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Health and Benefits of Dog Companionship in Women over 50 Years Old

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Abstract: Background: The purpose of this study was to investigate the health and wellness benefits of dog companionship in a population of women over 50 years old. Methods: This study used a combination of an online survey (n = 284 self-identified dog companions, n = 71 non-dog companions) and in-person fitness testing (n = 24 dog companions and n = 7 non-dog companions). In-person testing included the 6 min walk, handgrip strength, and chair stand tests. Results: From the questionnaire: Dog companions were 61 ± 7 years old and non-dog companions were 58 ± 6 years old. Dog companions reported 3 ± 2 medical diagnoses and 2 ± 1 medications, but non-dog companions only reported 2 ± 1 medical diagnoses and 1 ± 1 medications ($p < 0.001$). Satisfaction with life scores and interpersonal communication competence scores were higher for dog companions compared to non-dog companions ($p < 0.001$). Dog companions and non-dog companions reported similar amounts of time per week on vigorous activity. However, the number of days per week in which dog companions participated in moderate activity was higher than in non-dog companions ($p < 0.05$). Dog companions also reported walking more days per week and for a longer time than non-dog companions ($p < 0.05$). There were no differences in the in-person testing (6 min walk, handgrip strength, chair stand tests) between groups. Conclusions: When the in-person testing scores were compared to national standards, the women in this study were average to above average. Overall, women over 50 that own dogs walk more and have better life satisfaction, compared to non-dog companions.

Keywords: life satisfaction; physical activity; fitness; older adults

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1. Introduction

Pet companionship seems to result in improved health benefits with the average pet owner walking 300–500 more steps per week than non-pet companions [1,2]. Pet companionship may also have other health benefits, including reduction in heart attack risk [3], reduced depression and anxiety [4], and reduced blood pressure [5]. However, it is unclear in previous studies if the results are due to greater physical activity with the dog or just dog companionship. Dog companionship is high, but physical activity is quite low in the Southern United States with 32.4% of people reporting that they participate in no physical activity [6]. In Alabama specifically, 45.9% of people report no physical activity at all. In the general population, women over 50 years old are a group of people that are at high risk of obesity, hypertension, cardiovascular disease, and diabetes due to the onset of menopause and aging [7]. Sedentary lifestyle contributes to this by increasing health risks and reducing physical function [8,9].

Research in the US [10] and Australia [11] suggest that women are the primary caregivers for pets and are therefore the ones most likely to receive the benefits of pet companionship. In a study consisting of postmenopausal women, dog companions were more likely to meet the current physical activity recommendation of walking 150 min/week, but dog companions are less likely to engage in more moderate-to-vigorous activity [12]. Recent reports suggest that women also have a higher risk of injury from dog walking [13].

However, the relationship between dog ownership and well-being/life satisfaction is unclear, such that it is dependent on the closeness of the person to the dog and their overall relationship [14,15].

Participation in sports is one unique method to enhance physical activity and improve well-being in women [16]. While typical human team sports participation declines as women age [17], women participate in canine sports at a very high rate, such that people that participate in canine sports are predominantly women and over 40 years old [18]. Canine sports include but are not limited to obedience, rally obedience, agility, Internationale Prufungs-Ordung (IPO), tracking, disc sports, scentwork, field trials, herding, lure coursing, and dock diving. Participation in canine sports is increasing in popularity, with the American Kennel Club reporting 3 million entries in dog sports last year in 22,000 events [19]. It is unknown if people that participate in canine sports have improved health, life satisfaction or interpersonal communication competence because of their canine sports participation, but aspects of sports participation such as the culture of dog sports [20], the connectedness with their dogs, and the actual physical activity associated with the sport [18,21] may contribute to improved mental and physical health in these individuals.

