

A VETERINARIAN'S GUIDE TO MIND-BODY MEDICINE
CREATING GREATER HEALTH AND WELL-BEING IN THE HUMAN-ANIMAL
BOND

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Abstract

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The human-animal bond (HA) is very important to the majority of clients seen in veterinary medical practices. While most veterinarians acknowledge the importance of this relationship, many have not been formally trained in techniques that utilize HA interactions to enhance the health and well-being of patients. This project suggests the use of mind-body medicine techniques, such as diaphragmatic breathing and guided imagery, to be used within general veterinary practice as a means to increase cognitive awareness during HA interactions in order to influence the animal's health and well-being. This paper explores the current relevant literature and offers a humanistic approach to increasing health while deepening the human-dog connection. Based upon the mounting evidence suggesting the HA union is influential in altering both human and animal autonomic response to stress during normal daily interactions, experiential-based mind-body exercises are provided for skill development and exploration for the veterinarian.

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Chapter 1 : Introduction

At the heart of veterinary medicine lies the oath, "... I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health, the relief of animal suffering, the conservation of livestock resources, the promotion of public health and the advancement of medical knowledge...I accept as a lifelong obligation the continual improvement of my professional knowledge and competence." (AVMA, 2010). In following this promise, veterinarians tackle issues of health and well-being in our most common companion animal: dogs. While it is estimated that over 60% of all American households have at least one pet that they refer to as a family member (Wells, 2009) and feline numbers continue to grow, possibly outnumbering dogs, people seem to have the strongest bond with their dogs. There are many popular books written about them, dogs are studied in laboratories, and also provided with modern day conveniences. Though some of these developments are modern, this relationship between humans and dogs has been going on for thousands of years (Udell & Wynne, 2010).

Today's canine has come a long way from its historical ancestors. The modern dog enjoys a variety of home environments, food, and medicine; however, dogs are now plagued with modern human diseases. The largest killers of dogs are cancer, autoimmune disorders, and obesity. It seems that domestication may have its drawbacks on health.

What is frequently overlooked as a major health factor is the relationship the animal has with its human family members and health practitioners. What human medicine has come to learn is that attention only to the body severely limits the

practitioner's abilities to heal and achieve total well-being. It is only by expanding the scope of influence that one can identify previously missed factors, such as the body's entwined connection with the mind, that directly affect health and treatment outcomes.

Modern medicine has shown that doctors can no longer take the old perspective that the body and mind are separate nor abide by the Darwinian idea that we are solely governed by our biology and driven by competition for resources. Rather, this paper challenges these viewpoints with the alternative theory of Mutual Aid put forth by Peter Kropotkin in 1902. Kropotkin, a contemporary of Darwin in Eastern Europe, argued that the evolution of abundant species actually was not based upon competition, but on cooperation. This social and cooperative system that he observed in the wild among many animal societies was the basis of intellect and moral faculties. Kropotkin argued that competition did not produce the physically strongest or most cunning, but produced individuals who learned to combine their efforts to mutually support and aid each other. This cooperative approach favored development of habits and characteristics that ensured the maintenance and further growth of the species, as well as providing the greatest welfare and enjoyment of each individual.

It is in this context that enjoyment is taken seriously in animals. Kropotkin (1902) viewed transferred his observations among animals to humans and believed that this aspect of every individual's life, that is enjoyment, is as important and valid as all others. This model of mutual aid and support seems to be a more valid and descriptive theory to explain the complexities inherent within the co-evolution of canines and humans.

Kropotkin's theory is better suited to use as the foundation for current research findings on the mutual benefits of the human-animal (HA) bond. Therefore, this paper

and its proceeding guidebook, accepts the theory of mutual aid over Darwin's (1870) published ideas on evolution as a more robust and holistic application to assess and enhance the multiple aspects within the HA relationship.

Medical professionals, mental health workers, researchers, and the general public have readily used the words *health* and *well-being* as positive states to strive toward. Yet, how medical professionals defines these concepts greatly depends upon their perspective of disease and the role of the doctor-patient relationship. One of the primary reasons people seek complementary and alternative medicine (CAM) for themselves (Astin, 1998; Moss, McGrady, Davies, & Wickramasekera, 2003) and their pets (Poland, 1997; Scott, 2001) is that this model of healthcare regards the client (and patient) as a significant co-participant who brings value and answers to the situation.

Additionally, the CAM model approaches health as a location upon a continuum between death and a high level of wellness (Ryan & Travis, 1981). This continuum allows for the presence of each opposing state within the current state of health. Unlike modern medicine's view that a healthy body is void of all illness, the CAM model allows greater incorporation of additional aspects, such as a person's attitude and belief of illness that serves as the basis for their medical decisions. This paper and related guidebook will use current CAM definitions to describe health and will draw from positive psychology's construct of well-being. Each will be shown to be separate constructs, but with overlapping features.

The term health is commonly defined by Western culture as the representative state of all elements (e.g., physical and mental) present within an individual at any one time that can be quantified. One's health can be determined by tests and questionnaires

to track this state over time. Webster's dictionary defines health as "the general state or condition of the body. (Merriam-Webster, 2011)." However, when healthcare professionals discuss someone's health they commonly include the patient's mental and spiritual health as well.

To better define a patient's present health, placing it on a sliding scale between death and its opposing opposite, total health, would be a more accurate representation. By doing so, an individual's health could be quantifiably placed anywhere along this continuum, demonstrating how health is always in a state of motion versus being static. This model gives a temporary marker that allows comparison of multiple individuals within a whole population, yet still allow for unique differences.

On the other hand, well-being describes a construct like the weather, which is not a real thing in and of itself, but rather is made up of many separate elements that can be measured (Peterson & Seligman, 2004). Using the field of humanistic psychology as its foundation, the newly developed field of positive psychology offers a current theory of well-being that is composed of five different elements, each of which has three properties. The five elements of well-being that Dr. Seligman (2011), the leading voice of positive psychology at University of Pennsylvania, defined are as follows: a) positive emotion, b) engagement, c) meaning, d) accomplishment, and e) positive relationships. The properties that each element must hold are a) the property contributes to well-being, b) it is pursued for its own sake, and c) is independent of the other elements by definition and measurability. Based on this definition, no one element totally defines well-being; rather, each contributes to it either subjectively or objectively. When a person is happy, engaged in meaningful work where they gain a sense of accomplishment and have supportive

relationships with others, they are said to hold a high state of well-being. As with the CAM model of health, well-being can be measured and placed on a continuum.

Conventional medicine uses health and well-being interchangeably to represent a positive state of mental and physical health that and where a person strives to be void of illness. Yet, viewing humanistic orientated research (Patton, 1990) offered the opinion that these two terms are different quantifiable entities. Using this argument, it is suggested that while both terms are connected, they can exist independently. This viewpoint is more congruent with CAM-based models of medicine where an individual can achieve a high state of well-being even with the presence of illness or disease. It is this interconnected relationship between health and well-being that could be taken into account in order to support and achieve healing in medicine. One possible avenue to attaining this success would be by utilizing the characteristics and power of the human-animal bond (HA).

To assist the veterinarian in achieving greater influence upon the health and well-being of the average patient, this paper offers an expanded viewpoint based upon the current evidence found on the human-canine relationship and provides a guidebook with experiential exercises in how to explore and use the subtle skills of mind-body medicine. The opening three chapters of this paper offer an overview of the most recent and relevant research from the HA bond, ethology, mind-body medicine, and positive psychology. The final chapters are formatted as a guidebook to provide experiential-based techniques for veterinarians to discover how best to integrate those principles into their professional setting.

Chapter 2: Literature Review

Only within the last ten years has there been an exponential increase in research examining the many facets of the human-animal relationship. New laboratories have been established at Duke, Harvard, Florida, and within the United Kingdom to compete with the already established clinics at UC Davis, Cornell, Tufts, and the University of Pennsylvania. The distinguishing difference between the more recent research topics and those from older establishments is that they are expanding and challenging current thought at a remarkable speed. Their focus has been on interpreting how the human-canine relationship works and what kind of benefits both species derive from this relationship. The areas of perception, cognition, and psychophysiology have produced the largest bodies of new knowledge. Much of the previous animal laboratory research had valued this area of study for its relevance to applied psychopharmacology in the treatment of behavioral disorders or as animal models for human disease development. Many of the drugs prescribed for humans in the treatment of depression, obsessive-compulsive disorder, and anxiety have been founded on animal models believed to represent the underlying cognitive processes of these disorders. The HA bond was of interest due to its possible implications on disease development and creating treatment protocols.

Unlike the laboratory research using dogs as models for human disorders and disease, current researchers are exploring the co-evolutionary, physical, mental, and emotional aspects of the HA bond. Due to the canine's family member status, they fill a variety of important roles in everyday human lives. Dogs assist those with disabilities, rescue trauma victims from disasters, and rehabilitate prisoners to name a few. All of

these roles are contingent upon the HA relationship and a deep attachment between both species. To understand the mechanisms of why this particular interspecies bond works so well, findings from ethology and anthrozoology provide a psychophysiological basis of what dogs are capable of and their skill at comprehending human language. Many of these studies offer a window into understanding the mechanisms thought to be present in the average dog that allows them to be more skilled in understanding and correctly interpreting human communication over their wild ancestors (wolves) (Udell, Dorey, & Wynne, 2009) and human's closest relative, the chimpanzee (Hare & Tomasello, 1999) in sensitivity to human social cues.

Canine Cognition

It is estimated that dogs have been a part of human society since 14,000 years BP (Clutton-Brock, 1995). Contemporary paradigms of animal and human cognition (Humphrey, 1976). suggest that the evolution of intelligence was primarily driven by complex social challenges within the environment. In particular, higher cognitive abilities can be seen as a development to help individuals take the perspective of another and to predict their behavior (Premack & Woodruff, 1978). It would be easy then to assume that due to the unique common living arrangement between two highly social species (dogs and humans), dogs have developed higher cognitive skills that place them at an advantage in attuning to and understanding the varied forms of human communication and behavior (Cooper et al., 2007; Hare & Tomasello, 2005; Kerepesi et al., 2005; Mitchell & Edmonson, 1999; Udell, Dorey, & Wynne, 2010). This idea runs counter to previously held assumptions that canines didn't have the mental faculties for higher learning and the

processing of complex social cues that were only attributed to human and non-human primates.

