

# THE THERAPEUTIC NATURE OF THE HUMAN/ANIMAL BOND: IMPLICATIONS FOR INTEGRATIVE PUBLIC HEALTH

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## ABSTRACT

Although the paradigm of "integrative medicine" has weathered many definitions over the past decade, there appears to be consensus that many of its therapies prove beneficial where conventional measures fall short or harbor excessive toxicities. Other potential benefits of an integrative approach include low incidences of significant adverse effects, cost-effectiveness over the course of treatment, and increased patient compliance.

One arena that holds well to such criteria and yet has not drawn the attention of either alternative or conventional medicine is the field of interspecies therapeutics, better known as animal-assisted therapy. Unbeknownst to integrative practitioners, thousands of animal therapy centers employing tens of thousands of trained and credentialed practitioners provide care daily to hundreds of thousands of humans suffering a wide array of physical, psychological, and emotional disorders. Although this article is not intended as an exhaustive scientific review of the literature, it covers the history and philosophy of the field of interspecies therapeutics, and provides representative examples of research supporting efficacy and safety.

## CASE STUDY

Alison is a 10-year old girl who attended a weekend summer camp for autistic children and their families at Whispering Hope Ranch in Payson, Arizona. Whispering Hope was established as a haven where children with cancer, AIDS, renal failure, hemophilia, cerebral palsy, and a multitude of other health challenges can spend unstructured time with other ill children, as well as with parents and siblings. The Ranch is also home to over 100 animals ranging from dogs to ducks and peacocks to pot-bellied pigs. Each animal, in turn, carries a significant disability, either from congenital malformation, injury, or physical and emotional abuse.

Alison was classified as "low-functioning autistic." She refused to make eye contact and is non-verbal, except for a 5-word vocabulary including such words

as "potty," "hungry," and "drink," which have been imprinted upon her through years of speech therapy. Her parents brought her to Whispering Hope Ranch, with the hope that contact with the animals might elicit spontaneous verbalization, or at least bring Alison out of her autistic shell to some degree.

She was brought before Eeyore, a silver and gray donkey who had refused to stand or interact with any human or animal when he was first rescued and brought to the Ranch, and has since fully recovered. "You really want to say hi to Eeyore," repeated the therapist. "Eeyore loves you. Can you say hi to Eeyore?"

Alison's parents were stunned to tears when their daughter spontaneously walked over to the donkey, threw her arms around his neck, and very clearly said, "Hi Eeyore!" Now upon each visit to Whispering Hope Ranch, Alison runs through the property repeating the phrase, "I want Eeyore! Where's Eeyore?"

## INTRODUCTION

The holistic health professional is often identified by his or her capacity to accept the potential validity of medical therapies that may not have undergone the rigorous testing necessary to be considered standard of care. This open-minded approach relates directly to the field of interspecies therapeutics, or as it is more commonly called, "animal-assisted therapy." There are currently more than 2,000 canine programs and at least 650 equine therapy centers in the United States, with thousands more abroad where the field originated. Well-established national organizations train and certify animals, their handlers, and specialized therapists to ensure efficacy and safety in institutions (such as hospitals, cancer centers, and nursing homes) that employ dogs, rabbits, birds, and a variety of other species as helpful companions for people of different ages, illnesses, and disabilities. What is often noted by therapists, parents, and pediatricians, although not yet sufficiently documented, is that such therapies are

inexpensive, have low rates of adverse effects, and often exhibit benefits where other methods find limitations. Yet, when our patients come to us with stories of physical, emotional, and spiritual duress, we overlook interspecies therapeutics as a treatment consideration.

Can we use the reasoning commonly applied to uncommon therapies; that is, lack of scientific evidence to justify a recommendation? There are, in fact, a very respectable number of published studies substantiating the positive health benefits of the human/animal bond, from cardiac disease to depression to dementia. What is most interesting is that the current evolution of this field parallels the position of many other alternative therapies in the 1990s. That is to say, hundreds of thousands of patients are using interspecies therapeutics, and are quite likely to continue using it, with or without the support of science. Perhaps it is time to evaluate its efficacy, safety, and appropriate use.

Not only is the medical application of the human/animal bond growing and developing, but the public desire for animal companionship also seems to be on the rise, perhaps reflecting a cultural loss of physical, psychological, and emotional connection that we know results in adverse health consequences. Indeed, between 1980 and 2000, the number of dogs and cats in the US grew from 98 million to 130 million, with owners spending nearly three times as much money caring for their pets as the federal government spends on welfare programs. It is often reported that pet owners will skip a doctor's visit or prescription refill out of budgetary considerations, while sparing no expense to preserve the life and health of their animal companions.

