

The Magic of Touch

Healing Effects of Animal Touch & Animal Presence

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CHAPTER ONE

ANIMALS OF THE SAME SPECIES TOUCHING EACH OTHER

Chapter one is a summary of several scientific studies regarding animals of the same species touching each other. The authors have compiled several studies showing how touch benefits these animals. The chapter is divided into three sections titled as follows: “Touch Buffers Stress and Distress,” “Touch Mediates Conflict,” and “Touch Functions as ‘Social Glue.’”

KEY TERMS/VOCABULARY WITH DEFINITION

Conspecific • of the same species

Physiological • relating to the way in which a living organism or bodily part functions

Prolactin • a hormone that is released into the bloodstream in response to acute stressors

Beta-endorphin • a hormone produced primarily in the pituitary gland that is a powerful pain suppressor

Neurotransmitter • a chemical used by the nervous system to transmit messages between neurons, or from neurons to muscles

Oxytocin • a powerful hormone that acts as a neurotransmitter in the brain and is associated with empathy, trust, sexual activity, and relationship building

Endorphin • a chemical produced by the central nervous system and the pituitary gland that acts on the opiate receptors in the brain to reduce pain and boost pleasure, resulting in a feeling of well-being

Adrenocorticotropin Hormone • a chemical produced by the pituitary gland that is needed for the adrenal glands to work properly and help the body react to stress

Primiparous Woman • a woman who has given birth only once

PRE-READING DISCUSSION QUESTIONS

1. Do you believe touch can be healing and beneficial?
2. What are your beliefs about social interaction between animals?
3. Do you feel it is important for social animals to have a social group?

POST-READING QUESTIONS

You may choose to go over the following questions in class or use the worksheet attached.

1. The Wilson (2001) study measured the level of prolactin in rats who were put in stressful situations. What did the study demonstrate about rats? Explain the bar graph on page 3.
2. What does research tell us about all social animals and their need for touch by other conspecifics?
3. What are the benefits of touch between two animals of the same species?
4. What did the De Costa et al. (2004) study mentioned on page 4 teach us about sheep? What are some reasons this may work for some other mammals?
5. Solitary imprisonment is one of the most serious stressors for primates. What has research demonstrated regarding the self-injurious behaviors associated with extreme distress?
6. Should there be laws protecting animals from serious stressors, such as isolation or solitary imprisonment? Explain.
7. Several studies have shown that touch and massage are beneficial in pain management. List three significant things you learned between pages 5–8.
8. Explain the primary stress-buffering contact behavior of primates and other social mammals. Why are the studies described on pages 9 and 10 significant?

9. Reread the first two paragraphs of the section titled “Touch Mediates Conflict.” Explain the importance of these studies. Write a paragraph explaining these first two paragraphs. (pages 12–13)
10. The De Waal (1989) and Koyama & Dunbar (1996) studies focused on groups of chimpanzees. What were the similarities of the two studies?
11. How are peacemaking strategies employed by chimpanzees?
12. How were the Judge & De Waal (1997) and the Judge et al. (2006) studies similar? What was the significant difference between the behaviors of the baboons and macaques?
13. How do behaviors of chimpanzees described on pages 15 and 16 compare to other mammals? What are the three most interesting things you learned when reading about the De Waal & van Roosmalen (1979) study?
14. It is believed that peacemaking through friendly touch-mediated behavior occurs in other species. Do you believe this hypothesis, and have you ever witnessed such behaviors? Explain.
15. Explain what the authors mean by the title of the section “Touch Functions as ‘Social Glue,’” on page 20.

CHAPTER TWO

ANIMALS OF DIFFERENT SPECIES TOUCHING EACH OTHER

Chapter two is a summary of several scientific studies regarding animals of different species’ effect on each other. The authors have compiled several studies demonstrating the effect of different species of animals touching each other. The chapter is divided into four sections titled as follows: “Touch Calms, Comforts and Buffers Depression, Pain, Stress and Anxiety,” “Touch Enhances Quality of Life,” “Touch Promotes Health,” and “Animal-Assisted Therapy.”