Some of the adaptations that dogs have developed have been reported in facial recognition (Racca et al., 2010) and gazing (Guo, Meints, Hall, Hall, & Mills, 2009), which are large factors in understanding emotions and the intentions of others. It has been well documented that humans and other primate species have a bias toward gazing at the left-side of the face first and longer before scanning toward the right (McKone et al., 2006), and that this preference provides the viewer with more information to form a response and understanding of another due to its association with the right cerebral hemisphere (Grossman & Johnson, 2007; Guo, Robertson, Mahmoodi, Tadmor, & Young, 2006). It is believed that this left gazing preference is due to the right hemisphere's association with expressive functioning in displaying emotions, creativity, and non-linear thought skills (Guo et al., 2006). As a consequence, Guo et al. (2009) suggested that if a face is presented within the viewer's central visual field, the left side of the face is projected to the right hemisphere. This right hemisphere bias brings into question what has been commonly held within physiology that visual information received through the eyes is provided to both hemispheres in the brain. Yet, left and right hemispheres of the brain decipher this visual information in different ways. The Nobel-prizing winning research by Dr. Robert Sperry (1961) has shown that the two sides of the brain are simultaneously capable of independent thought: the left side analyzing while the right side synthesizes the multiple aspects of social engagements (e.g. sounds, spatial relations, images). Combining the findings of Sperry (1961) with Guo et al. (2009) may instead suggest that gazing bias may be indicative of a hierarchal pattern used by the brain and a

possible heavier reliance upon the right hemisphere for understanding social communication cues due to the variety of information needing to be synthesized and expressed by the face.

In looking at gazing in dogs, Guo et al. (2009) reported this gaze bias in dogs when they look at human faces, but not at other dog faces. This similarity suggests that dogs are looking for the same information to interpret the emotions and intentions of their human counterparts (Guo et al., 2006; Racca et al., 2010).

Additional studies examining problem solving abilities in dogs have found that a dog's ability to correctly solve novel problems was significantly greater when their owner was present versus being in the presence of a stranger or being alone, even if the owner had no knowledge of the task to be solved (Topál, Miklósi, & Csányi, 1997; Topál, Miklósi, & Csányi, 1998). During these tests, it was reported that the dogs frequently glanced at their owners as if to monitor their behavior or to solicit assistance with the task. The researchers suggested that the existence of such social behaviors and abilities are due in large part to the strong bond between humans and dogs, which has had a direct impact upon dogs' cognitive development. Drawing from these studies and taking into consideration the role that the modern dog plays in most families, dogs can be considered uniquely positioned relative to other species for developing human specific skills to understand our conscious and unconscious intentions and behaviors. Additionally, exposure to the human community may have facilitated the development of more complex cognitive skills that have not been commonly cited in their wild counterparts or in laboratory settings.

Human Sensitivity Skills

Unlike many non-human primates, dogs seem to have an uncanny ability to recognize and understand many human gestures, vocalizations, and actions (Hare, Brown, Williamson, & Tomasello, 2002; Udell & Wynn, 2010). Gestures that have been found to assist dogs in problem solving tasks are hand pointing, head turning, nodding, bowing, glancing, and gazing in laboratory environments (Miklosi et al., 1998; Udell, Giglio & Wynne, 2008). While previous studies have determined that puppies as young as 6-weeks of age correctly respond to human pointing, this ability seems to be delayed until 21-weeks of age when recorded in natural home environments (Dorey, Udell, & Wynne, 2010). Some point to this discrepancy as representing a longer cognitive development period that is more commonly associated with evolutionary gains in highly functioning social species (Udell, Dorey, & Wynne, 2010; Cooper et al., 2007). This discrepancy between laboratory and home observation could be due to the lack of social and environmental enrichment associated with the setting which acts to narrow the dog's attention solely on the desired behaviors from the experimenter. Unlike the home setting where a dog's attention would be drawn to multiple stimuli simultaneously. Therefore, the recorded adaptations may not present themselves until later due to the complexities inherent within the home setting and the puppy having to comprehend a larger repertoire of behaviors and gestures.

Several studies indicate that dogs learn through observing humans. One such study reported that when dogs were shown by a human demonstrator which path to take around a fence to obtain a reward (food or a toy), they were more likely to take the same

path than dogs that were only shown the location of the reward without a demonstrator (Pongrácz et al., 2002).

To further demonstrate modeling ability, Topal, Byrne, Miklosi, & Csányi (2006) taught a 4-year old dog nine basic skills and then gave the dog a novel problem solving task where the basic skills could be used as a basis for new adaptive behaviors. The dog was taught body-orientated actions (i.e. spinning in a circle) and manipulative actions (i.e. picking up a shoe and moving it to another designated area) to imitate and was not tested until the dog was able to perform these tasks at high levels using the verbal command “Do it.” The testing sessions were comprised of examining the dog’s ability in completing untrained action sequences given by an unfamiliar person. The dog successfully reproduced both kinds of action at a rate of 70% over all trials. This particular study is severely limited by sample size and range of actions. While it may point to cognitive skill in imitation from observational learning, it could have benefited from a larger sample size to see if these results could be generalized across all breeds of dogs.

Both of these studies show how well dogs utilize basic skills and will expand upon them when challenged with a novel experience. This is important to the HA relationship because in teaching new skills to dogs, such as restful breathing, observation and imitation could be key teaching elements.

For example, should a practitioner determine that deep diaphragmatic breathing would be a good skill to implement into a dog’s treatment to reduce stress in the body, teaching the dog’s guardian how to do so will greatly enhance the dog’s chances of actually learning the skill. While there are were no research studies found on this specific

transference of skill between guardian and dog, it has been noted within personal observations that dogs displaying anxiety disorders benefited by modeling or matching their guardian's deep breathing patterns when the guardian regularly practiced mindful breathing exercises in the presence of their dog. Performing this skill within the daily home environment could be more valuable simply based upon repetition and frequency than most professionals are able to do during a consultation. Using modeling techniques to teach new behaviors incorporates the element of cooperation. This element of HA has had little attention until Kerepesi et al. (2005) examined the temporal patterns associated with complex cooperative behavior.

Temporal patterns have been reported in human courtship, dance, and team sports (e.g., football). They are hidden intra- and inter-individual time patterns in behavior that happen spontaneously. An example of this temporal patterning would be when a pair of dancers synchronize their actions to perform the tango. Based upon these observations with people, it was hypothesized that this same synchronization and temporal patterns might exist in HA pairs while involved in a cooperative task. To test their theory seven guardians and 10 adult dogs participated in the cooperative task of getting building blocks from a starting point to the target area where they then built a tower in which direct commands for retrieving were prohibited. Analysis of repeated temporal patterns from the video tapes revealed 21 behavior units that occurred most frequently in the behavior of the partners. Nine of the behavior units were displayed by the dogs (i.e. dog picks up the building block), eight were human gestures (i.e. owner points to the blocks with their hand) and four were verbal utterances (i.e. owner praises the dog). These behavior units, showed that during cooperative tasks there was a mutual dependence

between the dogs and humans. In the sample, it was reported that a total of 218 temporal patterns occurred with 181 of those being interactive patterns between the dogs and humans (83%). Further analysis showed that the average length of temporal pattern contained an average of 4.9 behavior units and had a high frequency of communicative behaviors like *dog looks at the owner's face* and *owner looks at the dog*. The behaviors between the dog-human pairs became organized into highly complex interactive temporal patterns that contributed to successful task completion. The analysis provides strong support for long-term temporal sequences in dog-humans interaction and thus reveals a two-way communication that spontaneously occurs and lasts over a series of actions. If this type of temporal patterning didn't occur, guide dogs leading the blind would be impossible if humans and dogs were not sensitive to each other's actions and coordinated their resulting behaviors. The researchers did not find a correlation between this mutual dependence and the dog's previous level of obedience training. If training had been correlated it would have shown that this synchronization was the result of learned behaviors or imitation, not naturally occurring synchronized patterns between two highly socialized species that has been observed in the wild (Kropotkin, 1902) and in the present study. Based on this information, it could be said that dogs may have a natural tendency to organize their behavior in a manner that is compatible with the behavior of their human guardians and argues for the theory of mutual aid put forth by Kropotkin (1902) that social species perform cooperative behaviors to gain benefit more frequently than competition.

These findings expand upon known mechanisms underlying such processes to convey an understanding of the invisible aspects that make up human-canine interactions.

It seems that not only do dogs have a keen ability to understand human actions, but that they also have a natural inclination to adjust their behaviors to become more synchronized with their human family members. This helps explain some of the evolutionary aspects of bonding that may have occurred over the many years of co-habitation and supports the idea that dogs and humans can influence each other's physiology and psychology resulting in a more harmonious relationship.

Human Benefits from Dogs

The majority of the HA research has measured the physical and psychological benefits that people derive from their companion animals. Current media venues commonly report on how having a dog is associated with short-term and long-term health benefits. Investigators have reported short-term results in lowering blood pressure, heart rate (Katcher, Friedmann, Beck & Lynch, 1983; Vormbrock & Grossberg, 1988; Wells, 2009), depression, and loneliness (Cohen, 2002; Friedmann & Son, 2009), cholesterol (Anderson, Reik, & Jennings, 1992; Friedmann, Katcher, Lynch, & Thomas, 1980), triglyceride levels (Cohen, 2002; Wells, 2009), and lower agitation in psychiatric patients when a dog was present (Friedmann & Son, 2009). Additional physical benefits have been reported such as fewer doctor visits (Friedmann & Son, 2009), lower risk of developing allergies when children are exposed to pets in childhood (de Meer, Toelle, Ng, Tovey, & Marks, 2004), reductions in the frequency of minor ailments (e.g., headaches and colds) even within 10 months of adopting a new dog (Serpell, 1991), and lowering the risk for coronary heart disease, particularly for men (Anderson et al., 1992). Findings show that the greatest therapeutic effects have been reported with familiar dogs (a dog that is intimately known to the person) rather than with unfamiliar animals (Wells, 2009).

Another interesting finding from examining gaze between people and dogs reveals that this simple interaction, commonly understood for its importance in social bonding, is also a mechanism for releasing oxytocin. Researchers in Japan considered the findings from mother-infant research that showed oxytocin is released during nursing and mother-child gazing periods (Dickstein, Thompson, Estes, & Lamb, 1984). They surmised that this chemical manifestation of eye gaze behavior reinforced the bonding between the pair (Nagasawa, Kikusui, Onaka, & Ohta, 2009). In terms of the HA bond, Nagasawa and colleagues (2009) hypothesized that urine oxytocin levels in the guardian would be influenced by their dog's gazing behavior because visual cognitive ability is a major component of social attachment. Gazing is believed to be associated with the cognitive functioning of the right hemisphere where emotions and intentions are interpreted (Hare et al., 2002; Sperry, 1961). Using 55 human-dog pairs that were recruited from obedience training classes, volunteers provided pre and post urine samples for two conditions. All guardians were surveyed pre testing to measure levels of bonding and attachment. After baseline concentrations were established, subjects were asked to sit in a chair and engage with their dogs naturally. In the second condition, subjects were forbidden from looking at their dog and were instructed to sit at a desk and look at the wall while interacting with their dog.

