

Modern laser acupuncture and acupuncture of the ear and body for the management of pain and inflammation in the horse.

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Controlled laser acupuncture developed from classical acupuncture and constitutes much more than the mere treatment of acupuncture points with mild laser beams in place of needles. Laser acupuncture is a combination of two different therapies, both of which are very effective even on their own: acupuncture and LLLT (Low Level Laser Therapy), meaning the local treatment of damaged tissue with the use of a laser.

In addition, an autonomic reflex is drawn upon which allows the therapist to observe which points give rise to a strong therapeutic reaction and should be included in treatment. Controlled acupuncture applied in this manner is thus an excellent diagnostic tool as well.

An important aspect of controlled acupuncture is the treatment of the root of the problem and not only its symptoms. In the case of chronic illnesses, it is particularly important to discover their actual cause or causes. In this context, acupuncture of the ear is extremely helpful, as the ear represents a miniature picture of the body's ailments and thus facilitates diagnostic acupuncture considerably. All relevant points are located very close to one another in one small area and can hence be examined easily. The auricular acupuncture points found by means of the above mentioned reflex have enabled an ever more profound assessment of all possible illnesses not only in the field of orthopedic diagnostics, meaning the diagnosis of lameness by way of the ear, but also in the diagnosis of internal disease. These ear points are, at the same time, very competent therapy points. Not only veterinarians practicing acupuncture but also interested horse and dog owners will be astonished at the diagnostic and therapeutic possibilities this form of modern medicine opens up.

Controlled laser acupuncture is built on 4 pillars. The main pillar is of course traditional acupuncture – acupuncture of the body, which has its fundament in the tradition and practice dating back thousands of years. This traditional acupuncture has since undergone scientific study as regards its mechanisms of action and has, for the most part, been understood. Functional spheres or meridians play the most important role. They are responsible for the smooth transport of Qi – the life energy – of the individual. A modern variant of this life energy is ATP, which is produced in the mitochondria of the cell by way of the respiratory chain and which provides the energy for all life processes from the synthesis of enzymes to the relaxation of the musculature, which are all energy-consuming processes of the body.

Every illness is associated with a disruption in optimal Qi flow. This has the effect that the balance, in a traditional sense between Yin and Yang, in a medical sense between the parasympathetic and sympathetic nervous systems, is disturbed. This can be illustrated with an example: a block in the area of the upper thoracic spine leads to an irritation of the (efferent) nerves exiting there. This, in turn, causes contraction of the respective musculature and simultaneously of the blood vessels in the affected body segment as well. On the one hand, this contracture of the muscles reinforces the block. At the same time, circulation is also significantly worsened. Oxygen and nutrient supply is thus reduced. The production of ATP, which the muscles require in order to relax, ceases. The flow of Qi is disrupted. The musculature hardens further and a vicious cycle of tension and disturbed blood flow is begun. On top of this, this segment may also be responsible for the autonomous regulation of heart function. The latter will not remain unaffected by the increasing irritation of the nerve roots. An autonomous

disturbance in heart function which can have life-threatening consequences results. This applies to all other segment/organ connections accordingly.

A second pillar of controlled acupuncture is *ear acupuncture* or auricular therapy. An important aspect of which is that it is readily understood by doctors trained in Western medicine, as its origin is in Western thinking. Its inventor, the French physician and acupuncturist, Dr. Paul Nogier, found out empirically, that one can produce a direct effect on diseased structures of the spine and the entire locomotor system by way of reflex points on the ear. As he began inserting needles into these newly found points on the ear, which at first had no connection to classical acupuncture as previously known, auricular therapy was born. In the further course of his work, he was able to discover a complete map of the body on the ear, initially for orthopedic points, meaning the spine and joints and their respective muscles and tendons, and later on the organ points as well. These points were named according to their sphere of influence: knee joint point, hip joint point, point of the second cervical joint and simultaneously lung point, autonomous heart point, motor heart point, kidney point etc. The neurological connection of these ear points with the CNS and periphery can now be substantiated with fMRT (functional Magnetic Resonance Tomography). In continuation of this idea, the ear was further studied at the DAA (German Academy for Acupuncture) under the direction of Professor Bahr. Further points for nerves, ganglia, the spinal cord, endocrine and exocrine glands and various areas of the brain were added. Points with overriding hormone-like effects were also found: the endorphin point, histamine point, prostaglandin point, β -adrenergic point, ACTH point to name a few. Over the past 20 years, more or less in step with human medicine,

