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The Human-Animal Bond: How it Can Benefit Health and Well-Being

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UNIVERSITY HONORS PROGRAM

SENIOR PROJECT - APPROVAL

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PROJECT TITLE: The Human-Animal Bond:
How it can Benefit Health and
Well-Being.

I have reviewed this completed senior honors thesis with this student and certify that it is a project commensurate with honors level undergraduate research in this field.

Signed: John C. New, Jr., Faculty Mentor

Date: May 1, 2003

Comments (Optional):

**The Human-Animal Bond:
How it Can Benefit Health and Well-Being**

Lindy Wegenka

May 7, 2003

University Honors Program

Senior Project

The Human-Animal Bond:

How It Can Benefit Health and Well Being

Introduction

People believe that pets are important. This is evident in popular culture where a dog is considered to be 'man's best friend'. There are multiple accounts, articles and stories documenting the extraordinary abilities of some pets to assist, sense danger for, protect and even save their owners. While some of these claims might be questionable at times, the public continues to look for confirmation of the popular belief that pets are somehow good for people. Reports of the benefits individuals have experienced as a result of becoming pet owners are numerous. For example, new pet owners may become calmer, more relaxed, more willing to venture out into the world and interact with new people. While these accounts provide confirmation that at least some people believe that pets can have a positive effect on our well-being, these reports alone do not provide sufficient concrete evidence to validate the idea that people benefit from pets. As a result of this, many studies have been done on the human-animal bond. This research reveals that pets are, in fact, good for people. The physical and psychological health benefits are overwhelmingly evident. Current theories of health provide a way to conceptualize potential physiological benefits for people from their pets.

In the last few decades, members of health professions have come to realize the dramatic impact that interpersonal aspects of a person's life can have on health. This impact was first recognized on psychological disorders, but has since been seen to have an effect on a wide range of diseases and ailments. Social, psychological, and

physiological factors are now all recognized as factors influencing the development and progression of many chronic or stress related diseases. An individual's social and psychological states and even spiritual factors can have a positive effect on health by acting as buffers between stressors and stress-related diseases, or a negative impact by enhancing response to a stressor. Within the last 20 years, recognition of the role of psychological factors in health has grown enormously. The idea that social and psychological factors can mediate the long term effects of stress, led to the investigation of their roles in the development and progression of chronic diseases which are the most common causes of death in modern society. It also provided a rationale for examining the possibility that we obtain health benefits from our pets.

Evidence for Health Benefits from Pets

Pets and Cardiovascular Health

The chronic nature of cardiovascular disease, and its status as a leading cause of death in western societies, has led to studies on the social, psychological and physiological factors in coronary heart disease and their relevance to patient's survival. Social support has already been known to be an important aspect in cardiovascular health. Recently, pet ownership was included as one source of social support expected to benefit individuals with certain risk factors, as well as improving survival rates for patients hospitalized for coronary heart disease. One such study compared risk factors for cardiovascular disease in pet owners and non-owners.³ In this study, accepted risk factors were measured in 5741 participants attending a free, screening clinic at the Baker Medical Research Institute in Melbourne. Blood pressure, plasma cholesterol and triglyceride values were compared in pet owners (n=784) and non-owners (n=4957). The

results of this study showed that pet owners had significantly lower systolic blood and plasma triglycerides than non-owners. In men, pet owners had significantly lower systolic but not diastolic blood pressure than non-owners, as well as lower plasma triglyceride levels and plasma cholesterol levels. In women over 40 years old, systolic but not diastolic pressure was significantly lower in pet owners and plasma triglycerides also tended to be lower. There were no differences in body mass index and self reported smoking habits were similar, but pet owners reported that they took significantly more exercise than non-owners. Also, the socioeconomic profile of pet owners appeared to be comparable. This study showed that pet-owners in that particular clinic had lower levels of accepted risk factors for cardiovascular disease, and this was not explicable on the basis of cigarette smoking, diet, body mass index, or socioeconomic profile. This supports the idea that pet ownership reduces cardiovascular risk factors.