#### HISTORICAL BENEFITS OF THE HUMAN/ANIMAL BOND

Even before the development of agriculture and the use of plants for medicinal purposes, domesticated wolves apparently romped around the cave with barely domesticated children. These first "pets" appear archeologically between 10,000 and 20,000 years ago, although ancient DNA samples suggest the evolution of wolves to dogs may have occurred up to 100,000 years in the past.

Animals as healers is a concept probably older than the written word. We read that Asklepios, the Greek god of healing, channeled divine power with the assistance of sacred dogs and serpents. Pliny the Elder extolled the psychological benefits of the companionship of lap dogs in the 1st century, and our earliest medical mentor, Hippocrates, described the health benefits of horseback riding in a chapter entitled "Natural Exercise."

Over a century ago, the York Retreat in Yorkshire,

England incorporated rabbits and poultry in the treatment plans of mentally ill patients, and Florence Nightingale—who was rarely seen without her pet owl, Athena—recommended small pets for the chronically ill. In America, shell-shocked veterans of World War I were given dogs for companionship and comfort, and in the 1940s a cooperative effort between the Red Cross and the Army Air Corps convalescent hospital in Pawling, New York employed frogs, turtles, snakes, and farm animals in caring for soldiers recovering from injuries and operational fatigue.

It was not until the 1960s that the scientific study of the human/animal bond took root, as psychologists began noting changes in human-behavior patterns in patients who had acquired animal companions. It took another 20 years before research in this arena moved outside the domains of social work, sociology, and veterinary medicine, and into medical academia. Although a full review of all relevant investigations is beyond the scope of this article, I will comment on a number of studies that are applicable to specific clinical challenges in the delivery of healthcare today.

#### THE HUMAN/ANIMAL BOND AND PHYSICAL HEALTH

The most well-studied effects of interspecies relationships are in the realm of cardiovascular health. Friedmann, et al, examined the survival rates of patients hospitalized after myocardial infarction or with unstable angina. They discovered that 5.7% of pet owners died within one year of discharge, compared with 28.2% of non-pet owners ( $P<.05$ ), all other medical and demographic factors being equal.<sup>1</sup> Such significant results led to an expanded study of 369 patients, which reported an increase in one-year survival in dog owners by a factor of 8.6 over patients who did not own dogs.<sup>2</sup> Allen, et al, gave a dog or cat to 48 New York City stockbrokers, decreasing by half the increase in blood pressure associated with artificially-stressful situations, whether the animal was present or not.<sup>3</sup> The author later demonstrated that pet ownership blunted blood-pressure responses to mental stress in a second group of subjects, while ace-inhibitor therapy did not exhibit a parallel effect under similar conditions.<sup>4</sup>

Researchers in Melbourne, Australia measured cardiac risk factors such as hypercholesterolemia, hypertriglyceridemia, and systolic blood pressure, and found significant elevations in non-pet owners as compared to those with animal companions ( $P<.01$ ).<sup>5</sup> The investigators then consulted the Australian Department of Human Services and Health 1995 *Statistical Overview*. They estimated potential annual savings of \$26.244 million secondary to less frequent outpatient office visits, \$18.856 million from

decreased need for pharmaceutical medications, and \$99.792 million from reduced hospitalization costs, resulting in a total savings to the healthcare system of \$144.892 million, should such reductions in risk factors be extrapolated nationwide.<sup>6,7</sup>

Human/animal interactions appear to have neurochemical effects at the physiological level as well. Odendaal reported significant increases in oxytocin (an indicator of neurochemicals that measure social attachment within a species), prolactin, phenylacetic acid, and dopamine in both humans and dogs during mutual interaction, as well as decreases in cortisol in the humans ( $P < .05$ ).<sup>8</sup> Although such results require reproduction and expansion, they suggest that the health benefits of such interactions are not confined to a placebo effect.

Potential health benefits are not limited to interactions with small animal companions. Bertoli employed a repeated-measures design to demonstrate posture improvement in children with cerebral palsy after therapeutic horseback riding ( $P < .05$ ), along with subjective clinical findings such as decreased fear of movement, decreased hypertonicity, and improved weight-bearing and functional balance skills.<sup>9</sup> A recent study by Benda, et al, on the benefits of hippotherapy (physical therapy on horseback) used remote-surface electromyography to measure muscle activity in children with spastic cerebral palsy. The study results demonstrated an average of over 60% improvement in left/right symmetry in 15 children.<sup>10</sup> This positive change was primarily due to decreases in spastic muscle activity, suggesting a non-invasive initial option to neuro-surgical procedures, injection of botulism toxin, or systemic drug therapy.

