The camel in animal-assisted therapy, G. Heidicke

The camel in animal-assisted therapy

Bactrian and Dromedary Camels

Species-specific features of camels (bactrian and dromedary camels) and the possible use in animal-assisted therapy (TT) in the following areas:

- Animal Assisted Intervention (AAI)
- Animal Assisted Therapy (AAT)
- Animal Assisted Pedagogy (AAP)

Content of the article:

In this article the general principles of animal-assisted therapy are considered to be known and are not the subject of this discussion.

Biophilia inherents in humans: our love for nature and for living things, also has an effect on our relationship to camels. Feeding, care-taking, observing, riding or leading these animals and the interaction in fresh-open air strengthens our well-being. This is similiar to dealing with other animals, such as horses, dogs, donkeys, goats, sheep, alpacas, llamas, guinea pigs, chickens, etc.

However, to use a specific animal in the TT, it is necessary to study the behavior, the peculiarities of the species and recognize, which of these special abilities can be used effectively in the different settings of the TT (e.g. people with autism, humans who recover from a stroke)

The focus of this article is on two main questions:

1. What does the camel have to offer in contrast to other species?

2. How can we use this special features effectively in TT?

To answer these questions, we need to know camels is defined how they interact and. We have to watch and understand the psyche and social behavior.

Basics of the article:

For more than 15 years, I have been working with two humped camels in human interactions at my camel farm - based in Nassenheide (Germany, Brandenburg). Our guests include the entire spectrum of society – from healthy and young to elderly and differently disabled. The youngest participants were one year old, the oldest almost 100 years old. Some of the guests came individually, e.g. for psycho-therapeutic camel rides, so as in small or large groups, with school classes of up to 30 people.

Our approach at the Kamelhof Nassenheide includes all types of TT – for AAT sessions happen always in the presence of state-recognized, trained therapists. My personal, topic-related training includes ten semesters of pedagogy studies at the Humboldt-University of Berlin, decades of field experience as riding instructor and trainer in competitive vaulting (GDR qualification as a trainer level II), a degree in animal-assisted social work at the ATN (Academy for Animal Naturopathy) in Switzerland and studies by traveling to camel-keeping nomads in the Sahara, Kazakhstan and the Gobi desert.
I am also in regular contact with other experienced camel owners, zoo animal keepers who specialize in camel, social workers, nurses and psycho- and physiotherapists.

My own herd of camels comprises between 10 to 15 animals - from young animals to retirees. In addition to the use of camels with humans, my personal focus lays on species-appropriate keeping and handling, so as studying the psychology

and social behavior of the camel. The knowledge and use of the natural-social behavior, is the ground for my work and furthermore this article.

1. Habitat, social behavior and psyche

Each animal species adapts to its natural habitat. The millennia-long process not only influences the physical parts of the animal, but also the psyche and, as a result, the social behavior of Camels that live in desert areas, known to be very dry and nutrient-poor environments. A massive evolutionary adaptation to this extreme habitat was necessary. The most important features that camels developed and can be used in the TT, is that these animals became excellent energy savers:

- Camels do not fight for the leading role in the herd .(1)
- Camels are not aggressive to each other or other species. (1)
- Camels avoid unnecessary movements.
- Camels avoid conflicts.
- Camels have no natural predators in the desert and therefore are no classic escape animals.

Herd structure:

Camels have no constant herd structure - or as we would call it: family or friendship relationships. Camels form temporary “communities of convenience”. Mares in foal form one herd, mares with suckling foals or female weaners from another. Male animals from a mixed-age group from weaners to adult stallions. Adult stallions live from time to time individually. Only during the mating season the adult stallion runs with a group of mares he has rounded up. By then male weaners from the previous year are driven away, so that two stallions never run with a group of mares. In these communities of convenience, several, alternating, experienced, older animals lead the herd. If an animal changes group, e.g. when a young mare is in foal for the first time and joins another group of mares in foal, it will be welcomed in a friendly manner and there will be no ranking battles as we know from other animal species.