In another study of the relationship between pet ownership and cardiovascular health, pet owners were more likely to be alive one year after discharge from a coronary care unit than non-owners.¹⁰ Only 5.7% of the 53 pet owners compared with 28.2% of the 39 patients who did not own pets died within one year of hospitalization. The possibility that dog owners were generally healthier than other patients because they had to walk their dogs was considered. In order to control for the potential effects of better health being required to care for a dog, dog owners were removed from the data set. The relative survival rates of patients who owned pets other than dogs and those who did not own any pets were then compared. The percentage of people who owned pets other than dogs were alive one year after admission to a coronary care unit was still greater than

people who did not own pets. Thus, even when dog owners were eliminated, survival was more frequent for pet owners than non-owners.

Stress and the Effects of the Presence of a Friendly Animal

In order to understand how pets can provide health benefits for cardiovascular patients and for society as a whole, it is necessary to take a look at how stress affects us. The basic idea was that when people get upset, they have a stress response often called the fight or flight response. This is a coordinated mobilization of the body's systems which includes activation of the sympathetic nervous system, leading to increases in blood pressure and heart and respiratory rate, as well as hormonal changes which prepare the individual to fight or flee from danger. The body uses the changes to maximize the physical exertion required to fight or flee and the physiological levels return to normal after the burst of activity. If the individual does not perform a burst of physical activity, the built up hormones, high blood pressure and other factors continue and there is no quick return to normal levels. While these factors gradually lesson, an additional burden is placed on the body until this occurs. Frequent repetition or sustained periods of the mobilization response can cause damage to the cardiovascular system.

Common stress reduction techniques such as relaxation, positive mental imagery and yoga, rely on helping a person to be less reactive to stressors, to redefine stressors to be less intense, or to remove the built up stress hormones quickly. It was thought that these stress reduction mechanisms might also apply to the effect of pets. Pets could help people either avoid a stress response entirely, by altering a situation that would otherwise be stressful or by mitigating the stress response by decreasing the impact of the stressor.

Furthermore, pets could help individuals remove the built up stress hormones from their bodies more rapidly, by encouraging their owners to exercise.

Thus, it has been hypothesized that pets can decrease anxiety and sympathetic nervous system arousal by providing a pleasant external focus for attention, promoting feelings of safety and providing a source of contact comfort. They can decrease loneliness and depression by providing companionship, promoting an interesting and varied lifestyle and providing an object for nurturing. Certain types of pets could help improve physical fitness by providing a reason to exercise. Pets therefore have the potential to moderate the development of stress related diseases such as coronary heart disease and hypertension. The range of benefits that owners might derive from their pets may not pertain only to pet owners; one could speculate that anyone, not just pet owners, could benefit from the presence of friendly animals.

A friendly animal may cause short-term anti-arousal effects. The lower a person's level of anxiety, the less the sympathetic nervous system is activated and thus the smaller the response to a given stressor. If a scene or situation is perceived as less anxiety-inducing there will be a less extreme physiological response to it. Even an unknown animal can have a positive impact on psychological perceptions and on physiological indicators of stress such as blood pressure and heart rate. A series of studies has documented the anti-arousal effects of friendly animals.^{1,6} People have long thought that the presence of an animal induces changes in perceptions of situations and the people in them. Artists, publicists, and advertisers have used animals effectively to influence our moods and perceptions. Research findings support the positive effects of animals on people's moods and perceptions. The first study to address how the presence

of a friendly animal affects people's perceptions, addressed the effect of the presence of the researcher's dog.⁶ In the study, 10 dog owners and 10 non-owners were exposed to psychological testing in two settings. Each subject was tested in a psychological laboratory, which was considered to be a high stress situation, and in their own home, which was considered to be a low stress situation. For each subject, the researcher was accompanied by a dog to one of these two sessions. The subjects indicated significantly lower anxiety on a psychological checklist and behaved significantly less anxiously in the high stress environment when the dog accompanied the researcher than when no dog was present. There were no differences in the responses of the dog owners and non-owners. Of particular interest was the finding that the subjects paid more attention to the researcher's dog in the high stress than the low stress situation. This suggests that the relaxing external focus of attention or feelings of safety provided by a friendly animal might be particularly important in stressful situations.