KEY TERMS/VOCABULARY WITH DEFINITION

- Postural Response** • the physical reaction to a stimuli
- Arterial Oxygen** • sum of oxygen bound to hemoglobin and oxygen carried in physical solution in the blood
- Cortisol** • one of several steroid hormones produced by the adrenal gland that regulates a wide range of processes throughout the body, including metabolism and the immune response

PRE-READING DISCUSSION QUESTIONS

1. Do you feel animals can assist in the healing of patients?
2. Do you think animal therapies will become more common in the upcoming years?
3. Have you witnessed examples of an animal being an integral part of someone’s healthcare?
4. Why do you think humans create such close bonds with their animals?
5. Do you feel animals have positively impacted your life? Explain.

POST-READING QUESTIONS

You may choose to go over the following questions in class or use the worksheet attached.

1. Explain the chart on page 25. Why is this significant and how can it benefit people working with animals?
2. The paragraph that begins at the bottom of page 25 gives the reader a brief glimpse into the treatment of animals in laboratories. What do the studies demonstrate when it comes to the treatment of laboratory animals? (pages 25–26)
3. Explain the findings on page 28. Why is this important for human lives as well as animal lives?
4. Morgan (2008) and Beetz et al. (2012) studied the comforting effects of interaction with a dog versus a friendly person. What are some other reasons humans may experience less anxiety with a companion dog? (page 30)
5. Explain the findings of the Krause-Parello & Gulick (2015) study. In your opinion, why were the children more comfortable with a dog present? (page 31)
6. Reread pages 31–32. Upon completion, brainstorm and document ways animals can be beneficial to people suffering from PTSD and other trauma-based issues.
7. According to the Calvo et al. (2016) study, patients suffering from chronic schizophrenia benefited from a program of therapy sessions with a dog. In your opinion, should animal therapies be considered in more healthcare environments? (page 35)
8. Explain why the Orlandi et al. (2007) study is significant. (page 35)
9. Explain the studies related to elderly citizens, budgerigars, and begonias. (page 37)
10. How is the five-cricket study by Ko et al. (2016) significant when learning about the needs of elderly citizens? (page 39)

11. What evidence demonstrates that actively touching another living creature boosts the immune system? (page 40)
12. In your opinion, why are dogs able to provide so many health benefits to their owners?
13. Explain the two bar graphs on page 44. How can the graphs be recreated to demonstrate the same information in a new way?
14. What are some of the benefits of dog-assisted therapies?
15. Do you feel dog-assisted therapy is a reasonable resolution for pain management and patient morale?
16. Do you feel animals should have a more significant role in medical and mental healthcare?
17. Why do you feel dogs have a positive affect on children with autism?
18. Explain three benefits of animals to senior citizens. Do you think this is important for the overall health of elderly people?
19. Write a paragraph expressing your opinion about inmates training rescue dogs. Find 2–3 resources online to defend your opinion.

CHAPTER THREE

MERE PRESENCE OF A COMPANION ANIMAL

Chapter three is a summary of several scientific studies regarding humans in different situations and the physiological effects of an animal in the room. The chapter consists of one section titled "Mere Presence of a Companion Animal."

KEY TERMS/VOCABULARY WITH DEFINITION

Attenuate • to reduce in force, effect, or value

PRE-READING DISCUSSION QUESTIONS

1. How does your animal benefit your life?
2. Do you feel you can relax easier with your animal in the room with you?

POST-READING QUESTIONS

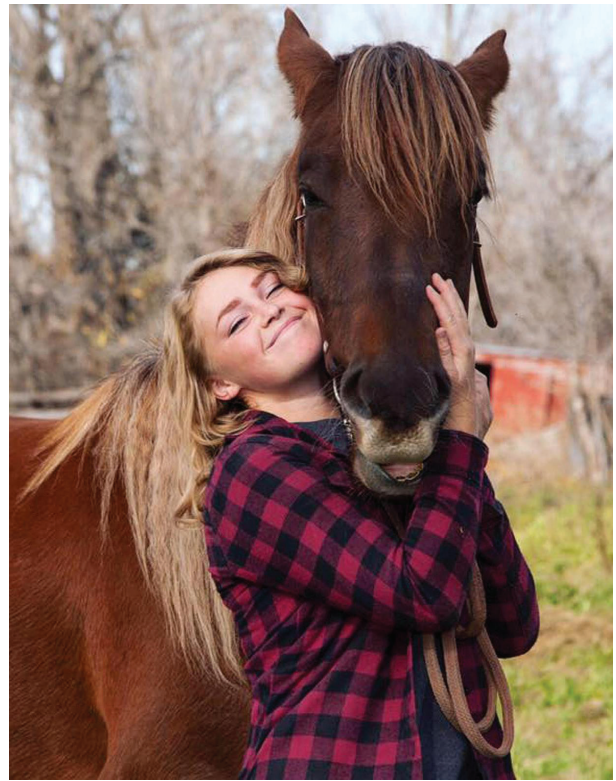
1. What is the importance of the supplemental study conducted by Allen et al. (2002)? What were the researchers trying to prove? (page 60)
2. Explain the reasons 18 children in the Friedman et al. (1983) study showed a significant decrease in blood pressure when a dog was present. (page 61).
3. Compare the findings of the studies on page 62 and the first half of 63. What are the reasons the authors feel animals are so beneficial to humans who are completing mathematical tasks?
4. Create another type of graphic to illustrate the results of the chart on page 62.
5. How can medical professionals use studies like Nagengast et al. (1997), Hansen et al. (1999), and Braun et al. (2009) to benefit patients? Can the studies provide a beneficial protocol for treating patients? Explain. (page 63)