Keeping in human care:

Especially due to the unstable herd communities with camels, species-appropriate keeping is more difficult than with other animals. Often the number of animals and the available living space are too small to keep the animals in natural communities of convenience. It is advised to avoid keeping two stallions older than two years in the presence of mares, so as keeping a single individual. In case of small herds, it is necessary that there are always at least two matching animals, e.g. two geldings or two young mares or two mares in foal, etc. for the well-being of the animals.

If the human provided environment differs to much from the natural pasture, the camels change their behavior significantly. A camel that lives individually in a herd of horses for a lifetime, for example, loses camel-typical characteristics and sometimes adopts horse-typical behavior.

Adult uncovered mare, sometimes become very stagnant in their behavior. Camels, who live in small, permanently stable herds and cannot change the community of convenience (depending on the living situation), build up solid friendship relationships with one another due to a lack of alternatives, etc. Unfortunately, in countries where camels are not kept traditionally and are considered as a rare kept animal, there are often animals found that have had to adapt to their respective living situation due to a lack of species-appropriate keeping and thus often show many behavior patterns that are atypical for camels.

As animal welfare in the TT, so as the respective client, are priority, in this article I only consider the use of camels in the TT that have been raised and kept in a manner that is largely appropriate to the species. These camels show species-typical characteristics in its psyche and social behavior.

2. Use in the TT

2.1 Calm and serenity

Probably the most important characteristics for the use of the camel in the TT are its primary properties, which arose from the evolutionary forced energy saving. As desert dwellers, camels have to get along with extremely little water and food and they have adapted to this astonishingly: water storage in the blood, fat storage in the cusps, the so-called “fifth leg” - the sternum ulcer, which allows you to lie down for days without problems, ruminating, the use of wood as a food source etc.

In TT it is particular import that camels have a significantly reduced metabolism and muscle tension compared to other species if they feel save and in a resting state. We know from scientific studies with other species that the condition of an animal is transferred to its human observer. For example, when we see a deer grazing peacefully in the wild or a fish slowly gliding in the aquarium or a relaxed dozing dog lying under the table in the open-plan office, this signals to us in our subconscious mind a feeling of security and well-being. This effect can be measured using medical parameters such as blood pressure or pulse. In comparison: if we watch a deer on the run, a predatory fish hunting in the aquarium or a nervously yapping dog, danger is signaled to our subconscious mind and our pulse and heartbeat rise.

The relaxed and confident camel with the calmness and serenity of a desert inhabitant (differs to other animal species which are more alert to possible predators) also transfers its condition visible and tangible to humans. That is the greatest specialty of the camel when used in TT. (3)

This effect on humans is very beneficial for all individuals in camel interaction!

Some examples:

- An overstimulated and stressed person finds relaxation amazingly quick in contact with camels.
- Spasms temporarily resolve (example spastic dysarthria)
- Fearful people quickly create trust with camels.

If the attending group during the interaction is too large in relation to the number of camels or if the inner group dynamic of the people is too energetic, the quiet relaxing effect of the camels will be reduced and often drowned out.

The Clients need to have the time and a calm environment to watch and feel the animals, so that the relaxation of the animals can be carried over. For example, if we have an enthusiastic-dynamic group of adults or children booked in, it is the task of the person who is leading the AAI with camels to temporarily change the group dynamic. Funny comments like "my wife is also a two-humped camel" of adults or giggling "Ihhhhh, the camels poops ..." of children, can disturb the calming effect from being transmitted to people. In such restless initial phases of an AAI unit, it has proven to be particularly effective to give the person leading the restless group dynamics a standing, as large as possible adult camel with a halter and rope with the request to hold it in his or her hands. Since pretty much everyone lacks a behavior pattern for this unknown situation, the person suddenly changes their behavior and thus their charisma. The effect they had for the group dynamic, which before disrupted the AAI, disappears immediately. Alternatively, it has proven effective to start the event with larger or highly energetic groups with a short walk to the camels over the paddocks. If the group moves continuously in the outdoors and between the free-roaming camels, the “noisy” group dynamic usually calms down quickly, which is important as a basis for an effective AAI. That leads to an optimal effect by the camels to each individual member of the group.