Interpersonal communication with other humans is a positive aspect of dog sports as reported by Farrell et al. [18] and a commonly reported benefit of dog companionship [22]. Social connections to others are a known factor to reduce depression and anxiety [23,24] and may result in improved life satisfaction. Further, Gillespie et al. [20] reported that canine sports represent a 'culture of commitment', including regular participation and social support from the canine sports community. Social support from the dog is also an important aspect of mental health. Farrell et al. [18] reported that one reason that people participate in dog sports is an improved connection with their dog. Previous research by Garrity et al. [25] and Stallones et al. [26] reported that emotional attachment to pets was associated with reduced depression. Therefore, it is possible that dog companionship—and possibly canine sports—provides dog owners with physical activity, an interpersonal connection with other people, and a connection to their pet. All of these factors may contribute to improved human health and overall life satisfaction. The purpose of this study was to investigate the impact of dog companionship on overall health and wellness of women over 50. Our approach was an online questionnaire and in-person testing. We hypothesized that dog companions would have better health, walk more, and have a higher satisfaction with life and have better physical fitness than women that did not own a dog. In addition, we hypothesized that women who participated in canine sports would have the highest health, physical activity, fitness, and life satisfaction.

2. Methods

2.1. Participants

This study was approved by the Auburn University Institutional Review Board and the Institutional Animal Care and Use Committee. We recruited dog companions and non-dog companions on social media to participate in the online questionnaire. The questionnaire link was open from February 2021 to December 2021. It was distributed using Facebook pages (laboratory and personal) and participants were encouraged to share. We also sent Facebook posts to dog breed sites, sports sites (regional and national), and local-events sites. A dog is defined as a "sports dog" if they have at least 1 title in any dog sport. All dogs (pet and sport) in our study were at least 18 months old, but no older than 10 years old, and were apparently healthy and free of diagnosed disease or orthopedic problems that limit walking. The dog age range was selected to obtain dogs that were mature adults, but not old enough to be at high risk for age-related diseases like arthritis. Human participants were women aged 50 years or older. If the women wished to participate, we invited them to schedule a visit to our laboratory at Auburn University to conduct fitness tests on the person and dog (if they owned one). This project is part of a larger study that included more extensive dog outcomes [27].

2.2. Online Questionnaire

The online questionnaire was administered using Qualtrics XM. It included questions about demographics like age, height, and weight, and health questions about medical conditions, medications taken, satisfaction with life, social connectedness, and their physical activity using the Dogs and Walking Survey (DAWGS) [28]. Dog companions completed a slightly modified questionnaire that included questions about their dog (age, sex, breed, etc.), their dog's body condition, their relationship with their dog (Monash Owner Relationship Scale) [29], and their physical activity using the DAWGS survey (7-day physical activity recall that includes vigorous, moderate, and regular walking activity). For the dog's body condition, companions were asked to measure their dog's hock-to-stifle length and pelvic circumference (for the percent fat calculation). They were also asked to look at a Purina 9-point body condition scale [30] (without labels like "ideal") and rate their dog's body condition. Additionally, dog companions that participated in sports completed the Sports Motivation Scale. See the Supplementary Materials for the complete questionnaire.

2.3. Satisfaction with Life

We used the "Satisfaction with Life" scale [31]. This is a 5-question scale that uses the sum of the 7-point Likert scores to create an overall score to determine how satisfied the person is with their life; it has an internal reliability coefficient of 0.75 [31]. This scale was used extensively to measure pet companions' satisfaction with life [32,33] and was validated against the interviewer's assessment of life satisfaction.

2.4. Relationship with Dog (for Dog Companions Only)

We assessed the companions' feeling of connection with their dogs using the Monash Dog Owner Relationship Scale [29]. This questionnaire is a combination of frequency questions (how often) and 5-point Likert statements. The score is created by a sum of the score from each question. This questionnaire has an acceptable Cronbach's coefficient alpha of above 0.8.

2.5. Relationship with Others

We assessed the owners' social connectedness to other humans using the Interpersonal Competence Scale [34,35]. This questionnaire is broken down into subscales, including self-disclosure, empathy, social relaxation, assertiveness, altercentrism, interaction management, expressiveness, supportiveness, immediacy, and environmental control. Each subscale contains 3 questions that are summed to obtain a score. This questionnaire was validated against interviews with close friends and acquaintances. The internal reliability is above 0.8 (Cronbach's coefficient alpha).

2.6. Motivation

For the sports dog companions, we also included the Sports Motivation Scale-28 [36], modified for dog sports [18]. This is a 28-question questionnaire that has Likert statements. The score is the sum of each answer. This scale measures the individual motivations for participating in sports. This is a widely used scale for many human sports [37,38] and it was previously adapted for dog sports by Farrell et al. [18]. This is an internally reliable (Cronbach's alpha = 0.8) questionnaire and has good validity and test-test reliability [36].

