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Encouraging Dog Walking for Health Promotion and Disease Prevention

Abstract: Regular physical activity is associated with numerous health benefits, including the prevention of many chronic diseases and conditions or a reduction in their adverse effects. Intervention studies suggest that promoting dog walking among dog owners who do not routinely walk their dogs may be an effective strategy for increasing and maintaining regular physical activity. Strategies that emphasize the value of dog walking for both dogs and people, promote the context-dependent repetition of dog walking, enhance the social-interaction benefits, encourage family dog walking, and ensure availability of public space for dog walking may encourage increased dog walking. Research also supports organizing buddy systems via “loaner” dogs to facilitate informal walking by dog owners and non-dog owners. Given the number of homes that have dogs, strategies that promote dog walking could be effective at increasing physical activity levels among a significant proportion of the population. Maximizing the potential for dog walking to positively influence the health of individual people (and dogs) will only occur

through implementing programs with broad population-level reach. Policies that facilitate dog walking at the community and population levels, such as “dogs allowed” places, off-leash zones, and dog-friendly built environments and parks, may contribute to greater physical activity through dog walking.

Americans.¹ Similar physical activity guidelines exist for the United Kingdom,² Canada,³ and Australia.⁴ Importantly, physical activity bouts do not need to be long in duration to promote health; bouts of 10 minutes of moderate-to-vigorous intensity physical activity are beneficial for disease prevention and control,⁵ and even light activity such as

 Walking dogs has been shown to promote engagement in and adherence to regular physical activity. 

Keywords: dog; review; walking; physical activity; health promotion

Introduction

Physical Activity Recommendations

Physical activity reduces the risk of premature death, supports positive mental health, and enhances healthy aging.¹ In adults, as little as 150 minutes per week of brisk walking can yield significant health benefits, according to the 2008 Physical Activity Guidelines for

moderately paced walking is beneficial.^{6,7}

Despite the health benefits of regular physical activity and the ongoing delivery of public health campaigns encouraging people to do more physical activity, millions of people worldwide do not meet recommended levels. In the United States, less than 50% of adults meet physical activity guidelines,⁸ with only 44% of Australian adults,⁹ 52% of Canadian adults,¹⁰ and 61% adults in the United Kingdom¹¹ meeting recommended levels. Unfortunately, nearly half of all individuals who begin formal exercise programs drop out

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within 6 months.¹² This lack of adherence may be related to the nature of many of these exercise programs and point to an urgent need for new and more effective approaches to increase physical activity levels.¹³ It has been suggested that there is a need for a “paradigm shift” in the prescription of physical activity to one that involves the prescription of “purposeful” activity such as walking or biking to destinations or walking the dog.¹²

Walking is a low-cost activity that if undertaken at recommended levels could reduce the incidence of chronic disease and the associated health care costs.¹⁴ Walking requires no expensive equipment or gym membership; most people are able to do it; it can be incorporated into daily tasks; and people can easily vary the amount of energy they expend by varying the frequency, intensity, and duration of their walks as needed.¹⁵ Walking is the most common and popular form of physical activity for many adults.¹⁶ The 2015 release of *Step It Up! The U.S. Surgeon General's Call to Action to Promote Walking and Walkable Communities* underscores the importance of increasing walking and walkability as a strategy not only to improve physical health but also to make communities safer, support social cohesion, reduce air pollution, and benefit local economies.¹⁵ A novel strategy for improving population levels of walking may be lying right at our feet. Dog walking has the potential to increase overall levels of walking and has been associated with a number of associated individual and community-level physical, mental, and social health benefits.¹⁷⁻¹⁹

