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ORIGINAL ARTICLE

A DOG'S EFFECT ON CLIENTS' HEART RATE AND BLOOD PRESSURE AND THE POSSIBILITIES OF ITS USE IN RELAXATION

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Abstract

Introduction: Canistherapy (dog as a means of treatment) includes various activities, the goal of which is to support the psychological and somatic functions of a patient to rehabilitate and treat them. Foreign studies have proven that dogs have a positive influence on fine motor skills, gross motor skills, movement, and motivation for therapies, anxiety, depression, socialization and cognitive functions. Dogs are usually used as co-therapists or canistherapists' associates in AAT (Animal Assisted Therapy) and AAA (Animal Assisted Activity). Patient contact and communication with animals (giving them treats and walking them) help to stimulate and activate patients with various diseases and impairments. Direct contact with a dog provides relaxation and a feeling of peace. It also evokes the feeling of sharing and offers the opportunity to change from difficult to light conversation topics.

Goal: The goal of the research was to verify the effect of contact with dogs on blood pressure and how this evokes relaxation in twelve healthy adults.

Materials and methods: Twelve adults (five men and seven women) underwent a thirty-minute intervention, which consisted of patients lying on their back for twenty minutes. The patients' upper body was in direct contact with a dog. This was followed by a ten-minute monitoring without the dog. Ten people showed a decrease in blood pressure, and nine showed a decrease in pulse frequency.

Conclusion: It is possible to say that the monitored individuals became relaxed due to the contact with a dog. In all cases, the therapy can be assessed as positive, because most clients showed a decrease in the monitored parameters. A systolic pressure decrease was observed in ten out of twelve clients. A diastolic pressure decrease was observed in ten clients, while one client showed unchanged values. Pulse frequency was decreased in nine out of twelve cases, and pressure decrease was observed in 83.3%. Decreased pulse frequency was 75% successful. All the monitored clients said that the therapy was pleasant, calming and that they would happily repeat it. A positive attitude toward animals, in this case dogs, is the basis for successful results of this alternative method.

Keywords: *dog; therapy; pulse; blood pressure*

INTRODUCTION

The possibility that animals could positively influence a person's mental condition was first considered in 1980. A scientific experiment of the pioneer E. Friedmann and his colleagues raised great interest in this issue. The experiment proved the interesting fact that animal owners lived longer than people who did not own a pet. A number of later studies showed the positive influence of animals on mental and physical condition (in patients with various types of illnesses). Many institutions and facilities began to support the interaction between patients and specially trained animals as part of treatment. The result of the patients' contact with animals was a positive effect on their change of mood, reduced depression, anxiety and aggressive behaviour, and improved social relationships and self-confidence. Animals also helped in decreasing blood pressure, and in encouraging patients to be active, etc. (Fine 2010, Berek 2013). This began to be referred to as AAT (Animal Assisted Therapy).

The most positive influence of AAT was observed in patients suffering from psychological, psychiatric or emotional disorders, such as schizophrenia, dementia, psychological harm after sexual assaults and many other problems. The personal contact with an animal, which is an unbiased companion, has a calming effect. AAT is very effective for children being treated for cancer; it helps them to deal with fear, depression and isolation (Altschiller 2011). The selection of an animal and the establishment of the treatment are based on whether the problem is physical or psychological (Stefanini et al. 2016).

Before the study of Dr. Levinson in 1964, the topic of AAT had been studied by Carl Rogers, a psychologist who presented unofficial evidence that the presence of an animal could have a positive effect on a child's health condition. Independent of the work of these two psychologists, a few Colorado State University scientists carried out a study in which they treated two emotionally disturbed eleven and twelve-year-old boys. The boys underwent weekly therapeutic sessions for three months. They mainly learned to teach dogs to obey orders. In both cases, the therapy was successful. The greatest success was in a greater level of self-respect, which arose from their ability to communicate with the animal (Tsai et al. 2010). AAT offers the opportunity to experience success and adapt to different environments better. As he or she is treated, the client becomes an "active participant in his or her own therapy". He or she becomes more independent and satisfied with him or herself. In many cases all over the world, animals have helped people to deal with emotional problems. One example is Cindy Ehlers Eugene, who used her dog in student therapy. The students had been strongly traumatized by the shooting in Springfield high school in 1998 in Oregon. Four people died and many others were injured. Therapists who had been working with the students were extremely happy that a dog's presence had such a positive and calming effect on the students (before this the students had not responded to any previous advisory method). Another example is Tracy Roberts, who used her dogs at an elementary school in DeSoto, Texas. Here, the dogs were assistants to a fourth and fifth grade teacher. They helped to create a more comfortable home environment and reduce stress (Fine 2010).