Some significant contributions to the understanding of the physiologic effects of human-companion animal bonding have come from studies done in the field of nursing. One such study looked at the differential effects of petting one's own dog and petting a strange dog, and demonstrated that petting a dog with whom a companion bond has been established has a positive cardiovascular effect, with an effect that parallels that of quiet reading.⁵ Based on clinical observations and data from existing studies, researchers have suggested that repeated interaction with a companion animal could have beneficial long-term effects, especially for people experiencing acute or chronic stress. While companion animal physiology studies by nurses have focused mostly on natural settings and resting blood pressure, investigations in psychiatry and psychology have frequently

added the dimension of a stressor. One such study reported significant decreases in blood pressure when people talked to and petted their own dogs as opposed to reading aloud.⁴

The degree to which actually petting an animal is related to health benefits is not entirely clear. Some research suggests that people become attached to their pets as a result of the tactile simulation of petting, other research has documented that people who report high levels of pet attachment need not actually touch their pets to exhibit decreased reactivity to stress.^{12, 23} For example, some studies focused on the degree to which a pet dog can substitute for human social support and demonstrated the heart rate and blood pressure responses to acute stress were moderated by just the presence of a pet in the room. In these studies the presence of best friends and spouses was associated with minimal increases. Even people with high levels of hostility and anger (previously demonstrated to be unable to benefit from social support of people) had their best performance on mental arithmetic tasks and lowest cardiovascular responses when their dogs were present.² Another interesting finding of this study is that, relative to being alone with a spouse, when people were stressed in the presence of both their pets and spouses, blood pressure and heart rate responses diminished and task performance improved, suggesting the presence of a pet can ameliorate to some degree the presence of a spouse. Subjects repeatedly reported that although they perceived other people as critical and evaluative, pets were thought of as nonjudgmental sources of support. In addition, with pets present, tasks such as mental arithmetic and giving a speech were perceived as a challenge whereas in the presence of spouses and friends they were reported as a threat.² Finally, while most people think of a cat or dog at the thought of social support provided by pets, one study provides compelling evidence that attachment

to any species is likely to elicit favorable physiologic responses in pet owners.

Relaxation responses were studied and for a snake owner, stroking a pet snake produced the greatest reductions in blood pressure from baseline.⁸

Companion Animals and the Elderly

As we age, change and transition may become increasingly difficult to cope with. Retirement, death of friends, debilitating illnesses, and forced relocation from cherished homes to retirement communities, are just a few examples of the life changes experienced by seniors. The importance of pets in the mental and physical health of seniors has been a frequent topic of inquiry. One study explored the relationship between experience with pets and personality traits and found that, relative to non pet owners, pet owning seniors responded to their questions in ways that indicated greater nurturance, independence and optimism.¹⁷ Another study showed the effects of pets on residents of nursing homes. In this experiment, a medical director of a nursing home created a completely new environment for residents. This new environment included companion animals consisting of nearly 100 birds (parakeets, lovebirds, finches and canaries) that live in resident's rooms, and two dogs and four cats roam freely throughout the living quarters, interacting with the residents all day. The staff was committed to the eradication of loneliness, helplessness, and boredom. Residents were compared with a control group (residents in a nearby nursing home who were similar in age and cultural background) in order to test the effectiveness of the new environment. Over a two-year period, dramatic reductions among the test group in the use of psychotropic drugs for mind and mood altering. Such reductions are in marked contrast to high national and regional levels of use in United States nursing homes. Another part of the evaluation involved a focus on

mortality rate in the two nursing homes. During the first 18 months following arrival of the animals, there were 15% fewer deaths in the new group, relative to the control group, and as the study progressed, this percentage increased. Residents of both homes had equal levels of function, so people in the test group did not just live longer because they were healthier. Instead, it was suggested that the difference in death rates is related to the fundamental human need for a reason to live. The medical director at the home observed that the patient's commitment to the animals engendered an intense need to keep living in order to care for them.²²

