐ No
- ☐ Yes, general veterinarian
- ☐ Yes, cardiologist
- ☐ Yes, other veterinary specialist
- ☐ Yes, other - please list: _____
- ☐ Not sure

Display this question:
If Loop all: Q152 != No

Q65 Has your veterinarian told you this Cavalier has a heart murmur (an extra sound or unusual noise heard with a stethoscope during a heartbeat)?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q65 = Yes

Q127 Prior to being diagnosed with a murmur, at what approximate age was this Cavalier last evaluated by a veterinarian to not have a heart murmur?

_____

Display this question:
If Q65 = Yes

Q66 Who told you this Cavalier has a heart murmur (choose all that apply)

- ☐ General veterinarian
- ☐ Cardiologist
- ☐ Other veterinary specialist
- ☐ Other - please list _____

Display this question:
If Q65 = Yes

Q68 At what approximate age was this Cavalier diagnosed with a murmur?

_____

Display this question:
If Q65 = Yes

Q69 Was an echocardiogram performed by your veterinarian as part of the diagnosis?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q65 = Yes

Q70 Was this Cavalier diagnosed with Mitral Valve Disease (MVD)?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q70 = No

Q72 What was the cause of your Cavalier's heart murmur?

_____

Display this question:
If Q65 = Yes

Q73 Was your Cavalier put on medications for its heart condition?

- ○ No
- ○ Yes - list age started on medication and medication(s) currently on:

_____

Page Break

Display this question:
If Loop all: Q152 != No

Q75 Questions about this Cavalier's (${lm://Field/2}) eyes

Display this question:
If Loop all: Q152 != No

Q76 Has this Cavalier been examined by a veterinarian specializing in eyes (ophthalmologist)?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q76 = Yes

Q77 Did the ophthalmologist find an eye disease?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q77 = Yes

Q79 Which eye disease(s) was this Cavalier diagnosed with?

_____
_____
_____
_____
_____

Display this question:
If Q77 = Yes

Q80 Was this Cavalier put on medications for its eye condition?

- ○ No
- ○ Yes - list age started on eye medication(s):

_____

Display this question:
If Q80 = Yes - list age started on eye medication(s):

Q81 Is this Cavalier currently on medications for its eye condition?

- ○ No
- ○ Yes - list eye medication(s) currently on:

_____

Page Break

Display this question:
If Loop all: Q152 != No

Q82 Questions about this Cavalier's (${lm://Field/2}) patella(s) (knee caps)

Display this question:
If Loop all: Q152 != No

Q83 Does this Cavalier have patella luxation (slipping knee caps)?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q83 = Yes

Q84 Which of the back legs are affected?

- ○ Both back leg patellas (knee caps)
- ○ Just one back leg patella (knee cap)

Display this question:
If Q83 = Yes

Q85 Has your Cavalier had surgery for its patella luxation (slipping knee caps)?

- ○ Yes, when: _____
- ○ No, but planning to have this done in the future
- ○ No, not planning to have this done

Display this question:
If Q83 = Yes

Q86 Is your Cavalier currently on medications for its patella luxation?

- ○ No
- ○ Yes - list medication(s) currently on:

_____

Page Break

Display this question:
If Loop all: Q152 != No

Q87 Questions about Syringomyelia with this Cavalier (${lm://Field/2})

Display this question:
If Loop all: Q152 != No

Q88 Has this Cavalier had an MRI to check for SM (syringomyelia)?

- Yes
- No
- Unsure

Display this question:
If Q88 = Yes

Q89 Has a veterinarian diagnosed this Cavalier with Syringomyelia (SM)?

- Yes
- No

Display this question:
If Q89 = Yes

Q90 Does this Cavalier currently have signs of SM (air scratching, painful especially neck and shoulders, rubbing face, hand shy)?

- Yes
- No
- Unsure

Display this question:
If Q90 = Yes

Q92 At what age did this Cavalier first begin to show signs of SM?

_____

Display this question:
If Q89 = Yes

Q93 Has this Cavalier had surgery for SM?

- ○ Yes, when: _____
- ○ No, but planning to have this done
- ○ No, not planning to have this done

Display this question:
If Q89 = Yes

Q94 Is this Cavalier currently on medications for SM?

- ○ No
- ○ Yes - list medication(s) currently on:

_____

Page Break

Display this question:
If Loop all: Q152 != No

Q95 Questions about this Cavalier's (${lm://Field/2}) hips

Display this question:
If Loop all: Q152 != No

Q96 Has a veterinarian performed x-rays to check this Cavalier for hip dysplasia?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q96 = Yes

Q97 Based on the x-rays, has this Cavalier been diagnosed with hip dysplasia?

- ○ No
- ○ Yes, what age were they diagnosed with hip dysplasia:

_____

- ○ Unsure

Display this question:
If Q97 = Yes, what age were they diagnosed with hip dysplasia:

Q98 Does this Cavalier currently have signs of hip dysplasia (lame, difficulty getting up, stiff)?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q97 = Yes, what age were they diagnosed with hip dysplasia:

Q99 How would you rate this Cavalier's current ability to move/run as compared to other Cavaliers their age without hip dysplasia?

- ○ Normal
- ○ Somewhat reduced (will run but for a shorter length of time)
- ○ Greatly reduced (does not want to run)
- ○ Unsure

Display this question:
If Q97 = Yes, what age were they diagnosed with hip dysplasia:

Q100 Has this Cavalier had surgery for its hip dysplasia

- ○ Yes, when _____
- ○ No, but planning to have this done
- ○ No, not planning to have this done

Display this question:
If Q97 = Yes, what age were they diagnosed with hip dysplasia:

Q101 Is this Cavalier currently on medications for hip dysplasia?

- ○ No
- ○ Yes - list medication(s) currently on and how often they are given:

_____

Page Break

Display this question:
If Loop all: Q152 != No

Q102 Final Health Questions about this Cavalier (${lm://Field/2})

Display this question:
If Loop all: Q152 != No

Q103 Is this Cavalier able to hear?

- ○ Yes, as normal
- ○ Yes, but reduced hearing compared to other dogs or how he/she was previously
- ○ No, does not appear to hear

Display this question:
If Q103 = Yes, but reduced hearing compared to other dogs or how he/she was previously
Or Q103 = No, does not appear to hear

Q104 Has a veterinarian provided you with a definitive explanation for deafness?

- ○ No
- ○ Yes - please explain _____

Display this question:
If Loop all: Q152 != No

Q105 Was this Cavalier diagnosed with Primary Secretory Otitis Media Syndrome (PSOMS) by MRI or by a dermatologist?

- ○ Yes
- ○ No
- ○ Unsure

Display this question:
If Q105 = Yes

Q106 Did this Cavalier have PSOMS surgery?

- ○ Yes
- ○ No

Display this question:
If Q105 = Yes

Q107 Is this Cavalier on medications for PSOMS?

- ○ No
- ○ Yes - list medication(s) currently taking for PSOMS:

_____

Page Break

Display this question:
If Loop all: Q152 != No

Q109 Please list any other health related challenges or concerns you have with this Cavalier (${lm://Field/2}) :

_____
_____
_____
_____
_____

Display this question:
If Loop all: Q152 != No

Q152 Would you like to provide information for another of your Cavalier's? If you select YES, another of your Cavaliers will be randomly selected for you to provide its details. If you select NO you will enter the final questions of the survey.