The Potential of Dog Walking to Increase Physical Activity

Dog ownership by itself has been associated with health benefits and a reduction in medical costs²⁰; a greater likelihood of surviving a heart attack²¹; lower blood pressure, triglyceride, and cholesterol levels²²; and better emotional and psychological health.²³ A longitudinal study found that pet owners make 15% fewer annual visits to the

doctor than nonowners, and people who continuously own a pet are healthier than those who cease to own a pet or who never had one.²⁰ Furthermore, a 2013 American Heart Association Scientific Statement on “Pet Ownership and Cardiovascular Risk” concluded that pet ownership, particularly dog ownership, may be reasonable for reducing cardiovascular disease risk and that the data are most robust for a relationship between dog ownership and cardiovascular disease risk reduction, particularly dog ownership and increased physical activity, primarily through dog walking.²⁴

In addition to the wider benefits of having a dog, walking dogs has been shown to promote engagement in and adherence to regular physical activity.^{25,26} A meta-analysis of 29 published studies examining dog owner and non-dog owner physical activity found that dog owners compared with non-dog owners reported more minutes per week of physical activity (median: dog owners = 329; non-dog owners = 277) and/or walking (median: dog owners = 129; non-dog owners = 111).²⁵ Nevertheless, the best estimates available suggest that only 60% of dog owners walk with their dog at all.²⁵ The role that dogs play in facilitating walking in their owners is due to several factors, the most significant regarding the dog-owner relationship, in particular the motivation provided by the dog to walk.²⁷ Closely related to an owner's perception of the motivation their dog provides to walk is the sense of responsibility to walk their dog; dog owners who report feeling a sense of responsibility to walk their dog have a higher level of physical activity than those who do not report the same degree of personal responsibility.²⁸ Dogs also provide social support by being an exercise companion.^{12,28-31} Walking with a dog has also been found to increase walkers' feelings of safety and security, particularly in women.³²

The potential of dog walking as a strategy to increase levels of walking and overall health is apparent when considering the high levels of pet ownership in many developed countries.

The United States has 83 million dogs with almost 44% of US households having at least one dog.³³ There are estimated to be 4.2 million pet dogs in Australia; 19 dogs for every 100 people³⁴; 31% to 46% of Canadians own dogs³⁵ and 9 million dogs reside in households in the United Kingdom.³⁶ Given the importance of increasing health-enhancing physical activity and the number of homes that have dogs, encouraging, supporting, and facilitating dog walking could be an effective strategy for increasing regular physical activity among a significant proportion of the population.

Aim and Scope of This Review

The aims of this article were to (a) review evidence from longitudinal observational and intervention studies using dog walking as a strategy for increasing physical activity levels; (b) review evidence of the influence of the physical and policy environment on where and how people walk with their dog; and (c) provide recommendations for implementing dog walking in population-wide practice to improve physical activity levels and health.

Evidence for Dog Walking as a Strategy to Increase Physical Activity Levels

To date, there have been several small-scale longitudinal observational and intervention studies designed to promote dog walking as a means of increasing physical activity.

Longitudinal Observational Studies

Findings from 2 natural experiments found that dog acquisition results in people walking more.^{30,37} Serpell's study followed new pet owners for 10 months and assessed self-reported frequency and duration of recreational walks.³⁷ New dog owners were more likely to increase the frequency and duration of recreational walks over 10 months compared with new cat owners and non-pet owners.³⁷ Furthermore, Cutt et al found that after 12 months of

follow-up, people who acquired a dog accumulated approximately 48 minutes per week of recreational walking compared with just 12 minutes per week by people who remained non-dog owners ($P < .05$).³⁰ Similar findings have been observed in older adults. A cohort study of older adults examined the relationship between walking among dog owners and non-dog owners over 3 years.³⁸ At 3-year follow-up, dog walkers were twice as likely to meet physical activity guidelines compared with non-dog owners or non-dog walkers.³⁸ To date only one study has published findings from an evaluation of a community-based health promotion project that included dog walking as a strategy to increase physical activity levels.³⁹ The Australian “10,000 steps Rockhampton” project aimed to encourage dog walking through brochures and posters including information on the benefits to both human and canine health; however, while the overall project was successful in increasing community levels of physical activity, the dog walking promotion component was not fully evaluated.³⁹