ACTIVITIES

Have students choose 2–3 activities to complete.

- Create a brochure that demonstrates how touch by a conspecific is beneficial. Make sure to include graphs, pictures, and detailed descriptions of the benefits of touch.
- Design a research study to validate one of the studies referenced in chapter one. The study must not negatively affect animal welfare and should not cause unnecessary stress to animals.
- Take a trip to your local licensed zoo or wildlife park and take video of as many examples as you can of animals touching, grooming, and comforting each other. Notice the situation around the animals and be able to explain each situation or include commentary on your video.
- Create a piece of art illustrating the importance of animals' bond with other conspecifics.
- Find three to five examples of friendly interspecies interaction in a publication, on social media, on the internet, or in your own life. Write a paragraph explaining what is happening in each example. Your paragraph should refer to your knowledge gained in chapter two. (Please limit human/animal interactions to one example.)
- Find a current event in a reputable publication regarding the healing and beneficial effects of interspecies interaction. Write a one-page summary of the article.
- Research positive interspecies interactions and find three pieces of information regarding the benefits of interaction between species that was not covered in chapter two. Write four to five sentences to explain each additional fact you uncovered.
- Create a song about having a member of a different species present. Refer to chapter three.
- Design a bulletin board that shows how the presence of a member of another species is advantageous.
- With a partner, create a newscast regarding animal-assisted therapy. You should include information from chapter two and additional real-world examples.
- Create a large piece of art illustrating the overall meaning of the book *The Magic Of Touch*.
- Free choice: If you have another idea for a project, submit a proposal to your teacher for approval.



NAME: _____ DATE: _____

Read and answer the following questions. Use the information gained in the book to answer.

CHAPTER ONE: ANIMALS OF THE SAME SPECIES TOUCHING EACH OTHER

1. The Wilson (2001) study measured the level of prolactin in rats who were put in stressful situations. What did the study demonstrate about rats? Explain the bar graph on page 3.

2. What does research tell us about all social animals and their need for touch by other conspecifics?

3. What are the benefits of touch between two animals of the same species?

4. What did the De Costa et al. (2004) study mentioned on page 4 teach us about sheep? What are some reasons this may work for some other mammals?

5. Solitary imprisonment is one of the most serious stressors for primates. What has research demonstrated regarding the self-injurious behaviors associated with extreme distress?

6. Should there be laws protecting animals from serious stressors, such as isolation or solitary imprisonment? Explain.

7. Several studies have shown that touch and massage are beneficial in pain management. List three significant things you learned between pages 5-8.

8. Explain the primary stress-buffering contact behavior of primates and other social mammals. Why are the studies described on pages 9 and 10 significant?

9. Reread the first two paragraphs of the section titled "Touch Mediates Conflict." Explain the importance of these studies. Write a paragraph explaining these first two paragraphs. (pages 12-13)

10. The De Waal (1989) and Koyama & Dunbar (1996) studies focused on groups of chimpanzees. What were the similarities of the two studies?

11. How are peacemaking strategies employed by chimpanzees?

12. How were the Judge & De Waal (1997) and the Judge et al. (2006) studies similar? What was the significant difference between the behaviors of the baboons and macaques?

13. How do behaviors of chimpanzees described on pages 15 and 16 compare to other mammals? What are the three most interesting things you learned when reading about the De Waal & van Roosmalen (1979) study?

14. It is believed that peacemaking through friendly touch-mediated behavior occurs in other species. Do you believe this hypothesis, and have you ever witnessed such behaviors? Explain.