- Yes
- No

End of Block: Indiv dog questions

Start of Block: Verifying question

Q112 How old are you? [Note: this question is purposefully repeated from the beginning of the survey to ensure this is a valid respondent]

- 18-24 years
- 25-34 years
- 35-44 years
- 45-54 years
- 55-64 years
- 65-74 years
- 75 years or older
- Prefer not to say

Q151 Is there any additional information you would like to share regarding this survey or your Cavalier(s).

_____
_____
_____
_____
_____

End of Block: Verifying question

Appendix B. Survey Data Tables

Section 1: General Demographic Questions about Respondents

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
		Number of Responses per Category (%), unless otherwise stated		
Which of the following best describes you and your Cavaliers? (choose all that apply)[i]		N=1,104	N=245	N=857
	I own one or more Cavaliers as a pet	910 (82.4)	120 (49.0)	790 (92.2)
	I am a breeder of Cavaliers	245 (22.2)	245 (100)	0
	I show (e.g., conformation, agility) one or more Cavaliers	328 (29.7)	174 (71.0)	154 (18.0)
	Other	20 (1.8)	2 (0.8)	18 (2.1)
		Most common 'other' response: service/therapy (n=3)		
Do you show your Cavaliers in (choose all that apply)[i]		N= 321	N= 171	N= 150
	Conformation	262 (81.6)	167 (97.7)	95 (63.3)
	Performance	149 (46.4)	57 (33.3)	92 (61.3)
	Other	22 (6.9)	7 (4.1)	15 (10)
Where do you live?		N= 1,103	N= 244	N= 852
	USA	1024 (92.8)	225 (92.2)	793 (93.1)
	Canada	70 (7.2)	19 (7.8)	59 (6.9)

	Regions	1,101	242	852
	Northeast USA	269 (24.4)	49 (20.3)	218 (25.6)
	South USA	381 (34.6)	81 (33.5)	298 (35.0)
	West USA	225 (20.4)	62 (25.6)	161 (18.9)
	Midwest USA	152 (13.8)	33 (13.6)	119 (14.0)
	Atlantic Canada	29 (2.6)	4 (1.7)	24 (2.8)
	Central Canada	35 (3.2)	11 (4.6)	24 (2.8)
	Prairies Canada	6 (0.5)	1 (0.4)	5 (0.6)
	West Canada	4 (0.4)	1 (0.4)	3 (0.4)
How old are you?		N=1,105	N= 243	N= 855
	18-24 years	4 (0.4)	0 (0.0)	4 (0.5)
	25-34 years	62 (5.6)	13 (5.4)	49 (5.7)
	35-44 years	109 (9.9)	21 (8.6)	88 (10.3)
	45-54 years	135 (12.2)	20 (8.2)	114 (13.3)
	55-64 years	243 (22.0)	51 (21.0)	189 (22.1)
	65-74 years	371 (33.6)	104 (42.8)	265 (31.0)
	75 years or older	162 (14.7)	27 (11.1)	134 (15.7)
	Prefer not to say	19 (1.7)	7 (2.9)	12 (1.4)
Which best describes you?		N= 1,103	N= 244	N= 852
	Male	62 (5.6)	7 (2.9)	53 (6.2)
	Female	1,030 (93.4)	234 (95.9)	791 (92.8)
	Non-binary / third gender	4 (0.4)	0 (0.0)	4 (0.5)
	Prefer not to say	7 (0.6)	3 (1.2)	4 (0.5)
Does someone who lives in your house smoke or vape in the Cavalier environment		N= 1, 109	N= 245	N= 857

(e.g., their housing, kennel, car when Cavaliers are present)?				
	Yes	48 (4.3)	19 (7.8)	29 (3.4)
	No	1,061 (95.7)	226 (92.2)	828 (96.6)
Have you participated in the Dog Aging Project with any of your Cavaliers?		N= 1,108	N= 245	N= 856
	Yes	32 (2.9)	5 (2.0)	27 (3.2)
	No	1040 (93.9)	228 (93.1)	805 (94.0)
	Unsure	36 (3.3)	12 (4.9)	24 (2.8)

[1] As respondents were allowed to select more than one option, the column may sum to greater than 100%

Section 2 – General Questions about Respondent and their Cavalier(s) over the past 5 years

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
		Number of Responses per Category (%), unless otherwise stated		
Within the past 5 years, how many Cavaliers have you owned?		N=1,095	N=237	N=851
	Mean (SD)	4.1(5.4)	10.4 (8.7)	2.3 (1.6)
	Median (Range)	2 (1-70)	8 (1-70)	2 (1-15)
For these Cavaliers, how many have you… (may list a dog in more than 1 category)?				
	Owned as a pet	N=1092	N=237	N=848
	Mean (SD)	2.5 (3.3)	4.2 (6.1)	2.1 (1.6)
	Median (Range)	2 (0-50)	2 (0-50)	2 (0-20)
	Owned for breeding	N=1092	N=237	N=848
	Mean (SD)	1.7 (4.8)	7.3 (8.0)	0.2 (0.7)
	Median (Range)	0 (0-70)	5 (0-70)	0 (0-9)
	Owned for showing (e.g., conformation, performance)	N=1092	N=237	N=848
	Mean (SD)	1.8 (4.5)	6.2 (7.8)	0.5 (1.3)
	Median (Range)	0 (0-77)	4 (0-77)	0 (0-15)

Over the last 5 years, of the Cavalier(s) that you owned…				
	How many lived with you in your own home at least some of the time	N=1,063	N=236	N=820
	Mean (SD)	4.1 (5.9)	10.6 (9.6)	2.3 (1.6)
	Median (Range)	2 (0-78)	8 (1-78)	2 (0-15)
	On average, how many lived with you at one time	N=916	N=217	N=692
	Mean (SD)	3.3 (3.6)	7.5 (5.0)	2.0 (1.4)
	Median (Range)	2 (1-30)	6 (1-30)	2 (1-15)
Over the past 5 years, have any of your Cavaliers passed away (died or euthanized/put to sleep)?		N= 1, 105	N= 243	N= 855
	Yes, one passed away	309 (28.0)	70 (28.8)	235 (27.5)
	Yes, more than one passed away	219 (19.8)	95 (39.1)	122 (14.3)
	No	577 (52.2)	78 (32.1)	498 (58.3)
If one Cavalier passed away in the past 5 years…				
	What age (in years) were they when they passed?	N=306	N=69	N=233
	Mean (SD)	10.7 (3.4)	10.4 (3.9)	10.7 (3.2)
	Median (Range)	11.5	11	11.5

		(0.04-17.1)	(0.04-17.1)	(1-17)
	What was the suspected or diagnosed cause of death?[i]	N=279	N=63	N=212
	Heart-related	126 (45.2)	21 (33.3)	102 (48.1)
	Cancer	52 (18.6)	14 (22.2)	38 (17.9)
	Kidney-related	22 (7.9)	6 (9.5)	16 (7.5)
	Was the cause of death diagnosed by a veterinarian?	N= 308	N= 70	N= 234
	Yes	253 (82.1)	55 (78.6)	194 (82.9)
	No	55 (17.9)	15 (21.4)	40 (17.1)
If multiple Cavaliers passed away in the past 5 years…				
For your oldest Cavalier that passed away in the past 5 years….				
	What age (in years) were they when they passed?	N=217	N=95	N=120
	Mean (SD)	13.1 (2.3)	13.7 (2.0)	12.7 (2.4)
	Median (Range)	13.8 (4-17.7)	14 (8-17.7)	13.0 (4-17.5)
	What was the suspected or diagnosed cause of death?[i]	N=172	N=69	N=101
	Heart-related	81 (47.1)	30 (43.5)	49 (48.5)
	Cancer	31 (18.0)	11 (15.9)	20 (19.8)
	Kidney-related	22 (12.8)	8 (11.6)	14 (13.9)