Intervention Studies

Overall, findings from the handful of intervention studies lend support for the role of dog walking in physical activity promotion. Of the 7 dog walking intervention studies published to date, 6 were randomized controlled trials⁴⁰⁻⁴⁵ and one utilized a pre-post design.⁴⁶ The latter study was successful in reducing participant weight, increasing physical activity, and maintaining a high adherence rate to a “loaner” dog (dogs from an animal shelter) walking program.⁴⁶ Dog handlers were low-income residents of a subsidized housing unit and walked dogs with participants ($N = 26$) 5 times a week for either 26 or 50 weeks. The 50-week program had a 72% adherence rate.⁴⁶ It is worth noting that the use of loaner dogs in this study may mean that the findings are less relevant for strategies aimed at increasing dog walking in the general dog-owning population.

Various intervention strategies have been tested so far, including overweight people exercising with overweight pets⁴²; delivery of a one-time educational information about the benefits of exercise for dogs⁴⁴; veterinary counseling on dog walking⁴¹; utilization of online social networks to promote weekly neighborhood dog walks⁴⁵; encouraging family dog walking⁴³; or weekly email messages to promote benefits and reduce barriers to dog walking.⁴⁷ The People and Pets Exercising Together study was a 1-year controlled weight loss study that recruited overweight people with and without overweight dogs.⁴² Participants met weekly for the first 16 weeks, then once a month at months 5, 6, 9, and 12. Meetings were led by a registered dietitian who instructed participants in recognizing and adopting healthy eating, exercise, and coping patterns. At 12-month follow-up, there was no significant difference in the increase in time spent in physical activity between the dog owners and non-dog owners; however, dog owners accumulated two thirds of their total weekly physical activity with their dog.⁴²

In the Children, Parents, and Pets Exercising Together study, Morrison and colleagues provided a 10-week family-based intervention that included 3 home visits, 2 phone calls, and 2 text messages targeting parents, children, and the dog to be active together.⁴³ The intervention was delivered by physical activity specialists and an animal behaviorist. Overall, there were no significant differences between intervention ($N = 13$ families) and control ($N = 15$ families) groups for parent or child accelerometer measured moderate-vigorous physical activity, nor self-report weekly minutes of dog walking.⁴³ Participants reported the study as successful in providing sufficient information for safe dog walking and motivation to increase dog walking.⁴³ In a separate study, an email-based intervention provided biweekly emails for 4 weeks and weekly emails for 8 weeks.⁴⁷ These emails targeted the human and canine benefits of dog walking and provided motivational cues to increase dog

walking. Findings showed that participants in the intervention group accumulated significantly more weekly minutes of dog walking than the control group.⁴⁰ Immediately postintervention, the intervention group reported an average of 79.4 ± 53.7 weekly minutes of dog walking compared to 19.4 ± 23.9 weekly minutes in the control group ($P < .05$). These differences remained significant at 6-month follow-up ($P < .05$); however, at 12 months the intervention group averaged 80.0 ± 134.4 weekly minutes of dog walking while the control group averaged 18.6 ± 21.4 weekly minutes of dog walking ($P < .10$). This study's longer follow-up period provides evidence of the effectiveness of promoting dog walking long term.

Finally, 2 interventions used a single contact to increase physical activity via dog walking^{41,44} by providing educational material (either by mail or in-person during a veterinary visit) outlining the benefits of dog walking and dog walking tips. Rhodes and colleagues' study showed that providing education about the health benefits of dog walking resulted in significant increases in dog walking among owners.⁴⁴ However, both the intervention and control groups significantly increased their physical activity, making it difficult to determine the effectiveness of the intervention as delivered, but also highlighting that even minimal information about the importance of dog walking for canine health may be beneficial.⁴⁸ Other research suggests that the subjective norm of family, friends, and in particular a local veterinarian can influence dog walking behavior.^{27,31}