Statistical analysis of the videotapes of the interactions showed two main groups. One group consisted of those pairs that held long gazes ($n=13$) and the second group were those that had shorter gazing times ($n=42$). Significant differences between the groups were reported for oxytocin concentrations after the interaction phase and were higher in the long-gazing group (LG) than the short-gazing group (SG). It was also

reported that the LG group scored significantly higher on their degree of satisfaction and communication with their dogs. The increase in oxytocin levels was correlated with the frequency of exchange bouts initiated by the dog's gaze in the LG group, as well as the duration of a dog's gaze. This was not seen in the SG group. This correlation suggests that a dog's gaze may illicit or signal reciprocal behaviors from the guardian that induces oxytocin production that results in feelings associated with attachment. Additionally, there was a significant negative correlation between the increase of oxytocin and the duration of owner's talk in the SG group. The lack of significant positive changes in oxytocin concentration in the SG group was attributed to less attachment between dog and owner as a result of the owner's behavior. If the guardian perceived their relationship less fulfilling than others then it would be reasonable to expect less communication and touch between the two and less effect upon the guardian's neuroendocrine system.

The list of significant psychosocial benefits for humans is just as long as the physical. Companion animals seem to assist people within social settings by attracting more social interactions, even from strangers, than when someone is alone (Hunt, Hart, & Gomulkiewicz, 1992). Observation studies report that dogs seem to facilitate engagements between people, people with animals are perceived as more friendly and healthier (Eddy, Hart, & Boltz, 1988), and they normalize relationships for those with physical disabilities (Guest, Collis, & McNicholas, 2006; Wells, 2009). Based upon these results, new programs have been implemented within prisons as a means to enhance the psychological well-being of prisoners and to provide an opportunity for rehabilitation (e.g., Project Pooch in Portland, OR) (Friedmann & Son, 2009).

One aspect of the HA relationship that is important to point out is that a person's perception and attitude toward dogs in general seems to influence results. Friedmann and Son (2009) found evidence that the cardiovascular stress response to a standard laboratory stress task was lower for people who had a friendly unfamiliar dog present during the task than for those subjects who had another person present, even when they chose that person. Suggesting that if one holds a positive attitude about dogs in general, just their presence can influence a person's stress response greater than a friend or family member. This study echoes the findings of Cohen (2002), which examined how people classify their dogs within the family context.

Cohen (2002) examined affective states, such as bonding, kinship, intimacy, fear and the social support networks, of 201 participants. While this study had a high percentage of women participate (75%), it is one of the few studies that has tried to tease out the differences between how people think about their *human* family members and their *dog* family members. Previous thought had been that people who score high on bonding or attachment with dogs would score lower in bonding with people. Cohen reported finding the opposite to be true. Results showed that those few who scored high in bonding with their dogs ($n=16$) were actually highly bonded to other people and had a strong social network.

The single most significant predictor for the score on any of the scales used was the number of hours guardians spent with their dog and the subsequent score on the Companion Animal Bonding Scale. This particular eight-item 5-point scale has been standardized, validated and shown to be reliable by Poresky, Hendrix, Mosier, and Samuelson (1987). Previous and current studies have not taken this aspect into

consideration when investigating HA pairs. Those participants who spent 16 hours or more a day with their pet were significantly correlated to higher in bonding, intimacy, and kinship scores. The mean number of hours spent with a pet was 13.34 from a pool of people ranging in age between 18 to 84 years. In weighing the influence of human family relationships it was found that having children, being married, or living with a partner did not influence these outcomes. Additionally, when the highest scoring subjects for bonding were presented with two choice situations, “Suppose your doctor told you that living with your pet was causing you a significant health problem. What would you do?” and “Suppose your doctor told you that living with a particular person was causing you a significant health problem. What would you do?” Subjects reported less distress about deciding what to do if a person were making them sick. Distress remarks were taken from recorded answers from the participants. Responses showed that these particular people were more apt to leave a personal relationship than their dog even at the risk of their own health. It seems that the amount of time spent with a companion greatly influences our perception of their role in our lives and how important that relationship is to our well-being, regardless of health consequences.

How Dogs Benefit From People

Health benefits for dogs from the HA bond has reported on physiological states and changes within internal systems that can be measured non-invasively and attributed to certain cognitive functions. The more recent studies have measured heart rate, heart rate variability (Bergamasco et al., 2010; Matros, Doka, & Miklosi, 2008), cortisol and oxytocin levels (Dreschel & Granger, 2009; Horváth, Dóka & Miklósi, 2008; Rooney & Bradshaw, 2003) and behavioral changes within varying settings (Bergamasco et al.,

2010). These variables provide information about nervous system functioning as it pertains to movement, attachment, and a dog's perceived relationship with their guardian.

In normal populations (dogs that live with a family), a dog's heart rate (HR) typically decreases with petting by the guardian or another familiar person within experimental situations (Maros et al., 2008). Yet, it is the opposite within anxious and fearful dogs when telemetric monitors were used to measure HR. In the only study looking at this dynamic between HR and unfamiliarity within anxious dogs, the authors found that HR increased when someone petted the dog while the owner was not present (Newton & Lucas, 1982). This presents information counter to most human responses to fear and anxiety in dogs. When shaking dogs present themselves at hospitals, staff will oftentimes hold them thinking that they are providing a source of comfort and protection (personal observations, 2010). This could produce the opposite effect.

These findings demonstrate that petting can have different effects on dogs and their emotional states solely based upon their perception of the relationship with the human (Maros et al., 2008; Bergamasco et al., 2010).

To address HR and HRV, Maros et al. (2008) assessed heart rate (HR) and heart rate variability (HRV) responses during different activities and environmental challenges. HRV has been shown to be a good indicator for the assessment of autonomic nervous system activity in response to psychophysiological stress in both dogs and humans (Bergamasco et al., 2010; Maros et al., 2008; Andreassi, 2007). Lower scores in HRV represent increased states of stress in a dog and are commonly seen when the dog is under physical or emotional stress. High scores are an indication of activation of the sympathetic nervous system and a decrease in stress hormone levels within the body. As

one might expect, HR was significantly tied to body position in dogs. Lower HR were reported in lying or sitting positions versus walking or standing. HRV was associated with a dog's attentive state and the effects of being petted by an unfamiliar person when the owner left the room through the use of a halter monitor. Results reported significant correlations between a dog's attentive state and the two conditions. HRV was at its lowest when the guardian left the room, followed by being petted by the experimenter, and lastly when viewing a favorite toy.

The variable of *how* we engage and communicate with dogs has an additional impact upon cortisol levels (Bergamasco et al., 2010; Horváth et al., 2008). Within highly stressful environments, such as shelters, findings show that using minimal positive interaction periods of 20-30 minutes three times a week is enough to lower saliva cortisol levels significantly over an 8-week period in dogs who had been housed for a minimum of 7 months (Bergamasco et al., 2010). HRV scores between control and experimental groups showed that the human interaction group fared significantly better and had greater positive behavioral changes. The human interaction group engaged in playing, grooming, obedience training, and additional verbal and tactile contact. Testing between these different interactions additionally showed that the tactile contact events during the interactions reduced stress levels the greatest amount.

These results are directly related to the research on the effects of gazing and attachment. If a dog perceives the handler to have a positive relationship with them, visual and physical contact will have the desired outcome of lowering stress and meeting the socio-physical needs of the dog. Such minimal interaction events could easily be implemented within hospital settings where dogs are commonly removed from physical

and vocal proximity of staff and their guardians when housed in kennels or cages.

Medical interactions typically involve invasive or negatively perceived human touch, so by offering a more balanced engagement, dogs could possibly have a greater chance of lowering their stress levels (Bergamasco et al., 2010; Friedmann & Son, 2009).

One way most people engage with their dogs is through play. Play has been widely known to be the foundation for which human and non-human infants develop attachment, cognitive skills, and social skills (Rooney & Bradshaw, 2003; Horváth et al., 2008). It is usually seen as an indicator in dogs of well-being because animals who have experienced traumatic events or live within impoverished environments show little play behavior and a lack of social skills (Horváth et al., 2008). Cortisol has been the measurement of choice as it not only represents autonomic nervous system functioning, but also can be taken through non-invasive means such as saliva collection with a cotton swab (Dreschel & Granger, 2009). In Horváth et al. (2008), investigators examined the relationship between stress and play by measuring canine saliva cortisol concentrations before and after dog-human playing sessions. Previous research had shown that both human punitive (physical pushing and yelling) and threatening behaviors produced an increase in the concentration of cortisol in dogs; it was therefore hypothesized that actual motor and communicative aspects of human behavior during play would have an effect upon the inner state of dogs represented by changes in cortisol levels (Horváth et al., 2007).

Researchers recruited 84 male German Shepard dogs ranging in age between 2 - 11 years who were a part of a 2-week training program given by the Hungarian National Police Training School for Police Dog Handlers and whose handlers were either police

or border guards. All dogs had performing patrol service with their handlers for a minimum of 1 year. Subject pairs (dog-handler) participated in videotaped play sessions involving cooperative (retrieval) and competitive (tug-o-war) actions. Cooperative behaviors were focused on ball retrieval games in order to elicit sharing between the dog and handler. Competitive actions were those which one from the pair could be deemed the winner easily, hence the use of tug-o-war with a rope toy. These videos were taken and transcribed for vocal and behavioral characteristics. Saliva tests were taken before and 20 minutes post-play. Videotapes were scored on a subjective assessment of the intensity of the behaviors (frequency) by the principal investigator and a naïve independent observer. To control for subjective bias, inter-observer agreement Kappa coefficients were run and showed a high agreement between the two coders. Handlers filled out a questionnaire for demographic information and to assess characteristics of the HA bond. Analysis of the videotapes revealed significant differences between the two human groups. Policemen continually used control and discipline in their communication and play to gain their dog's attention. Border guards were more empathetic and enthusiastic, and petted and praised their dogs more frequently. These differences significantly affected post-play cortisol concentrations. The border guards displayed more affiliative behavior which was correlated with a decrease in cortisol levels with a resulting calming effect on their dogs. The more disciplinary attitude of the policemen resulted in increasing cortisol levels in the older dogs (ages 8-11 years). Even though this older age group tended to need more time to start playing, this reported difference might be attributed to the overall health and well-being of the dogs and could be representative of long-term effects of such controlling behaviors by their handlers. Or it may be

representative of the compounding exposure to high stress associated with their duties. Even though base line cortisol levels between all the dogs prior to testing revealed no significant differences, it would be of interest to have data on each dog during a regular work week prior to the start of a day's patrol to control for any differences between the training environment and work.

It is interesting to note that 97% of all guard dogs lived with their handlers in their homes, while only 62% of police dogs lived with their handler. Of the remaining police dogs, 28% lived in a kennel at the police station. Additionally, there was a significant difference between the number of hours worked between the two handler groups. Guard dogs worked with their handlers an average of 9.3 hours per day in comparison to the 5.9 hours worked by police dogs and their handlers. This difference could have an impact upon well-being and health as noted by the effects of time spent with dogs on human perceptions of bonding. It could be that the policemen's use of more controlling behaviors and language are more symptomatic of their lack of bonding or attachment to their dogs.