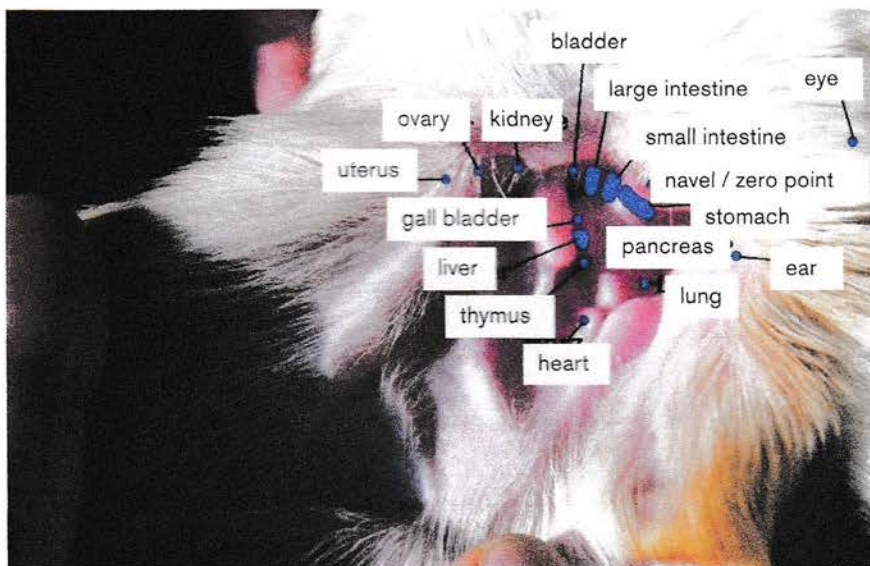


Image 1: Organ points on the ear of a dog

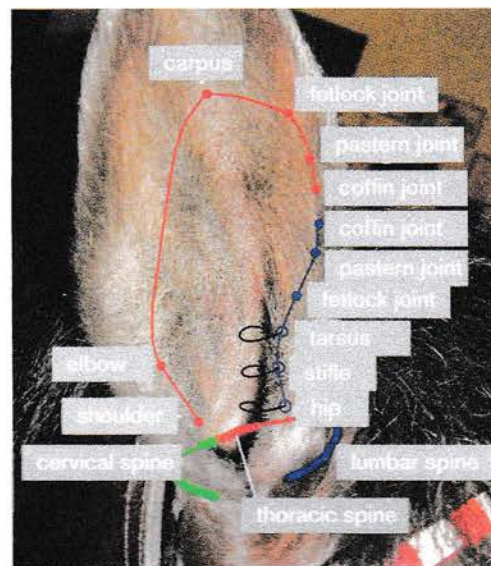


Image 2: Orthopaedic points on the ear of a horse

I have been able to identify almost all of these localisations on the ears of dogs and horses as well and have succeeded in outlining them in the clearly laid out form of ear maps. All of these points can be combined from a modern medical standpoint for therapeutic purposes with excellent results (Image 1).

When one combines ear acupuncture with controlled acupuncture, the medical history of the patient with (almost) all of its causal relationships reveals itself, so to speak, to the examiner upon finding the active points. In practice this means that one can perform a well-founded orthopaedic examination by means of „controlled ear acupuncture“ (Image 2).

The same goes for the diagnosis of internal illnesses. The system is very reliable and in some cases more sensitive than clinical

examination, laboratory tests and imaging techniques. This enables the discovery of disturbances sometimes even before the onset of clinical symptoms and, in turn, their prophylactic treatment.

Combining these methods with clinical examination so that each procedure checks and complements the other has proven very useful. In finding active points on the ear, the examiner has simultaneously found essential therapeutic points which can then be stimulated via laser or needle in order to re-balance autonomous regulation, thereby correcting the flow of Qi.

