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Dog-Walking as a Catalyst for Physical Activity: Mitigating the Risk of Sarcopenia and Frailty in Older Adults

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Abstract
Background: Sarcopenia and frailty are common geriatric syndromes associated with falls, disability, hospitalization and mortality. Physical inactivity is a modifiable factor contributing to both conditions. Dog walking has been proposed as a practical and socially engaging form of habitual physical activity that may improve adherence in older adults.
Aim: To evaluate whether dog walking can increase physical activity and thereby reduce risk factors for sarcopenia and frailty in older adults.
Material and methods: A structured narrative review was conducted using PubMed/MEDLINE-indexed articles, WHO guidance, geriatric consensus statements, systematic reviews, cohort studies and injury-epidemiology studies. Evidence was organized into domains concerning physical activity, mobility, frailty, sarcopenia and dog-walking-related injuries.
Results: Dog ownership and dog walking were consistently associated with higher physical activity, greater daily step counts and increased likelihood of meeting activity recommendations. Evidence suggests possible benefits for mobility and reduced sedentary behavior, although most studies are observational and causality remains uncertain. Current guidelines and randomized-trial syntheses indicate that resistance and multicomponent exercise remain the core evidence-based interventions for sarcopenia and frailty. Dog walking should therefore be considered an adherence-supporting behavior rather than a stand-alone therapy. Injury studies identified clinically relevant risks, including falls, fractures and leash-related upper-limb trauma.
Conclusions: Dog walking may be recommended to selected robust or prefrail older adults as part of a broader physical activity strategy. It should be combined with resistance exercise, balance training and nutritional optimization, while accounting for fall risk, dog behavior and environmental safety

Keywords: dog walking; physical activity; sarcopenia; frailty; older adults; geriatrics;

Abbreviations

Abbreviation	Definition
AWGS	Asian Working Group for Sarcopenia
EWGSOP2	European Working Group on Sarcopenia in Older People 2

GRADE	Grading of Recommendations Assessment, Development and Evaluation
ICFSR	International Conference on Frailty and Sarcopenia Research
MVPA	moderate-to-vigorous physical activity
RCT	randomized controlled trial
SARC-F	Strength, Assistance with walking, Rise from a chair, Climb stairs, Falls questionnaire
SPPB	Short Physical Performance Battery
TUG	Timed Up and Go
WHO	World Health Organization

Table 1. *Abbreviations used in the manuscript. Source: compiled by the author from acronyms, diagnostic frameworks and clinical instruments used in this review, principally WHO 2020 physical activity guidelines, EWGSOP2 sarcopenia consensus, ICFSR sarcopenia guideline and the GRADE framework [1-4].*

1. Introduction

Population aging has intensified the clinical importance of geriatric syndromes that compromise independence, mobility and resilience. Sarcopenia and frailty are among the most clinically consequential of these syndromes because they predict falls, disability, hospitalization, long-term care needs and mortality. Sarcopenia is now conceptualized as a skeletal-muscle disease rooted in adverse muscle changes across the life course. The EWGSOP2 consensus emphasizes low muscle strength as the primary diagnostic criterion, reduced muscle quantity or quality as confirmatory, and poor physical performance as an indicator of severe sarcopenia [2].

Frailty is broader and multidimensional. It reflects reduced physiological reserve and increased vulnerability to stressors, often involving weakness, slowness, exhaustion, low physical activity, malnutrition, cognitive vulnerability, multimorbidity and social vulnerability. Physical inactivity is one of the few modifiable contributors shared by both sarcopenia and frailty. WHO physical activity guidance recommends that older adults engage in regular aerobic activity, muscle-strengthening activity and multicomponent physical activity emphasizing functional balance and strength [1].

Dog walking is clinically interesting because it is not merely “exercise” in the conventional prescriptive sense. It is a routine-bound behavior reinforced by animal care, obligation, companionship, outdoor exposure and social interaction. These features may help overcome one of the major limitations of exercise prescriptions in geriatric practice: long-term adherence. However, dog walking also introduces specific hazards, including leash-related injuries, falls, fractures and upper-limb trauma. Therefore, dog walking must be evaluated as a potential behavioral catalyst for activity rather than as a stand-alone exercise therapy.

This manuscript addresses the following question: can regular dog walking act as a clinically meaningful catalyst for physical activity and thereby mitigate risk factors for sarcopenia and frailty in older adults?

2. Methods

2.1 Review design

This manuscript is a structured, critical narrative review with PRISMA-style documentation and GRADE-informed certainty appraisal. It is not a registered systematic review and does not include a de novo meta-analysis. A scoping-review framing is also appropriate for this topic because the evidence base is heterogeneous, partly indirect and distributed across gerontology, physical activity, human-animal interaction, sarcopenia and injury epidemiology.