A discussion of the physical benefits of interspecies collaboration would not be complete without mentioning the diagnostic power of the canine nose. Studies are currently being conducted to corroborate the ability of a dog to identify, by scent, cutaneous melanomas undetectable to the human eye; and an as-yet unpublished study of 55 people with lung cancer and 31 with breast cancer has claimed 90% diagnostic accuracy with 5 professionally-trained scent dogs to detect cancer in the breath samples of afflicted humans.<sup>11</sup> These results are reported to be consistent over 12,295 separate diagnostic test sessions; better than the known detection rate of radiographic technology.

#### THE HUMAN/ANIMAL BOND AND PSYCHOLOGICAL HEALTH

The physical benefits of interactions with animal companions and therapy animals are relatively simple to measure and understand—cardiac patients get more exercise walking their dogs, and children with cerebral

palsy experience muscle strengthening and increased range of motion of contracted joints through the movement of the horse. It is a bit more difficult, however, to confirm emotional and psychological effects, which is notable in that the majority of therapy animals are employed by hospitals, nursing homes, schoolrooms, prisons, mental health institutions, and in-home healthcare to provide just such support.

The psychosocial benefits become more clear when we consider how our relationships with animal companions may accurately reflect the basic tenets of psychotherapy. An ideal therapist exhibits the capacity to be fully present, remain objective, and demonstrate full acceptance of his or her client. While humans may occasionally embody such qualities, many animals seem to embody such a state naturally. Dogs, in particular, are most often employed as therapy or companion animals due to their tendency to exhibit such unconditional acceptance and eagerness to please.

Perhaps the two demographic populations where such qualities are most needed and appreciated are children and the elderly. Since children are the future of all societies and a graying baby-boom generation will soon represent our greatest social and economic health challenge, any therapy resulting in psychosocial and emotional stability has significant implications for future public health.

Most children today live in a chaotic world of day care, after-school activities, and two-career families. One may wonder whether such compartmentalizing and theoretical weakening of the family unit contributes to the notable rise of depression, ADHD, and destructive social behavior. Animal companions, on the other hand, always have time for play and "patient listening," even when parents and siblings do not, and the effects are measurable. One half of 4th-grade students in Germany report preferring the company of their pets to other children, and 79% choose to confide in their pets when experiencing sadness.<sup>12</sup> When asked in whom they would confide or seek out when sad, angry, or afraid, 42% of 5-year olds elected their family pets.<sup>13</sup> Several other studies have reported increased self-esteem, socialization (especially when disabled), and self-awareness in children with companion animals. Research has suggested that the more dysfunctional the family environment, the more positive the benefit to the child.

A very promising direction for human/animal interaction is in the treatment of autism, which shows a remarkable rise in incidence that is as yet unmatched by effective therapeutic interventions. (This author has heard multiple anecdotal reports of an autistic child, such as Alison, speaking his or her first words to a therapy horse or burro.) When addressing the low-sensory

and affective-arousal levels of autistic children, animals can present powerful multi-sensory stimuli: strong clear sounds, vivid visual impressions, unique smells, and an invitation to touch. Redefer and Goodman reported a sharp increase in social interaction and a decrease in isolation in 12 autistic children after interaction with a dog. The result was fewer autistic behaviors (hand posturing, humming/clicking noises, spinning objects, repetitive jumping, and roaming) and more socially appropriate ones (joining in games, initiating play activities, and reaching for hugs).<sup>14</sup>

Perhaps the most extensive and intriguing research has investigated the emotional and psychological benefits of pet ownership in the aged. Our elderly bear not only the challenges of an aging and infirm body, but also the significant and inescapable burden of loss: of a spouse to death, children to adulthood, employment to retirement, and a sense of value to a culture that focuses on youth and beauty. Fortunately, an animal companion is blind to physical appearance, age, or illness. The presence of an animal is a most significant predictor of health and morale in this population,<sup>15</sup> with dog owners reporting less depression after the death of a spouse,<sup>16</sup> and less dissatisfaction with their social, physical, and emotional state. They are also twice as likely to exercise and to socialize with passers-by, verbalizing in the present tense rather than the past tense during speech.<sup>17</sup> Banks and Banks demonstrated statistically-reduced loneliness in elderly residents of long-term care facilities after dog visitation, as measured by the Mini Mental Status Exam and the UCLA-LS (loneliness score).<sup>18</sup> Hall and Malpus reported notable increases in the collective mean of both verbal and non-verbal social behaviors in long-stay psychiatric populations during periods of dog visitation.<sup>19</sup> Barak, et al, showed statistically significant increases in conversational skills, social appropriateness/politeness, social engagement, friendships, recreation/leisure, communication skills, and participation in hospital programs in elderly schizophrenic patients over a 1-year controlled trial.<sup>20</sup> Economic data indicate fiscal savings may accompany such health benefits. One study of 938 Medicare enrollees in an HMO plan revealed fewer medical visits in patients who own pets.<sup>21,22</sup>