Overall, the findings from the intervention studies conducted to date suggest that promoting dog walking among dog owners who do not routinely walk their dogs may be an effective strategy for increasing and maintaining regular physical activity. However, these studies can mostly be considered pilot or feasibility trials and thus further intervention research is required to provide stronger evidence of the effectiveness of intervention strategies to increase physical activity through dog

walking. Future intervention studies should consider the use of established physical activity behavior change theories, large representative samples, blinded randomization, longer follow-up postintervention (ideally 12 months), objective measures of physical activity, walking and dog walking behavior, and measurement of the level of adherence to the intervention strategy. Further intervention studies are also required with other subgroups in the population such as children and older adults as well as other countries and cultures where dog-keeping practices, population density, and urban environments may differ.

Evidence of the Influence of the Physical and Policy Environment on Where and How People Walk With Their Dog

The neighborhood built environment is that part of the physical environment that is human-made (eg, streets, buildings, facilities) and which is in close proximity to a person's home (ie, typically within a 10-15 minute walk from home).⁴⁹ A wealth of evidence exists in support for the influence of the neighborhood built environment on walking.^{50,51} This evidence also suggests that specific built environment characteristics may support walking undertaken for different purposes (eg, transportation, leisure).⁵² A small but growing body of evidence shows that the neighborhood built environment may be important for supporting dog walking.^{17,27} The influence of the neighborhood environment on dog walking may be particularly relevant because approximately 50% to 60% of all dog walking is undertaken within residential neighborhoods.^{31,53,54}

Qualitative findings suggest that the physical activity of dog owners and non-dog owners are associated with some shared but also behavior-specific built environment characteristics. Dog owners report that the availability and quality of sidewalks, safety, lighting, and attractive parks influence their dog

walking behavior.^{55,56} There are, however, built environment barriers and facilitators that dog owners identify as particularly important for dog walking.^{55,57} The availability of waste bags, trash bins, presence of dog waste, dog-related signage, presence of natural wildlife, availability of destinations to walk to with their dog, and the availability of specific exercise areas where dogs are allowed are considered important for supporting dog walking.^{55,56} In particular, dog owners want to be able to walk their dogs off-leash.^{27,53,55}

Quantitative studies provide some support for the qualitative findings on the effect of the neighborhood built environment on dog walking. McCormack et al⁵⁸ found that compared with those who resided in high walkable neighborhoods (ie, grid street pattern), those residing in less walkable neighborhoods (ie, non-grid street pattern) had lower odds of walking their dog in a usual week. In contrast, a study in older adults found no significant differences in the proportion of frequent (≥ 4 times/week) and infrequent (< 4 times/week) dog walkers in terms of their objectively measured neighborhood street layout, proportion of green space, human or dog population densities.⁵⁹ Other studies have found no association between dog walking and self-report neighborhood functional characteristics⁵⁴ or aesthetics.^{54,60} However, Richards et al found that a neighborhood walking environment score (comprising of large, open grassy areas; paths provide interesting walks; interesting sights while walking; trees/shrubs), but not a dog-specific walking environment score (ie, presence of a local dog walking group; dog-waste bags and bins; off-leash and dog permitted signage; playground separate from dog area), was positively associated with dog walking.⁶¹ It is possible that the influence of the neighborhood built environment on dog walking behavior varies according to whether dog owners are attempting to initiate dog walking (or not) and how often they walk their dogs once they have begun the behavior. For example, a

study of Japanese adults' perceptions of the built environment (neighborhood availability of destinations to take dog and off-leash areas, safety, and aesthetics) was positively associated with the stages of change for dog walking (ie, transtheoretical model of behavior change stages of precontemplation, contemplation, preparation, action, and maintenance).^{62,63}