Moreover, the higher cortisol levels found in older police dogs compared to younger ones could be representative of more long-term stress factors on the dogs. If the handler only spent 6 hours per day working within a stressful profession with their dog and then leaves that dog void of the calming and neutralizing aspects of a home environment, it could be assumed that these dogs may not be able to fully de-stress themselves efficiently enough to lower cortisol levels. An optional explanation could be that these dogs remain at a heightened level of arousal and because their normal

interaction with their handlers are under working conditions, a play session could be viewed as yet another highly attentive challenging event.

Cortisol levels in guard dogs revealed a positive correlation between baseline concentrations and the dog's motivation to play during sessions. Those with high baseline cortisol levels were characterized as being more motivated to play than others and were observed to immediately engage. A negative correlation was found between post-play levels and the frequency of physical praising. This result could suggest that there is a positive relationship between number of hours spent together and the type of human engagement a dog receives (Cohen, 2002).

The multidimensional aspect of play and attachment in the dog-human relationship has been well researched by Rooney and Bradshaw (2003). In this study, the researchers wanted to determine whether there were any correlations between the types of games played and dominance behaviors reported in dogs, as well as whether the amount of play correlated to specific aspects of this relationship. They examined 50 dog-human pairs that were recruited from veterinary hospitals in the United Kingdom. The pairs were videotaped at their homes during play sessions between the guardian and their dog. Guardians were instructed to play as they normally do with their dog for 3 minutes. Then the guardian was instructed to perform specific interactions with their dog (sit, down, remove toy) to assess dominance and attachment features. After the play and instructed portions of interactions, each guardian filled out a questionnaire providing information on play routines (frequency and type of games played) and attachment.

Analysis of the observational-based results found that the type of play and a dog's level of confidence and amenability were correlated. Those dogs that were observed in

rough-and-tumble play with their guardians scored lower for behaviors related to separation anxiety and more readily engaged with an unfamiliar person. Those pairs that played the longest had a greater preference for their owner over an unfamiliar person (experimenter). Additionally, dogs who played these particular games were more amenable. This alludes to the interconnection between the type and duration of play, and how it may relate a dog's overall ability to handle challenges in the environment, quite possibly due to a higher sense of bonding and increased temporal patterns. The authors suggest that this correlation could be due to the physical contact between dog and guardian that fulfills the dog's need for contact and touch.

Other games in which dogs scored high in confidence and involvement were tug-of-war and fetch. Again, the results reported a high correlation between duration of the play session and confidence behaviors in the dogs. Suggesting that physical play could be not only a healthy activity for the dog but also facilitates well-being.

Even though research does not yet exist regarding the connection between mindful practices and play, it is an interaction that holds potential by simultaneously bringing both parties into the present, decrease stress, and creating a state of synchronized temporal patterns (i.e. flow).

CHAPTER 3: Mind-Body Medicine and Beyond

Overview

Several practices in *mindfulness* training were first popularized in the United States in the mid 1960's, although some have been known to exist for several hundred to thousands of years. Mind-body medicine (MBM) emphasizes an approach to healthcare that equally includes a variety of therapies and traditional medical interventions and focuses on the inherent healing powers within each individual (Rossman, 2000; Gordon, 1996; Moss et al., 2003). MBM views the patient as having the cognitive ability to influence and control physiological systems within the body (Andreassi, 2007; McGrady, 2003) and treatments are directed at teaching the patient the skills to influence their own health (Gordon, 1996; Moss et al., 2003). The focus of MBM lies in self-care and the healthcare practitioner assists the patient in learning how to make positive lifestyle changes that will impact their health and longevity. The patient is seen as the center of treatment where lifestyle, beliefs, behaviors, and education are key elements that are addressed. MBM has been commonly associated with complementary and alternative medicine (CAM), as these therapies address the many factors inherent in disorders that cannot be treated with pharmacology or surgery.

Many MBM treatments include alternative medicines (e.g. biofeedback, yoga, meditation) in order to provide a holistic approach to healing where all aspects of an individual are taken into account. While no one medicine can heal everyone all of the time, a strong example of MBM can be seen in its use of non-invasive techniques that cure or diminish many of the common side effects of conventional medicine. While the field of MBM is itself vast and growing, for the purposes of this paper only relevant

studies and techniques have been drawn upon due to their ability to be molded to meet the needs of the veterinary practitioner. As more and more psychological problems are being addressed within general veterinary medicine, as is the trend in human medicine, the incorporation of MBM into treatments may prove to be beneficial (personal observation, see Appendix A),

One of MBM's leading physicians, Dr. James Gordon, a clinical professor at Georgetown Medical School, recently spoke on the topic of outcome results from using MBM with human post-traumatic cases. **He said** research shows "...up to an 80% decrease in symptoms of post-traumatic stress disorder, very significant decreases in depression, improvements in mood, decreases in anxiety, a greater sense of being able to control one's life, [and] more optimism about the future. In professionals we've trained, they feel much less burnt out." (Belasco, 2010). These findings are statistically significant, as well as, medically significant and representative of the results found in meditation (Davidson et al., 2003; Lutz, Slagter, Dunne, & Davidson, 2008; National Institute of Health (NIH), 2009; Zylowska et al., 2008), psychoneuroimmunology (Davidson et al., 2003; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002), imagery (Donaldson, 2000; Hall & O'Grady, 1994; Rider, Achterberg, Lawlis, & Goven, 1990), and diaphragmatic breathing studies (Biegel, Brown, Shapiro, & Schubert, 2009; Gilber, 2003).

Benefits of Meditation and Breathing

Mindfulness meditation involves experiential learning through sustained, receptive attention to events and experiences on a moment-to-moment basis with an open and accepting orientation (Biegel et al., 2009; Zylowska et al., 2008). Meditation comes

in many forms and practices and can be either sedentary, walking, or even active movement (e.g., Tai Chi). The most widely reported results have been improvements in attention and self-regulation skills in ADHD (Biegel et al., 2009), changes in neural activity associated with cognitive enhancement (Andreassi, 2007; Davidson et al., 2003), modulation of EEG patterns (Lutz et al., 2008), increased dopamine levels (Zylowska et al., 2008), relaxation, and greater well-being (Rossman, 2000). Long-term practice is linked to enduring changes in mental and brain function, enabling a greater emotional flexibility due to the sustained open attitude toward incoming stimuli and it being correlated to higher amplitude of gamma oscillating patterns (Lutz et al., 2008). This shift in emotional regulation is associated with the ability to disengage from intense states and provide a means to de-stress. Two elements of mindfulness-based techniques include the use of breath work and imagery. The use of specific breathing techniques has been extensively used in reducing anxiety, hypertension (Gordon, 1996), blood pressure (Andreassi, 2007), as well as increasing relaxation (Moss et al., 2003) and parasympathetic functioning (Gilbert 2003; Kiecolt et al., 2002; Lutz et al., 2008). The following two studies represent the changes in thought process and emotional regulation that meditation and diaphragmatic breathing have been reported to do for many years.

In Zylowska et al. (2008), the authors reported significant results in both adults and adolescents with ADHD after an 8-week meditation program. The participants met once per week in small groups to learn and practice the coming week's exercises (i.e. guided imagery and breathing) and discussed their at-home practice. At-home practice consisted of a guided sitting meditation that gradually increased in duration from five to

fifteen minutes. Results showed improvements between pre- and post-test ADHD self-reported symptoms and performance on neurocognitive tasks. Thirty percent of the participants reported at least a 30% reduction in symptoms.

Biegel et al. (2009) examined the effects of an 8-week mindfulness program focused on stress reduction in adolescent psychiatric outpatients in a randomized control study. In this study ($N=102$), participants ranged between 14 and 18 years of age. Measurements of mental health were made by clinicians blind to the participants' treatment condition and were divided into either a *treatment as usual* control group or the *mindfulness based stress reduction + treatment as usual* experimental group. The mindfulness group was given an 8-week intervention that consisted of learning and experiencing sitting and walking meditation, yoga, and a guided body scan meditation. At-home practice was limited to 20-35 minutes in duration and was to be done on daily.

Results confirmed that the experimental group showed a significant reduction in self-reported anxiety, depressive and somatic symptoms, and improved self-esteem and sleep quality compared to the control group. Additionally, more than 45% of these participants showed significant increases in global adaptive functioning scores and mental health behaviors. When tested again at 3 months post-intervention, 53% of the mindfulness group showed reliable improvements across all measures, compared to only 20% in controls.

Is Good Enough Really Enough?

The question of *good enough* lies at the heart of positive psychology. While much of the clinical psychological research in the last 40 years has focused on disorders and disease, this new field examines normal and high achieving populations in evaluating

what characteristics assist a person find value and meaning in life to attain a greater sense of happiness. As positive psychology is an extension of humanistic studies, its possible application to the HA bond may prove to compliment MBM. This same principle could potentially be applied to veterinary medicine as a means to examine those HA pairs who are deeply bonded and highly engaged, in order to support other HA pairs to possibility enhance their level of attachment which could influence the number of relinquished dogs at shelters.

Positive Psychology

The recent appearance of the field of positive psychology goes beyond the disease model by looking at what happens in healthy and highly achieving people. It does so by examining the characteristics of those who are classified as highly achieving and whom attain a state of *flourishing* or *flow*. Then using those aspects of high achievers, positive psychology looks at how they might be applied by the greater population to attain greater happiness and well-being.

Drs. Felicia Huppert and Timothy So of the University of Cambridge have defined flourishing as an individual having all the core features (see Figure 1) and three of the six additional features (Seligman, 2011).

| Core Features | Additional Features |
|---|---|
| Positive emotions Engagement & Interest Meaning & Purpose | Self-esteem Optimism Resilience Vitality Self-determination Positive relationships |

Figure 1. Elements of Flourishing (Seligman, 2011)

This definition of flourishing was based upon their study of 23 European nations. More than 2,000 adults were administered the survey in each country to determine a ranking of flourishing across the globe (Huppert & So, 2009). The reason this could be important to MBM and healthcare fields is that it provides two things. First, it offers a definable goal that has validated measurements from a worldwide population pool, and second, it is characterized by a social and relationship orientation. The leading advocate of positive psychology, Dr. Martin Seligman (2011) of the University of Pennsylvania, states that the field is characterized by a relationship orientation and could be taken to agree with Kropotkin's (1902) original observations of mutual aid. The potential gain for veterinary and human medicine to use this type of orientation would be that it holds relationships and social engagement as defining factors in an individual's happiness and well-being. It could be that positive psychology may provide a greater assimilation of the elements found within HA than any one model currently available. Additionally, using a validated measurement of happiness and well-being might provide the best way to engage with clients and patients, as well as track these features over a given time frame.

Intentional Healing

The term intentionality has been defined as focused awareness or attention that has the purpose of promoting a change in oneself or another. It has been postulated that imagery is the link or mechanism in which intentions are communicated to the body, or others, to produce change (Achterberg et al., 2005; Dossey, 2009; Lawlis, 1996; Radin, 2004). Imagery is the thought process that uses all sensory systems, such as smell, taste, hearing, vision, movement, touch, and position (Achterberg, 1985). Imagery is a communication vehicle between perception, emotion, and the body; it is theorized to be

the link between mind and body (Achterberg, 1985; Vianna, Naqvi, Bechara, & Tranel, 2009). This link would allow the imagination to influence the mental processes associated with every bodily function. Jeannie Achterberg (2002), credited as one of the founding leaders in imagery, views imagery as the “transformer of energy, (that) allows molecules of thought to be shifted into a language that the chemicals and structure of the body understand and can act upon, and so is the reverse true” (p. 1). Quite simply, imagery is wordless thought.