2.2 Evidence sources and search concepts

Evidence was drawn from PubMed/MEDLINE-indexed articles, PubMed Central full-text records, journal publisher pages, WHO guidance, geriatric consensus statements, systematic reviews, network meta-analyses, cohort studies and injury surveillance studies. Representative search concepts included dog walking, dog

ownership, older adults, physical activity, sedentary behavior, frailty, sarcopenia, mobility, falls, fear of falling, leash injuries and fractures.

2.3 Eligibility criteria

Studies were prioritized if they addressed older adults or clinically relevant geriatric outcomes; evaluated dog walking, dog ownership, pet ownership or habitual walking exposure; reported physical activity, sedentary behavior, mobility, falls, frailty, disability, sarcopenia or injury outcomes; and were peer-reviewed with identifiable bibliographic metadata and DOI where available. Excluded sources included animal-only studies, canine-health studies without human geriatric outcomes, non-peer-reviewed commentary, blog or social-media content, and papers where dog ownership was not analytically relevant.

2.4 Evidence grading

Certainty was graded narratively using GRADE-informed criteria: study design, risk of bias, consistency, directness, precision, biological plausibility, residual confounding and applicability to clinical geriatrics. Because dog-walking studies are largely observational, certainty for causal claims was generally downgraded. Randomized-trial evidence in the manuscript applies mainly to exercise and nutrition interventions for sarcopenia, not to dog walking itself.

3. PICO framework

Population: community-dwelling older adults, typically aged at least 60-65 years, particularly those at risk of sedentary behavior, prefrailty, sarcopenia, mobility decline, falls, fear of falling, social isolation or functional loss.
Intervention or exposure: regular dog walking, dog ownership associated with walking, or dog-related habitual outdoor walking.
Comparator: non-dog owners, dog owners who do not regularly walk their dog, usual activity, or lower physical activity exposure.
Outcomes: daily steps, walking time, moderate-to-vigorous physical activity, sedentary time, gait speed, Timed Up and Go, grip strength, chair-stand performance, sarcopenia risk, frailty risk, falls, fear of falling, disability, quality of life and dog-walking-related injuries.

4. PRISMA-style flow summary

Stage	Summary
Records identified	Literature on dog walking, dog ownership, physical activity, frailty, sarcopenia, disability, mobility, falls and injury.
Records screened	Peer-reviewed human studies, guidelines, systematic reviews, meta-analyses and cohort studies.
Records excluded	Non-human studies, dog-health-only studies, non-geriatric or low-relevance records and non-peer-reviewed sources.
Evidence included	Direct dog-walking/activity studies, pet ownership/frailty studies, sarcopenia exercise evidence, WHO/geriatric guidelines and dog-walking injury studies.
Quantitative synthesis	Not performed because of heterogeneity and predominance of observational dog-walking data.

***Table 2**. PRISMA-style flow summary for the structured narrative review. Source: prepared by the author from the review eligibility criteria, search domains and study-selection logic described in the Methods section; this table is a narrative PRISMA-style summary rather than a registered systematic review flow diagram.*

5. Results

5.1 Evidence map

Evidence domain	Main study types	Principal conclusion	GRADE-informed certainty
Dog walking and physical activity	Observational studies, accelerometry	Dog walking/ownership is associated with higher steps, walking time and physical activity guideline attainment.	Low-moderate
Dog walking and mobility/falls/fear of falling	Cross-sectional cohort	Regular dog walking is associated with better mobility and lower odds of falls/fear of falling, but causality is uncertain.	Low
Pet ownership and frailty	Systematic review, longitudinal cohorts	Pet ownership, particularly dog ownership, may be associated with lower frailty risk, but evidence is limited.	Low
Physical activity and frailty prevention	Systematic review, guideline	Physical activity probably reduces frailty risk in adults aged 65 years and older.	Moderate
Exercise and sarcopenia	Guidelines, RCT syntheses, network meta-analyses	Resistance and multicomponent exercise improve strength and physical performance in sarcopenia.	Moderate-high
Dog-walking injury risk	Emergency department surveillance, fracture studies, reviews	Dog walking can cause clinically relevant injuries, especially in older adults and women.	Moderate

Table 3. *Evidence map and GRADE-informed certainty by evidence domain. Source: synthesized by the author from the included guideline, systematic-review, cohort, accelerometry and injury-epidemiology literature [1-22].*

5.2 Dog walking and physical activity

The most robust direct evidence concerns dog walking as a driver of physical activity. Dall et al. conducted a longitudinal case-controlled study using objective free-living activity measurement in community-dwelling older adults. The study addressed a major limitation of earlier work by moving beyond self-report and evaluating walking and sedentary behavior using activity monitoring [5].