Streets, parks, ovals, and bush land are popular destinations for dog walkers.⁵³ Parks, and in particular those that offer dog-specific features, are important for encouraging people to walk their dogs more often.^{31,64,65} Moreover, the proximity of dog-specific and non-dog-specific parks influences an owner's park visits and dog walking behavior.^{31,53,58,66,67} For example, Cutt et al⁵³ found that owners with a park with dog supportive features (ie, dog litter bags and trash cans and dog-related signage) within a 1.6 km street network distance of their homes were more likely to walk with their dogs for at least 90 minutes per week. A lack of shade, seating, lighting, agility equipment, water-play areas, dog-friendly features, and washrooms may discourage park visits and in turn dog walking.^{55,56,65,66} While not specific to dog walking, findings from a natural experiment, which included the installation of a fenced-in off-leash area along with other environment modifications within a multi-use park, was associated with an increase in walking and vigorous-intensity physical activity among visitors.⁶⁸ Finally, despite some evidence that dog owners who visit dog-specific fenced-in parks spend much of their time stationary,⁶⁵ dog owners who take their dogs to parks in general are more likely to walk their dogs.⁶⁰ Even if dog walkers remain stationary within parks, walking dogs to and from parks can make an important contribution to walking levels.

Dogs can also offer a sense of security for their owners when in public places. Positive perceptions of neighborhood traffic and personal safety have been found to be associated with an increased likelihood of dog walking among women⁵⁴ and girls⁶⁹ but not males.

However, the presence of dogs may deter some people walking locally, including those with and without dogs.^{69,70} Furthermore, actual and perceived dog behavior, such as aggressiveness toward people and other dogs, may deter owners and nonowners from walking their dogs.^{56,57,60,70}

Strategies for increasing dog walking among owners may also need to include a component that educates owners about responsible dog ownership and etiquette especially in public settings where interactions with other dog walkers and non-dog walkers are likely to occur.

Despite some encouraging findings regarding the relationship between the neighborhood built environment and dog walking, the evidence to date has several limitations. Most studies are cross-sectional and do not statistically adjust for residential self-selection, which limits causal inferences. For example, dog walkers may seek out neighborhoods with characteristics that will facilitate their preference for dog walking.⁷¹ Nevertheless, there appears to be preliminary evidence suggesting that improving neighborhood walkability is not only beneficial for supporting transportation and recreational types of local walking, but may also specifically encourage dog walking.

Summary of Intervention Strategies for Promoting Dog Walking

At present, the heterogeneity of findings and limited number of intervention studies makes identification of the key intervention strategies for promoting dog walking challenging. Nevertheless, when findings from intervention studies are considered in tandem with the recent review of dog walking correlates from observational studies,²⁷ certain practice-relevant strategies for increasing physical activity through dog walking may be promising.

The most significant correlate of dog walking across several studies is a strong sense of owner responsibility and attachment to the dog.²⁷ Furthermore, education of the benefits of walking for

the dog has had positive outcomes for dog walking and physical activity levels in behavior change interventions.^{40,44}

Recent research has also shown that this sense of dog walking responsibility is driven more from an understanding of the value of walking to canine health and personal enjoyment (autonomous motives) than mere feelings of guilt (controlled motives).⁷² This suggests that the promotion of dog-owner responsibility is a logical strategy for promoting dog walking and for health professionals to recommend. Thus, physical activity promotion strategies that impart on dog owners the value of dog walking to both the dog and owner and not a sense of obligatory requirement may be more successful.

In order to change individual dog walking behavior, perceived barriers may need to be overcome. These are likely to operate through an owner's sense of responsibility/motivation to walk the dog, which could mean changing perceptions about the walking needs of the dog itself, or owner self-efficacy to walk the dog could positively impact an owner's motivation to walk their dog. Evidence regarding dog-specific barriers and motivators (such as dog type and behavior) is generally mixed²⁷; however, perceptions about how much walking a dog of a particular size, breed, or age requires require attention. Although data regarding actual exercise requirements of different breeds of dog are lacking, sensible recommendations based on expert opinion (veterinarian) are possible and interventions should seek to change common dog-specific perceived barriers such as "small dogs or old dogs require little exercise." Owners may also need to be referred to a qualified dog training professional to address barriers such as the dog's negative behavior or difficulty walking (eg, pulling on the leash).