A dog's effect on decreasing blood pressure and pulse rate

Studies have shown that, in just two minutes, animal interaction changes physiological parameters. Animal therapy was the reason the high /normal blood pressure and heartbeat frequency in the research participants decreased. Another group of patients proved that those living with an animal had lower blood pressure, heartbeat frequency or lower renin activity in the plasma than those who did not have a pet. It was also proved that after a myocardial infarction, patients were at a lower risk of cardiovascular illnesses if they had a pet. The total mortality one year after the infarction was lower because they had a pet. All such studies support the hypothesis that the increased sympathetic nervous system activity which supports physical and psychological stress can be reduced by animal assisted therapies (Cole et al. 2007).

When comparing two groups of patients, where one worked with a volunteer and the other with a volunteer and a dog, the second group of patients had a lower systolic pressure during and after therapy. They also showed a lower level of epinephrine and norepinephri-

ne during and after therapy. After therapy, the patients who had worked with the dog showed a lower level of anxiety too. The research shows that animal assisted therapy affects cardio-pulmonary pressure, neurohormonal level, and stress in patients who were hospitalized due to cardiac failure (Cole et al. 2007). It is also very helpful in social interactions and for emotional well-being. A dog's presence has a positive effect on the physical and mental pain of patients (Jorgenson 1997, Proulx 1998, Filan and Llewellyn-Jones 2006, Sobo et al. 2006, Wilkes 2009).

The possibilities of affecting blood pressure were also studied by Allen (2003), whose research participants lived alone, had an extremely stressful job and high blood pressure. The treatment started with high blood pressure medicaments, whose effect was lower if the patients were under stress. As expected, the medicaments decreased blood pressure in all participants. Nevertheless, participants who were exposed to stress, but in the presence of a dog, had two times lower blood pressure than those without a dog. The research also proved that participants who had little social contact enjoyed the dog's presence more.

Odendaal and Meintjes (2003) carried out research focused on the assessment of a dog's effect on the blood pressure of a patient. There were eighteen participants, aged between 19 and 55 years. They worked with the same number of dogs for between 2 and 11 years. The research was carried out during a calm interaction between a human and a dog, where the human was sitting on the floor in order to create an ideal interaction with the dog. The interaction included social gestures, such as speaking to the dog, soft caressing with long strokes or scratching its body. The human's attention was fully focused on the dog. The results showed that the patients' blood pressure tended to decrease. The average time for blood pressure decrease was 15 minutes.

Relaxation therapy with a dog

A client's good feeling about a dog's presence is influenced by the correct choice of dog, and whether the canistherapeutic team has successfully passed exams. Firstly, the client must get acquainted with the dog, and this should be taken care of by dog handlers to create a good atmosphere. Dog handlers also see to the dog's obedience and its correct attitude to the therapy. After this, the therapist chooses a convenient activity according to the current client's condition. Dog handlers see to it that the dog lies calmly by the client's side. The client benefits from the contact with the dog. Being in different relaxing positions for ten or more minutes is defined as a therapy method using a dog (Lejčarová and Skálová 2009). Factors with a positive effect are the dog's breathing, which is tranquilizing, the dog's fur, whose stimulation evokes positive feelings, or just a positive attitude towards dogs (Kalinová 2006).

Practice also shows that patients do not always have to lie down, but can choose a position themselves. The clients also determine the contact level. Sometimes they want the dog on their bed; they sit next to it and stroke it. Sometimes they lie in bed, hug it and cry, kiss it or strongly press against it. In other cases, they prefer the dog to be on the floor, where they stroke it from a chair or a sofa, or alternatively, they gladly sit on the floor with it.

The course of the therapy is also up to the clients. Some clients prefer to be quiet and enjoy the dog's presence, while some want to do exercises and see what tricks the dog can perform. As for conversation topics, some clients only want to speak about dog breeding; they are happy to be given the opportunity to speak about topics that do not involve their health condition. However, clients mostly determine their issues themselves. With a therapist, they speak about the dog, which is like a family member, and then they spontaneously start speaking about their own family and their actual problem (Fig. 1).