Meanwhile the meridians and traditional acupuncture points have also been assigned to the ear. This has the advantage that one can now combine joint or organ points on the ear with points according to the traditional approach, such as Lu 7 or Li 4 without having to switch from ear acupuncture to

the body. What I find even more interesting is the aspect that the traditional and the modern concept can be directly compared on the ear. It was almost self-understood that a complete congruency unfolded between TCM (Traditional Chinese Medicine) and Western medicine in this context. For example, the lung point is located in the same spot as the point Lu 7; the kidney point is identical to the point Ki 7; the liver point with Lr 8, just to name a few examples. This actually comes as no surprise since both modern medicine and TCM describe the same issues just from different perspectives and on different cultural backdrops. I feel that there is no other place where it is so apparent how well TCM and modern medicine harmonise with one another than in ear acupuncture.

Twenty-five years ago I began drawing up ear maps, at first for the horse, and then for the dog. Finally, in 2006 for my ear acupunc-

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ture book, I was able to complete the maps for the entire meridian system on the ear as well as the map for psychological points on the ear for the two species. Thus nearly the entire spectrum of diagnostic acupuncture is available for both the horse and dog.

Since the so-called „gold acupuncture“ is becoming more and more important in the treatment of chronic, degenerative joint and spine disease, the implantation of gold into the ear acupuncture points is also interesting. This is a very simple yet very effective alternative to the conventional implantation of gold into body points or those near joints.

The third pillar of controlled laser acupuncture is the so-called *RAC reflex*. RAC stands for reflex – auriculo – cardial and is also a product of Dr. Nogier's ingeniousness. He observed that when he was incidentally checking a patient's pulse while he inserted a needle in an acupuncture point, that a distinct change could be felt in pulse quality as he inserted the needle. Since he questioned everything – as was his character – he found out through further observation that this happened relatively often but not in all cases and not always with the same distinction. Finally he was able to ascertain that only points which elicited a strong therapeutic reaction in the patient also caused a strong change in pulse. After discovering this, he then tried to find correlations between known orthopedic illnesses and the active points he found on the ear. In doing so he was able to draw up an ever more complete map of joint localisations and later also organ localisations on the ear little by little with the observation of the RAC. The points of the spine are located along the so-called anthelix, the extremities along the scapha and the organ points in the concha of the ear (Image 3). This forms the image of an embryo curled up (Image 4).

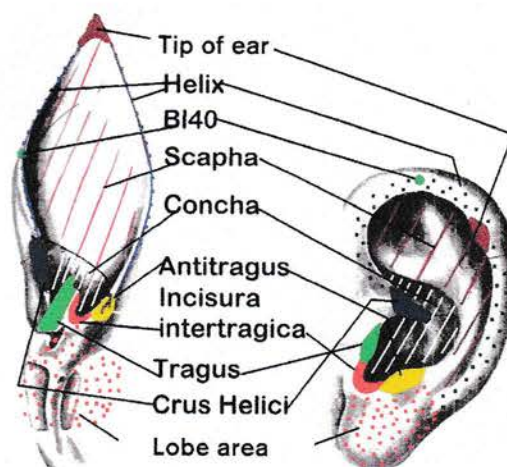


Image 3: Comparative anatomy of the ear

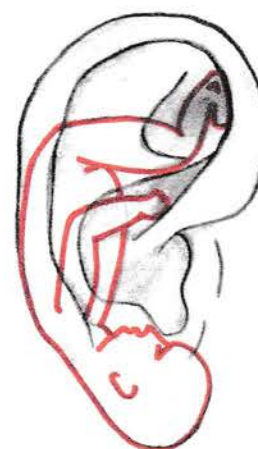


Image 4: Embryo projection onto ear

With the help of the RAC reflex, one can selectively look for active – meaning disrupted autonomous – points and then use these e.g. to support the diagnosis of lameness or that of internal disease. So, if one identifies, for example, the hip joint point as active, one knows that the hip joint is impaired in its function, and if one finds that the point of the 4th lumbar vertebra is also active, one knows that this is also impaired and that the two are most probably connected in their origin. The same goes for an active pituitary, liver, kidney or pancreas point on the ear – one can assume that the respective organ is impaired in its function. As already mentioned, these active points then serve in treatment as well.

RAC diagnosis is not only useful for ear acupuncture but also for acupuncture of the body. A very simple method of establishing

an overview of the pathology of the patient is to test the points of agreement, which are located segment for segment along the spine using the RAC. These points play a role, not only in orthopaedic medicine due to their connection with lameness and back problems but also in internal medicine due to their connection with the segmental organs associated with them. Moreover, there is a further holistic aspect at work here. Every orthopaedic illness has an impact on the inner organs and vice versa. When treating these problems with acupuncture, one automatically provides for this aspect as well. The RAC is also well suited for testing the concept of points of traditional acupuncture. And last but not least, RAC serves as a method of locating acupuncture points very easily and precisely.

