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CLINICAL COMMENTARY

Is there a scientific basis for pet therapy?

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Abstract

Purpose. Pet therapy is a non-pharmacological intervention, but its scientific value is still undefined.

Methods. The first step to identify the papers of interest was the access to the MEDLINE library from 1960 until June 2007 and the Cochrane controlled trials registry.

Results. At present there is consistent evidence of the protective effect against cardiovascular risk, mainly through the moderate exercise prompted by walking a dog. Indeed, walking a dog may contribute to a physically active lifestyle. Moreover, patients suffering from chronic illness are likely to benefit from pet companionship.

Conclusions. There is a contrast between physical effects (for which the evidence is fairly clear) and the psychological benefits (for which the evidence is controversial). Further randomised researches are necessary to convey scientific dignity to the human – animal relationship.

Keywords: *Cardiovascular risk, exercise, pets, walking*

Introduction

Everyone knows that looking after pets can be uplifting, from engaging them in play, grooming them, and preparing their meals to providing them with accessories such as coats and kennels, harnesses, collars and litter boxes. However, although scientific research into the health benefits of pet ownership began 30 years ago, the conclusions are not unequivocal. Terms such as pet therapy, animal companionship and pet ownership have similar connotations but with slight differences. Therapy implies recovery from illness but the expressions animal companionship and pet ownership have no such implications for health. And ‘pet’ is different from ‘animal’ because the former refers to a domesticated companion. Whatever one calls it, two aspects have to be considered when it comes to the possible health effects of owning pets: physical and psychological.

Methods

The review has been developed with a specific selection of papers. The first step to identify the

papers of interest was the access to the MEDLINE library from 1960 until June 2007 and the Cochrane controlled trials registry (Cochrane Library 2007, issue 3). The search condition was very general: (Pet Therapy, Animal Companionship, Animal Ownership) as a general text to be as inclusive as possible. The second step was the reading of the papers in order to identify the arguments to be treated in the review. To get more information about contents or concepts, references of the selected papers were checked for additional publications even without finding selected keywords. Special search was made given for the higher quality studies (randomised controlled trials) or reviews (meta-analysis).

Results

An early study of the effects of animal companionship in 38 children showed that the presence of a friendly dog significantly lowered blood pressure both when the children were at rest and when they were reading [1]. In a clinical population, a prospective study over 1 year dealt with 432 patients who had suffered acute myocardial infarction [2].

Both pet ownership and social support were significant predictors of survival and were independent of other psychosocial factors and physiological status. Subjects were randomly selected from those attending the Cardiac Arrhythmia Suppression Trial sites. A logistic regression indicated that high social support and owning a pet tend to predict survival independent of confounding variables, although the effects were not strong. In particular, dog owners were significantly less likely to die within 1 year than those who did not own dogs. In another study on hypertension, participating pet owners were enrolled in an experimental group treated with Lisinopril (20 mg/d) and matched with a control group who did not own pets but received the same dose of the drug. Six months later, lisinopril therapy had lowered resting blood pressure in both groups, but responses to mental stress were significantly lower among pet owners than the control group. Heart rate, systolic and diastolic blood pressure as well as plasma rennin activity were reduced to a greater extent in the pet owning group [3]. Physical exercise might be the explanation. Dog owners engage in considerably more physical exercise than other members of the population in walking their dogs and the effects are long lasting [4]. They are known to walk significantly longer than non-dog owners and they also have considerably lower serum triglycerides than non-dog owners [5]. It has been demonstrated that moderate exercise, such as frequent walking and recreational activity or weekly sporting activity is beneficial and it is therefore encouraged on health grounds. Indeed light physical activity notably reduces the risk of stroke and heart attack in men both with and without pre-existing ischemic heart disease. Surprisingly perhaps, more vigorous activity confers no additional protection [6]. Dog walking also promotes social interaction. It is known for example that dogs can act as catalysts for making friends, and being part of a group sharing similar interests enhances feelings of well being [7]. Frail elderly subjects and those with chronic age-related disabilities living in nursing homes showed an improvement in their depressive symptoms and a significant decrease in blood pressure through animal interaction. Thus, pets may have a beneficial effect on the psychological well being of the institutionalised elderly, particularly in relation to depression and their perception of the quality of life [8,9]. In a random sample of Canadians [10], those who owned a dog practised more mild to moderate physical activity than those who had no dogs. Acquiring a dog should be interpreted as the intention of people to get a more physically active life among other benefits. Indeed, pet owners are younger, currently married or living with someone, and more physically active than non-pet owners [11]. On the average, the activities of