Since a satisfied, relaxed camel prefers to lie down to save energy, in the TT we work with the guests to a large extent with the camel lying down.

2.2 "Exotic bonus"

The science of TT developed in the highly industrialized countries of the world, where the alienation between humans and nature is mostly processed. In these regions, such as Europe and North-America, the camel is usually neither a classic pet nor a working animal.

Humans usually have very solid pictures of the animal species that surround them. Horses or dogs are either loved or more or less rejected. If a horse or dog is used in the TT, the client has relatively clear expectations and quite fixed behavioral patter - even before the first TT unit starts. This is a main difference when working with camels: during the first contact, the client brings neither negative nor positive emotions towards the animal. For the guest, camels are foremost large, unknown animals. Unknown situations usually scare people. At the same time, camels have a calming impact due

their charisma and therefore camels attract us. If a person encounters camels for the first time, a strong dichotomy arises: on the one hand being attracted to it and on the other hand anxiously wanting to keep a safe distance.

This ambivalence of feelings is irritating. We do not have a proven pattern of behavior that we can fall back on. That leads to open and alert senses, which is unusual, special state of consciousness and our current sensitivities fade into the background (such as bad moods, defensive attitudes or other moods that could usually impede successful TT). This excited, open and alert state of mind can be useful for therapeutic interventions. For example it is easier and faster to find access to normally intimidated or rejecting persons. This moment can be used for psychologists or social workers during their work processes. In this state, learning also works brighter and more alert than usual. This can be effectively used as well in physiotherapeutic camel riding, to learn new or lost movement patterns.

2.3 "Defensive" social contact

Adult camels do not play with each other. Camel mothers never play with the foals either. In addition, camels (apart from suckling foals on the udder and stallions during mating or fighting) never have interactive body contact with each other. That means, contact between camels is incidental and almost never has a communicative content. Although camels are very social animals. They seek closeness to each other - especially to same-sex herd members of a similar age or in the same life situation. They roam the area together and they eat and rest together. Camel mothers form kindergartens in which a mother mare takes turns looking after all foals of the herd of the same age, so that the other mothers have time off and can leave for a while, for instance to eat. Camels are on one hand very social animals, but on the other hand they never demand anything from other members of the herd. Playing prompts, as we know them from dogs or mutual grooming as with befriended horses, do not take place. Social harmony with camels therefore mainly consists in grazing close to each other running close to each other or standing or lying close to each other without any action.

This peculiarity can be used wonderfully in the TT with clients with for example:

- anxieties
- with autistic behavior.

People with autism often find it difficult to endure social contact, but they usually still suffer from the resulting loneliness. On the one hand they want social contact, but on the other they try to avoid it. Camels, who live harmoniously sociable without physical contact, without eye contact and without active invitations to the social partners, offer autistic people a temporary solution to this dilemma. The harmonious coexistence of humans and camels - without actions and without cognitive interactions - is mostly enjoyed by people with autistic traits. This social contact is initially outwardly passive and is only based on a vital or emotional level. We have repeatedly observed that the autistic visitors slowly begin to seek physical contact towards the camel during the TT unit. They start a self-determined and active contact with the animal and often smile at it.

It has proven to be a good start into the TT session, to pass a lying camel with a halter and rope to the autistic person and ask to hold the rope in the hand for a while. Afterwards you turn to other guests, camels or work and leave the two of them together without any further task. This avoids annoying external stimuli and gives the camel the opportunity to have a friendly, defensive social-impact on the guest.

And it is necessary to leave the key message, which mostly applies to the use of camels in the TT:

Less is more!

We usually think too much about what you could offer the guest or client with the animal in the TT. Too often we forget that the animal autonomously interacts with the guest which has a healing, beneficial effect! I see my work more and more as enabling the guest to have safe, harmonious contact with the camel, and once this has been initiated, I hold myself back as much as possible and above all, let the camel “work”. The “work” of the camel then consists primarily of being a camel. Being itself and giving people the opportunity to immerse themselves in their relaxed, unobtrusive, fear-free and action-free social camel world.