The fourth and final pillar is *local laser therapy*. Originally this method had nothing

to do with acupuncture, but it soon became apparent that it could support acupuncture outstandingly. It is essential to emphasise that laser acupuncture is not merely the stimulation of an acupuncture point with the use of a laser beam instead of a needle. Instead, the locally healing effect of the laser light itself complements acupuncture treatment. Conversely, acupuncture, as a therapy regulating autonomous function, adds to the local effect of the laser. Acupuncture and local laser therapy are both equally useful and very effective treatment forms, which in their combination as laser acupuncture have come to form a holistic concept of their own. And again it was Dr. Nogier who discovered the possibilities laser holds in connection with acupuncture and again it was RAC that helped him to optimise the use of laser in treatment as well as for the stimulation of acupuncture points.

After Mester as pioneer of medical laser therapy was able to demonstrate the effect of laser light in supporting the healing of wounds in 1969, Nogier had the idea that not only the wavelength of the laser light – that is blue or red light – as well as various wavelengths in the infrared range were decisive for the absorption of light in the tissues and thus for the effect it had but also the frequency of the light impulses with pulsed lasers or the set frequency with continuous wave lasers (whereby the output changes in time with the frequency in the form of a sinus wave). He experimented with continuously changing frequencies and observed with the use of RAC, which frequencies brought about the strongest reactions. The frequency series he developed comprises the so-called Nogier frequencies, which proved to be very effective in clinical experiments later on. These frequencies stood out due to their particular resonance with certain tissues and with certain tissue conditions. For example, frequency A is especially useful

in the treatment of inflammation, frequency B has a special affinity to ligaments, frequency C to bones and joints, frequency E has a stimulating effect on nervous tissue and the frequencies F and G on the lower and higher parts of the brain.

Shortly after this, another very important frequency series was developed by Bahr with the help of RAC as well. These Bahr frequencies, which have led in particular to the present day possibility of much differentiated diagnostics in the field of acupuncture, are very effective therapeutic frequencies. As final frequency series, the relatively new „meridian frequencies“ according to Reiningner should be mentioned. Reiningner was able – again by means of the RAC reflex – to find resonance frequencies matching the already known meridians, which happened to also turn out to be important therapeutic frequencies not only to stimulate the relevant meridian points in terms of acupuncture but also for local tissue therapy with the frequency of the respective meridian (e.g. liver with the frequency of the liver meridian, stomach with the frequency of the stomach meridian etc.).

The choice of laser plays a decisive role particularly in the local treatment of inflamed or traumatised tissue. The impulse lasers, in particular, (Gallium Arsenit Laser, 904 nm wavelength) have an excellent effect in this context, as they penetrate deep into the tissues due to their very intense (90 watt) but short (200 nsec) light pulses without heating the tissues (Image 5).

Even though there is basically no treatment where I would want to do without local laser therapy, there are several indications, where this method plays an especially important role. These include the treatment of infected joints, tissue infections with multi-resistant pathogens, in cases of ordinary wound heal-



Image 5: Modern impulse lasers penetrate even the wall of the hoof with very good effect, e.g. in the case of laminitis (cast has been drilled to allow the laser to be placed directly on the hoof wall)

ing, tendinitis in the horse and nerve lesions and paralysis. With the aid of several cases I have chosen from a number of my investigations into the effects of laser acupuncture, I wish to present the excellent possibilities this method offers:

Example from a study on tendinitis in the horse

Injury to the superficial flexor tendon

An 18-year-old Trakehner mare suffered an almost complete rupture of the superficial flexor tendon when she was injured at pasture. In the open wound, both ends of the tendon could be palpated with the bare hand about 6 cm apart and could be positioned into the wound by flexing the foot (image 6). As the wound was already too contaminated and infected, treatment with laser acupunc-

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Image 6: Deep open wound with almost complete rupture of the superficial flexor tendon



Image 7: Application of laser cluster with anti-inflammatory frequency



Image 8: Large wound and swelling 2 weeks after start of therapy



Image 9: 14 weeks after initiation of treatment – the tendon has healed and has been rebuilt to almost normal strength

ture was chosen. The excellent anti-infective properties of this method as well as the possibilities regarding wound and tendon repair, in particular, made this form of treatment preferable. Daily treatment consisted of intensive lasering of the entire surface of the wound, especially the ends of the tendons, with an anti-infective laser frequency. In addition, the wound was treated with a laser cluster for a further 5 minutes with another anti-inflammatory frequency (Image 7).