2.7. Care and Walking of the Dog and Benefits and Barriers

A portion of the DAWGs survey [28] included questions regarding the reasons that the person owned a dog, care and maintenance of the dog, how much they walked with their dog, where they walked, and the size of the yard. There were also questions regarding support for dog walking, motivational factors, and barriers to dog walking.

2.8. Physical Activity

We assessed the person's level of physical activity using the Dogs and Walking Survey (DAWGS) [28]. Dog companions answered the complete survey. Non-dog companions only answered the physical activity assessment portion of DAWGS. This is a 7-day physical activity recall that asks about vigorous, moderate, and regular walking activity. Kilocalories of vigorous activity was calculated using the following equation: Kilocalories of vigorous activity = Days per week × Minutes per day × 7. The number 7 is the number of Kilocalories per min for vigorous activity according to the CDC [39]. Kilocalories of moderate activity was calculated via the following equation: Kilocalories of moderate activity = Days per week × Minutes per day × 3.5. The number 3.5 is the number of Kilocalories per min for moderate activity according to the CDC [39].

2.9. Laboratory Testing—Humans

For a small group of women who indicated on the questionnaire that they were local and wished to participate in in-person testing, we invited them to the laboratory at Auburn University. For the humans, we measured body composition, blood pressure, the 6 min walk test, a chair-sit-to-stand test, and a handgrip strength test. The explanations of the tests are below:

Body Composition: Body mass index was measured using a scale for weight and a ruler for height. We also used the Tanita Bioelectric Impedance device (Tanita Corporation of America, Inc., TBF-400, Arlington Heights, IL, USA) to obtain percent fat and lean tissue in the body. This is a portable device that has been widely used in field studies and is a reliable and valid measurement tool for body composition [40].

Blood Pressure: Blood pressure was taken after 5 min of quiet seated rest using an automatic blood pressure monitor. Measurements were taken while the participant was seated with feet flat on the floor.

Physical function: This was measured using a 6 min walk test with a heart rate monitor (Polar Electro USA, Worcester, MA, USA). This is a well-validated measure of fitness and mobility in people over 50 years old [41–43]. The distance the person walked and the heart rate at the end of the walk served as the outcome variables. The person was instrumented with the heart rate monitor before they began the quiet rest (15 min). The person was instructed to walk as fast as possible to the extent of their comfort. Dog companions performed the 6 min walk with their dog (see below for details about the dog 6 min walk test). We also performed a chair stand test that involved the person sitting in a chair with their arms folded across their chest. The person was instructed to stand and sit as many times as possible in 30 s.

Strength test: We used a handgrip dynamometer (T.K.K. 5001, Takei Grip Strength Dynamometer, Tokyo, Japan) to measure handgrip strength. Handgrip strength is a well-established estimate of whole-body strength in older women and a predictor of mortality and disability [44–46].

2.10. Laboratory Testing—Dogs

2.10.1. Dog Body Condition

For all dogs, we evaluated their body conditions using two methods. Method 1 is the Purina 9-point body condition scale. This is a body condition assessment that uses the palpation of the rib area, the back, and the abdomen to estimate the body condition on a 9-point scale. The dog was assessed by a person with experience in assessing body conditions using this scale. Method 2 was a body fatness assessment using anthropometric measurements in the following equations: Males% fat = $-1.4 \times$ (hock-to-stifle length$_{cm}$) + $0.77 \times$ (Pelvic Circumference) + 4; Females% fat = $-1.7 \times$ (hock-to-stifle length$_{cm}$) + $0.93 \times$ (Pelvic circumference) + 5 [47]. Measurements were obtained with a tape measure.

2.10.2. Dog Physical Function

For the 6 min walk test, we measured the distance walked and the heart rate. If the dog was short-haired, of medium or larger body size, and was amenable to wearing a Polar heart rate monitor with a pediatric strap, we outfitted the dog prior to the quiet rest period. If the dog had thick fur, was too small or was not comfortable with the heart rate monitor, we used a stethoscope or palpation to manually measure the dog's heart rate after the quiet rest period and immediately after the 6 min walk test. The dog walked with their owner at a speed that was as fast as comfortable for the person. This is a well-validated test in pet dogs [48,49]. The Polar heart rate monitor is a valid and reliable method for assessing exercising the heart rate of dogs [50–52].