Future intervention strategies that use veterinarians to deliver messages about the importance of daily dog walking might influence owners' normative beliefs about walking with their dog may be effective.⁴¹ Veterinarians have an important role to play because many dog owners regard their veterinarian as a

well-respected source of pet health advice.^{73,74} Family, friends, and others dog owners may also influence dog walking behavior. A number of studies provide evidence for increased social interaction, social capital, and sense of community facilitated by owning and walking a dog.^{18,27,75-78} However, it is unclear whether this association is generally motivating to people to walk their dog more, or simply an outcome of dog walking. For some (eg, elderly, family caregivers, and socially isolated), the social interaction benefits of dog walking may be an important facet of why they take the dog out for a walk and greet people.^{19,70}

Another potentially important aspect of promoting dog walking behavior is to help owners form walking habits. Habit formation research has seen promising results in general physical activity behavior research.^{79,80} Habit was the strongest predictor of dog walking, compared to factors such as attitudes or self-efficacy, in a recent study.⁸¹ Habits represent impulses to perform a behavior initiated via stimulus-response bonds⁷⁹ and contribute to physical activity largely via repeated consistency in behavioral practices, salient cues associated with behavioral initiation, and affectively rewarding behavior.^{82,83} In the case of dog walking, forming habits may help cue both the owner and the dog to regular walking. A dog walking plan that includes context-dependent repetition (same routine each day), with temporal, social, mood, or visual cues⁸⁴ that precede the activity, may be very helpful for encouraging increased dog walking. In addition, dogs are very likely to pick up these consistent cues and provide further reinforcing prompts through their behavior linked to the predictability of routine.

A good practice measure for turning physical activity motivation into action is the formation of plans and tactics that can help overcome barriers and prioritize the behavior over other options during free time.^{85,86} While some dog owners may benefit from building the motivation to regularly walk the dog, at least half of owners need tactics to help turn their

good intentions into walking behavior.⁸¹ Overcoming barriers to dog walking is also a mediator of behavior change.⁴⁰ Thus, helping dog owners to set concrete schedules for dog walking with details on “when, where, and how” (ie, action plans), creating strategies for overcoming relapse (ie, coping plans) and prioritizing dog walking above other behaviors that may be deemed “time wasters” could assist in the promotion of dog walking with individuals who aspire to do more.

As discussed, the social and neighborhood built environments are correlates of regular dog walking. Dog walkers may benefit from the opportunity to socialize and thus regular walking behavior can become the norm within accessible and dog-friendly walking environments.²⁷ This social component of dog walking has seen some promise in behavior change interventions at the community⁴⁵ and family⁴³ levels. Dog walking groups, buddy systems via loaner dogs, and family dog walking time all hold promise as practical strategies for promoting dog walking. A top “10 local dog walks” information practice may also be helpful to suggest places that owners can walk their dogs in safe and accessible environments.

Implementing Dog Walking in Population-Wide Practice

Despite some years of research in the field of encouraging dog walking and health, progress has been slow at the population level. A major challenge with dog walking interventions is their limited application in population-wide practice to date. Research evidence to date has been characterized by a patchwork of small-scale programs and interventions generating pilot-level evidence, with limited effort at scaling them up to the population level.²⁴ These small-scale or pilot community programs have provided examples of relevance to practice, but have seldom been assessed for their generalizability or implemented at scale. Maximizing the potential for dog walking to affect human (and canine) health can

only occur through implementing programs with broader population-level reach.