	Was the cause of death diagnosed by a veterinarian?	N= 215	N= 94	N= 119
	Yes	172 (80.0)	67 (71.3)	103 (86.6)
	No	43 (20.0)	27 (28.7)	16 (13.4)
For your youngest Cavalier (over 1 year old) that passed away in the past 5 years…				
	What age (in years) were they when they passed?	N=207	N=89	N=116
	Mean (SD)	9.5 (3.3)	9.1 (3.2)	9.8 (3.3)
	Median (Range)	10 (1-17)	10 (2-16.5)	10 (1-17)
	What was the suspected or diagnosed cause of death?[i]	N=192	N=84	N=106
	Heart-related	85 (44.3)	33 (39.3)	51 (48.1)
	Cancer	30 (15.6)	12 (14.3)	18 (17.0)
	Kidney-related	9 (4.7)	5 (6.0)	4 (3.8)
	Chiari-like malformation	2 (1.0)	0	2 (1.9)
	Syringomyelia	4 (2.1)	2 (2.4)	2 (1.9)
	Was the cause of death diagnosed by a veterinarian?	N= 206	N= 90	N= 114
	Yes	176 (85.4)	73 (81.1)	101 (88.6)
	No	30 (14.6)	17 (18.9)	13 (11.4)

[1] As respondents were allowed to select more than one option, the column may sum to greater than 100%

Section 3 – Feeding and Nutrition

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
		Number of Responses per Category (%), unless otherwise stated		
Which of the following has been the primary component (greatest amount) of your Cavaliers' diet over the past 5 years?		N= 1, 099	N= 241	N= 851
	Dry food (also known as kibble or extruded dog food)	648 (59.0)	171 (70.9)	472 (55.5)
	Canned (with a high moisture content in a pouch, plastic tray, or can)	35 (3.2)	0 (0.0)	35 (4.1)
	Freeze-dried	36 (3.3)	7 (2.9)	29 (3.4)
	Raw (made with raw meat ingredients that are not cooked)	141 (12.8)	35 (14.5)	106 (12.5)
	Semidry or semimoist (higher moisture content than kibble but less than canned)	10 (0.9)	2 (0.8)	8 (0.9)
	Dehydrated	14 (1.3)	0 (0.0)	14 (1.6)
	Home-prepared cooked diet (owner-prepared diet made with	99 (9.0)	12 (5.0)	85 (10.0)

	cooked components)			
	Left-over human food	1 (0.1)	0 (0.0)	1 (0.1)
	Other	115 (10.5)	14 (5.8)	101 (11.9)
		Most common: 'commercial fresh' (n=22), 'equal dry, canned, cooked' (14), 'gently cooked (13), 'equal raw and dry/canned (7)	Most common: 'equal dry, canned, cooked' (n=2), 'equal raw and dry/canned (2)	Most common: 'commercial fresh' (n=21), 'equal dry, canned, cooked' (12), 'gently cooked (12), 'equal raw and dry/canned' (7)
Regarding the primary component of their food, is this (select all that apply)[i]		N= 1,099	N= 241	N= 851
	Commercially prepared (purchased from a company)	954 (86.7)	222 (92.1)	728 (85.6)
	Home-made (made at home)	106 (9.6)	16 (6.6)	89 (10.5)
	Organic	19 (1.7)	2 (0.8)	23 (2.7)
	Grain free	48 (4.4)	8 (3.3)	40 (4.7)
In addition to the primary component, do your Cavaliers get another type of food in their diet?		N= 1, 108	N= 245	N= 856
	Yes	751 (67.8)	189 (77.1)	557 (65.1)
	No	357 (32.2)	56 (22.9)	299 (34.9)
Which of the following has been the secondary component (second		N= 745	N= 188	N= 552

greatest amount) of your Cavaliers' diet over the past 5 years?				
	Dry food (also known as kibble or extruded dog food)	102 (13.7)	23 (12.2)	78 (14.1)
	Canned (with a high moisture content in a pouch, plastic tray, or can)	113 (15.2)	20 (10.6)	92 (16.7)
	Freeze-dried	101 (13.6)	38 (20.2)	62 (11.2)
	Raw (made with raw meat ingredients that are not cooked)	67 (9.0)	38 (20.2)	29 (5.3)
	Semidry or semimoist (higher moisture content than kibble but less than canned)	7 (0.9)	2 (1.1)	5 (0.9)
	Dehydrated	28 (13.7)	5 (2.7)	22 (4.0)
	Home-prepared cooked diet (owner-prepared diet made with cooked components)	113 (15.2)	27 (14.4)	86 (15.6)
	Left-over human food	55 (7.4)	9 (4.8)	46 (8.3)
	Other	159 (21.3)	26 (13.8)	132 (23.9)
		Most common: Fresh fruits and/or vegetables (n=95)	Most common: Fresh fruits and/or vegetables (n=13)	Most common: Fresh fruits and/or vegetables (n=82)

Regarding the secondary component of their food, is this (select all that apply)[i]		N= 714	N= 183	N= 527
	Commercially prepared (purchased from a company)	449 (62.8)	122 (66.7)	323 (61.2)
	Home-made (made at home)	223 (31.2)	50 (27.3)	173 (32.8)
	Organic	67 (9.4)	18 (9.8)	49 (9.3)
	Grain free	40 (5.6)	4 (2.2)	39 (7.4)

[1] As respondents were allowed to select more than one option, the column may sum to greater than 100%

Section 4 – Vaccines and Preventive Medications

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
		Number of Responses per Category (%), unless otherwise stated		
In the past 3 years, have you run titers for distemper virus or parvovirus on your Cavalier(s) to decide if you need to give them a booster vaccine?		N= 1, 095	N= 241	N= 847
	Yes, for all of my Cavaliers	226 (20.6)	27 (11.2)	195 (23.0)
	Yes, for some of my Cavaliers	77 (7.0)	32 (13.3)	45 (5.3)
	No	732 (66.9)	179 (74.3)	550 (64.9)
	Not sure	60 (5.5)	3 (1.2)	57 (6.7)
In the past 3 years, have your Cavalier(s) over 16 weeks of age been vaccinated against or had titers run for the following?				
Rabies		N= 1,103	N= 243	N= 853
	Yes, for all of my Cavaliers	916 (83.1)	176 (72.4)	735 (86.2)
	Yes, for some of my Cavaliers	70 (6.4)	36 (14.8)	34 (4.0)
	No	108 (9.8)	28 (11.5)	78 (9.1)
	Not sure	9 (0.8)	3 (1.2)	6 (0.7)

Distemper		N= 1,088	N=243	N= 838
	Yes, for all of my Cavaliers	854 (78.5)	166 (68.3)	682 (81.4)
	Yes, for some of my Cavaliers	86 (7.9)	45 (18.5)	41 (4.9)
	No	118 (10.8)	29 (11.9)	88 (10.5)
	Not sure	30 (2.8)	3 (1.2)	27 (3.2)
Parvovirus		N= 1, 077	N= 242	N= 828
	Yes, for all of my Cavaliers	798 (74.1)	162 (66.9)	630 (76.1)
	Yes, for some of my Cavaliers	79 (7.3)	42 (17.4)	37 (4.5)
	No	138 (12.8)	35 (14.5)	102 (12.3)
	Not sure	62 (5.8)	3 (1.2)	59 (7.1)
In the past 1 year, have your Cavalier(s) over 16 weeks of age been vaccinated against the following?				
Canine influenza (flu)		N= 1, 054	N= 236	N= 812
	Yes, for all of my Cavaliers	303 (28.8)	40 (17.0)	260 (32.0)
	Yes, for some of my Cavaliers	61 (5.8)	36 (15.3)	25 (3.1)
	No	600 (56.9)	147 (62.3)	450 (55.4)
	Not sure	90 (8.5)	13 (5.5)	77 (9.5)