3. Data Analysis

Data are reported as mean ± standard deviation. A one-way ANOVA was used for all demographic and physical fitness variables. The Satisfaction with Life and Interpersonal Communication Competence scales were analyzed using a *t*-test with Cohen's D analysis. All statistics were performed using IBM SPSS statistics software version 29. The alpha was set a priori at 0.05. We performed a power analysis (G*Power 3.1.9.7) and found that with an effect size f = 0.25, power = 0.95, and an alpha probability of 0.05, we needed a total sample size of n = 210.

4. Results

4.1. Participants' Online Survey

A total of 284 people who identified as dog companions and 71 people who identified as non-dog companions participated in this study. We had 246 participants from the United States, 4 from Canada, and 1 from France. The largest number of participants in the US (50%) was from our state or adjoining states (Florida, Georgia, and Alabama). In the dog-owning group, 90 companions identified themselves as participating in sports with their dogs, 58 companions identified themselves as pet companions (no sports participation), 16 companions identified themselves as previously participating in sports, and 120 participants chose not to identify themselves as participating in sports, pets, or previously participating in sports (undeclared). There were no demographic differences among dog companions; therefore, we combined them into one group.

4.2. Participant Demographics

Demographics for dog companions and non-dog companions are included in Table 1. The reported diagnoses for dog and non-dog companions are in Table 2.

Table 1. Participant demographics.

	Dog Companions	Non-Dog Companions	Statistics
Age (years old)	61 ± 7 (n = 252)	58 ± 6 (n = 64)	NS
Height (cm)	165 ± 7	169 ± 14	NS
Weight (Kg)	75 ± 17	75 ± 24	NS
BMI (Kg/m^2)	27 ± 6	27 ± 9	NS
Medical diagnoses (number)	3 ± 2	2 ± 1	F(1273) = 0.7, $p < 0.001$, $\eta^2 = 0.086$
Medications (number)	2 ± 1	1 ± 1	F(1219) = 15.5, $p = 0.001$, $\eta^2 = 0.066$

Mean ± standard deviation; NS = non-significant.

4.3. Satisfaction with Life and Interpersonal Communication Competence

We saw no difference in the satisfaction with life score among dog owner groups, so we combined them into one group. Satisfaction with life scores were higher for dog companions (compared to non-dog companions; see Figure 1A for a summary of the data). Interpersonal communication competence score was also higher in the dog companions

compared to non-dog companions (t (296) = 5.2, $p < 0.001$, Cohen's d = 0.82); see Figure 1B for a data summary). For the subscales, empathy and immediacy had a Cohen's d of 0.9 or greater. Empathy was 11 ± 1.6 in dog companions and 9.5 ± 1.7 in non-dog companions (t (296) = 7, $p < 0.001$). Immediacy was 12.6 ± 1.8 in dog companions and 10.2 ± 2.7 in non-dog companions (t (296) = 8, $p < 0.001$).

Table 2. Medical diagnoses reported by the participants.

Medical Diagnoses	Dog Companions (Number of People)	Non-Dog Companions (Number of People)
Alzheimer's disease	0	1
Heart failure	0	2
Prostate problems	0	0
Bleeding disorder	1	0
Heart attack	1	2
Atrial fibrillation	2	2
Heart disease	3	2
Jaundice/liver disease	3	1
Kidney disease	3	1
Seizure/epilepsy	4	0
Stroke	4	0
Ulcers	5	4
Glaucoma	6	2
Hip replacement	6	2
Urinary incontinence	8	1
Irritable bowel syndrome	14	2
Colon polyps	15	3
Osteoporosis	16	5
Knee replacement	18	0
Osteopenia	18	4
Anemia	19	10
Hemorrhoids	20	5
other	23	0
Cataracts	27	4
Diabetes/prediabetes	28	0
Asthma	29	9
Heart burn	29	5
Cancer	32	1
Anxiety	45	5
Thyroid disease	45	7
Depression	50	3
High cholesterol	50	8
Migraines/headaches	55	3
High blood pressure	60	13
Arthritis	77	11

4.4. DAWGs Care and Walking of the Dog

Dog companions were asked the primary reason they own a dog. Pet/companionship was the most common answer (undeclared, 92%; sports, 85%; pet, 67%; and previous sports, 71%). All participants (n = 166) reported that their dogs were kept primarily indoors.