daily living of subjects who do not own pets deteriorate more than that of subjects who currently own pets, even after adjusting for other variables during a 1-year observation period. Pet ownership strongly modified the relationship between social support and the change in psychological well-being over that period. Pet ownership maintains or slightly enhances activities of daily living of older people. Three years later, subjects who had been dog walkers at baseline are about twice as likely as any other group to achieve suitable walking levels, independent of confounding variables [12]. Dog walkers and non-dog owners experience similar decline in usual and fast walking speed but who walked at least three times per week maintained the initial mobility advantage.

About dementia [13], music (27.1%) was the most frequent form of intervention, followed by skills training (18.8%) and visual barriers (10.4%). The remaining interventions were: exercise (8.3%), bright-light therapy (6.3%), pet therapy (6.3%), sensory integration (6.3%), reality orientation (4.2%), presence (4.2%), hand massage (2.1%) and white noise therapy (2.1%). A study (rated as moderate) found that the presence of a pet dog on a special-care Alzheimer disease unit significantly increased social behaviors. These strategies give promising results in improving: Aggressive, agitated, and disruptive behaviors; Social interaction; Self-care ability; Day – night disturbances; and Wandering. Further researches are warranted to determine extension of the results, type of strategy for each individual and long-term effectiveness. A recent review [14] failed to reach clear results because the studies were generally small. Many sheltered houses host a friendly dog, but it is unknown whether residential pets provide more benefit than visiting ones. However, lowering of arterial pressure, relaxation and interest were found. The duration of the benefit is still unknown. About another severe mental disease, a pilot study suggests a positive effect on anhedonia in 10 chronic schizophrenic patients [15]. Differently from controls they had a better trend towards motivation and more leisure time. The duration of the effect still require further research. In the field of aphasia information is confined to anecdotal description. A patient who suffered from aphasia received both speech therapy and a dog to hasten communication. Apparently, both verbal and non-verbal abilities improved. Potentially, dog ownership may stimulate communicative abilities between patients and their environment [16].

Discussion

The literature is far from unanimous on the psychological benefits of pets. For example, no

association was found between pet ownership and psychological well-being in 995 individuals aged 65 or over living in the community [11]. This was true even though pet ownership maintained or slightly increased activities of daily living over the year-long study. Other investigators failed to detect positive effects in a cross-sectional community-based study of 2551 people aged 60–64 [17]. Pet ownership conferred no health benefit and indeed it was associated with poorer physical and mental health in these individuals. Among the male participants, for example, pet ownership was associated with a higher incidence of depressive symptoms.

The only consistent evidence is the protective effect of pets, and in particular dogs, against cardiovascular complications, probably due to the moderate exercise prompted by their care. Walking does not mean solely moderate exercise, but relaxation and a contact with the surrounding environment, like boulevards, lawns and beaches, thus breaking a possible hectic lifestyle. There is a positive relationship between dog ownership and leisure-time [10]. Indeed, stressful events are dangerous, because they appear to trigger malignant ventricular arrhythmias and myocardial infarction in cardiac patients [18]. A sudden death killed Lord Baskerville, scared by a big and mysterious hound. The character created by Sir Arthur Conan Doyle was recalled [19] to describe observations on the mortality peak in both Chinese and Japanese American Communities, where the fourth day of the month is considered unlucky. Indeed, the words 'death' and 'four' have completely different ideograms, but the sound is the same, i.e. shi. Yet, statistics indicate that those communities have a peak of mortality just on that day, differently from white Americans. White controls, matched on age, sex, marital status, hospital status, location, and cause of death, showed no similar peak in cardiac mortality. Thus, the high cardiac mortality can increase on psychologically stressful occasions in a silent way. Because walking a dog may contribute to a physically active lifestyle, American authors [20] argue that walking dog should be promoted as a strategy that meets the requirement of the task force on Community Preventive Services for Physical Activity. Likewise, Australian authors [21] argue that dog walking should be promoted through national strategies recommending 'Walkies for all by the year 2010' (everybody knows that Australian people are very fond of walking and road running). It has been reckoned that substantial disease prevention and healthcare cost savings of \$175 million per year could be obtained in Australia, if all dog owners walked their dogs.