Kennel cough (Bordetella)		N= 1,086	N= 238	N= 841
	Yes, for all of my Cavaliers	568 (52.3)	69 (29.0)	496 (59.0)
	Yes, for some of my Cavaliers	89 (8.2)	45 (18.9)	44 (5.2)
	No	410 (37.8)	122 (51.3)	284 (33.8)
	Not sure	19 (1.8)	2 (0.8)	17 (2.0)
Leptospirosis		N=1,059	N= 231	N= 822
	Yes, for all of my Cavaliers	372 (35.1)	32 (13.9)	338 (41.1)
	Yes, for some of my Cavaliers	63 (6.0)	23 (10.0)	40 (4.9)
	No	551 (52.0)	169 (73.2)	378 (46.0)
	Not sure	73 (6.9)	7 (3.0)	66 (8.0)
Lyme disease		N= 1,046	N= 228	N= 812
	Yes, for all of my Cavaliers	201 (19.2)	8 (3.5)	191 (23.5)
	Yes, for some of my Cavaliers	34 (3.3)	10 (4.4)	24 (3.0)
	No	713 (68.2)	203 (89.0)	507 (62.4)
	Not sure	98 (9.4)	7 (3.1)	90 (11.1)
Parainfluenza		N= 1,032	N= 230	N= 796
	Yes, for all of my Cavaliers	229 (22.2)	59 (25.7)	168 (21.1)
	Yes, for some of my Cavaliers	39 (3.8)	30 (13.0)	9 (1.1)
	No	556 (53.9)	121 (52.6)	432 (54.3)
	Not sure	208 (20.2)	20 (8.7)	187 (23.5)

Do you use flea/tick prevention medications or products on your Cavaliers over 16 weeks of age for at least part of the year?		N= 1, 105	N= 244	N= 854
	Yes – all of my Cavaliers part of the year (e.g., seasonal)	355 (32.1)	88 (36.1)	264 (30.9)
	Yes – all of my Cavaliers all year	410 (37.1)	39 (16.0)	370 (43.3)
	Yes - some of my Cavaliers part of the year (e.g., seasonal)	68 (6.2)	28 (11.5)	39 (4.6)
	Yes - some of my Cavaliers all year	7 (0.6)	3 (1.2)	4 (0.5)
	No	264 (23.9)	85 (34.8)	177 (20.7)
	Not sure	1 (0.1)	1 (0.4)	0 (0.0)
Which flea/tick prevention medications or products do you use on your Cavaliers?		N= 800	N=156	N= 639
	Veterinary product	704 (88.0)	137 (87.8)	562 (87.9)
	Wondercide, Essential oils	39 (4.9)	10 (6.4)	29 (4.5)
	Other	57 (7.1)	9 (5.8)	48 (7.5)
Do you use worm (internal parasite) prevention medications on your		N= 1,095	N= 241	N= 847

Cavalier(s) for at least part of the year?				
	Yes – all of my Cavaliers part of the year (e.g., seasonal)	189 (17.3)	84 (34.9)	104 (12.3)
	Yes – all of my Cavaliers all year	258 (23.6)	46 (19.1)	212 (25.0)
	Yes - some of my Cavaliers part of the year (e.g., seasonal)	37 (3.4)	22 (9.1)	15 (1.8)
	Yes - some of my Cavaliers all year	4 (0.4)	2 (0.8)	2 (0.2)
	No	548 (50.1)	86 (35.7)	456 (53.8)
	Not sure	59 (5.4)	1 (0.4)	58 (6.9)
Which worm (internal parasite) prevention product(s) do you use?		N=445	N=148	N=296
	Veterinary product	410 (92.1)	142 (95.9)	267 (90.2)
	Diatomaceous Earth	4 (.9)	1 (0.7)	3 (1.0)
	Other	31 (7.0)	5 (3.4)	26 (8.7)
Do you give heartworm preventative to your Cavalier(s)?		N= 1,094	N= 241	N= 846
	Yes – all of my Cavaliers part of the year (e.g., seasonal)	269 (24.6)	57 (23.6)	210 (24.8)
	Yes – all of my Cavaliers all year	505 (46.2)	71 (29.5)	210 (24.8)
	Yes - some of my Cavaliers part of	40 (3.7)	21 (8.7)	19 (2.3)

	the year (e.g., seasonal)			
	Yes - some of my Cavaliers all year	4 (0.4)	1 (0.4)	3 (0.4)
	No	264 (24.1)	88 (36.5)	172 (20.3)
	Not sure	12 (1.1)	3 (1.2)	9 (1.1)
Which heartworm preventative do you use?		N=781	N=149	N=629
	Veterinary product	740 (94.8)	144 (96.6)	593 (94.3)
	Diatomaceous Earth	1 (0.1)	0	1 (0.2)
	Nosodes	1 (0.1)	1 (0.7)	0
	Other	39 (5.0)	4 (2.7)	35 (5.6)

[1] As respondents were allowed to select more than one option, the column may sum to greater than 100%

Section 5 – General Health and Testing

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
		Number of Responses per Category (%), unless otherwise stated		
On average, how often are your Cavaliers taken to the veterinarian for routine general health check-ups?		N= 1,080	N= 239	N= 833
	About once a year or more frequently	973 (90.1)	171 (71.6)	794 (95.3)
	About once every 2 years	52 (4.8)	28 (11.7)	24 (2.9)
	About once every 3 years	11 (1.0)	9 (3.8)	2 (0.2)
	Less frequently than every 3 years	7 (0.6)	4 (1.7)	3 (0.4)
	I do not take my Cavalier(s) to a veterinarian for routine general health check-ups	37 (3.4)	27 (11.3)	10 (1.2)
For your Cavalier(s) that have not already been diagnosed with heart disease, do you have them checked for heart disease? (Asked of breeders only)		N= 234	N= 234	N= N/A
	Yes	233 (99.6)	233 (99.6)	
	No	1 (0.4)	1 (0.4)	
	Unsure	0 (0.0)	0 (0.0)	
How often are they checked for heart		N= 218	N= 218	N= N/A

disease? (Asked of breeders only)				
	At least annually	203 (93.1)	203 (93.1)	
	Every 1-2 years	10 (4.6)	10 (4.6)	
	Greater than every 2 years	5 (2.3)	5 (2.3)	
How are they checked for heart disease? (check all that apply; asked of breeders only)? [i]		N= 233	N= 233	N= N/A
	Veterinarian specializing in heart disease (cardiologist) by auscultation (stethoscope)	202 (86.7)	202 (86.7)	
	General practitioner veterinarian by auscultation (stethoscope)	98 (42.1)	98 (42.1)	
	Echocardiogram (only if a murmur or unusual heart beat/sound is heard)	96 (41.2)	96 (41.2)	
	Echocardiogram (always before breeding)	44 (18.9)	44 (18.9)	
	Other	5 (2.1)	5 (2.1)	
For your Cavalier(s) that have not already been diagnosed with eye disease, do you have them checked for eye disease?		N= 235	N= 235	N= N/A