Theoretically, it would also be conceivable for the guest for example to train circus lessons with the camel within a TT, or to communicate with the camel in an action-oriented manner and to practice small tricks with it. But that usually seems rather inappropriate to me, because the strengths of the camel is the effect on people in other areas. An action-oriented

use of the camel in TT - the client acts, the camel reacts (or vice versa) - would as a permanent state be a kind of incorrect occupation of the camel. If I want to work strongly action-oriented in the TT, I would fall back on dogs or horses, which have their strengths in this field of TT. The camel's strength lies in being passive, satisfied, sociable and relaxed.

2.4 TheraKamel © - Hippotherapy à la Kamel

The camel is known as a classic ambler – by footing the right front and right hind legs simultaneously in front and the opposite to the left front and left hind legs, which are simultaneously walking. Camels have this passage either with or without a flight phase (racing pass). In addition to the pass and the race pass, camels have two other “horse-typical” gaits - the gallop and the walk. The step of the camel is very important in the AAT! The camel takes a natural, clean step at a slow pace - depending on the length of the leg at speeds of up to a maximum of 4-5 km/h. Only when the camel runs faster, the step does flow smoothly into a pass passage.

The step is a four-stroke that means each leg steps forward individually. This gait sets the back of the camel in a highly complex three-dimensional movement. If a rider sits on the camel's back, this movement goes into the pelvis and thus into the rider's whole body.

The well-known healing effect of hippotherapy is based on the gait alone. Since the camel offers this step just like the horse, scientific studies on the beneficial effects of the step in hippotherapy can also be transferred to camels. Wikipedia describes Hippotherapy as (July 25th, 2020):

“*Hippotherapy is a form of physiotherapy on a neurophysiological basis. The patient sits in the gait step on horseback and the therapy horse is used as a medium to transmit three-dimensional vibrations to the pelvis of the person. The resulting impulses enable the training of posture, balance and support reactions as well as normalization of muscle tension. This also makes it easier to cope with everyday life. A healing effect is to be achieved here above all by the fact that the human body has to adjust to the impulses caused by the moving horse. All axes of movement and torsional movements are used. At the same time, the horse can serve as a motivational aid by giving therapists access to patients. There is also the chance to use hippotherapy to deal with so-called mat fatigue or disenchantment with therapy.* ".

If you replace the term "horse" with "two-humped camel" in this quote, you have the definition of TheraKamel ©:

The German physiotherapist Jaqueline Majumder started using camels for the first time in 2008 at the Kamelhof Nassenheide in a targeted and successful manner in camelid "hippotherapy". The therapeutic camel riding on patients, and coined the term TheraKamel ©. This pioneering spirit of using camels for the first time in physiotherapy also is the origin of the foundation of the association Therapiekamel e.V. in 2010 (4).

In contrast to horses, the physical characteristics of camels offer additional therapeutically useful elements in therapeutic camel riding. The front hump offers hands, arms and front torso additional exercise opportunities. The rear hump promotes a more upright and stable seat in the step through its rhythmic tactile stimulus on the rider's back. Furthermore, the camel offers the often simplified possibility that the patient can get on and off the lying camel. You can read more about TheraKamel © at point 4.3..

2.5. Use of the camel in educational and social areas

There are endless possibilities to use the camel in educational or socio-educational areas, which is why only a few exemplary examples can be mentioned here.

2.5.1 Getting to know strangers and self-reflection: How do I affect my counterpart?

Camels offer an easy way to convey (humanistic) basic values. Usually the guests come with the expectation and joy of riding a camel. In general, we work with the basic principle that a guest who wants to ride a camel, should create a relationship with the animal beforehand. To do this, we collect the camels from the paddocks with the guests. The guest halters and leads the camel out of the herd and asks it to lay down. Then they brush the animal before we saddle up and move on to the camel riding. We explain the guests that it is important that the camel feels comfortable, as well as that the guest is comfortable. The basis of carrying the rider reliably and safely when riding. In the case of loud, restless, very dynamic or disrespectful guests, I ask the question at the beginning: “How do you meet strangers in a friendly manner so

that they perceive us as pleasant and harmless beings?" The answer to this: respectful, relaxed, empathetic, not loud, not hectic, not laughing, etc. - applies to encounters with camels as well as with people.