This wordless thought acts upon health in two ways. The first is what Achterberg (2002) called preverbal imagery, which is how the imagination acts upon one’s own physical being toward a change in behavior. It is believed that this system of imagery developed before our use of verbal language and uses different neural pathways to communicate this information. Verbal logic is linear, unlike the simultaneous representations present within images (Achterberg, 2002; Lang, Levin, Miller, & Kozak, 1983; Sheikh & Jordan, 1983). The second type is transpersonal, in which information from one individual’s consciousness could be transmitted to the consciousness of another or physical substrate, also known as distant intentional healing.

Much of what MBM focuses on is the preverbal form of imagery, with the intention of altering one’s own health and well-being through specific mindfulness-based therapies. MBM practices that use preverbal imagery are mindful breathing, guided visualization, biofeedback, and Tai Chi. It has also been reported that the more vivid images, those where all of our senses are incorporated into the experience, produce the greatest changes and are easiest to recall (Bywaters, Andrade, & Turpin, 2004; Sheikh & Jordan, 1983; Vianna et al., 2009).

It is the second form of imagery, transpersonal, that has the highest potential to explain how information is transmitted between individuals. Transpersonal forms of imagery are a core element within intentional healing therapies such as Healing Touch, Reiki, prayer, and culturally-based traditional healers from Native Americans and others (Achterberg, 1985; Targ, 2002; Utay & Miller, 2005). It is suggested that transpersonal imagery may very well be the decisive element within the HA bond that answers *how* the changes are brought about in the previously cited studies.

Even though dogs have greater physical sensitivity to environmental or chemical changes than humans, this biological awareness does not fully answer the interrelated benefits that both person and dog gain from this relationship. How do dogs and humans transfer knowledge between one another in a way in which they can act on and benefit from that information? The benefits cited previously occur simultaneously within extremely short periods of time and yet can have long-term effects (Bergamasco et al., 2010; Friedmann & Son, 2009). Imagery is assumed to be active within this connection as a fundamental aspect of our thoughts, actions, and intentions well before we may be conscious of them (Achterberg, 2002). This assumption may account for how dogs seem to correctly comprehend human expression of fundamental emotional states (e.g., happiness, fear, anger, sadness) so readily or just prior to expression.

To test this theory within human bonded pairs, researcher Dean Radin (2004) examined whether the brain waves patterns shown in **EEGs of one person** could influence the same patterns in another person if they intentionally thought about the other person. To test this hypothesis, friends and mother-daughter pairs were recruited. One person of the pair was deemed the *sender* and was asked to focus their thoughts on the *receiver*

while watching them on a live video feed sitting in a room some distance away. Each person was monitored through EEG and shielded from any outside variables by sitting in a sensory isolating room. The sender was asked at specific intervals to focus their thoughts on the receiver when they were shown a live video feed on a screen and to stop and relax when it was blank.

Results reported significant correlations in the experimental group and showed that the stronger the response (highly activated EEG patterns) in the sender, the larger the corresponding response in the receiver. Radin's (2004) results strongly suggest that a person can alter another's psychophysiology through focused thought. Even though there is no current research exploring this phenomena within the animal realm, it is not unreasonable to hypothesize that a similar correlation could potentially exist between HA pairs.

Results from Achterberg et al. (2005) found similar strong correlations between healers and a known patient using fMRI technology. Eleven pairs of healers and recipients were recruited to examine whether distant intentionality (defined as sending thoughts at a distance) was correlated to activation of certain brain functions within the recipients. The fMRI findings from Achterberg et al. (2005) suggested that when a trained healer feels connected to the recipient, there is a significant increase in neural activation within the anterior cingulate cortex, superior frontal areas, and the precuneus. The anterior cingulate cortex has been shown to be activated during heightened opioid states, frontal lobes have been associated with information processing and decision making (executive functioning), and the precuneus may be a part of a neural network involving resting consciousness and self-reflection. Overall, the results showed

significant neural activity in the recipients that was concurrent with the intentional healing intervals from the healers. Even though this study was motivated by examining the effects of highly trained healers and their feelings of connection to the recipient, it supports the notion that intentional healing can happen over distances and that there may be a nonlocal aspect to how this happens.

Radin et al. (2008) investigated the effects of distant healing upon the autonomic nervous system and the role that motivation and training play in modulating these effects. Radin and colleagues (2008) recruited highly attached human pairs ($n = 72$), where one was undergoing cancer treatment, were used in the experimental group and compared to healthy pairs in a double-blind study. Using skin conductance levels in receivers, newly trained and untrained persons were compared to controls. Trained subjects were pairs that consisted of a healthy person and another person who was receiving treatment for cancer. The healthy person attended a training program based for *compassion intention*, defined as the act of directing selfless love and care toward another with the intention of relieving their suffering and enhancing their well-being. These participants were instructed to practice compassion intention daily for 3 months prior to being tested. The untrained group was tested prior to the healthy partner attending the training, while the control group consisted of only healthy pairs that were not trained at all.

Electrodermal analysis indicated that the trained group had a significant sustained effect upon skin conductance during the intention epochs ($P = .00009$, two-tailed) compared to the other two groups ($z = 2.4$, $P = .02$); this suggests that there was an effect on the recipients' autonomic nervous system ($z = 3.45$, $P = .0006$). Additionally, motivation by the sender to heal and the receiver's desire to be healed seemed to enhance

this effect. The authors postulated that one way to interpret these results is to look at quantum physics to describe the actions at hand because there are no other scientific theories to address the presence of connections between apparently isolated objects.

Entanglement theory in physics suggests that under certain conditions, elementary particles that were once connected appear to remain connected after separation, regardless of distance or time (Einstein, Podolsky, & Rosen, 1935). Therefore, when an alteration is made in one isolated element there is a direct similar reaction in the other that takes place without any manipulation. If this property is true, it suggests that in principle, everything in the universe is connected. Couple this with the findings from intentional healing studies, and it could be postulated that highly motivated, bonded pairs, with some moderate intentional healing training, could possibly show this entanglement effect. Radin et al. (2008) suggested that this relational model is appealing, as it doesn't rely upon theories based upon energy or an abstract concept, but rather a physical connection that is always present due to nonlocal threads.

Chapter 4: The Guidebook

Why Mind-Body Medicine Is Important to the HA Bond

It has been cited that primary care patients show strong resistance to leaving the primary care setting for specialty care, especially those therapies focused on psychology (Astin, 1998; Moss et al., 2003). Therefore, efforts to introduce new therapies to these patients are more likely to succeed if they can be offered within the primary care setting. The same could be said for veterinary care. Once the guardian and veterinarian develop a certain level of trust, leaving this setting or prescribing specialty therapies could lead to low follow-through rates and diminished animal health expectancies. This might be aggravated if the specialty practitioner solely focuses on the physical symptoms and forgets to address the potential significance of the HA bond.

A typical veterinarian must learn how to handle multiple relationships (spouses and other animals present in the home) in order to be effective and gain the desired positive outcomes for their patients. It could even be argued that even alternative or integrative veterinarians need to spend more time cultivating a deeper understanding of their patients and not fall into the approach of only looking at the presenting physical symptoms. People and their companions are whole and unique beings. Each aspect of one's life - physical, mental, spiritual and emotional - is complex and connected. Dr. James Gordon (1996) believes that these aspects are crucial to understanding all of the dimensions within a life and to understanding illness.

Even though many veterinarians have expanded upon their intake questions, take longer in their exams, and provide alternative medicine, exploring the HA relationship routinely has yet to be integrated into common practice. Reaching from the present

research findings it may be prudent for veterinarians to inquire into the details of the HA bond so they may uncover many of the aspects that have been reported to influence health and well-being. Exploring *how* a HA pair enhances their relationship could assist in understanding these unique characteristics that may then be used with others. For example, a veterinarian could ask, “How do you think you might handle the stress of taking care of an ill or dying pet?” In this example, by discussing stress and care strategies the veterinarian facilitates the health outcome of their patient through HA bond engagement, positive relations and meaning.

Additionally, as guardians report their dogs as being family members and place importance upon their companion’s health and well-being (Cohen, 2002), it would seem judicious to entertain the notion of incorporating mind-body skills with HA pairs to provide similar results. Veterinarians and other professional healthcare providers are in a unique position to disseminate this information.

As reported earlier in this paper, mind-body techniques can potentially produce some powerful effects within oneself and in others with whom we feel a strong connection. Couple these results with the goals and measurements of positive psychology and there is a persuasive argument for an expanded model of health, one where all aspects of the HA bond are weighed equally. To enhance current practices in veterinary medicine, it is suggested that the elements of health, well-being, intention, and flourishing should be considered.

With the addition of flourishing in existing models, there is a means to compare the level of happiness in the HA pair which could also allow areas of focus to emerge. This could also enable veterinarians to develop expanded healthcare models that strive

for balance and flourishing. This hypothesized model would not be limited by the presence of illness and could assist in tracking the gains in health and well-being long-term.

What to Expect With Mind-Body Skills

To facilitate the veterinarian's practice, a few guidelines are offered to assist in gaining the greatest possible result from each skill. First, hold a nonjudgmental state toward oneself and others. Second, allow plenty of time to discover each skill by itself and notice what happens during the exercise and afterwards. Many times it is recommend to keep a daily journal to jot down immediate reactions, as this can give a means to track the subtle shifts that emerge. Third, a particular skill may not come easily or resistance may be encountered when practicing it. In these moments, take note of this resistance, continue to focus on deep diaphragmatic breathing, and allow the experience to continue to unfold.

Reports from people who have utilized these techniques commonly state immediate release or healing in their bodies. For example, tingling in their extremities or limbs, old wounds begin to heal, or aches and pains subside. To give veterinarians a perspective of a possible mind-body outcome, a person anecdotal experience is used here (see Appendix A). This author has been a long-time sufferer of migraine headaches (15 years). They had a history of occurring weekly and had an average duration of 3 days. I had been told they were linked to the TMJ dysfunction I experienced in both joints. Bite plates, medications, exercise, diet restrictions, supplements, acupuncture, chiropractic interventions, and herbs were tried with no long-term healing. It was not until my first

experience with diaphragmatic breathing and guided imagery that I begin to feel relief from the constant pain and tension within my face, neck, and shoulders..

After continuing to use these mind-body skills for another couple of weeks, it was possible for me to stop an impending migraine within 10 minutes of the first symptoms. Over the course of a few months, their frequency and intensity significantly dropped to once a month and typically lasted only 24 hours. The main skills learned through these practices was an increase in body awareness and the subtle shifts associated with stress, as well as, the ability actively prevent these effects. Subsequently, these migraines now appear one to two times a year.