Just as autism is the epidemic of our young, Alzheimer's disease is the scourge of our elderly. Perhaps the most substantial studies come from the Alzheimer's literature, where in the presence of a companion animal, institutionalized patients exhibit fewer episodes of aggression, anxiety, and mood disorders, as well as increased socialization with other patients and staff.<sup>23-25</sup> McCabe, et al, demonstrated a statistically significant decrease in behavioral problems in residents of a special care unit, as measured by the Nursing Home

Behavior Problem Scale.<sup>26</sup> Edwards and Beck documented significant increases in weight gain in Alzheimer's units after the introduction of a fish tank during meals, reversing the usual trend of chronic weight loss leading to increased infections, loss of functional independence, and increased risk of falls.<sup>27</sup>

Although we have focused thus far on the very young and very old, increased quality of life is also reported in a wide variety of demographics interacting with animal companions, such as patients with cancer and AIDS, as well as the homeless and those incarcerated in our penal system. We can also include those populations that rely on service animals for the functions of daily life, such as the visually and neurologically impaired, and seizure patients whose service dogs are trained to detect an imminent convulsion in time for the owner to ensure his or her physical safety before the event.

### THE HUMAN/ANIMAL BOND AND SPIRITUAL HEALTH

Animals have served as symbols of the spiritual realm for shamans, indigenous medicine people, and religious scribes over several millennia. They represent fertility, power, the cycle of life, and numerous other archetypal structures in many cultures, both past and present.

Although our evidence-based medical system rarely builds upon such mythical associations, it is recognized that one's spiritual beliefs can uniquely influence recovery and maintenance of health. The great philosophies that are the foundation of our major religions appear to share at least one common ideal—that of unconditional love, for one's self, one's neighbor, and one's sense of the Sacred. To love unconditionally is to be open, to drop all personal boundaries that create distance and separation. If we consider that animal companions appear to exist mentally and psychologically in the present (rather than in the past or future), and if the presence of unconditional love indeed contributes to health, then perhaps pet adoption should be considered an option for those patients who present in need of such support.

### CONCLUSION

Assuming that the thousands of animal-assisted therapy programs treating hundreds of thousands of patients can successfully address a myriad of chronic physical, emotional, and psychological illness (at significant economic savings), why isn't this option a part of every hospital's formulary? The primary reason may be lack of education, since the existing literature has not been published in those journals that most influence clinical protocols.

Another reason why interspecies therapeutics aren't more widely utilized may be questions of safety and an understandable concern over potential zoonotic transmission of infectious diseases, especially with the immuno-compromised patient. Recent reviews of the literature by both medical and veterinary academia have provided position statements defining such issues. The primary consensus is that, generally speaking, the benefits of pet- or animal-assisted therapy appear to far outweigh any associated risks, and that initiation or continuation of such therapy is warranted. There are two important caveats, however. First, the animals involved need medical screening and immunization, as warranted by public health standards. Secondly, those patients who are immuno-compromised, such as those who are HIV-infected, undergoing chemotherapy, or with open wounds or in-dwelling medical devices, should be afforded limited exposure to specific animals, especially reptiles and birds, and need to practice careful handwashing following contact.

This being said, it is also the perspective of many infectious-disease experts that the patient is at far greater risk to acquire childhood pathogens from siblings and friends (eg, chickenpox, respiratory syncytial virus, influenza, etc), as well as from household pets (where contact occurs on a daily basis) than from therapy animals. Even so, "despite these unscreened and unsupervised exposures at home, animals are an unusual cause of infection, allergy, or injury, in even the most immuno-compromised patients."<sup>28</sup>

Finally, an eventual acceptance of interspecies therapeutics may leave science with an unusual ethical conundrum—how to leave one animal in the laboratory and go home to another who is accepted as a full member of the family. A common response to this dilemma is to argue that such concerns are but anthropomorphism, the unconscious transference of human characteristics to another species. Others argue that many species by nature do indeed share such "human" characteristics. Whatever the impediments to its incorporation as a valid contribution to health and healthcare, the human/animal bond remains unexplored territory within the highest echelons of medical science, and both we and our patients may be the poorer for this oversight.

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Interested clinicians may find further information on therapy centers in their area by contacting North American Riding for the Handicapped Association ([www.NARHA.org](http://www.NARHA.org)) and the Delta Society ([www.deltasociety.org](http://www.deltasociety.org)).

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