Companions reported that they walked their dogs (on or off leash) 5 ± 3 days per week (n = 156) for 1 ± 1 walk per day. Twenty companions reported never walking their dog.

Companions reported that the duration of walks with their dogs was 37 ± 23 min long (n = 158). There were no group differences. This volume of walking resulted in an average of 326 ± 262 min of walking per week. Twenty-four companions reported walking more than 500 min per week with their dogs.

The most common location to walk was in the neighborhood (71%). A smaller number of companions reported walking in a public park (8%) and an isolated trail/open field (21%).

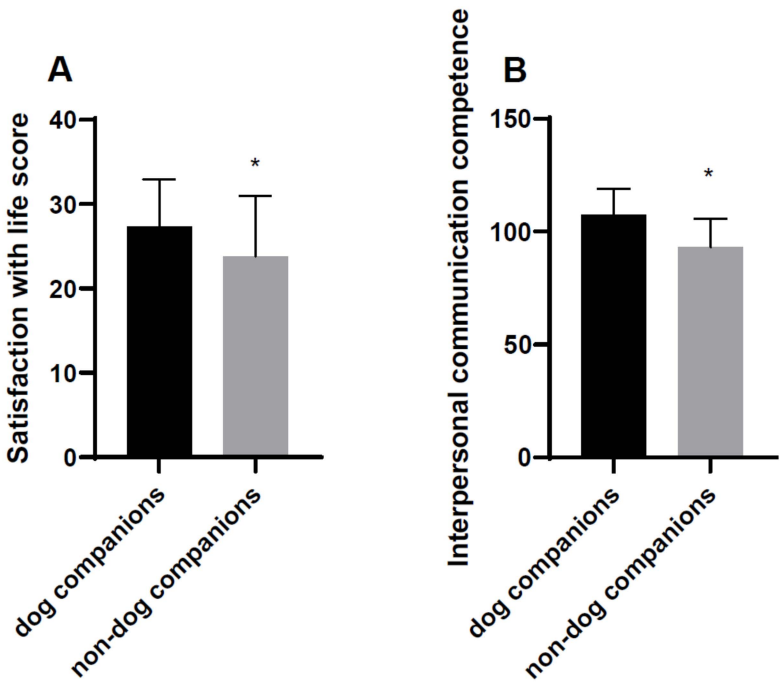

Figure 1. Differences in the total scores for the satisfaction with life scale (**A**) and the interpersonal communication competence scale (**B**) for the dog companions and non-dog companions. * $p < 0.001$ different from dog companions.

A total of 94% of companions reported that they had a yard (n = 165). The size of the yard varied, with 19% reporting a small yard, 37% reporting a medium yard, and 22% each reporting a large or very large yard (n = 156). A total of 90% of companions reported that their dogs were allowed to run free in the yard, while 87% reported that they had some form of fencing for their yards (n = 156).

Support for walking the dog from friends (sum of 7-question Likert: 11 ± 5; max score: 28) and family (14 ± 7; max score: 28) was generally low (n = 161 friends, n = 110 family). However, the confidence that the owner would persist in walking the dog regardless of barriers was high (sum of 10-question Likert: 39 ± 8; max score: 50; n = 162) and was an average of four (agree) on the Likert scale. Companions were asked about motivational factors for walking their dogs. The most commonly cited reasons were the person's health (15%), the dogs' health (16%), and the dog's enjoyment (16%). Factors that discouraged people from walking were mostly weather (63%).

4.5. Reported Physical Activity

A portion of the DAWGS survey is a traditional physical activity assessment that includes the amount of vigorous, moderate, and regular walking activity in the last week. Table 3 is a summary of the findings. Dog companions and non-dog companions spent similar amounts of time per week on vigorous activity. However, the number of days per week dog companions participated in moderate activity was higher than in non-dog companions. Dog companions also reported walking more days per week and for a longer time than non-dog companions.