Mindfulness has been defined by Langer (1989) as a “flexible cognitive state that results from drawing novel distinctions about the situation and the environment. One is actively engaged in the present and sensitive to both context and perspective.” (pp. 29). Mindfulness practices are designed to facilitate the individual in actively noticing new things in a moment-to-moment awareness that creates greater objectivity. Such practices are not about pushing through an experience, but rather relaxing and permitting the mind-body to heal as it needs to in its own time. Think of the many layers an onion has before reaching the center. Each layer is significant to the overall health of that onion and when one decides to hasten the job, one can experience the overwhelming sensory effects of that action. Instead, relax, sit back, allow enough time to practice the skill and be open to what the skill has to teach, layer by layer.

Practicing mind-body skills. The remainder of this chapter is devoted to offering practical skills that can be used personally, as well as, being able to integrate into

veterinary care. The skills that are presented here were chosen due to their potential to deepen the HA bond as the primary outcome.

These MBM skills and techniques are deceptively powerful in their subtlety and those offered here are based upon the works of Dr.'s James Gordon (2009), Martin Rossman (2000), and Jeanne Achterberg (2008). Many individuals find that when beginning, using an audio recording may help. Should this option be beneficial, visit the resource chapter for a listing of online downloads and CD's. While some of the largest shifts that have been reported have happened within small group settings, do not be surprised if you experience shifts in health or perception.

Try each technique so you are familiar with each one and can better advise others. It is not uncommon when one starts to practice and gain proficiency that they find particular techniques resonant with them, while others do. In order to facilitate the benefits of these practices remember to let go of any preconceived notions or expectations. Lastly, don't worry about how well or poorly you may have practiced a skill. Instead, be open and receptive to whatever the experience brings to you.

Mindful breathing. Mindful breathing is a key element in creating a relaxed state of mind, body, and spirit. The two primary goals of any mindfulness skill are a) to become relaxed so your body and mind can be calm, and b) to train your mind to focus solely on the present moment. Every time you notice your mind drifting from the present awareness of your body, just notice this with acceptance and remind yourself to come back to focusing on your breath. Imagine the physiological processes needed to make each breath possible and how it *feels* moving air through your body. Notice how your breath changes over time.

Your attitude toward yourself when your mind drifts from the present should be one of an observer. When we are in a state of observing we create a sense of detachment and can more readily hold an attitude of acceptance and nonjudgement. This is the state of mindfulness people practice to reach, so when your thoughts move away from the present, you can take notice, accept how they unfold without trying to control or quash them, and then return to the awareness to your breath.

The focus of diaphragmatic (mindful) breathing is on using the diaphragm, not the chest. When you take a long deep breath your abdomen naturally expands outward due to the diaphragm creating more space for the lungs. Watch a small child or baby (or even your dog) breathe when they are sleeping. You will notice that with every breath their stomachs expand as they fill their lungs. It is rather universal within adults that this type of natural breathing has to be re-learned (Gordon, 1996). When our muscles are tense, we are ill, or if we want to conform to the flat stomachs of fashion models, people typically hold in their abdomens and breathe only with the lungs, making the breath more shallow.

To begin practicing this technique, find a comfortable chair that supports your back and legs. Your arms should be able to rest comfortably with your palms facing upward. Get settled, then close your eyes. Breathe in with your nose and out through your mouth in gentle easy movements. Bring your awareness to your nose and how it feels when you inhale and where you release tension during exhalation. Just sit and practice this for 5 minutes. Once you become more relaxed with diaphragmatic breathing, let your exhale extend beyond the timing of your inhale. The reason for developing a longer exhale is that this is when the body releases tension and begins to develop a sense

of balance (Schultz, 1931). The exhale should be gentle, smooth, and feels like it empties your entire body. As you continue, you will find that your inhale will become larger as your body increases its capacity to remain in a more relaxed state, which in turn creates more space in your body for air.

If you find that your mind tends to keep wandering, the addition of words or images can bring it back into the present and will deepen the exercise. When you inhale think of the word *soft* and during your exhale use the word *belly*. You can use any word that fits for you to remind your body to relax even deeper.

The use of images can also reinforce the effects of this training. During an inhalation think of an image that is soft to the touch. For example, one might imagine the soft warm fur on the outside of a dog's ear. This image is filled with tactile information, and it also usually brings feelings of happiness. On the exhale, use a word or image that represents comfort or a sense of peacefulness. Some people report using the word *peace* or the image of a tree. The images or words do not have to match or even be connected in a logical way. What is more important is that they hold significance to you and deepen your state of relaxation.

Once you have begun using this breathing technique on a daily basis you will find that more and more of your natural breathing will take on these properties. Breathing techniques are also extremely helpful when stress and difficulties enter your day. As you begin to notice how your body holds tension, you will become better at listening to your body and noticing the subtle cues it gives off (e.g., shallow breathing or holding your breath) when stress or tension occur. When you become aware of your breath, you can then stop and take a few moments to take a few mindful breaths to circumvent the effects

of stress and tension, bringing you back into greater balance. The more capable one becomes at reading the cues from the body, the better able one is to release these toxins and lessen the effects upon health and well-being.

Mindful breathing with your dog. Many times people forget how influential being present with a dog can be. For this exercise, start in a place where you will not be disturbed and sit on the floor to begin to practice diaphragmatic breathing. A verbal label may even be used to signal a shift in behavior to your dog. For example, many people found the word *settle* useful in telling their dogs what they will be doing. Over time the dogs learn what this vocabulary word represents and will actively partake in the exercise. It is important to be relaxed and not touch the dog at first because this a new learning opportunity for the dog. Because dogs readily watch and gaze at humans, they are usually attuned to the small shifts that take place in their guardian's body and mood. Once comfortable on the floor, begin deep relaxed breathing. When you become relaxed and centered, you can offer to give some gentle, smooth, rhythmic massage to your dog while breathing deeply. On your exhale smoothly runs your hands down the sides of the dog, down legs, or even along the back. Avoid the abdominal area so as not to interfere with breathing patterns. This combination of cues (auditory, visual, tactical, and olfactory) works extraordinarily well and helps bring the dog's own awareness into the present. One can physically see their dog begin to relax and breathe deeply, typically within 5 minutes.

Additional benefits of this skill can be noticed within the first week. Typical results cited include decreased tension in the relationship, increased personal awareness

and insight, greater understanding of how their mood and emotions influence the HA relationship, and higher satisfaction and happiness.

Expressive Writing

1. **Journal Writing:** Many people may already know that daily journaling is a great tool for stress management. It has also been verified to improve well-being and health status of people (Pennebaker, Kiecolt-Glaser, & Glaser, 1988). Allow 20-30 minutes of undisturbed time to write about anything that helps you express your deepest thoughts and feelings (Moss, 2005). It can be about your relationships, your past, present, or future, or anything that seems to be bothering you lately. Your topics may be similar from day to day or completely different. Don't worry about spelling, grammar, or how it sounds. Once you are done, write down three events that went well for you. They could be simple or extraordinary. Then, for each good thing, write down why it happened.

The twist on expressive writing ends the exercise on a high note and brings your awareness back to the positive. The best results on health have been shown when this exercise is done every day (Pennebaker et al., 1988).

2. **Dialogue with a Symptom:** This technique is most useful when an emotional or physical symptom is present and understanding the root of it is not coming quickly. Again, find a quiet place for yourself and have paper and a pen ready to use. The purpose of this exercise is to allow subconscious information into the present in order to strengthen self-awareness and inner wisdom of the self. Allow yourself to begin with a

few minutes of mindful breathing and begin to relax. Let a symptom or problem rise to your awareness, but let it take the form of another person or shape sitting in front of you. Ask the following questions before opening your eyes: “When did I first meet this symptom in my life?” and “When does it reappear or remind me of its presence?” After getting answers to these questions sit for a moment and breathe again. When you have finished, open your eyes and gather the pen and paper. With the image still in front of you, begin having a dialogue with it and write down the conversation as fast as you can. Do not worry about editing or spelling and do not reread anything you have written. Continue writing until you feel finished. Then reread what you have written (Gordon, 2009).

3 .Gratitude Letter: These types of letters have been known to bring about long-lasting increases in happiness and well-being (Seligman, 2011). Sit for a moment in mindful breathing and let a picture someone who has had an important impact upon your life appear in your mind. This person may not know of your gratitude because you may not have had the chance to tell them. Once you have this person’s face in your mind, open your eyes and write a letter to this person telling them what it was that they did that helped you. Describe the episode in detail, as though they have forgotten, so they gain an understanding of what it was they did and how you perceived it. Go into detail about how you felt and what kind of changes it made in your life. Limit it to no more than 3 pages. Then, being purposefully vague, call this person and make arrangements to visit. Once

you get there tell them that you would like to share something with them and read the letter aloud. Ask that they please do not interrupt while you are reading it, that you both can share your reactions after you finish.

After this, you will both feel a definite increase in well-being.

Writing About Your Dog

Using the previous examples, one can use expressive writing techniques in your relationship with your dog. For example, if your dog should experience an illness, it could greatly benefit you to do some expressive writing about the experience. How has this illness changed how you feel about your dog, what do you do differently now, or how has the stress of a diagnosis revealed itself in your body?

As in the previous exercise, find a place where you will not be interrupted. Then begin doing some deep breathing. When you feel more relaxed, begin writing. At the end write down three good things that happened between you and your dog and why. This can help balance the experience and reminds you of all the positive things that are happening.

Additionally, you can write a gratitude letter to your dog. It could be based upon one particular event or more general things. Details will enhance your awareness of all the subtle things within this experience that your dog did (body postures, actions, visual cues, etc.). Then write down how you felt during the experience and how it changed you. Bringing vividness and detail into the letter will assist in increasing self-awareness, greater positive affect, and awareness of how you relate to each other

Drawing

Even if using colored crayons and large sheets of paper seem a little more child-like than you would like, it is a great way to bring unconscious perceptions or connections to the surface for enhanced knowledge, especially for those people who find it difficult to express themselves verbally. Have three sheets of large paper and an assortment of crayons in front of you before starting this next exercise. Remember that artwork will not be graded nor are there any preconceived ideas of what it should look like. As before, take 5 minutes to become relaxed and centered by using the diaphragmatic breathing technique. You can also use your breath between drawings as a means to transition from one topic question to another. Only allow yourself 5 minutes per drawing. Set an alarm to end each segment. When you are ready, draw your responses to these three statements, in order: a) how do I see myself right now, b) me with my biggest problem, and c) yourself as you would like to be (Gordon, 2009). This is a particularly good exercise to do before and after a challenging period such as looking for a new job, before you start a continuing education course, or just to track how you progress through a period of time.