Other studies have been done that demonstrate specific health benefits of pets on seniors. One study explored the effects of social support (human vs. pet animal) on age-related changes in resting blood pressure in 100 women. Participants were 50 young women (mean age 25) and 50 elderly women (mean age 70). All were non-smokers and had normal blood pressure. 25 in each group had a pet cat or dog to which they reported being very attached. The other 25 in each group did not currently have a pet, nor had they had one in their adult lives. The study took place over a 6-month period. Measurements of heart rate, systolic blood pressure were made at weeks 4, 12, and 24 during visits to participants own home; heart rate and blood pressure were recorded every 5 minutes over a 40 minute period. Pet owning participants had their pet with them throughout the experiment. Significant interactions were found between age and appraisal support (having someone to confide in) and age and esteem support, and also between age, pet ownership and blood pressure. Older participants with pets (and low levels of human social support) had blood pressure readings similar to younger subjects with high levels

of human support, suggesting that for people with few human friends and contacts, pets can play a useful role in moderating the effect of aging on blood pressure.¹

Because loneliness is so often cited as the worst aspect of aging, bonds of friendship between seniors and pets have also been studied. For example, one study explored the friendship bonds between elderly people and their pets.¹⁶ Data collection for this survey study took place over ten months and all participants were walking their dogs in a metropolitan area public park. An open-ended questionnaire asked about personal attitudes and feelings toward pets. An especially revealing finding was the high percentage of participants who said that their dogs were their only friends (78% of men and 67% of females), and that the friendship bonds they had with dogs were as strong as any they had experienced with humans. In descriptive responses about relationships with dogs, the respondents described the straightforward interaction devoid of artificial comments and social dealing that is possible with dogs, but not people. This study adds significantly to understanding and appreciation of the meaning of dogs in the lives of elderly people who often are isolated. It found that pets fulfilled their owners' psychological needs for attachment and nurturance. Although the study did not use health as an outcome measure, given what is known about the relationship between health and social support, the findings are significant.

Children with Autism and Attention Deficit Hyperactive and Conduct Disorders and Their Relationships with Companion Animals

Autism most often appears as impairments in communication and in the formation of social relationships. It is thus intriguing that there are a number of reports of children with autism forming what appear to be close relationships with pets. In spite of the

frequent claim that pets are beneficial to people with autism, to date the evidence is largely anecdotal, and it could be thought surprising if it were found that people with autism were able to relate to animals in ways that they were unable to with humans. One study looked at the results from detailed studies of three cases.¹⁸ Three in-depth interviews were conducted with families where there was a young person with autism who was reported to have a close relationship with his pet. All subjects were male, one was aged 22, and two aged 12. The pets were two cats and one rabbit. All subjects had received firm diagnoses of autism. Assessments using the Childhood Autism Rating Scale (CARS) showed one subject to be severely autistic, and two subjects to be moderately autistic. All subjects had histories of aggression towards family members. The interviewee (in each case the mother) was asked to assess the subject's behavior across a number of relationship dimensions with herself, with one other important person in the subject's life, and with the pet. These dimensions include greeting, proximity seeking, the giving and receiving of comfort, conflict, confiding, companionship, sensitivity to the needs of others, and play. The behavior of the pet toward the subject was also investigated. The interview data indicate that all subjects displayed behaviors toward their pet that they rarely, if ever, displayed toward human companions. Some of these behaviors are contrary to DSM-IV diagnostic criteria for autism. In particular pets were sought out for companionship, comfort and confiding in ways never shown to family members. Greater sensitivity toward the needs and feelings of the animal was also apparent, together with a lack of anger and aggression. In spite of a strong dislike by all the subjects to be touched or hugged there was evident enjoyment in tactile comfort with the pets. These results suggest that people with autism may be able to demonstrate

behaviors towards pets that they do not display to people, even family members, and which are akin to those associated with close relationships.