4.6. MDORS Scale: Relationship with Dog (for Dog Companions Only)

The undeclared group did not complete this scale and was eliminated from the analysis. Sports dog companions had an average MDORS score of 89 ± 20 (n = 90), the pet companions had an average score of 90 ± 18 (n = 58), and the previous sports companions had an average score of 92 ± 19 (n = 16). There were no significant differences among the groups.

Table 3. Physical activity results from DAWGS.

	Dog Companions (n = 164)	Non-Dog Companions (n = 35)	Statistics
Days per week of vigorous activity	3 ± 2	2 ± 2	NS
Minutes per day spent on vigorous activity	42 ± 71	29 ± 21	NS
Kilocalories of vigorous activity	1099 ± 2799	621 ± 77	NS
Days per week of moderate activity	4 ± 2	3 ± 2	F(1191) = 6.3, $p = 0.01$, $\eta^2 = 0.032$
Minutes per day spent on moderate activity	51 ± 81	34 ± 20	NS
Kilocalories of moderate activity	798 ± 1742	957 ± 1002	NS
Days per week of walking at least 10 min	6 ± 2	4 ± 2	F(1192) = 31.4, $p < 0.001$, $\eta^2 = 0.140$
Minutes per day walking	84 ± 128	39 ± 43	F(1191) = 4.1, $p = 0.045$, $\eta^2 = 0.021$

Mean ± standard deviation; NS = non-significant.

4.7. Motivation (Sports Companions)

A total of 53 out of the 90 sports companions chose to participate in the Sports Motivation Scale. The total score was 88 ± 25 (score range: 196). For the subscales (score range: 28): the intrinsic motivation-to-know score was 19 ± 6; intrinsic motivation-to-accomplish was 18 ± 5; intrinsic motivation-to-experience stimulation was 19 ± 5; extrinsic motivation identified was 14 ± 6; extrinsic motivation introjected was 9 ± 6; extrinsic motivation external regulation was 8 ± 3; and amotivation was 6 ± 3.

4.8. In-Person Testing

Twenty-four dog companions and seven non-dog companions participated in the in-person testing. The average age of the dog companions was (61 ± 8 years) and the non-dog companions was (69 ± 7 years). The difference in BMI reported by the participants (in questionnaire) and the measured BMI was −2.54 ± 6.9 kg/m^2 in dog companions and 0.42 ± 0.65 kg/m^2 in non-dog companions. Measured percent fat was 36 ± 8% in dog companions and 30 ± 10% in non-dog companions. Systolic blood pressure was 124 ± 22 mmHg in dog companions and non-dog companions. Diastolic blood pressure was 80 ± 11 in dog companions and 72 ± 8 mmHg in non-dog companions.

4.9. The 6 Min Walk Test

Resting heart rate was 74 ± 13 beats per minute in the dog companions and 77 ± 7 beats per minute in the non-dog companions. Dog companions walked with their dogs for 521.7 ± 62.1 m (rate: 87 ± 10 m/min) and non-dog companions walked 566.1 ± 195.1 m (rate: 94 ± 33 m/min). The heart rate at the end of the 6 min walk test was 113 ± 21 beats per minute in the dog-owning group and 112 ± 16 beats per minute in the non-dog-owning group. The change in heart rate (exercise–rest) was 38 ± 13 beats per minute in the dog companions and 35 ± 17 beats per minute in non-dog companions.

4.10. Chair Stand and Handgrip Tests

The dog companions were able to complete an average of 15 ± 4 chair stands and the non-dog companions completed an average of 15 ± 5 chair stands. The three handgrip trials were averaged into a single score. The dog companions gripped 27 ± 6 kg and the non-dog companions gripped 25 ± 3 kg. There were no significant differences between the groups.

4.11. Dog in Lab Testing

4.11.1. Body Condition

The dogs examined by the researchers (pelvic circumference and hock-to-stifle measurements in the formula) were found to have 13 ± 6% fat. However, the owner-measured percent fat (using their questionnaire answers and the same formula) was 19 ± 7. Companions overestimated their dogs' percent fat by 6 ± 6%. Pelvic circumference measurements were quite accurate when comparing the companions' measurements versus the researchers' measurements (0.81 ± 10% difference), but hock-to-stifle measurements were more inaccurate (−11 ± 15% difference). The Purina Body Condition scale measured by the researchers was 6 ± 1. The Purina scale estimated by the companions was 5 ± 1.