15. Explain what the authors mean by the title of the section "Touch Functions as 'Social Glue,'" on page 20.

NAME: _____ DATE: _____

Read and answer the following questions. Use the information gained in the book to answer.

CHAPTER TWO: ANIMALS OF DIFFERENT SPECIES TOUCHING EACH OTHER

1. Explain the chart on page 25. Why is this significant and how can it benefit people working with animals?

2. The paragraph that begins at the bottom of page 25 gives the reader a brief glimpse into the treatment of animals in laboratories. What do the studies demonstrate when it comes to the treatment of laboratory animals? (pages 25-26)

3. Explain the findings on page 28. Why is this important for human lives as well as animal lives?

4. Morgan (2008) and Beetz et al. (2012) studied the comforting effects of interaction with a dog versus a friendly person. What are some other reasons humans may experience less anxiety with a companion dog? (page 30)

5. Explain the findings of the Krause-Parello & Gulick (2015) study. In your opinion, why were the children more comfortable with a dog present? (page 31)

6. Reread pages 31-32. Upon completion, brainstorm and document ways animals can be beneficial to people suffering from PTSD and other trauma-based issues.

7. According to the Calvo et al. (2016) study, patients suffering from chronic schizophrenia benefited from a program of therapy sessions with a dog. In your opinion, should animal therapies be considered in more healthcare environments? (page 35)

8. Explain why the Orlandi et al. (2007) study is significant. (page 35)

9. Explain the studies related to elderly citizens, budgerigars, and begonias. (page 37)

10. How is the five-cricket study by Ko et al. (2016) significant when learning about the needs of elderly citizens? (page 39)

11. What evidence demonstrates that actively touching another living creature boosts the immune system? (page 40)

12. In your opinion, why are dogs able to provide so many health benefits to their owners?

13. Explain the two bar graphs on page 44. How can the graphs be recreated to demonstrate the same information in a new way?

14. What are some of the benefits of dog-assisted therapies?

15. Do you feel dog-assisted therapy is a reasonable resolution for pain management and patient morale?

16. Do you feel animals should have a more significant role in medical and mental healthcare?

17. Why do you feel dogs have a positive effect on children with autism?

18. Explain three benefits of animals to senior citizens. Do you think this is important for the overall health of elderly people?

19. Write a paragraph expressing your opinion about inmates training rescue dogs. Find 2-3 resources online to defend your opinion.

NAME: _____ DATE: _____

Read and answer the following questions. Use the information gained in the book to answer.

CHAPTER THREE: MERE PRESENCE OF A COMPANION ANIMAL

1. What is the importance of the supplemental study conducted by Allen et al. (2002)? What were the researchers trying to prove? (page 60)

2. Explain the reasons 18 children in the Friedman et al. (1983) study showed a significant decrease in blood pressure when a dog was present. (page 61)

3. Compare the findings of the studies on page 62 and the first half of 63. What are the reasons the authors feel animals are so beneficial to humans who are completing mathematical tasks?

4. Create another type of graphic to illustrate the results of the chart on page 62.

5. How can medical professionals use studies like Nagengast et al. (1997), Hansen et al. (1999), and Braun et al. (2009) to benefit patients? Can the studies provide a beneficial protocol for treating patients? Explain. (page 63)

NAME: _____ DATE: _____

Read and answer the following questions. Use the information gained in the book to answer.

CHAPTER ONE: ANIMALS OF THE SAME SPECIES TOUCHING EACH OTHER

1. The Wilson (2001) study measured the level of prolactin in rats who were put in stressful situations. What did the study demonstrate about rats? Explain the bar graph on page 3.

The study demonstrated that visual and auditory contact was not enough to mitigate stress. Rats need the sensation of physical contact with a companion to protect against stress. The graph shows the level of prolactin levels released by rats in different situations. Students should use their own words to explain the graph and its meaning.

2. What does research tell us about all social animals and their need for touch by other conspecifics?

Social animals need physical contact and interaction with other conspecifics to mediate stress and anxiety and live a healthy life. Student answers will vary depending on the information they obtained in the chapter.

3. What are the benefits of touch between two animals of the same species?

The benefits include a decrease in anxiety, heart rate, stress, and pain intensity. It also facilitates relaxation, enhances the feeling of well-being, and decreases conflict among conspecifics.

4. What did the De Costa et al. (2004) study mentioned on page 4 teach us about sheep? What are some reasons this may work for some other mammals?