Westgarth et al. examined dog ownership and physical activity in a UK community and found that dog owners had substantially greater odds of meeting physical activity guidelines. Their study reported that the odds of achieving 150 minutes per week of physical activity were approximately fourfold higher among dog owners than non-dog owners [6]. Curl et al. further highlighted that dog walking, rather than dog ownership alone, was the behavior most closely linked with physical activity and physical-health indicators in older adults [7].

Ballin et al. studied 70-year-old individuals using accelerometer-measured activity and found that dog ownership was associated with higher daily light physical activity, moderate-to-vigorous physical activity and daily steps [8]. Wu et al. also suggested that dog ownership may support maintenance of physical activity during poor weather, implying that dog-related routines may buffer environmental barriers to activity [9].

The key clinical inference is that dog walking may act as an adherence scaffold. Unlike many prescribed exercise programs, dog walking is embedded in daily routine and reinforced by responsibility for another living being. This is particularly relevant in older adults, for whom motivation, loneliness, low mood, pain, fear of falling, weather and lack of structure commonly reduce activity.
GRADE: low-to-moderate. Associations are consistent and several studies use objective activity measurement, but residual confounding, healthy-owner bias, socioeconomic differences and reverse causation remain important limitations.

5.3 Dog walking, mobility, falls and fear of falling

Gallagher et al. examined regular dog walking in later life using data from The Irish Longitudinal Study on Ageing. The study assessed whether regular dog walking was associated with reduced likelihood of falls, fear of falling and mobility problems in community-dwelling older adults [15]. This is clinically important because it moves beyond activity volume and addresses geriatric outcomes directly relevant to frailty trajectories.
The findings are plausible: repeated walking exposure may support gait endurance, confidence, outdoor mobility and reduced sedentary time. Nevertheless, the design remains observational. Older adults capable of regularly walking a dog may already have better gait, balance, cognition, neighborhood conditions, comorbidity profile or social engagement. Directionality therefore remains uncertain: dog walking may improve mobility, preserved mobility may enable dog walking, or both may occur simultaneously.
GRADE: low. Dog walking may be associated with better mobility and lower fear of falling, but current data do not justify describing dog walking as proven fall prevention.

5.4 Pet ownership and frailty

Kojima et al. conducted a systematic review of pet ownership and frailty among community-dwelling older adults. The review found only a limited number of eligible studies and concluded that pet ownership may be associated with lower frailty risk, while emphasizing the need for further research [12].
Taniguchi et al. evaluated dog and cat ownership and incident frailty among community-dwelling older Japanese adults. The study suggested that experience of dog or cat ownership may be associated with incident frailty, but adjustment for physical function, physical activity and social variables attenuated some associations [13]. This attenuation is clinically informative because it suggests that the apparent benefit of ownership may be mediated or confounded by activity, social participation, outdoor exposure and baseline function.
A subsequent PLOS ONE study by Taniguchi et al. reported that dog ownership was associated with lower risk of disability onset in an older Japanese population [14].
GRADE: low. Dog ownership and dog walking may be markers or facilitators of healthier aging, but the evidence does not establish dog ownership as a causal anti-frailty intervention.

5.5 Dog walking and sarcopenia: direct evidence gap

A central finding of this review is the absence of strong direct evidence that dog walking alone prevents or treats sarcopenia. This matters because sarcopenia is primarily characterized by low muscle strength and impaired muscle quantity or quality. Walking can support mobility and reduce sedentary behavior, but it usually does not provide sufficient progressive resistance stimulus to produce clinically meaningful improvements in muscle strength or hypertrophy.
EWGSOP2 defines sarcopenia using low muscle strength as the central feature, while low muscle quantity or quality confirms diagnosis and poor physical performance indicates severity [2]. The ICFSR guideline recommends physical activity, particularly resistance-based activity, as a central intervention for sarcopenia screening, diagnosis and management [3].
Wu et al. synthesized RCT evidence and reported that exercise, nutrition and combined exercise-nutrition interventions can improve sarcopenia-related outcomes in older adults [16]. Shen et al. performed a systematic review and network meta-analysis comparing different exercise types in older people with sarcopenia, reinforcing the importance of structured exercise rather than unstructured walking alone [17].
GRADE for resistance and multicomponent exercise in sarcopenia: moderate-to-high. GRADE for dog walking alone preventing or treating sarcopenia: very low.