(Asked of breeders only)				
	Yes	218 (92.8)	218 (92.8)	
	No	17 (7.2)	17 (7.2)	
	Unsure	0 (0.0)	0 (0.0)	
Are they checked by a veterinarian specializing in eye disease (ophthalmologist)? (Asked of breeders only)		N= 218	N= 218	N= N/A
	Yes	214 (98.2)	214 (98.2)	
	No	4 (1.8)	4 (1.8)	
	Unsure	0 (0.0)	0 (0.0)	
As part of routine health and screening, which of the following do your Cavaliers generally have completed by a veterinarian or sent out as a mail in test? (choose all that apply; asked of respondents stating they take Cavaliers to veterinarian for routine general health check-ups) [i]		N=696	N=209	N=483
	Assessment for patella luxation (slipping kneecap)	524 (75.3)	192 (91.9)	329 (68.1)
	Assessment for hip dysplasia	416 (59.8)	158 (75.6)	255 (52.8)
	MRI test for syringomyelia (condition that	96 (13.8)	44 (21.1)	51 (10.6)

	causes fluid-filled cavities to form in a dog's spinal cord)			
	General DNA test for breed identification and genetic screenings (such as Embark DNA)	203 (29.2)	122 (58.4)	79 (16.4)
	DNA test for Dry Eye Curly Coat syndrome (also known as rough coat syndrome; genetic condition that affects the skin, eyes, claws, and coat of some Cavaliers)	253 (36.4)	175 (83.7)	76 (15.7)
	DNA test for episodic falling syndrome (EFS; genetic condition where the dog experiences sudden episodes of muscle stiffness, causing them to freeze or fall)	248 (35.6)	172 (82.3)	74 (15.3)
	DNA test for degenerative myelopathy	170 (24.4)	114 (54.5)	54 (11.2)
	DNA test for NEBL3 (to predict mitral value heart disease)	115 (16.5)	83 (39.7)	21 (4.3)
	Test for MCADD (medium-chain acyl-CoA	130 (18.7)	89 (42.6)	40 (8.3)

	dehydrogenase deficiency)			
	Screening for Primary Secretory Otitis Media Syndrome (PSOMS)	44 (6.3)	16 (7.7)	27 (5.6)
	Hearing test, such as Brainstem Auditory Evoked Response (BAER) test	24 (3.4)	7 (3.3)	17 (3.5)
Over the past 5 years, when you have results from health screening tests for your Cavaliers, have you submitted them to the Orthopedic Foundation for Animals (OFA; asked of respondents stating they take Cavaliers to a veterinarian for routine general health check-ups)		N= 995	N= 210	N= 777
	Always	156 (15.7)	92 (43.8)	62 (8.0)
	Often (50% of the time or greater)	68 (6.8)	43 (20.5)	25 (3.2)
	Sometimes (less than 50% of the time)	69 (6.9)	43 (20.5)	26 (3.4)
	Never	426 (42.8)	28 (13.3)	395 (50.8)
	I have not had results from health screening tests in the past 5 years	276 (27.7)	4 (1.9)	269 (34.6)

Do you provide health clearances on the sire and dam to Cavalier puppy buyers? (Asked of breeders only)		N= 232	N= 232	N= N/A
	Always	218 (94.0)	218 (94.0)	
	Sometimes	9 (3.9)	9 (3.9)	
	Never	5 (2.2)	5 (2.2)	
Do you use veterinary specialists for health screening for your Cavalier(s)? (Asked of respondents stating they take Cavaliers to veterinarian for routine general health check-ups)		N= 1,035	N= 212	N=815
	Yes	645 (62.3)	209 (98.6)	430 (52.8)
	No	331 (32.0)	3 (1.4)	326 (40.0)
	Unsure	59 (5.7)	0 (0.0)	59 (7.2)
Which of the following options do you prefer to have your Cavaliers' health cleared by specialists in their respective fields? (check all that apply; asked of respondents stating they use veterinary specialists for health screening) [i]		N=638	N= 207	N= 425
	Health clinics sponsored by Cavalier Clubs in conjunction with Specialty shows	310 (48.6)	161 (77.8)	147 (35.6)

	Stand alone health clinics offered at veterinarians' offices	223 (35.0)	102 (49.3)	119 (28.0)
	By appointment privately with the specialists	356 (55.8)	97 (46.9)	282 (66.4)
What are the most important reasons you choose regarding your preference for….. (check all that apply)[i]				
Health clinics sponsored by Cavalier Clubs in conjunction with Specialty shows (may have also selected other health screening options) [i]		N= 310	N=161	N=147
	More convenient	205 (66.1)	120 (74.5)	84 (57.1)
	More cost effective	252 (81.3)	139 (86.3)	112 (76.2)
	Can have multiple dogs examined on the same day by different specialists	200 (64.5)	134 (83.2)	66 (44.9)
	Perceived to be a better-quality examination	79 (25.5)	33 (20.5)	46 (31.3)
	Not previously aware of the other options	3 (1.0)	2 (1.2)	1 (0.7)
	Other	1 (0.3)	0	1 (0.7)
Stand-alone health clinics offered at veterinarians' offices		N= 223	N=102	N=119

(may have also selected other health screening options) [i]				
	More convenient	138 (61.9)	82 (80.3)	55 (46.2)
	More cost effective	132 (59.2)	77 (75.5)	54 (45.4)
	Can have multiple dogs examined on the same day by different specialists	122 (54.7)	81 (79.4)	41 (34.5)
	Perceived to be a better-quality examination	64 (28.7)	19 (18.6)	45 (37.8)
	Not previously aware of the other options	10 (4.5)	2 (2.0)	8 (6.7)
	Other	6 (2.7)	0	6 (5.0)
By appointment privately with the specialists (may have also selected other health screening options) [i]		N= 383	N=97	N=282
	More convenient	168 (43.9)	73 (75.3)	95 (33.7)
	More cost effective	122 (31.9)	64 (66.0)	57 (20.2)
	Can have multiple dogs examined on the same day by different specialists	106 (27.7)	63 (64.9)	43 (15.2)
	Perceived to be a better-quality examination	175 (45.7)	31 (32.0)	141 (50.0)

	Not previously aware of the other options	41 (10.7)	2 (2.1)	39 (13.8)
	Other	14 (3.7)	0	14 (5.0)
How many Cavaliers do you currently have?		N=1046	N=231	N=809
	Mean (SD)	3.0 (3.6)	7.3 (5.4)	1.7 (1.2)
	Median (Range)	2 (1-30)	6 (1-30)	1 (1-15)