Sheep heart rates and stress levels decrease when they could see a large picture of a conspecific. The students' answers will vary on the second part of the question.

5. Solitary imprisonment is one of the most serious stressors for primates. What has research demonstrated regarding the self-injurious behaviors associated with extreme distress?

Apes' and monkeys' self-injurious behaviors can be treated only by physical touch and interaction with a live conspecific.

6. Should there be laws protecting animals from serious stressors, such as isolation or solitary imprisonment? Explain.

Student answers will vary.

7. Several studies have shown that touch and massage are beneficial in pain management. List three significant things you learned between pages 5-8.

Student answers will vary. Answers should be derived from examples on pages 5-8.

8. Explain the primary stress-buffering contact behavior of primates and other social mammals. Why are the studies described on pages 9 and 10 significant?

Grooming is the primary stress buffering contact behavior. Students should give thoughtful and substantial answers derived from pages 9-10.

9. Reread the first two paragraphs of the section titled “Touch Mediates Conflict.” Explain the importance of these studies. Write a paragraph explaining these first two paragraphs. (pages 12–13)

Student answers will vary. Students should explain why they feel the studies are important. In addition, students should use their own thoughts and words to explain the text on pages 12–13.

10. The De Waal (1989) and Koyama & Dunbar (1996) studies focused on groups of chimpanzees. What were the similarities of the two studies?

Grooming serves as a mediator to reduce social tension. Both groups of chimpanzees engaged in grooming activities around feeding time, suggesting that captive primates can anticipate potential conflict.

11. How are peacemaking strategies employed by chimpanzees?

Chimpanzees engage in grooming activities to prevent aggression and reconcile after an aggressive dispute.

12. How were the Judge & De Waal (1997) and the Judge et al. (2006) studies similar? What was the significant difference between the behaviors of the baboons and macaques?

The male macaques' aggression did not differ significantly between the three groups, but there was a significant increase in grooming with the degree of crowding. The baboon groups showed an increase in grooming during the crowding sessions. The female baboons were the primary groomers. The female baboons were the peacemakers.

13. How do behaviors of chimpanzees described on pages 15 and 16 compare to other mammals? What are the three most interesting things you learned when reading about the De Waal & van Roosmalen (1979) study?

Students should use prior knowledge of other mammals to answer the first part of the question. Student answers will vary on the second part of the question.

14. It is believed that peacemaking through friendly touch-mediated behavior occurs in other species. Do you believe this hypothesis, and have you ever witnessed such behaviors? Explain.

Student answers will vary.

15. Explain what the authors mean by the title of the section “Touch Functions as ‘Social Glue,’” on page 20.

Student answers will vary but should include how touch motivates animals to stay in close proximity to each other as pairs or groups.

NAME: _____ DATE: _____

Read and answer the following questions. Use the information gained in the book to answer.

CHAPTER TWO: ANIMALS OF DIFFERENT SPECIES TOUCHING EACH OTHER

1. Explain the chart on page 25. Why is this significant and how can it benefit people working with animals?

A friendly person grooming a horse has a calming effect on the horse. Being groomed reduces stress in horses.

2. The paragraph that begins at the bottom of page 25 gives the reader a brief glimpse into the treatment of animals in laboratories. What do the studies demonstrate when it comes to the treatment of laboratory animals? (pages 25–26)

Animals in laboratories often go through distressing and painful procedures by unfriendly people whom they do not trust. This treatment evokes fear and stress in laboratory animals.

3. Explain the findings on page 28. Why is this important for human lives as well as animal lives?

Positive interaction between humans and dogs is beneficial to both species by lowering blood pressure and increasing beta-endorphins, oxytocin, and dopamine.

4. Morgan (2008) and Beetz et al. (2012) studied the comforting effects of interaction with a dog versus a friendly person. What are some other reasons humans may experience less anxiety with a companion dog? (page 30)

Student answers will vary.

5. Explain the findings of the Krause-Parello & Gulick (2015) study. In your opinion, why were the children more comfortable with a dog present? (page 31)

Student answers will vary according to their opinion.

6. Reread pages 31–32. Upon completion, brainstorm and document ways animals can be beneficial to people suffering from PTSD and other trauma-based issues.

Student answers will vary.

7. According to the Calvo et al. (2016) study, patients suffering from chronic schizophrenia benefited from a program of therapy sessions with a dog. In your opinion, should animal therapies be considered in more healthcare environments? (page 35)

Student answers will vary.