5.6 General physical activity and frailty prevention

WHO guidance recommends regular physical activity for older adults, including aerobic physical activity, muscle-strengthening activity and multicomponent functional balance training [1]. Oliveira et al. reviewed evidence on physical activity for prevention of frailty and sarcopenia in older adults to inform WHO guidance. They concluded that physical activity probably prevents frailty among people aged 65 years and older, while the effect on sarcopenia prevention remains less certain [4].
Dog walking fits the “all movement counts” principle, but WHO guidance for older adults also emphasizes muscle strengthening, balance and functional training. Dog walking may therefore help with the aerobic and behavioral dimensions of geriatric activity, but it should not replace resistance or balance training.

GRADE for physical activity preventing frailty: moderate. GRADE for dog walking specifically preventing frailty: low.

5.7 Safety and adverse events

Dog walking can increase activity but also introduces injury risk. Maxson et al. examined dog-walking-related injuries among adults presenting to U.S. emergency departments from 2001 to 2020, highlighting dog walking as a clinically relevant injury context [19]. Pirruccio et al. examined fractures among adults aged 65 years and older associated with walking leashed dogs [20]. Rosa and Buckley reviewed leash-related injuries and reported that such injuries appear to have increased, particularly among women older than 65 years [21]. Lim et al. focused on hand and wrist injuries and emphasized the burden of leash-related upper-limb trauma, especially among older and female dog walkers [22].

Dog walking therefore has a dual nature in geriatrics: it may preserve activity but may also expose vulnerable adults to falls, leash injuries and fractures. Important risk modifiers include prior falls, osteoporosis, cognitive impairment, neuropathy, Parkinsonism, vestibular disease, visual impairment, poor grip strength, sedative or antihypertensive polypharmacy, icy pavements, poor lighting, uneven terrain, dog size, dog reactivity and leash type.

GRADE for injury risk: moderate. Dog walking should be recommended with safety screening and individualized risk mitigation, not indiscriminately.

6. Discussion

6.1 Principal findings

The most defensible synthesis is that dog walking is a behavioral catalyst for physical activity rather than a direct therapy for sarcopenia or frailty. The early parts of the evidence chain are relatively plausible and consistent: dog ownership and dog walking are associated with increased walking and steps; increased physical activity is associated with better geriatric outcomes; structured physical activity probably reduces frailty risk; and resistance/multicomponent exercise improves sarcopenia-related outcomes. The weak link is the final causal claim that dog walking itself prevents sarcopenia or reverses frailty.

6.2 Why dog walking may be clinically valuable

A purely physiological view may underestimate dog walking. Its clinical value may lie primarily in behavioral medicine: daily routine, external cueing, responsibility to the animal, emotional reward, social contact, outdoor exposure and reduced reliance on internal motivation. These mechanisms are relevant in older adults because isolation, depression, pain, low confidence and fear of falling often reduce adherence to conventional exercise prescriptions.

6.3 Why dog walking is insufficient for sarcopenia

The central limitation is lack of progressive overload. Sarcopenia management requires interventions that improve strength, muscle power, muscle quality and functional performance. Dog walking may maintain ambulatory capacity and reduce inactivity but does not reliably challenge major muscle groups at sufficient intensity to reverse low strength or low lean mass. It should therefore be combined with progressive resistance training, sit-to-stand and chair-rise exercises, hip abductor and knee extensor strengthening, calf raises, step-ups, balance training, adequate protein intake and management of pain, malnutrition, depression and multimorbidity.

6.4 Conceptual model: benefit and harm pathways

A useful conceptual model contains two parallel pathways. The benefit pathway is: dog walking → routine and external motivation → increased walking time and steps → reduced sedentary exposure → improved mobility and functional reserve → possible reduction in frailty-related risk. The harm pathway is: dog walking → leash forces, pulling, uneven terrain and dual-task demands → falls, fractures and hand/wrist injuries → possible functional decline. Clinical use requires maximizing the first pathway while minimizing the second.

7. Clinical implementation framework

7.1 Screening before recommending dog walking

A brief geriatric screen should include falls history, fracture and osteoporosis history, gait speed, Timed Up and Go, 5-times-sit-to-stand test, grip strength, SARC-F or SARC-CalF, Clinical Frailty Scale, cognition, vision, medication review, orthostatic symptoms, neuropathy or Parkinsonism, dog size, temperament, training, leash behavior, route safety and weather conditions.