The potential benefit of dog walking for human health is largely recognised by several authors.

However, the analysis of literature indicates that dog ownership does not mean physical activity. Only 36% walked their dogs at least three times per week [12]. In cross-sectional studies, dog walkers were more likely to achieve 150 min of walking per week and had faster usual walking speeds than non-dog owners (1.20 *vs.* 1.14 m/s and 1.62 *vs.* 1.52 m/s, respectively; $P < 0.01$ for both). In one day 58.9% of dog walkers took two or more walks, 80.2% took at least one walk of 10 min or more, and 42.3% accumulated 30 min or more from walks lasting at least 10 min each [20]. Overall, dog owners walked 18 min per week more than non-dog owners [21]. However, more than half of dog owners did not walk their dogs, and were less likely than non-owners to meet recommended requirements of physical activity sufficient for health benefits.

Thus, dog ownership appears to facilitate walking behavior, but only a low percentage of older dog owners walk their dogs [12]. The mobility advantage of dog ownership was seen only in dog walkers and was similar to that associated with any kind of walking. Although only 23% of the dog owners walked their dogs five or more times per week, the adjusted odds of achieving sufficient physical activity and walking were 57% to 77% higher among dog owners compared with those not owning dogs [22]. Actively encouraging more dog walking may increase community physical activity levels.

More work needs to be done to determine the contribution of ownership, dog type and dog-walking frequency with regard to achieving health-related, physical activity guidelines [23].

The protective effect on depression and mental health of pet ownership is still controversial. Indeed, it must not be taken for granted that things which improve the quality of life have benefits in terms of health. Other things being equal, there is little evidence that living in a beautiful house or owning an important collection of paintings has any effect on physical or mental health.

A number of factors could bias the results in this direction. First, the ownership of fish and birds is not associated with the exercise of walking and the benefits this brings. Second, cross-sectional studies may be subject to bias because elderly people who suffer from either depression or loneliness may be more likely to acquire a pet to have at home.

Although science and pet therapy are still far each other, nevertheless the following statements are valid especially in the field of chronic disabilities. Trained dogs help in preventing stress and hypertension with companionship and moderate exercise. Persons with blindness witnessed increased mobility after a service-dog acquisition in a safe and pleasant way, that conveyed better self-esteem, friendship and closer interpersonal contact [24]. Convincing results

outline significant cardiovascular and behavioural benefits along with those perceptions [25]. Even patients suffering from heart failure improve emotional distress, cardiopulmonary pressures, and neuro-hormone levels [26].

In an age where the old and the sick are deemed useless and therefore ostracised from society, we think that animal companionship should not only be recommended, but encouraged.

Pets, otherwise known as 'companions', alleviate the stress and alienation of old age and illness. A pet is capable of unconditional love and acceptance, making us feel special, understood and needed. Because our animal companions depend so much on our well-being, owning a pet can not only motivate but also dictate our functionality as human beings. In cases where an individual feels alienated due to depression, a pet can gently coax him/her into performing everyday duties, such as getting the person out of bed and out of the house to purchase pet food and other commodities. In return, an animal companion can offer emotional support and understanding. The sound of a cat purring can be as soothing to the mind as classical music; a dog wagging his tail at the sight of his owner can make an individual feel special and loved.

In conclusion, the protective effect of pets, and in particular dogs, against cardiovascular complications should be exploited, but one should consider that dog ownership is different from dog walking, that is much more beneficial. Nevertheless, people perceive pets as important, supportive parts of their lives.

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