Sometimes, clients touch upon painful topics, so they become quiet and start caressing the dog. This way, they rest and become more at ease. After this, they talk about the dog or they return to their problems when they feel ready to speak about them again.

MATERIALS AND METHODS

Two groups of 12 adults participated in the research (5 men and 7 women in each group). They were between 18 and 28 years old. The selection of the participants was random and based on voluntary co-operation. Each client stated their age, height and weight. All group members claimed to be dog lovers and they

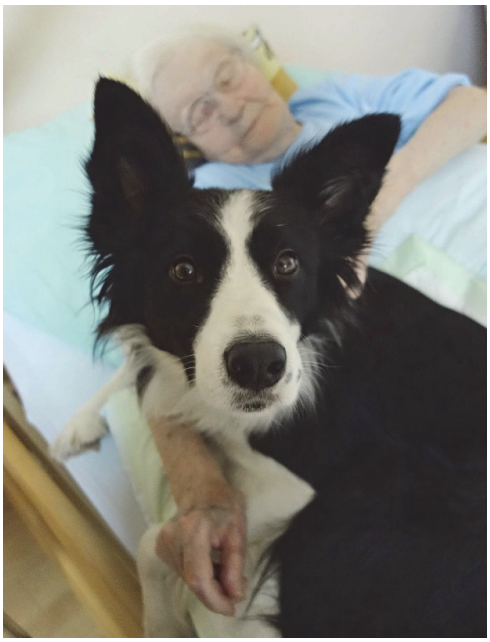

Fig. 1 – Therapeutic dog in canistherapy
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agreed to be in direct contact with a dog. A positive attitude towards animals was not a condition in the control group. All of the participants were healthy, i.e. they did not suffer from any illness that required medicaments. The dogs were selected by character qualities, which had to satisfy therapy conditions. The dogs did not belong to the clients nor did they share the same household, they were also healthy and their organisms were not affected by any medicaments. Monitoring was carried out in an aired room with a temperature of 23.6 °C and an average humidity of 38.8%. The light in the room was natural.

In the experimental group, a client lay on a soft pad with a dog. They wore no clothes (except undergarments) on the upper part of the body. Each client lay on their back and the dog touched the client's right side with its back. The dog's head and neck were on the client's shoulder and partly their arm, too. The client's arm was placed on the dog's chest and their hand was on the dog's belly. Both the client and the dog felt comfortable in such a position and could then apply themselves to the therapy. In the control group, clients were comfortably dressed, the conditions were the same, but clients lay down without a dog.

The therapies lasted for thirty minutes and they were divided into two parts and three types of monitoring. The positioning and the lull lasted for twenty minutes. After that, the dog was taken away and the client lay alone for another ten minutes. The client did not communicate with anybody; there were no other interactions. The data in both groups were monitored before therapy and twenty minutes after it. During the monitoring, clients were in an unchanged position, i.e. lying on their back. An authorised automatic Holter manometer was used in collecting the data. According to the manual, the armband was placed on the biceps.

RESULTS

The results include the values monitored in the first twenty minutes of the therapy (when a dog was present). The values in the control group were monitored after twenty minutes of relaxation. The changes in pressure in the charts are divided into two sectors – systolic and diastolic pressure. The change in the pulse frequency is included in one chart. The charts are divided into three different groups – increase, decrease or unchanged – and the values were monitored in the experimental group.

In all cases, the therapy can be assessed as positive as most clients showed a decrease in at least one of the monitored parameters. In the experimental group, a systolic pressure decrease was shown in ten out of twelve clients, while the control group showed nine out of twelve. The experimental group showed a diastolic pressure decrease in ten clients, one client showed no change, and one showed an increase. In the control group, nine clients showed a decrease and three showed no change. In the experimental group, the pulse frequency decreased in nine cases, while the control group showed seven decreases. In the experimental group, the therapy was 83.3% successful regarding both types of pressure. Regarding the pulse frequency, it was 75% successful. Four men had their pressure decreased and one showed an increase. Three men had their pulse frequency decreased and the same result was shown in the control group. In women, the pressure decrease was very successful; six clients in the experimental group and five in the control group showed a decrease.