7.2 Practical prescription

For a suitable older adult, a clinically reasonable prescription is: walk the dog on flat, familiar routes 4-7 days per week, beginning with 10-15 minutes per session and progressing toward 30 minutes as tolerated. Combine this with resistance training 2-3 times weekly and balance or functional exercises at least 2-3 times weekly.

7.3 Patient stratification

Clinical group	Dog-walking recommendation	Rationale
Robust older adult	Encourage as part of aerobic activity and daily step goals.	Benefit likely outweighs risk if dog is controlled and route is safe.
Prefrail older adult	Encourage with added resistance and balance training.	Dog walking may support adherence but does not replace strength training.
Mild frailty	Consider short, supervised, predictable routes after fall-risk assessment.	Risk-benefit balance depends on mobility, dog behavior and environment.
Recurrent faller	Avoid unsupervised dog walking until fall risk is addressed.	Potential for serious injury may exceed activity benefit.
Severe osteoporosis or prior hip fracture	Individualized decision; avoid large or pulling dogs.	Fracture consequences are high.
Cognitive impairment	Caregiver-supervised walking only when safe.	Dual-tasking and hazard recognition may be impaired.
Reactive or poorly trained dog	Dog training or alternative activity before recommendation.	Dog behavior is a major modifiable risk factor.

Table 4. Clinical risk stratification for dog-walking recommendations in older adults. Source: developed by the author from geriatric fall-risk principles, sarcopenia/frailty guidance and dog-walking injury evidence [1-4,19-22].

7.4 Safety counseling

Recommended harm-reduction measures include using a short non-retractable leash; avoiding wrapping the leash around fingers, hand or wrist; considering a no-pull harness; avoiding icy, poorly lit or uneven terrain; avoiding phone use while walking; using appropriate footwear; training the dog to avoid pulling or crossing in front; choosing predictable routes; and walking with a companion if fall risk is elevated.

8. Proposed future trial

A high-quality randomized controlled trial is needed to test dog walking as an adherence intervention rather than as a stand-alone sarcopenia therapy.

Domain	Proposed design
Design	Multicenter, pragmatic, assessor-blinded randomized controlled trial.
Population	Adults aged 70 years or older with low physical activity, prefrailty, probable sarcopenia or slow gait speed.
Arms	1) usual physical activity advice; 2) dog-walking prescription plus leash-safety education; 3) resistance and balance training; 4) dog-walking prescription plus resistance and balance training.

Primary outcome	Change in Short Physical Performance Battery or gait speed at 12 months.
Secondary outcomes	Grip strength, 5-times-sit-to-stand, Timed Up and Go, appendicular lean mass, daily steps, MVPA, sedentary time, incident frailty, falls, fear of falling, quality of life, loneliness, injuries and adherence.
Hypothesis	Dog walking improves adherence and daily activity, while resistance training drives sarcopenia-specific gains. The combined intervention may improve real-world adherence and functional outcomes.

Table 5. Proposed pragmatic randomized controlled trial to evaluate dog walking as an adherence-enhancing activity intervention. Source: designed by the author from the evidence gaps identified in the dog-walking literature and standard geriatric outcomes used in sarcopenia and frailty research [1-5,16-18].

9. Limitations of the evidence

First, most dog-walking studies are observational; residual confounding and reverse causation are substantial concerns. Second, dog ownership is not equivalent to dog walking. The active exposure is walking behavior, not ownership itself. Third, sarcopenia-specific outcomes are rarely measured in dog-walking studies; most report steps, activity, mobility, falls or disability rather than grip strength, muscle mass or EWGSOP2-defined sarcopenia. Fourth, dog-related variables are often poorly characterized. Dog size, temperament, leash behavior, training, route type and environmental hazards may substantially modify risk and benefit. Fifth, injury risk may be undercounted because many minor injuries do not present to emergency departments.

10. Conclusions

Dog walking is a promising, low-cost and socially embedded catalyst for physical activity in later life. It is associated with higher walking volume, higher step counts and greater likelihood of meeting physical activity recommendations. It may also be associated with better mobility and lower fear of falling, although causal certainty is limited.

Dog walking should not be presented as a proven treatment for sarcopenia or frailty. For sarcopenia, progressive resistance training remains the core evidence-based intervention. For frailty, multicomponent physical activity programs, nutrition, fall prevention and comprehensive geriatric assessment remain central.

The most clinically defensible recommendation is that dog walking may be recommended to selected robust or prefrail older adults as part of a broader geriatric physical activity plan, provided that fall risk, dog behavior, leash safety, environment and comorbidities are assessed. It should be combined with resistance exercise, balance training, adequate nutrition and periodic functional reassessment.

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