8. Explain why the Orlandi et al. (2007) study is significant. (page 35)

The study showed that the patients with the dog present during chemotherapy experienced a significant reduction in depression and an increase in arterial oxygen saturation.

9. Explain the studies related to elderly citizens, budgerigars, and begonias. (page 37)

Student answers will vary, but answers should include that elderly citizens with the budgerigar experienced a significant improvement in perceived health, had more friends and visitors, and were more active in their community.

10. How is the five-cricket study by Ko et al. (2016) significant when learning about the needs of elderly citizens? (page 39)

Student answers will vary but should be in line with the study. The study showed caring for crickets had positive effects on depression and cognitive function of elderly citizens.

11. What evidence demonstrates that actively touching another living creature boosts the immune system? (page 40)

Student answers will vary, but should include references to the following studies: In a study of shelter cats, the incidence of upper respiratory disease was 58% lower and the secretory antibody immunoglobulin A (IgA) level was significantly higher in cats who were gently petted daily. In addition, 19 students who stroked a companion dog for 18 minutes had a 33% increase in IgA compared to the 17 other students who petted lifeless stuffed dogs.

12. In your opinion, why are dogs able to provide so many health benefits to their owners?

Student answers will vary.

13. Explain the two bar graphs on page 44. How can the graphs be recreated to demonstrate the same information in a new way?

The bar graphs demonstrate the impact of a 12-minute visit by therapy dogs on patients with advanced heart failure. The patients who were visited by a dog and a human volunteer had significantly lower cardiopulmonary pressure and anxiety scores than the patients who were visited by just a volunteer. Students should create a new graphic to demonstrate the same information.

14. What are some of the benefits of dog-assisted therapies?

Student answers should include some or all the following: distress buffering, decreased depression, decreased anxiety, reduced stress, improvements in mood, improvements in pain (pain buffering), lower VAS scores, decreased tension, decreased fatigue, improved outlook by patients, more optimistic attitude, lower blood pressure, improvement in social skills, decreased cortisol levels, behavior benefits, buffered fear, buffered physiological distress

15. Do you feel dog-assisted therapy is a reasonable resolution for pain management and patient morale?

Student answers will vary.

16. Do you feel animals should have a more significant role in medical and mental healthcare?

Student answers will vary.

17. Why do you feel dogs have a positive effect on children with autism?

Student answers will vary.

18. Explain three benefits of animals to senior citizens. Do you think this is important for the overall health of elderly people?

Student answers will vary. The student should give an opinion on the second part of the question, which should be in line with the reading on pages 52-54.

19. Write a paragraph expressing your opinion about inmates training rescue dogs. Find 2-3 resources online to defend your opinion.

Student answers will vary but should include references to the students' research.

NAME: _____ DATE: _____

Read and answer the following questions. Use the information gained in the book to answer.

CHAPTER THREE: MERE PRESENCE OF A COMPANION ANIMAL

1. What is the importance of the supplemental study conducted by Allen et al. (2002)? What were the researchers trying to prove? (page 60)

The participants in the adoption group had significantly lower blood pressure after adopting a dog. Participants in the group that deferred adopting a dog had no change in their blood pressure. After the study, the group that deferred adoption had blood pressure results similar to the first group. The study was trying to prove whether the same results would be achieved by both groups after adopting a dog. The dogs have a positive affect on the health of their owners.

2. Explain the reasons 18 children in the Friedman et al. (1983) study showed a significant decrease in blood pressure when a dog was present. (page 61)

The dog's presence created a nondemanding and nonjudgmental environment for the children.

3. Compare the findings of the studies on page 62 and the first half of 63. What are the reasons the authors feel animals are so beneficial to humans who are completing mathematical tasks?

The studies indicated that the mere presence of a companion animal had a de-stressing effect. The presence of a companion animal attenuated anxiety, heart rate, and salivary cortisol levels. Stress response was significantly reduced when the pet was present. Fewer errors were made in the mathematical problems when a companion animal was present.

4. Create another type of graphic to illustrate the results of the chart on page 62.

Student answers will vary.

5. How can medical professionals use studies like Nagengast et al. (1997), Hansen et al. (1999), and Braun et al. (2009) to benefit patients? Can the studies provide a beneficial protocol for treating patients? Explain. (page 63)

Student answers may vary. Students may have differing views and opinions on this question.