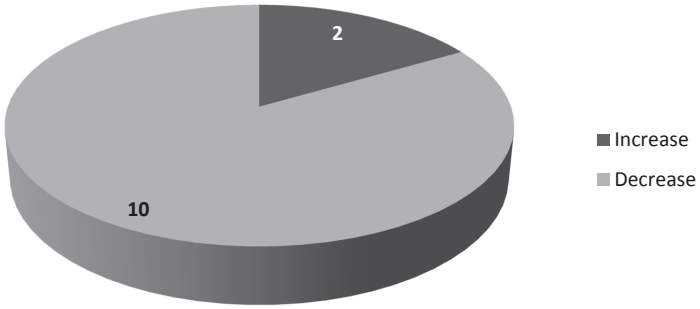

Chart 1 – Systolic pressure change in the experimental group after 20 minutes

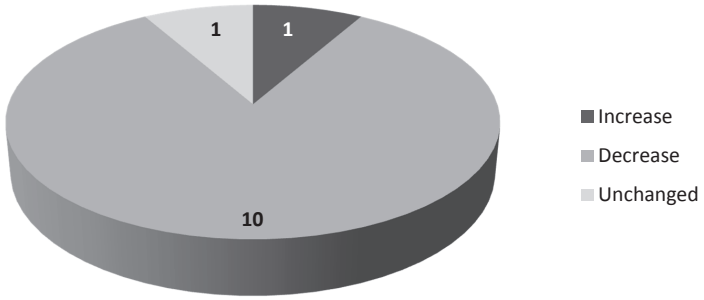

Chart 2 – Diastolic pressure change in the experimental group after 20 minutes

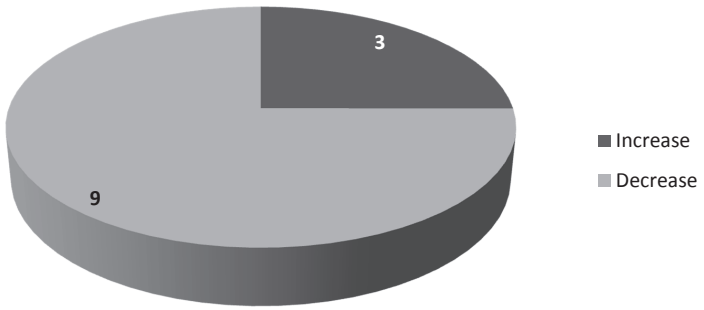

Chart 3 – Change in pulse frequency in the experimental group after 20 minutes

DISCUSSION

The clients were recommended to stay in relaxation positions for 20 minutes. They subjectively believed it to be tranquilizing, comfortable and relaxing, which corresponds to the studies mentioned above (Kalinová 2006, Lejčarová and Skálová 2009). Before the start of the therapy, one of the criteria for including clients in the experimental group was their positive attitude towards animals (Kalinová 2006). Blood pressure decrease was progressive and some clients showed this decrease to a more noticeable extent. The control group showed a decrease in pulse frequency and pressure, but there were a slightly lower number of such clients than in the experimental group. It is important that a dog is an option in order for the clients to become tranquil and relax (Berek 2013). Dogs evoke trust and a positive relationship between clients and therapists (Velde et al. 2005). This is why it seems convenient to start a dog-assisted therapy using this relaxation technique. In a dog's presence, the atmosphere is congenial and it is convenient to begin a therapeutic conversation or to do physiotherapeutic or rehabilitation exercises. The animal evokes a better mood, reduces depression and aggressive behaviour, improves total control and self confidence (Fine 2010), and helps to deal with fear, depression or isolation (Altschiller 2011). (Fig. 2).

The results correspond with other studies and the hypothesis that an animal's presence can help to decrease the increased sympathetic nervous system activity, which contributes to physical and psychological stress (Cole et al. 2007). It also helps to decrease blood pressure (Allen 2003). For this reason, we recommend considering this alternative method as a way to establish ease, trust and the improvement of communication (if a client's attitude towards animals is positive).

Fig. 2 – Therapeutic dog in canistherapy
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CONCLUSION

Using animals in patient care remains a growing field, and the possibilities of its use are complex. Relaxation with a dog seems to be a possibility in helping to establish a client's peace of mind. This could be used in psychotherapy or rehabilitation. If a client feels comfortable with an animal, it can work as a facilitator for relaxation and establishing a confidential relationship with a therapist. These initial assessments could inspire other studies and help expand the effect of dogs on rehabilitation as a whole.

CONFLICT OF INTERESTS

The authors have no conflict of interests to disclose.

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