4.11.2. The 6 Min Walk Test

The average dog heart rate at rest was 90 ± 21 beats per minute (n = 24) and was 135 ± 29 beats per minute immediately following exercise.

5. Discussion

This study was a unique combination of online questionnaire and in-person testing of women over 50 years old that were dog companions and non-dog companions. We originally categorized dog companions as sports, pets, or previous sports. We hypothesized that sports dog companions would have superior results compared to pet companions. However, we saw no differences among the dog companion groups and combined them into one group. When comparing dog companions and non-dog companions, the dog companions had more medical diagnoses and took more prescriptions than the non-dog companions. However, satisfaction with life and interpersonal communication competence were higher among dog companions. Dog companions did more moderate intensity exercise and walked more minutes per week compared to non-dog companions. In-person testing revealed that dog companions and non-dog companions had similar fitness levels, which were comparable or better than the age-matched reference values. Overall, having a dog companion may provide motivation to exercise regularly and boost life satisfaction in women over 50. However, participation in sports did not result in additional benefits of dog companionship.

5.1. Participant Demographics

Our dog companions reported 1.5 times as many medical diagnoses and two times the number of medications prescribed compared to non-dog companions. The most common diagnoses in the dog-owning and non-dog-owning groups were arthritis and high blood pressure. A number of studies have investigated the relationship between pet companionship and health with the overall conclusion that owning dogs does improve health, but the mechanisms are unclear [3]. For example, Krittanawong et al. [53] demonstrated that owning a pet reduced the risk of systemic hypertension, but not other cardiovascular diseases. However, most of their pet companions were men. In the current study, only 1.6% of dog-owning women (n = 5) reported that they had heart disease or stroke, while 5% of non-dog-owning women (n = 6) reported that they had heart disease or stroke. In agreement with this, Ogechi et al. [54] showed that women who owned pets had low rates of CVD death and stroke. Aiba et al. [55] reported that pet companions with lifestyle-related diseases have a more favorable autonomic balance compared to non-pet companions. This had more to do with owning cats, however, rather than dogs. This generally suggests that there may be an actual physiological effect of dog companionship, but it is still unclear.

5.2. Satisfaction with Life and Interpersonal Communication Competence

We found that satisfaction with life was higher among dog companions, compared to non-dog companions. Diener et al. [31] reported satisfaction with life scores similar to our study in a sample of older people from varied backgrounds. In a large Canadian study, satisfaction with life was only higher with pets if the person lived alone or was

divorced. Otherwise, there was a negative correlation between life satisfaction and pet companionship [32]. Curl et al. [56] reported no difference in life satisfaction with dog companionship, but did find that dog companionship promoted social interaction. However, Ramirez and Hernandez [57] reported no difference in life satisfaction, but dog companions perceived themselves as healthier than non-dog companions. We saw no enhanced benefit of dog sports participation, suggesting that sports participation does not result in an added satisfaction with life over dog companionship itself.

Interpersonal communication competence was higher in dog companions compared to non-dog companions in the current study. In particular, the subscales for empathy and immediacy were higher in the dog companions, compared to non-dog companions. Empathy means the ability to understand another person's emotional state. Immediacy means that they are approachable and willing to communicate [35]. Our participants' scores of interpersonal communication competence were considerably higher than scores reported for nursing students [58]. In a study by Query et al. [59], they investigated interpersonal communication competence in elderly people (mostly females) with a mean age of 75 years old. They found that people with higher interpersonal communication competence had larger social networks and were associated with social support satisfaction. Older adults that had higher social support are also more likely to exercise [60,61] and is a factor in reducing depression and anxiety [23,24]. Dog companionship results in higher reported levels of socialization and interpersonal communication in many studies [22,25,26]. From our study, interpersonal communication competence was higher in dog companions, but was not enhanced by dog sports participation.

5.3. Dog Care and Walking Benefits and Barriers

5.3.1. Physical Activity

In the current study, dog companions walked more days per week, had more days walking at least for 10 min, and had double the number of minutes walked per day compared to non-dog companions. This finding is consistent with other studies that have demonstrated similar findings in the general population [62], in postmenopausal women [12], and in older community-dwelling adults [63]. Physical activity as measured in this study was no different in the dog companion groups, suggesting that people who participate in sports do not perform more physical activity compared to pet companions.