The Population-at-Risk Is the “Challenge” for Practice

It is well established that dog owners are more active than non-dog owners, primarily through walking more, and are more likely to reach recommended levels of physical activity.²⁵ Findings like these provide a rationale for dog walking and human health, but ignores the inactive (or non-dog walking) population-at-risk among dog owners. Based on population-level research,^{25,29,87,88} at least a third of dogs are not walked regularly (although someone else may be walking them), implying that populations of around 0.8 million Australian, 2.5 million Canadian, 11 million US and 12 million Europeans are physically inactive adults and dog owners. These conservative estimates provide a minimum denominator for practice, with the primary goal being to reach and influence these millions of adults, children, and their underwalked canine companions.

A Framework for Practice: Dog Walking Interventions Across Health Promotion and Preventive Health Settings

Given the population segment defined “at risk” above, urgent strategies with the potential for greater reach are required, alongside evidence-generating research to confirm their effectiveness. In order to profile the potential for dog walking in all preventive settings, a framework for dog walking programs in practice is provided in Table 1; this shows the range of efforts that might target individuals through to large-scale environment changing policies. This framework is based on the socio-ecological model and considers strategies are required at multiple levels^{89,90} and that programs need to emanate from a range of sectors and settings.

Individual Targeted Programs to Increase Dog Walking. The framework starts with individually targeted dog walking behavior change advice in clinical and

other settings (Table 1). Despite the potential for individual advice to encourage physical activity in clinical settings, the evidence base remains limited⁹¹; furthermore, it has been difficult to implement on a wide scale through primary care. Nonetheless, dog walking provides a new vehicle for brief advice to patients and if combined with practitioner’s understanding of their patient’s sense of dog responsibility or commitment it could provide a useful adjunct to brief prevention advice. It is the potential for considering this setting for walking that is new for clinicians. Similarly, the clinician’s (and veterinarians) role in recommending walking to people with chronic disease could and should be broadened to include dog walking.^{92,93}

Group Settings for Promoting Dog Walking. Group settings for health promotion, such as workplaces and schools, pose challenges for recommending dog walking, as many will not have a dog. However, dog walking could be incorporated into workplace walking challenges and competitions and contribute a major source of “steps counted” in workplace wellness.⁹⁴ Community settings are already being trialed for dog walking interventions, as described previously (Table 1). However, methods for scaling these up to reach many thousands of inactive dog owners, prospective dog owners, and people with chronic health problems or special needs remains a practice-based goal. Wide reach is however possible through e-health,⁴⁷ web-based, or social media-driven interventions. Use of social media (eg, Facebook) and other new media may prove more generalizable in recruiting dog owners to participate in community dog walking.

Population-Wide Strategies for Promoting Dog Walking. Dog walking in general physical activity mass media campaigns is well established and has been successfully used in programs such as the “10,000 steps Rockhampton,”⁹⁵ as well as in the 2003 New Zealand “Push

Table 1.

A Typology for Dog Walking Programs in Practice.

Level of Prevention Practice	Program Strategy	Potential Relevance for Dog Walking: Facilitators and Barriers in Different Practice Settings
Individual Targeted Programs	Health professional advice; individualized counseling; primary care/physician's offices	• Potential high population reach
		• Brief advice on dog walking is potentially efficacious
		• Specific "dog walking" advice is potentially stronger due to specificity of the behavior
		• Challenge is scaling up physical activity advice generated from selected primary care settings to widespread delivery of dog walking advice
	Individualized interventions; ehealth; tailored to individual	• Motivator and "reminder" potential of dog walking groups
		• Could be supported by social media, dog walking groups on Facebook and other social media
		• Act as social support and reinforcement
		• Focus on moving from action to maintenance of dog walking behavior
	Disease-based group programs (eg, diabetic patients)	• Potential for referral to dog walking programs to provide physical activity and social support for people with chronic diseases
		• Difficulty in recruiting participants; transport to dog walking venues; may be suitable only for a subset of all walking-group patients
	Veterinarians/animal behaviorists ^a	• Clear messaging for the exercise recommendations of dogs by breed type and age, emphasizing that nearly all dogs benefit physically and psychologically from being walked
		• Reward-based dog training advice to owners to help overcome barriers (eg, dog aggression to people or dogs, pulling on lead, not coming when called) to enjoying dog walking
Group and Organizational Settings	School or worksite settings	• Established as a specific approach for physical activity and mental health promotion (eg, among children with and without disabilities)
		• Consider incorporating dog walking into workplace challenges to increase physical activity
Community Settings	Local-level community programs, neighborhood programs	• Main setting for dog walking is in local communities through dog walking groups and clubs
		• Promote and support "loaner" dog walking groups; groups can be formal (ie, via animal welfare organizations) and informal (ie, via neighbors and friends sharing dog walking duties with owners)
		• Foster use of local facilities, dog walking routes, animal shelter grounds and adjacent routes, park redevelopment, and off-leash areas