After each drawing, place it aside until all three are done. Then re-examine them beginning with the first to see whether you notice any similarities, over-arching themes, or anything that appeared in your drawings that took you by surprise. Lastly, pay attention to the relationships between the images in your drawings. If this is something that you have planned on doing again after a particular period of time, set the environment the same way as before and draw these three statements: a) how do I see myself now, b) me as I'd like to be, and c) how am I going to get there. Then take out the

first set of drawings and compare the two sets. What do you notice that is different between the sets? What new information was revealed? Using the last statement of the second set, 'how am I going to get there,' devise a plan on attaining this goal and break those steps into small increments that are easy to accomplish.

To reinforce these shifts or steps, close your eyes and visualize yourself doing each step toward your larger goal. As you see yourself completing each step, notice how it makes your body feel and the emotions you associate with each step. Rehearsing this visualization several times will help train your body and mind in making those changes more easily and quickly. We will get into imagery work a little later, but the more you place detail, relationships, and feelings into your visualizations, the more these changes will feel natural. Imagery rehearsal is just that; the more vivid and real the rehearsal is to you in that moment the more your body feels like it has already done the moves.

Drawing With Your Dog in Mind

This is a great technique to use when you are having difficulty or experiencing miscommunication with your dog.

Using the same diaphragmatic breathing techniques as before and between each drawing, find an undisturbed setting to draw your answers to the following questions: a) how do you see yourself right now, b) how do you see yourself with your dog, c) what is biggest problem between you and your dog, d) where would you like this relationship to be, and e) how are you going to get there. This set of questions is mainly used when people are having difficulty finding an answer to a problem. As before, after finishing all the drawings re-examine them for greater detail. Notice the similarities and differences

between each drawing. At the end, close your eyes and visualize the plan on how you and your dog will resolve this problem.

Autogenics

This method of relaxation teaches self-regulation of the autonomic nervous system and can provide relief from a variety of symptoms (Schultz, & Luthe, 1959). It taps into mindfully controlling the *fight or flight* response in our bodies that can produce detrimental effects upon the body (Kiecolt-Glaser et al., 2002). It can be done either via self-administration or facilitated by an audio recording. It can be done in short periods of time, and when used frequently, you can gain control over your body's response more quickly and effectively.

Sit or lie in a comfortable position where none of your limbs touch any other part of your body. Begin breathing deeply and bring your awareness to your body and the present. Use your imagination to feel the sensations within your body as vividly as possible while you repeat the following phrases to yourself. Repeat each phrase 4-5 times with a pause between each statement.

- My arms are heavy and warm. (pause) I am at peace. (pause)
- My legs are heavy and warm. I am at peace.
- My heartbeat is calm and strong. I am at peace.
- My breathing is clam and relaxed. I am at peace.
- My abdomen radiates warmth. I am at peace.
- My forehead is pleasantly cool. I am at peace.

Then visualize yourself being healthy, calm, strong, and blissful. If you find a word or an image for yourself that properly describes this sensation, you can use it later to recall this

state. Spend as much time as you would like in this relaxed state. When you are ready, slowly wiggle your fingers and toes and gently move your limbs as you bring yourself back to an alert state. By creating a label or image that represents this *end state* of the exercise you can recall it when you begin to notice stress in your body or when you are engaging with a challenging client or patient. The better you are able to recall and relax into this state, the more you will notice that your patients will approach you in a new and positive manner.

If this skill requires too difficult to memorize, you can record the instructions with the pauses and play it for yourself. It may sound odd to listen to your own voice at first, but you are the best person to understand how much time you need between phrases.

Autogenics With Your Dog

I will never forget the story I heard from a client who unwittingly used this technique with their dog during a health challenge. While her story illustrates a combination of techniques (autogenic, imagery, positive psychology, and coping skills), it sheds light on the power of the HA bond and the effects you can have on the health and well-being of your dog. I will call the client Pam and her 3-4 year-old terrier mix Lulu. Lulu had been seen by a conventional veterinarian, who had prescribed the usual drug therapy to combat heartworm disease. When Pam heard about the side effects of this treatment, she looked for an alternative course of action. She found a well-respected integrative veterinarian who gave her the option of treating the disease with homeopathy. The downside would be that the treatment would probably take longer and the recovery would be more gradual before Lulu would be able to fully regain all her energy and zest. Pam chose the alternative route of treatment for Lulu. I met Pam and Lulu on their last

appointment, 1 year later, as she was diagnosed as being free and clear of heartworm. During this appointment, Pam casually mentioned a nickname the family had labeled the disease. Because treatment began during the last presidential race, the nickname they chose for talking about the disease was Sarah Palin.

Pam continued to share that while the family found the real Sarah Palin to be a “crazy idiot and want nothing to do with her,” the family never used this name with negative statements toward their dog, as in “I hate Sarah and want her dead.” Instead, everyone in the family would tell Lulu that “Sarah Palin can go at any time,” “Sarah Palin is welcome to stay, but she’d probably be more comfortable at her own home,” and other statements that brought objectivity, levity, family cohesion, and made it about something outside of Lulu. In their eyes, Lulu just had a long-term houseguest that was given the option of visiting another relative. Lulu was always encouraged to let Sarah know that she was probably needed somewhere else. Yet, so unlike many of us in our reactions to illness, Pam decided not to bring the negative into the equation and replaced it with acceptance and positive intention. In questioning Pam about her choices, she came to describe a healthy image of Lulu and that used in her mind when she talked to Lulu during the day.

Because imagery is believed to be the underpinning of language and the means of how the mind-body connection actually *talks* (Achterberg, 2002), Pam was using imagery to empower her language. Autogenics could be said to be intentional imagery with the desired outcome of deep relaxation. Pam’s health goal for Lulu was for her be healthy and able to participate in life as vibrantly as she did previously. What Pam did not know, but told me in her description, was that this goal was actually a very vivid image in her

mind. When she thought of Lulu she imbued her thoughts with images of her running and jumping as before, being beautiful, and with a true sense of her being happy and well again.

If the cited research is true, it could be argued that this simple training of perspective had a direct impact upon Lulu's treatment and outcome. The disease was not under Lulu's control, but Lulu could possibly influence it. This tactic provided basic autogenic training for everyone in the family. For example, "Sarah Palin can go....pause....we love Lulu....pause....Lulu is healthy and strong."

Guided Imagery

Although imagery has been used within healing treatments for thousands of years, it wasn't until its integration within cancer treatment programs and those addressing stress-related disorders in the 1970's and 80's that it received more recognition. Many people have been exposed to it in the form of visualization, biofeedback, or hypnosis. It is commonly used to enhance athletic performance and is widely found in cognitive behavioral therapeutic treatments.

Imagery is found throughout the majority of mind-body skills even when it is not the focus. For example, the previous drawing exercise helps bring images to the forefront of awareness through visual means. Journaling taps into our internal images through writing, even though it is not the focus of that exercise. If we are feeling or thinking of something, we are creating mental or biopsychological representations so we can better understand what happens in our lives, as well as determine a course of action based on our history. Plainly speaking, memories can be thought of as complex images that recall specific psychophysiological information in the body that can be re-experienced. If we

were scared deeply as a young child, we carry that moment as an image that holds biochemical information regarding our sensations. This is released when we recall that memory.

The significance of imagery lies in its duality. Just as you can create images that spark stress or anxiety, you can also create images that enhance your health and well-being. The following two scripts have been adapted from leaders within MBM that offer the reader basic foundational skills. The first is called a *body scan* (Gordon, 2009), which is formulated to bring greater awareness and control over the central nervous system. The more you use it to develop deep relaxation the more you will notice the subtle communication within your body. With this script people can find areas in the body that hold tension or pain and gently release those areas to bring better circulation and even healing. Within my own professional practice, each client is guided through this technique so they can become attuned to how their own body reacts to apprehension or nervousness. When you start using this technique it is recommended to pay close attention to the shifts in your body when you engage with your dog during different events, especially those that create tension or anger. This is to help you notice the very beginnings of your reactions under these conditions.

The second imagery script that has been adapted to accommodate the HA relationship and is called the *special place* (Gordon, 2009). The fundamentals of this script have been widely used under a variety of settings and treatment plans to provide a comfort image that can be recalled during stressful events. It enhances relaxation and is a great stress management tool. This imagery work is truly foundational in that you can modify the basic special place to add elements to reinforce specific relationships or health

goals. You can also use it as a safety net for events that become overwhelming or when you need to make an important decision.

When beginning with these two scripts it will probably be best to be guided through the experience until you become adept at memorizing the basic formats. To do so, you can make a recording of your own voice reading from the scripts below or you can find a good recording on the Internet (see the resource section of this guide). If you decide to use an audio recording, make sure that the voice and timing work for you. Tempo and timing are elements to be aware of when choosing a recording so not to feel pressured to move too quickly through the material. Tempo is important because you want a rhythm that is comfortable and enough time to create the images and still be gently led through the exercise within a timely manner. Both of these can range in duration depending upon previous experience with visualization (some people find it hard to trust this experience if they have never done it) and how much time it might take you today versus tomorrow to gain a sense of deep relaxation. Many people who train in MBM have reported using the voices and guidance of Jeanne Achterberg, Ph.D., Martin Rossman M.D., and James Gordon, M.D. to be best for them. Not only are they some of the originators of imagery research, but their voices are gentle, engaging, and range in tempo.

Body Scan Script: Take a few moments to find a comfortable spot and begin to let yourself relax. Let your body shift and move in order to get more comfortable and begin taking a few long, deep breaths. Let each breath become slow, gentle, and your outbreath a real “letting go” kind of breath. With each breath you become more relaxed and further away from any tension or problems

that may be bothering you, and as you relax you let your awareness begin to move inward. Letting go of all else for this time. Just breathe easily and without effort, becoming more and more relaxed.

When you're ready, gradually bring your awareness to the top of your head. Notice the sensation of your scalp in this area and slowly begin to move your awareness down across your face and the back of your head. Take another deep breath as you release any tension in your eyes (pause). Your nose. Your cheeks. Any in your ears and jaw. Release any tension or stiffness or pain in these areas that you may notice. Let your mouth open and continue to breathe easily and deeply. Now bring your awareness down your neck and throat. Gradually moving into the top of your shoulders. If you feel any tightness or discomfort, just notice it and bring your breath into that area. Releasing it with each breath. And from your shoulders, move down your arms. Slowly into your elbows. Further down your arms to your wrists. Then into your hands and palms. Eventually into each finger. At the end of each finger imagine any tension from your arms leaving through your fingertips. Just notice how each finger begins to relax even more, letting go of any tension. Bring your awareness back to the top of your chest, move down both sides of your chest. Feel how your lungs fill with air and your ribs move in connection with this. How your back actually expands with each breath and how your upper back has already begun to loosen while you let the chair hold you even more. And from your chest down to your abdomen. Noticing any holding you may have in this region. Letting it go even more. How it naturally expands with the rhythm of your breath and becomes soft and supple.

From your abdomen begin moving downward into your hips. Then into the tops of your thighs and the back of your thighs. Letting the chair hold you even more as your body continues to loosen and become comfortable. Into your knees and eventually down your calves and shins. Now into your ankles. Gently into the bottom of your feet and across the top of them. Gradually into each of your toes. Let any tension or tightness flow out of your legs through your toes and out.