Everyone quickly understands and supports the context to be respectful and friendly towards the camel to create a relaxed and safe environment for animal and guests. However children sometimes fall back into their normal, loud, dynamic, sometimes disrespectful manners. Then it usually helps to have a brief reminder that the camel should feel comfortable with the child after all.

Camel interaction supports self-reflection towards the own behavior and, if necessary, to practice being consciously friendly and empathetic towards others.

2.5.2 Trust in strangers (humans and animals)

When guests visit, it is more often than not their first time to come face to face with this large animal. They have no experienced behavioral patterns to go back to. If they want to get into contact with the camel and perhaps want to join a ride, they are forced to trust us. Even if we are unknown persons and the animals are unknown as well. For some guests it is easy to quickly create trust into us, but for many others it is a difficult task. We experience particularly often that initially very anxious people manage to trust us humans and animals surprisingly fast. According to our observation, these guests experience a particularly strong feeling of happiness during the TT.

2.5.3 Education: listening, following instructions

Since camels are very large, strong animals, they could quickly become dangerous for comparatively small people. We explain to our guests, that we know our animals very well and that we take care of the safety. But therefore it is necessary that he guests listen to us attentivley and reaks immediately in case of instructions, for instance: "Please keep your distance from this camel." or "Move to the side.". We are particularly successful with conspicuous children or adolescents who have difficulties in paying attention or have difficulties with authorities.

The key is that they are only safe between the big, strong, unknown camels if they adhere to our rules and instructions. It is easy to understand and clear to see, that we almost always succeed in reaching these guests as well. Even if in more natural and daily situations these guests were usually not responsive or emotionally available.

2.5.4 School learning content:

If requested, school content can be transferred into the camel session. For younger children topics like: "Where do camels normally live?" Or "What is a desert?" can be discussed. For the older student following topics are suitable:

- Evolution: physical and psychological adaptation of the camel to desert habitat
- Environmental issues: alternative model of society in the event of a scarcity of resources, instead of fighting armed struggles for food and water, the camels became conflict-avoiding, friendly energy savers
- Geographical: "Where does which camel species live?" (Deserts of the world)
- Historical: Importance of the camel for the development of mankind: The Silk Roads, the great desert stretches which could only be traversed by camels. These were not only the first global trade routes but also the first "World Wide Web" - namely transport-routes for religions, science and news. Since the high cultures of the world are based on the knowledge and skills of the preceding high cultures in human history, our modern European life today is also based on the power of the camels, which enabled us humans to have the first "www" in our first early high cultures.

Furthermore camels can also be used well in interdisciplinary school content on social skills and self-reflection, like body language, facial expressions and gestures. Questions like: "How do I affect others?", "How can I exude calmness and security through body language?", "What are the physical characteristics of a leader?", "Which posture signals insecurity or fear?", "What does relaxed facial expression do?". Empathy can be trained.

3. Dromedary

Even if my own experiences are based on bactrian camels and I haven´t had a lot of contact with dromedaries, through my studies and the exchange of experiences with other camel owners I can certainly say that all of the aspects mentioned

here, with regard to the effect of the two-humped camel on humans, transfers to the impact of the single-humped dromedary in human interaction.

The only exception is the healing effect of the step gait on the riding person. Since the position of the one-hump on the dromedary means that you cannot sit with your legs apart, in the middle and close to the animal (as you would on a horse or bactrian camel) the three-dimensional movement of the step is not the same on a dromedary transferred to the human pelvis, as it would be optimal for its healing effect. For this reason physiotherapeutic riding the bactrian camel would be preferably be used.

Otherwise, both types are equally suitable for use in the TT.

4. Practical examples

With these three examples of my work, I want to describe the amazing effect of camels that I could recognize during camel sessions.