5.3.2. Relationship with the Dog

The MDORS scores for our dog-owning group was lower than that reported by Calvo et al. [64] in Spanish dog companions, Dutch dog companions [65], and Danish dog companions [66]. This suggests that from our dog companions' perspectives, the benefits to perceived costs of dog companionship are a bit lower than in European countries.

5.3.3. Motivation

The Sports Motivation Scale [36] is used in a variety of sports to evaluate intrinsic and extrinsic motivation [38]. In comparison to others, our subscale scores were similar to dog sports competitors [18], Canadian University athletes [36], and Canadian junior college athletes [67], indicating a high degree of intrinsic motivation and relatively low external motivation and amotivation. This focus of motivation was also described for dog obedience competitors [68]. This suggests that the dog sports competitors in this study are highly motivated by personal goals.

5.3.4. Fitness Testing in Person

The combined group (dog and non-dog companions) BMI was 26.9 kg/m^2. There is some controversy regarding the BMI cutoff for obesity in postmenopausal women. If we use the BMI cutoff of 24.84 kg/m^2 [69], 55% of our participants were obese. However, using 35% fat as our reference value [69], 48% of our participants were obese. The average percent fat of

all participants was 34.8% fat. These numbers are similar to those of Banack et al. [69]. There is a lack of consensus about percent fat cutoff for obesity in postmenopausal women [69].

We used the 6 min walk test as a general measure of cardiorespiratory fitness. The women in our study walked 532 m on average, which exceeded the average for healthy women [41,42] and was similar to results from 60 to 69 year old women reported by Steffen et al. [43]. Our participants had an average of 26.4 kg (both groups combined) of handgrip strength, which exceeded the average reported for women aged 60–69 [70]. Our participants' average was in the 50th percentile for women [71,72]. Our participants completed an average of 15 chair stands in 30 s. This is the 75th percentile for women of this age [71]. Overall, the women in this study who participated in the in-person testing had good fitness compared to other women of a similar age. The dog 6 min walk test was also consistent with results from Manens et al. [49] and Swimmer and Rozanski [48] in healthy dogs. For the in-laboratory testing, we compared the anthropometric measurements made by the owner when completing the questionnaire to the measurements conducted by the researcher during in-person testing for participants who completed both. We found that companions tend to incorrectly measure the hock-to-stifle measurement, resulting in a higher body fat estimate. This is likely due to a poor understanding of canine anatomy. However, when companions rated their dog's body condition (Purina 9-point scale), they rated them as leaner than the researchers. Companions' poor understanding of their dog's body condition is an important but persistent issue in the literature [73–76].

6. Limitations

One major limitation is honesty in online questionnaires. All participants identified as women over 50 years old who either owned or did not own a dog; this is impossible to verify. We also assume that their answers to the questionnaires were honest. For the in-person testing, there is bias because people who volunteer to participate in fitness tests are typically more fit. This appeared to be the case since our women were above average on some fitness measures compared to population statistics. Also, since this was in-person testing, we were limited to women who lived in the local area. This university town is affluent, and the women are likely more active. We had a small number of participants for the in-person testing. This is also a limitation of the data.

Another limitation to our conclusions is that this is a non-experimental design and therefore, we cannot say that dog companionship exclusively caused these results. We did not take into account factors such as housing situation, living situation, partnership status, and socioeconomic status.

7. Conclusions

In conclusion, dog-owning women over 50 years old reported more medical problems than non-dog companions, but reported more physical activity, better satisfaction with life, and interpersonal communication competence. Dog sports participation did not result in enhanced physical activity, life satisfaction, and interpersonal competence. In-person testing revealed that dog companions and non-dog companions had similar fitness levels, which were comparable or better than the age-matched reference values. Overall, owning dogs may provide motivation to exercise regularly and boost life satisfaction in women over 50. This may enhance healthy aging in these women. However, dog sports participation does not enhance the benefits of dog companionship.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/jal4010001/s1, Information Letter and Eligibility Questions.

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Data Availability Statement: Data is available at https://heidikluess.wixsite.com/data-kluess-lab.

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