Section 6 – Individual Dog General Information

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
		Number of Responses per Category (%), unless otherwise stated		
Total records		2,018 (100)	796 (39.4)	1213 (60.1)
Current age		N=1,943	N=778	N=1,157
	Mean (SD)	6.0 (3.8)	5.4 (3.9)	6.4 (3.7)
	Median (Range)	5.4 (0.01-19.2)	4.6 (0.01-19.2)	6.1 (0.16-18.5)
Color		N=1861	N=731	N=1122
	Black and Tan	205 (11.0)	99 (13.5)	104 (9.3)
	Blenheim	969 (52.1)	381 (52.1)	584 (52.1)
	Ruby	223 (12.0)	83 (11.4)	140 (12.5)
	Tricolor	464 (24.9)	168 (23.0)	294 (26.2)
Sex		N=2,014	N=794	N= 1, 211
	Male	855 (42.5)	239 (30.1)	611 (50.5)
	Female	1,159 (57.6)	555 (69.9)	600 (49.6)
	Male	N=852	N= 238	N=609
	Neutered (testicle removed)	527 (61.9)	48 (20.2)	474 (77.8)
	Had a vasectomy	3 (0.4)	1 (0.4)	2 (0.3)
	Intact	322 (37.8)	189 (79.4)	133 (21.8)
	Female	N= 1,156	N= 554	N= 598
	Spayed (uterus removed)	642 (55.5)	157 (28.3)	481 (80.4)
	Uterine Spared Spay	27 (2.3)	4 (0.7)	23 (3.9)
	Intact	487 (42.1)	393 (70.9)	94 (15.7)
Previously been included in the Dog Aging Project?		N= 50	N= 11	N= 39
	Yes	19 (38.0)	1 (9.1)	18 (46.2)
	No	30 (60.0)	10 (90.9)	20 (51.3)
	Unsure	1 (2.0)	0 (0.0)	1 (2.6)
Where did you get this Cavalier?		N= 2, 016	N= 795	N=1, 212
	I am the breeder	529 (26.2)	505 (63.5)	23 (1.9)
	Breeder or kennel club	1,298 (64.4)	275 (34.6)	1,015 (83.8)
	Rescue	143 (7.1)	2 (0.3)	141 (11.6)
	Pet Store	8 (0.4)	0 (0.0)	8 (0.7)
	Other	38 (1.9)	13 (1.6)	25 (2.1)
Cavalier obtained from a breeder or kennel club registered with		N=1805	N=773	N=1024

CKCSC, AKC, or CKC?				
	Yes	1583 (87.7)	631 (81.6)	945 (92.3)
	No	174 (9.6)	132 (17.1)	41 (4.0)
	Unsure	48 (2.7)	10 (1.3)	38 (3.7)
Cavalier seen by a veterinarian at any point in its life?		N= 2,017	N= 796	N= 1, 212
	Yes	2,014 (99.9)	794 (99.8)	1,211(99.9)
	No	3 (0.2)	2 (0.3)	1 (0.1)
	Unsure	0 (0.0)	0 (0.0)	0 (0.0)
How long ago was this Cavalier last seen by a veterinarian?		N= 2,013	N= 794	N= 1,210
	Within the last year	1,929 (95.8)	739 (93.1)	1,182 (97.7)
	1-2 years ago	69 (3.4)	47 (5.9)	22 (1.8)
	2-3 years ago	11 (0.6)	8 (1.0)	3 (0.3)
	Greater than 3 years ago	4 (0.2)	0 (0.0)	3 (0.3)
According to your veterinarian, this Cavalier is currently…		N= 1,981	N= 788	N= 1,186
	Underweight	27 (1.4)	14 (1.8)	13 (1.1)
	An appropriate body weight	1,809 (91.3)	740 (93.9)	1,063 (89.6)
	Overweight	140 (7.1)	33 (4.2)	106 (8.9)
	Unsure	5 (0.3)	1 (0.1)	4 (0.3)
Choose the best description of this Cavalier's lifestyle over the past year		N= 1,987	N= 791	N= 1,188
	Not active	309 (15.6)	132 (16.7)	176 (14.8)
	Moderately active	1,240 (62.4)	446 (56.4)	788 (66.3)
	Very active	438 (22.0)	213 (26.9)	224 (18.9)
Over the past year, when your Cavalier is being active what is the average intensity of that activity?		N= 1,980	N= 785	N= 1,187
	Low (walking)	879 (44.4)	262 (33.4)	614 (51.7)
	Moderate (jogging)	550 (27.8)	267 (34.0)	281 (23.7)
	Vigorous (sprinting, such as fetching or playing Frisbee)	551(27.8)	256 (32.6)	292 (24.6)
Over the past year, on average		N=1921	N=765	N=1148

how many hours per day was your Cavalier physically active?				
	Mean (SD)	2.4 (2.0)	2.8 (2.2)	2.1 (1.8)
	Median (Range)	2 (0.02-15)	2 (0.08-12)	1.8 (0.02-15)

Section 7 – Individual Dog Behavior Information

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
		Number of Responses per Category (%), unless otherwise stated		
Has this Cavalier attended puppy class or basic obedience classes?		N= 1,981	N= 788	N= 1,185
	Yes	1,005 (50.7)	321 (40.7)	680 (57.4)
	No	943 (47.6)	464 (58.9)	475 (40.1)
	Unsure	33 (1.7)	3 (0.4)	30 (2.5)
Have you ever had any concerns about this Cavalier's temperament or behavior toward strangers, other dogs, or new places (such as aggression, excessive barking, overly excited, anxious, fearful)		N= 1,970	N= 783	N= 1,179
	No	1,622 (82.3)	708 (90.4)	909 (77.1)
	Yes	348 (17.7)	75 (9.6)	270 (22.9)
	Categories of behavior concern	N= 348		
Human Fear/Aggression		84 (24.1)		
Dog Fear/Aggression		122 (35.1)		
Noise Aversion		14 (4.0)		
Resource Guarding		25 (7.2)		
Non-specific Fear/Aggression		82 (23.6)		
Overexcitement		33 (9.5)		
Excessive Barking		62 (17.8)		
Separation Issues		23 (6.6)		
Leash Aggression		18 (5.2)		
If a behavior concern, have you spoken to a veterinarian about this issue?		N= 345	N= 75	N= 267
	Yes	153 (44.4)	27 (36.0)	123 (46.1)
	No	182 (52.8)	46 (61.3)	136 (50.9)
	Do not recall	10 (2.9)	2 (2.7)	8 (3.0)
Did you take steps to resolve this behavior?		N= 344	N= 75	N= 266
	No	43 (12.5)	8 (10.7)	35 (13.2)
	Yes	301 (87.5)	67 (89.3)	231(86.8)
	Categories of steps taken	N= 301		

Professional trainer/Dog classes		55 (18.3)		
Veterinary behavioral Specialist		13 (4.3)		
Medication/Supplements		51 (16.9)		
At-home behavioral modification		208 (69.1)		
Is this behavior still a concern?		N= 343	N= 74	N= 266
	Yes	199 (58.0)	37 (50.0)	160 (60.2)
	No	115 (33.5)	29 (39.2)	85 (32.0)
	Unsure	29 (8.5)	8 (10.8)	21 (7.9)