Attention-Deficit Hyperactive Disorder (ADHD) is the most common behavioral disorder in American children today, affecting an estimated 3 1/3 million, or up to 5 percent of children under the age of 18. One study shows that by ages five to seven, half to two-thirds of the children diagnosed as ADHD are hostile and defiant and run the risk of developing conduct disorders in adolescence. Popular treatment includes the use of Ritalin; prescriptions are up more than 390 percent in just four years. One program, created by Dr. Aaron Katcher, offers a new approach for those children whose disorder is so severe they were considered untreatable.¹³ The children involved in the program were boys between the ages of nine and fifteen who were in residential treatment at the Brandywine Treatment Center of the Devereux Foundation in Pennsylvania. The Brandywine Center developed two programs for children with ADHD and Conduct Disorder. One program featured an Outward Bound course where the children learned such activities as rock climbing, canoeing and water safety. The other program was a nature education program for five hours during the week- the Companionable Zoo. The Zoo program was held in a small building housing a collection of small animals: rabbits, gerbils, hamsters, mice, chinchillas, iguanas and other lizards, fish, turtles, doves, chicks, goats and a Vietnamese pig. The students were given only two general rules. First, they had to be gentle with the animals, which included talking softly while in the Zoo; second, they had to respect the animals and each other and avoid speech that devalued each other or the animals. These rules were designed to encourage behaviors that made the children control their impulses and actions. The children were also taught a series of tasks

including learning the general needs of the animals and the biology and care requirements for the animal that the child chose to adopt as his pet. The results of the treatment were significant. For example, the children's attendance was always better in the Zoo than in the Outward Bound program. Also, some students who had made no progress in the regular school program for as long as four years rapidly accomplished learning tasks in the Zoo. Children in the Zoo showed more self-control than either at school or the residences. No child was ever restrained in the Zoo, although it was anticipated that thirty-five such incidents or restraints would normally occur. It was concluded that animal-assisted therapy and education has a large, lasting, and broadly distributed therapeutic effect on highly aggressive, emotionally disturbed children and adolescents with severe learning difficulties. These effects include the following: a decrease in agitated and aggressive behavior, improved cooperation with instructors, enthusiastic interest in learning, and improved behavioral control in their regular school classes.

Conclusions

More than four decades of research focused on the human-animal bond has revealed considerable evidence that pets add an important dimension to our lives. In addition to all of the above mentioned studies, many others also produced significant results. People with borderline hypertension had lower blood pressure on days they took their dogs to work.¹ Seniors who own dogs go to the doctor less than those who do not. In a study of 100 Medicare patients, even the most highly stressed dog owners in the study had 21 percent fewer physician's contacts than non-dog owners.²⁰ Activities of daily living (ADL) level of seniors who did not currently own pets deteriorated more on average than that of respondents who currently owned pets.¹⁷ Pet owners feel less afraid

of being a victim of crime when walking with a dog or sharing a residence with a dog.¹⁹ Pet owners have fewer minor health problems.^{10,19} Pet owners have better psychological well-being.¹⁹ Contact with pets develops nurturing behavior in children who may grow to be more nurturing adults.¹⁴ Having a pet may decrease heart attack mortality by 3%. This translates into 30,000 lives saved annually.¹⁰ Positive self-esteem of children is enhanced by owning a pet.¹⁴ Children's cognitive development can be enhanced by owning a pet.¹⁴ The presence of a dog during a child's physical examination decreases their stress.¹⁵ Children owning pets are more involved in activities such as sports, hobbies, clubs or chores.¹⁴ Children exposed to pets during the first year of life have a lower frequency of allergic rhinitis and asthma.¹¹ People who have AIDS that have pets have less depression and reduced stress. Pets are a major source of support and increase perception of the ability to cope.^{7,21}

Pets should not be considered as a panacea, they will not cure cancer or hypertension. It is also important to remember that living with companion animals involves responsibilities towards that animal, in addition to any benefits that we may receive. However, benefits may be linked to these responsibilities. Owners may benefit from the establishment of structured routines for the feeding, exercising and nurturing required in animal care. Thus, we should not consider pets as drugs to be taken whenever we feel unwell but rather as having the ability to modify our lifestyle and thus enhance our health and quality of life.

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