(continued)

Table 1. (continued)

Level of Prevention Practice	Program Strategy	Potential Relevance for Dog Walking: Facilitators and Barriers in Different Practice Settings
Population-Wide High Reach Settings	Website or ehealth population-wide interventions	<ul style="list-style-type: none"> Potential for wide population reach, and may fit into scalable strategies, but dog walking may be only one component of physical activity promotion
	Mass media/social marketing campaigns	<ul style="list-style-type: none"> Modelling dog walking behaviors used as an achievable strategy for increasing physical activity in large-scale prevention-focused mass media campaigns
	Policy interventions/large region or national programs	<ul style="list-style-type: none"> Policies at local municipal level around dog walking regulations, infrastructure, and developing dog walking-friendly environments that are compatible with the activities of non-dog walkers
		<ul style="list-style-type: none"> Include dog walking as a specific strategy mentioned in national policy and plans around promoting physical activity

^aIt is recommended that veterinarian/animal behaviorist professionals use reward-based training methods rather than force or intimidation.

Play” campaign⁹⁶ and in the early 2000s in the *Find Thirty Everyday* campaign in Western Australia.⁹⁷ More recently, the US *Everybody Walk! Mass Media* recommended dog walking.⁹⁸ This modeling of dog walking behavior is likely to be well received and effective in encouraging population-level walking.

Population-wide strategies targeted at creating policy and physical environments that promote and support dog walking are likely to be effective. Advocacy for dog walking-oriented policy relevant initiatives are needed, starting with park development, dogs-allowed policies, off-leash zones, and dog-friendly built environments (see Table 1). Furthermore, the provision of parks with dog-friendly features within walking distance to homes could encourage park visits and increase dog walking among owners. At the larger level, allowing dogs on public transport and building and creating more walkable communities will enhance the potential for people to walk dogs in medium- to high-density residential areas in urban environments.^{99,100} From an urban planning perspective, there needs to be consideration for how built environment design can influence different types of physical activity, including dog walking.

Conclusion

Studies have repeatedly demonstrated the potential of dog walking to increase community levels of physical activity. Findings from intervention studies highlight practice-relevant strategies for increasing dog walking such as imparting on dog owners the “personal” and “dog” value of dog walking, assisting owner’s and their dogs to incorporate dog walking as part of their daily routine (ie, habit formation), and highlighting the social benefits of being out and about in the community walking dogs. Dogs may thus be considered a type of readily accessible and widely prevalent “exercise equipment in the home and community.” At the same time, they are sentient beings with needs and preferences of their own; however, it is unlikely that increased exercise would be detrimental to animal welfare. Physical and policy environments that consider the needs of dog walkers are required. Implementing dog walking at the community and population levels requires a more opportunistic approach to advocating for dog walking messages and dog walking strategies in physical activity programs, across diverse community settings. Such programs will enable many in the

community who are inactive dog owners to realize their health potential as regular dog walkers, thus positively impacting on population levels of physical activity.

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Not applicable, because this article does not contain any studies with human or animal subjects.

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