Section 8 – Individual Dog Heart Information

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
		Number of Responses per Category (%), unless otherwise stated		
Has a veterinarian evaluated this Cavalier's heart to determine if there are signs of a heart murmur (an extra sound or unusual noise heard with a stethoscope during a heartbeat) or heart disease? (Choose all that apply)		N= 1,975	N= 789	N= 1,178
	No	68 (3.4)	32 (4.1)	36 (3.1)
	Yes, general veterinarian	1,143 (57.9)	340 (43.1)	795 (67.5)
	Yes, cardiologist	1,078 (54.6)	579 (73.4)	491 (41.7)
	Yes, other veterinary specialist	46 (2.3)	24 (3.0)	22 (1.9)
	Not sure	2 (0.1)	0 (0.0)	2 (0.2)
Has your veterinarian told you this Cavalier has a heart murmur (an extra sound or unusual noise heard with a stethoscope during a heartbeat)?		N=1,973	N=789	N=1,176
	Yes	511 (25.9)	147 (18.6)	360 (30.6)
	No	1,454 (73.7)	640 (81.1)	810 (68.9)
	Unsure	8 (0.4)	2 (0.3)	6 (0.5)
Prior to being diagnosed with a murmur, at what approximate age (years) was this Cavalier last evaluated by a veterinarian to not have a heart murmur?		N=479	N=142	N=333
	Mean (SD)	6.0 (2.7)	6.5 (2.8)	5.7 (2.6)
	Median (Range)	6 (0-15)	6.75 (0-14)	6 (0-15)
	Cavaliers obtained from a breeder or	N=396		

	kennel club registered with CKCSC, AKC, or CKC			
	Yes (median yrs)	6		
	No (median years)	7		
Who told you this Cavalier has a heart murmur (choose all that apply)		N= 509	N= 146	N= 359
	General veterinarian	285 (56.0)	48 (32.9)	233 (64.9)
	Cardiologist	345 (67.8)	119 (81.5)	224 (62.4)
	Other veterinary specialist	13 (2.6)	2 (1.4)	10 (2.8)
	Other	8 (1.6)	1 (0.7)	7 (2.0)
At what approximate age (years) was this Cavalier diagnosed with a murmur?		N=497	N=146	N=347
	Mean (SD)	6.7 (2.7)	7.2 (2.9)	6.4 (2.6)
	Median (Range)	6.8 (0-15.5)	7.3 (0.2-13)	6 (0-15.5)
Was an echocardiogram performed by your veterinarian as part of the diagnosis?		N= 505	N= 145	N= 356
	Yes	343 (67.9)	96 (66.2)	244 (68.5)
	No	155 (30.7)	48 (33.1)	106 (29.8)
	Unsure	7 (1.4)	1(0.7)	6 (1.7)
Was this Cavalier diagnosed with Mitral Valve Disease (MVD)?		N=511	N= 147	N= 360
	Yes	369 (72.2)	117 (79.6)	249 (69.17)
	No	108 (21.1)	26 (17.7)	81 (22.5)
	Unsure	34 (6.7)	4 (2.7)	30 (8.3)
If not MVD, what was the cause of your Cavalier's heart murmur?		N=55		
	PDA Physiologic Aortic regurgitation Heart tumor Unknown	5 4 1 1 44		

Was your Cavalier put on medications for its heart condition?		N= 505	N= 146	N= 355
	No	266 (52.7)	73 (50.0)	191 (53.8)
	Yes	239 (47.3)	73 (50.0)	164 (46.2)
Medications currently taking		N=203	N=61	N=141
Pimobendan		171 (84.2)	54 (88.5)	116 (82.3)
Age (years) started				
	Mean (SD)	8.6 (2.3)		
	Median (Range)	8 (2-14)	8 (3-13)	8.25 (2-14)
Enalapril/benazepril		70 (34.5)	22 (36.1)	48 (34.0)
Age (years) started				
	Mean (SD)	9.0 (2.5)		
	Median (Range)	8.5 (2-13.5)	8 (5.5-13.5)	9 (2-13)
Spironolactone		25 (12.3)	7 (11.5)	18 (12.8)
Age (years) started				
	Mean (SD)	9.2 (2.5)		
	Median (Range)	9 (5-14)	8.75 (6.5-13.5)	9 (5-14)
Furosemide		28 (13.8)	11 (18.0)	17 (12.1)
Age (years) started				
	Mean (SD)	10.1 (2.1)		
	Median (Range)	10 (7-14)	11 (8-13.5)	9.5 (7-14)

Section 9 – Individual Dog Eye Information

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
Has this Cavalier been examined by a veterinarian specializing in eyes (ophthalmologist)?		N= 1,969	N= 787	N= 1,174
	Yes	1,046 (53.1)	665 (84.5)	380 (32.4)
	No	907 (46.1)	121 (15.4)	779 (66.4)
	Unsure	16 (0.8)	1 (0.1)	15 (1.3)
Did the ophthalmologist find an eye disease?		N= 1, 045	N= 665	N= 379
	Yes	127 (12.2)	38 (5.7)	89 (23.5)
	No	907 (86.8)	623 (93.7)	283 (74.7)
	Unsure	11 (1.1)	4 (0.6)	7 (1.9)
Eye disease diagnosed?		N=110		
	Cataracts	25 (22.7)		
	Cherry eye	1 (0.9)		
	Corneal dystrophy	26 (23.6)		
	Coneal ulcer	2 (1.8)		
	Distichiasis	10 (9.1)		
	Glaucoma	2 (1.8)		
	Imperforate puncta	1 (0.9)		
	KCS	32 (29.1)		
	Pigmentary keratitis	4 (3.6)		
	Retinal dysplasia	7 (6.4)		
Was this Cavalier put on medications for its eye condition?		N= 127		
	No	77 (60.6)		
	Yes	50 (39.4)		

Section 10 – Individual Dog Knee Information

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
Does this Cavalier have patella luxation (slipping knee caps)?		N= 1,964	N= 785	N= 1,171
	Yes	108 (5.5)	20 (2.6)	88 (7.5)
	No	1,791 (91.2)	746 (95.0)	1,037 (88.6)
	Unsure	65 (3.3)	19 (2.4)	46 (3.9)
	Cavalier obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC?			
	Yes – count (%) with patella luxation	71 (4.6)		
	No – count (%) with patella luxation	4 (2.3)		
Which of the back legs are affected?		N= 106	N= 20	N= 86
	Both back leg patellas (knee caps)	52 (49.1)	9 (45.0)	43 (50.0)
	Just one back leg patella (knee cap)	54 (50.9)	11 (55.0)	43 (50.0)
Has your Cavalier had surgery for its patella luxation (slipping knee caps)?		N= 108	N= 20	N= 88
	Yes	17 (15.7)	2 (10.0)	15 (17.1)
	No, but planning to have this done in the future	9 (8.3)	1 (5.0)	8 (9.1)
	No, not planning to have this done	82 (75.9)	17 (85.0)	65 (73.9)
Age (years) when had patella luxation surgery		N=17		
	Mean (SD)	2.1 (1.0)		
	Median (Range)	2.2 (0.8-4.2)		

Is your Cavalier currently on medications for its patella luxation?		N= 108		
	No	93 (86.1)		
	Yes	15 (13.9)		

Section 11 – Individual Dog Syringomyelia Information

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
Has this Cavalier had an MRI to check for SM (syringomyelia)?		N= 1,965	N= 785	N= 1,172
	Yes	195 (9.9)	88 (11.2)	105 (9.0)
	No	1,730 (88.0)	695 (88.5)	1,029 (87.8)
	Unsure	40 (2.0)	2 (0.3)	38 (3.2)
For those that had an MRI, has a veterinarian diagnosed the Cavalier with Syringomyelia (SM)?		N= 194	N= 88	N= 105
	Yes	66 (34.0)	18 (20.5)	47 (44.8)
	No	128 (66.0)	70 (79.6)	58 (55.2)
For those diagnosed with SM, does the Cavalier currently have signs of SM (air scratching, painful especially neck and shoulders, rubbing face, hand shy)?		N= 66	N= 19	N= 46
	Yes	43 (65.2)	8 (42.1)	35 (76.1)
	No	23 (34.8)	11 (57.9)	11 (23.9)
For those with signs of SM, at what age did they first begin to show signs?		N=39		
	Mean (SD)	2.3 (1.2)		
	Median (Range)	2 (0.2-4)		
For those diagnosed with SM, has the Cavalier had surgery for SM?		N= 66	N= 18	N= 47
	Yes	5 (7.6)	1 (5.6)	4 (8.5)
	No, but planning to have this done	1 (1.5)	0 (0.0)	1 (2.1)