4.1

A while ago a group of deaf-mute and blind people visited me for the first time. Before their visit, I was downright nervous as for people who can neither hear nor see, only the senses of taste smell and touch remain. When I work with my camels, taste is not a focused sense and smell only plays a very subordinate role. So with these guests, I could only use the tactile stimulus. I knew that the deaf-mute and blind communicate through the hands. There exists a deaf-mute and blind language (so-called Lormen) which is based on the sense of touch using hands. So each of my deaf-mute and blind guests had their own companion holding the hand translate my words into Lormen. I was asking whether I could get into hand contact with the guest myself, was affirmed. A deaf-mute and blind woman (around 45 years old) was accompanied by her adult, unhindered daughter and seemed to be particularly interested into the unit. I went with her to my calmest mare and showed her how to feel the head, mouth, humps and belly of the camel with the hands that I initially guided. Then I put a halter into her hands and allowed her to feel and touch it. Afterwards I led her hands with the halter to the head of the camel and we haltered it together. Then I passed the woman the lead rope to feel it and attached the rope to the mare's halter again. Then I gave the woman the rope into the hand. I had the daughter translate, that I now want her mother to walk and lead the camel. I took the woman by the one hand and walked next to her. With the other hand she led the camel, which followed her willingly. After we stopped, I asked her daughter to translate again how to lay down a camel by body-language. The disabled woman followed the instructions and the camel layed down straight away. And now an incredible moment happened during this TT unit: I cannot explain how exactly the mother noticed that the camel followed her command to lay down. In any case, she noticed it exactly and on point, even though she only held the lead rope in her hands - and her body literally "exploded" with tears of joy! This strong emotional outburst also unsettled my very relaxed and experienced camel. I quickly put both of my hands very calmly and firmly on the woman's upper body, the daughter grabbed one of her hands and asked her to take herself back and relax, which then happened surprisingly quick. The mare's irritation was also brief. The woman brushed and stroked the lying camel for a long time passionate and happy.

Presumably it was above all the experience of self-efficacy, that this huge camel lets itself be guided and layed down for her, which triggered the woman's great ecstasy of happiness.

4.2

The hardest thing I experienced during my work with clients was an eight-year-old, very small boy who came to us on a day-trip as part of a group of children with multiple disabilities. He had spasticity, splints on his arms and legs, sat in a special wheelchair, was blind and the supervisor told me that he cannot speak and that cognitively he would hardly notice anything from his environment.

Initially, the boy sat in his own, closed world next to the other children and next to the camels in a wheelchair. I asked the carers if we wanted to lift him out of the wheelchair and bring him into contact with a camel, which they affirmed. Since the boy wore splints almost all over his body and his hands were clenched spastically, only his stomach, neck and face remained for direct physical contact with the camel. Fortunately, he was very light and I placed him on his stomach between the humps of an experienced, very secure and stable lying mare. His head hanging on one side, his legs down on the other side of the camel. The abdomen and head were in direct contact with the animal. Then I rocked the lying

camel and with it the boy gently back and forth. Initially, while lifted out of the wheelchair and laying on the camel, the boy blocked something and made noises of displeasure. Then he fell silent while rocking and his body relaxed significantly, which I could feel in my hands, as I held him continuously for safety. The boy then sank face down on the camel into a short sleep. When he woke up, he said indistinctly, but clearly understood by me: "Want to go down!". I immediately took him off the camel and we put him back in his wheelchair. In the short debriefing I said to his supervisor that a child who can say “Want to get down!” must be cognitively well developed and can very well be aware of a lot of his environment. She replied that the boy's mother sometimes thought she understood words, but unfortunately that was only imagination! It hit me almost like a stone: Thanks to my camels, me and his mom were the only persons in the world, who knew that this boy was intelligent enough to speak! The explanation for the phenomenon is simple: spasms can also affect the speech muscles (spastic dysarthria). The extensive body contact with the camel, which radiates calmness and relaxation, in combination with the rocking and the short sleep relaxed the little boy so much for a short time. His spasms relaxed and he was consequently able to briefly control his speech muscles. Since “lying on your stomach on your camel” is only comfortable for a short time, even without splints on your arms and legs, his first impulse after waking up was to leave this now very uncomfortable position quickly. And his speech muscles were still relaxed enough to formulate a "Want to go down!"