And as you sit here completely relaxed, breathing easily and normally. Notice how this feels. Stay here for a few more moments and relish this sense. And in your own time, slowly begin to bring your awareness back to this place. Where you are now. You begin to hear more of the outside noises around you as you become more attentive. Moving your hands and feet. Take another deep breath. Knowing how good and at peace you now feel. And when you are ready, open your eyes.

Special Place Script: Allow yourself to sit back and relax. Move and shift to get yourself comfortable. Loosen any clothing that feels tight, unlace your shoes or take them off. If you wear glasses, take them off if you'd like. Notice where your arms are and if they feel comfortable and supported. Uncross your legs and feet so they are on the floor and in a relaxed position. In your own time, begin taking deep slow breaths, allowing your abdomen to rise with your breath and become soft. When you're ready, slowly close your eyes.

Allow your attention to move to your breathing. Let it become even and easy. Feel the air coming into your nose, knowing that with every breath you are bringing in clean, fresh energy. And really letting go of any tension with your

outbreath. With every breath your attention now begins to move inward, becoming more relaxed and quiet. Take another moment and just notice how a sense of calmness and comfort exists. You don't have to worry about how you got here only that you can do this simply by thinking it.

Now I'd like you to imagine a special place where you'd like to visit. This place is solely for you and when you're here you feel secure and comfortable. This place can be a real place or a make believe place. It could be a place where you have already been or a new place. If you have multiple places come up, just pick one that feels the most comfortable and inviting right now. A place that is beautiful, peaceful, and serene. This is a special inner place of your own.

Let yourself explore this place. Notice what kinds of sounds do you hear. What does it smell like? What season is it? What time of day or night is it? Notice how does it feel under your feet. How you feel in this place. Immerse yourself in the beauty and your feelings of peacefulness. Feeling oneness with everything in this place. Are you alone or with others? How do you look in this place? Are you a certain age? If there is anything you'd like to change about this place to make it more comfortable, do so. You can take something or someone out or bring anything into it. Walk around this place and notice the changes in the textures and landscape. Touch it with your hands or lie down. Now find a spot in this place that seems to call out to you. One where you can see all around you and feels particularly good to you. You feel especially calm, centered, and at ease here. It is a place of healing and rest for you and you alone. You feel completely at one with everything around you in this spot. Notice how it feels.

Take as much time as you need in this spot. Feel how grounded you are. How healthy and well you feel in this special place. How you can feel calm. Strong, relaxed, and connected all at the same time. Enjoy it for a few minutes longer taking in any healing you need at this moment.

Know that you can come back to this special place anytime you choose, reassure yourself that you will return very soon. And even though you have to start to leave you know that this place resides within you. Begin to say good-bye to this place. Carrying with you this sense of peacefulness and healing gradually let the awareness of your body against the chair return. Feeling the sensation of being in the chair again. Feeling refreshed and rested, at your own pace, bring yourself back gently and slowly. Begin moving your hands and feet. And when you are ready gradually open your eyes and become wide awake.

Guided Imagery with Your Dog

When you reach your special place let an image of your dog enter this place with you. This image may look similar or different from how you normally see your dog. Notice how you feel when your dog is present in this place with you. What do you two do? How does your dog move and interact with the environment? Does your dog have anything to say to you?

Now while you are both relaxed and have a sense of peace, imagine a bright yellow ball just above your dog's head. This ball is filled with all the love and positive emotions you feel toward them. It is also filled with healing light and energy. You only wish to offer them this gift. Offer this ball to them and wait for a response. If you get the sense that they are receptive to this gift of gratitude and love, then watch how it slowly

and gently begin to melt onto the top of her head and gradually into her whole body. Notice any changes in your dog once they have received this gift. Then allow yourself to feel your dog's gratitude and acceptance. Know that you are both closer and more intimate. You feel that you can say anything to your dog and they will understand you immediately, just as you are able to understand all of their communication to you. If your dog decided not to accept the ball of bright yellow light, know that you accept this decision without any judgment. Then let the ball disappear from your view and know that you can offer this again at any time.

Before leaving this special place, say good-bye to your dog and thank them for joining you in this moment. Slowly begin to leave your special place, feeling refreshed and relaxed, taking a few deep breaths, gradually becoming more and more aware of your surroundings. Wiggle your fingers and toes, and in your own time, become fully awake.

Another way to use imagery is by incorporating images into the words and commands you use. If you ask your dog to sit, then imagine what the dog looks like in this position. Become more aware of intentionally creating and using these images in your communications. You may even find that when your dog expresses a desire or intentions to you (e.g., I'd like to go for a walk!) that you may begin to experience new emotions and actual images that do not come from you, but from your dog.

One fun exercise to try out involves communicating only with images. Try calling your dog using only images. Imagine from your dog's point of view what it would look like to get up, walk down towards you from wherever they are, and find you. When your dog reaches you, shower them with kisses and hugs. Try it out and make

modifications that seem right for the person doing it. Keep in mind that this skill may be new to you as well as to your dog.

Chapter 5: Conclusion

Using the findings from the cited research, it is becoming more widely understood of how each dog and guardian can support or alter the other's health and well-being.

Those in HA pairs influence each other's health through gazing, touch and one's sheer presence. The co-evolutionary aspects of the HA bond place it in a unique setting where further research is needed. It would be valuable for additional details of this important family dynamic to become more widely known and utilized.

This project also suggests incorporating the theory of mutual aid as laid out by Kropotkin in 1902 when examining the core mechanisms within the HA bond. Viewing the HA relationship as a mutually beneficial one, it has been suggest that it could also influence the elements of happiness and well-being. Using MBM within the veterinary setting may provide alternative avenues for clients and patients in maintaining health, as well as, enhancing the doctor-guardian relationship.

Resources

Mindful Breathing:

- EZ-Air Plus download from the Biofeedback Foundation of Europe. Visit www.bfe.com. There is also an iPhone and Mac computer app called Breathing Zone that can be downloaded for free through Apple's App store.
- The Center for Mind-Body Medicine offers free downloads of guided deep breathing exercises at: www.cmbm.org

Imagery:

- The Sounds True website has Jeannie Achterberg's audio recordings and guided imagery at: www.soundstrue.com. Jeannie's recordings also provide the leading research in imagery, much of it her own, that gives a broader understanding of imagery and how it works within the mind-body connection and intentional healing treatments. Her books on imagery are available through Amazon and her personal website is www.jeanneachterberg.com
- Dr. Martin Rossman's recordings can be found on his own site at: www.interactiveimagery.com. I suggest buying his book in conjunction with the audio CDs as it provides additional information and research on the use of imagery in healthcare. He has also developed a certification program in imagery that can be accessed via the website and is in a distance learning format for professionals.

General Mind-Body Medicine:

- James Gordon, M.D. has several valuable books covering MBM and its use with specific illnesses such as depression. These can easily be found on

www.amazon.com. Dr. Gordon is the founder of the Center for Mind-Body Medicine (www.cmbm.org) in Washington D.C. and gives in-depth trainings and a certification program geared toward healthcare professionals. In addition to teaching, members of the CMBM travel around the world providing healing and assistance to those in major trauma areas like Gaza and Haiti.

- Lynne McTaggart (2008), a journalist, has published several books on current MBM theory and the underlying quantum mechanics most often cited with these skills. Her latest book, *The Field*, delves into what science has begun to prove about an underlying universal life force. Her website is: www.livingthefield.com
- Larry Dossey, M.D. is one of the forefront leaders in examining and developing the nonlocal mind theory. He created a new professional journal called “Explore” that is well worth following.

Education:

- Saybrook University – distance learning programs in MBM for certification, M.S., and Ph.D. tracks. Humanistic focus within a cohort learning environment.
www.saybrook.edu
- University of Pennsylvania – the Positive Psychology Center directed by Dr. Marty Seligman is open to the general public and provides a number of free online tests that you can take and then compare your scores with others from across the world: www.authentichappiness.org. The University of Pennsylvania now offers a new Master of Arts degree geared toward professionals who wish to apply the theories of positive psychology into their lives and work.

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Positive Psychology:

- The International Positive Psychology Association (IPPA) can be found at www.ippanetwork.org
- The University of Cambridge offers current papers and how this field can be applied to aging. The Well-Being Institute is located online at: www.cambridgewellbeing.org
- Martin Seligman, Ph.D. has just published a new book called *Flourish*, which I highly recommend (2011). This 2011 book expands upon previous theories of happiness and well-being, and the author proposes a new theory based upon flourishing. This can be found online at www.amazon.com. His national bestseller, *Learned Optimism*, provides insight into how we can change our perspective to be more positive.
- Mihaly Csikszentmihalyi, Ph.D. is one of the founders of positive psychology and his book *Flow: The Psychology of Optimal Experience* (1990) reveals what makes an experience genuinely satisfying.

Holistic Veterinary Medicine:

- Dr. Martin Goldstein is the founder and lead doctor at Smith Ridge Vet Center located in South Salem, New York. Clients from across the country travel to have his team of integrative vets treat dogs and cats that have been deemed terminal cases by conventional medicine. They have become the leading practice in America with astounding results and the highest curing rates among those with cancer. His book *The Nature of Animal Healing* recounts many personal

experiences with alternative medicine, along with his own views on healing.

Smith Ridge can be found online at: www.smithridge.com.

- The American Holistic Veterinary Medical Association provides an in depth listing of current practitioners, as well as upcoming conferences:
www.ahvma.org
- Dr. Richard Pitcairn, the well-known homeopath who established the certification program for vets, has retired from private practice, but his foundational book *Natural Health for Dogs & Cats* is a must-have for everyone. He continues to teach the certification program and current locations are listed on his website .
- The *Whole Dog Journal* publishes a newsletter that covers the latest information in positive dog training, nutrition, and alternative medicine. Subscription to the newsletter gives you online access to previous issues at:
www.wholedogjournal.org.

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Appendix A

Angeline Siegel is a practicing animal therapist who specializes in the treatment of aggression and anxiety cases. Her approach to healing and treatment rely upon holistic principles found within alternative and complementary medicine. She holds a B.S. from Temple University in cognitive psychology and has additionally worked at the Animal Behavior Clinic at the Veterinary Hospital at the University of Pennsylvania. Additionally, she holds a Master's certification in Reiki from the International House of Reiki in Sydney, Australia. She has been practicing and developed an integrative model of health for HA pairs that she has been using for over 18 years.

She typically works with veterinarians in resolving canine behavioral issues and has spent several years working in animal welfare in one of the nation's largest shelters, Human Society Silicon Valley. As the director of business, she oversaw all public outpatient medical services, developed local business partnerships and canine enrichment programs, served as chair of the county's feral committee, and created the shelter's first animal behavior clinic. Her full bio can be read at www.zenoffido.com.

This guidebook describes experiences and examples from her professional career to assist veterinarians in understanding the additional complexities of healing commonly found in the HA bond.