	No, not planning to have this done	60 (90.9)	17 (94.4)	42 (89.4)
For those diagnosed with SM, is the Cavalier currently on medications for SM?		N= 67	N= 19	N= 47
	No	20 (29.9)	10 (52.6)	10 (21.3)
	Yes	47 (70.2)	9 (47.4)	37 (78.7)

Section 12 – Individual Dog Hip Information

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
Has a veterinarian performed x-rays to check this Cavalier for hip dysplasia?		N= 1,960	N= 780	N= 1,172
	Yes	604 (30.8)	385 (49.4)	218 (18.6)
	No	1,310 (66.8)	388 (49.7)	915 (78.1)
	Unsure	46 (2.4)	7 (0.9)	39 (3.3)
Based on the x-rays, has this Cavalier been diagnosed with hip dysplasia?		N= 598	N= 381	N= 216
	No	543 (90.8)	360 (94.5)	182 (84.3)
	Yes	52 (8.7)	19 (5.0)	33 (15.3)
	Unsure	3 (0.5)	2 (0.5)	1 (0.5)
What age were they diagnosed with hip dysplasia?		N=50	N=19	N=31
	Mean (SD)	3.2 (2.3)	2.5 (1.1)	3.7 (2.7)
	Median (Range)	2 (1-11)	2 (1.8-6.5)	3 (1-11)
For those diagnosed with hip dysplasia, does the Cavalier currently have signs of hip dysplasia (lame, difficulty getting up, stiff)?		N= 53	N= 19	N= 34
	Yes	19 (35.9)	4 (21.1)	15 (44.1)
	No	32 (60.4)	15 (79.0)	17 (50.0)
	Unsure	2 (3.8)	0 (0.0)	2 (5.9)
For those diagnosed with hip dysplasia, how would you rate the Cavalier's current ability to move/run as compared to other Cavaliers		N= 53	N= 19	N= 35

their age without hip dysplasia?				
	Normal	27 (50.9)	13 (68.4)	14 (41.2)
	Somewhat reduced (will run but for a shorter length of time)	18 (34.0)	4 (21.1)	14 (41.2)
	Greatly reduced (does not want to run)	7 (13.2)	2 (10.5)	5 (14.7)
	Unsure	1 (1.9)	0 (0.0)	1 (2.9)
For those diagnosed with hip dysplasia, has the Cavalier had surgery for its hip dysplasia?		N= 52		
	Yes	1 (1.9)		
	No, but planning to have this done	4 (7.7)		
	No, not planning to have this done	47 (90.4)		
For those diagnosed with hip dysplasia, is the Cavalier currently on medications for hip dysplasia?		N= 51		
	No	37 (72.6)		
	Yes	14 (27.5)		

Section 13 – Individual Dog Hearing Information

Survey Question	Response Options	All Responses (%)	Breeders (%)	Non-Breeders (%)
Is this Cavalier able to hear?		N= 1,965	N= 782	N= 1,175
	Yes, as normal	1,567 (79.8)	653 (83.5)	907 (77.2)
	Yes, but reduced hearing compared to other dogs or how he/she was previously	247 (12.6)	97 (12.4)	150 (12.8)
	No, does not appear to hear	151 (7.7)	32 (4.1)	118 (10.0)
	Cavalier obtained from a breeder or kennel club registered with CKCSC, AKC, or CKC?			
	Yes – count (%) not able to hear	120 (7.8)		
	No – count (%) not able to hear	5 (2.9)		
For those with hearing deficit, has a veterinarian provided you with a definitive explanation for deafness?		N= 397		
	No	320 (80.6)		
	Yes	77 (19.4)		
Categories for diagnosis		N=59		
	Aging Anatomic defect Ear infections Early-onset deaf PSOMS Medication-related	30 (50.8) 3 (5.1) 3 (5.1) 2 (3.3) 20 (33.9) 1 (1.7)		
Was this Cavalier diagnosed with Primary Secretory Otitis Media Syndrome (PSOMS) by MRI or by a dermatologist?		N= 1,941	N= 772	N= 1,161

	Yes	45 (2.3)	16 (2.1)	28 (2.4)
	No	1,872 (96.5)	754 (97.7)	1,111 (95.7)
	Unsure	24 (1.2)	2 (0.3)	22 (1.9)
For those diagnosed with PSOMS, did the Cavalier have PSOMS surgery?		N= 45	N= 16	N= 28
	Yes	19 (42.2)	3 (18.8)	16 (57.1)
	No	26 (57.8)	13 (81.3)	12 (42.9)
For those diagnosed with PSOMS, is the Cavalier on medications for PSOMS?		N= 45	N= 16	N= 28
	No	34 (75.6)	14 (87.5)	20 (71.4)
	Yes	11 (24.4)	2 (12.5)	8 (28.6)

Appendix C. Data Categorizations

Geographic Categorizations

United States (Based on US Census Bureau Regions)

Northeast: Connecticut, Maine, Massachusetts, New Jersey, New Hampshire, New York, Pennsylvania, Rhode Island, Vermont
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin
South: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

Canada (Based on Regions)

Atlantic: Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick
Central: Quebec, Ontario
Prairies: Manitoba, Saskatchewan, Alberta
West: British Columbia
North: Nunavut, Northwest Territories, Yukon Territory

Age Categorizations

Cavalier age groups were based on existing canine life stage guidelines (American Animal Hospital Association, 2019)

- Puppy was defined as a Cavalier less than or equal to 9 months of age
- Adult was defined as a Cavalier greater 9 months and less than or equal to 7 years of age
- Mature adult was defined as a Cavalier greater than 7 years of age and less than or equal to 10 years of age
- Senior was defined as a Cavalier greater than 10 years of age

Behavioral Categorizations

Respondents who answered the question about behavioral concerns were able to provide free-text responses. Based on the major themes identified from these responses, the following categorizations of behavioral issues were created:

Dog Aggression/Fear

Dogs displaying behaviors toward other dogs indicative of fear (e.g., timidness, withdrawal, avoidance, barking) or aggression (e.g., growling, lunging, snapping, or attacking).

People Aggression/Fear

Dogs displaying behaviors toward humans indicative of fear (e.g., timidness, withdrawal, avoidance, barking) or aggression (e.g., growling, lunging, snapping, or attacking).

Noise Aversion

Dogs displaying signs of fear, anxiety, or distress in response to loud or sudden noises, such as thunderstorms, fireworks, alarms, or slamming doors.

Generalized/Non-specific Fear

Dogs exhibiting a generally fearful, anxious, or apprehensive demeanor without a clearly identifiable trigger, or where no specific source of fear was reported.

Separation Issues

Dogs displaying behavioral concerns associated with separation from owners or caregivers, including distress, vocalization, destructive behaviors, or inappropriate elimination.

Overexcitement

Dogs that become excessively aroused during routine activities and have difficulty settling, calming themselves, or responding appropriately to redirection.

Excessive Barking

Dogs that bark persistently or excessively in situations where barking would not typically be expected or appears disproportionate to the stimulus.

Resource Guarding

Dogs displaying defensive, possessive, or aggressive behaviors when another animal or person approaches valued resources such as food, toys, resting areas, or preferred individuals.

Leash Aggression

Dogs displaying fearful, reactive, or aggressive behaviors toward people, dogs, or other stimuli while restrained on a leash, including barking, lunging, growling, or snapping.