4.3

As a third example, I want to describe the effects of physiotherapeutic camel riding. Our main clients were mainly people who had hemiplegia after a stroke or patients who had advanced multiple sclerosis. All these patients had more or less severe depression in common, due to their living situation because of the illness. In addition, most of them had severe therapy fatigue.

If patients sitting in a wheelchair suddenly have a huge strange animal in front of themselves that they are about to ride, it takes a lot of courage. For them it is an absolutely exciting situation that suddenly fades the depression and therapy fatigue. We know from many scientific studies that a depressed brain learns very poorly. An alert, lively brain, on the other hand, stores new things very well.
Physiotherapists work with hemiplegic people is primarily about helping the brain to relearn old, forgotten movement sequences. The mere sight of the camel puts the patient in a state of mind in which learning works well in this case physiotherapy. The gait of the camel brings the pelvis of the riding patient into a three-dimensional movement, which is very similar to the movement of the pelvis when a person is walking. The patient's rocking pelvis transfers the movement not only to the back and legs, but to the entire body of the patient. Equally to the healthy and paralyzed side of the body. This is particularly important because the body is a complex system: Physiotherapy is particularly effective in the complex movement of the whole body. For instance more effectively than when treating only one single arm or one single leg. Modern medicine sometimes works with highly complex, complicated and very expensive machines in order to bring the paralyzed person into a situation in which the body is made to run within the framework of physiotherapy. The two-humped camel does the same thing in a much simpler and cheaper way!

At the end of a physiotherapy unit, usually shortly before dismounting, when the patient is still sitting on the camel, there are very often particularly strong emotional reactions: The patient gets a crying fit or a laughing fit, or both alternately. Later they often speak of tears of happiness. In addition to the physiotherapist, there are usually at least two employees of the farm (camel driver and security officer) and a person accompanying the patient who is close by. In these extreme emotional situations, everyone then remains motionless and is trapped in this special moment. At the same time, we are also somewhat embarrassed by the extremely intimate situation that we are allowed to witness. Even the riding camel, on which the patient is still sitting, feels what is special about the moment, stands absolutely still, stops chewing the cud and turns its ears to the rider. Even after therapeutic riding, there are often moving moments: after getting off the camel, an MS patient stood barefoot on the ground and, with tears of happiness, said, "My feet can feel the ground again." Half-paralyzed people who can still walk a little pull the paralyzed leg often noticeably less after riding. Sometimes they even manage to take a first step change. The escorts often cry with happiness. One patient made it to the toilet by himself for the first time the night after riding therapy, without having to wake up his wife and ask for help. Physio-therapeutic camel riding has an incredible effect, especially on patients with severe previous injuries (4).

6. Summary

Camels are highly intelligent, socially living mammals. Thanks to their reduced metabolism and their low muscle tone, their deep relaxation transfers to humans – both mentally and physically. The great evolutionary energy-saving mode of this desert animal is the main difference to other species in the TT.

Camels are suitable for all areas of TT, educational and social therapeutic as well as pedagogical contexts, in contact with seniors or people with multiple severe disabilities, etc. Furthermore, the two-humped camel with its amble gait has an enormously high effect on the rider in the physio-therapeutic field. Remarkably, a well-trained camel can also carry patients with very strong neurological and physiological restrictions quite safely between the humps compared to a horseback.

7. Footnotes

1
The only exception here are stallions during the mating season.

2
The only exceptions are mares and their suckling foals for a period of approx. 15 to 18 months.

3
Warning: evolutionary camels could not always live continuously in the deserts. If climate changes occurred and if food and water sources disappeared, camels occasionally lived temporarily in semi-deserts and steppes (where they dealt with predators).

A current example are the wild camels (Camelus ferus) that live in the Mongolian Gobi desert. The water sources has been reducing over years, so that the few water points in the center of the desert are drying up. This forces the wild camels today to find other sources and to enter habitats where wolves and the snow leopards live. Camel foals are easy prey for them, but adult animals can also be killed by a pack of wolves. During a tour through the Gobi we found camel bones and were told by our guiding nomad, that the male bactrian camel was torn by five wolves after a long hunt last winter. This means that a camel has two fundamentally different behavior patterns, which change depending on the habitat: deeply relaxed and energy-saving in the desert; vigilant and similar to escape animals in dangerous habitats. For the use of the camels in the TT, this means that it is of essential importance that the camel feels comfortable and safe in its environment. The prerequisite for this is (in addition to being kept as species-appropriate as possible) that the camel never experiences traumatic experiences from humans. Since camels are largely non-aggressive towards each other, they experience things much more quickly than other social living species such as horses or dogs. For these animals aggressive behavior occurs more frequently in normal everyday social life, for example in disputes about hierarchy. That is a contrast to social and non-aggressive behavior between camels that do not fight for food or hierarchy. When it comes to animal-human interaction, camels are the “sensitive little ones” who experience human misconduct as traumatizing astonishingly quickly and thus never forgive or forget. A camel that has experienced human violence once in its lifetime, remains useless for use in the TT as it does no longer feel completely safe with people.

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For more than ten years Kamelhof Nassenheide worked together with physiotherapist Jaqueline Majumder and Therapiekamel e.V., who tried to establish therapeutic camel riding as a recognized scientific healing method. The organizational and financial effort for this is so high that we had to admit to ourselves in 2017 that we unfortunately cannot accomplish this great charitable task alone and without scientific and financial support from the general public. This is especially a shame because physio-therapeutic camel riding is more effective than other physio-therapeutic methods, especially for patients with severe previous injuries (traumatic brain injury, ataxia, stroke). Since the potential patient group for therapeutic camel riding is huge and is growing increasingly worldwide, in my opinion it would be a logical consequence to invest research and tax money in the scientific investigation and the establishment of this new form of therapy. The result of a first self-financed preliminary scientific investigation can be found on page 13 as an attachment.

Effects of therapeutic camel riding on the gait pattern of stroke and multiple sclerosis patients

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The use of camels in therapeutic measures has attracted increasing interest in the recent past. In therapeutic riding it is postulated that positive physiological effects can be expected from the vibrations emanating by the animal (Schwesig et al., 2009; Strauss, 2000). The same assumptions shape therapeutic camel riding. So far, however, there is no empirical evidence for this. The aim of this study is therefore to test whether therapeutic camel riding in the step gait influences the gait pattern of stroke and multiple sclerosis (MS) patients.

Method:
26 Test persons with restricted gait due to a stroke or MS received a 10-minute intervention on the camel. The gait pattern was examined using the basic gait parameters double step duration and double step length, left and right as well as speed and cadence with the help of the mobile gait analysis system *Reha-Watch* at three measurement times before and after the intervention and has been repeated after 14 days.

Results:
There were significant changes for the double step length on the right between measurement time 1 (M=1.49, SE=.09) and 2 (M= 1.57, SE=.13), t(25)=-1.52, p= less than .05, r=.29 as well as for the speed between measuring time 1 (M=0.56, SE=.05) and 2 (M=1.57, SE=.13) and 2 (M=0.59, SE=.05); t(25)= -2.04, p= less than 0.5; r=.38. Over the 3 measurement times, mean values increase from the first to the second measurement time in the form of optical trends that were found for all parameters except for the cadence. In all cases, the mean values at the third measurement time fell back below the starting level at measurement time 1.

Discussion:
The results indicate that the intervention leads to a safe gait pattern overall. In order to ensure the effects, a control group design and multiple interventions should be used in further studies.

Literature:

- Schwesig, R., Neumann, S., Richter, D/, Kauert, R., Becker, S., Esperer, H.D. & Leuchte, S. (2009). Der Einfluss des therapeutischen Reitens auf den Gang und die Haltungsregulation. Sportverletzung - Sportschaden. 23 (2). 84-94.
- Strauss, I: (2000). Hippotherapie: neurophysiologische Behandlung mit und auf dem Pferd. Hippokrates: Stuttgart.