Acupuncture points for wound healing, to clean the tissue and for the management of inflammation were also treated daily. The wound was also cleaned with wound irrigation solution and bandaged every day. Aside from the administration of a tetanus booster, no other treatment with antibiot-

ics or anti-inflammatories was carried out. Despite intensive laser application with the anti-infective frequency „A“, an initial swelling of the surrounding tissue could not be avoided. In addition, the tendency toward production of hypergranulation tissue could not be completely prevented, resulting in a widespread wound and swelling the size of a tennis ball two weeks after the start of treatment (Image 8). During the entire treatment, it was remarkable that the mare was able to move about almost lameness-free despite the large and swollen wound.

This treatment was carried out on an inpatient basis for 8 weeks in 2-3 day intervals. At the end of that period, the wound had closed and the mare was discharged. Further treatment was continued by the owner in the same manner for 6 weeks and

concluded at the end of this period. The tendon had healed and been rebuilt to almost the level of its normal strength (Image 9). The mare was then walked and later trotted for increasing amounts of time.

Example from a study on laminitis

Severe acute laminitis with significant palmar deviation of the distal phalanx

An eleven year-old Trakehner mare had developed severe acute laminitis at the start of pasture season. Despite intensive therapy in an equine clinic, palmar deviation of the distal phalanx on the left front extremity was detected after one week using radiographic imaging (Images 12, 13). The mare demonstrated hypersensitivity on both front extremities with pronounced lameness on the left. An inpatient treatment

course of four treatments with laser acupuncture was performed every 3 to 4 days in my practice. Local treatment of the lamina with the aim of increasing circulation and for anti-inflammatory purposes was conducted with the help of a cluster laser. In addition appropriate acupuncture points were chosen to support liver and renal function, to further increase circulation and to decrease swelling as well as inflammation. After 14 days of treatment trotting was observed to be more energetic and swift and the lameness was considerably reduced. The course of treatment was continued at home by the owner on a daily basis.

The hooves were trimmed professionally, toes were shortened and no shoeing was applied. Four week after initial treatment with laser acupuncture the mare was considered lameness free; training was commenced carefully and over the course of six weeks increased to a regular intensity. Follow-up radiographic imaging after a total of four months revealed that the palmar rotation of the distal phalanx was almost fully resolved and the newly developed hoof wall was completely aligned with the distal phalanx (Images 14 and 15). Within the last year the mare has made a full recovery and has returned successfully to the dressage sport arena without any further treatment.

Example from a study on recurrent airway obstruction (RAO)

This is the case of a 13 year-old Arab mare, which had been suffering from recurrent airway obstruction for 9 years with massive deterioration over the last year. Consequently euthanasia had been considered repeatedly. The horse was presented in dramatic condition. Resting respiratory rate was 56/min with severely impaired exhalation, leading to the development of a pronounced heave line. The nostrils were



Images 12 and 13: Hooves pre and post laser acupuncture treatment course

drastically flared to the size of one's palm upon inhaling and the eyes widened with a panicked expression (Image 16) accompanied by loud wheezing. The mare was experiencing a level of severe respiratory distress rarely seen in practice.

When performing acupuncture on an RAO patient it is of the utmost importance to identify and treat the actual cause of the allergic reaction of the body. Moreover, acupuncture points are treated to dilate the bronchi and to break down mucus. How quickly treatment can have an impact was very well demonstrated in this particular horse. The duration of the treatment lasted approximately 30 minutes. Immediately thereafter, that is 30 minutes after image 16, image 17 was taken. By then the resting respiratory rate was cut in half to 28/min and flaring of the



Images 14 and 15: Radiographic images left front pre and post laser acupuncture treatment course

nostrils had disappeared. The horse presented calm and relaxed. After 7 treatment sessions at intervals of 3-4 days, the horse was considered asymptomatic and was able to enjoy galloping across the pasture.

The presented cases unfortunately only offer a sneak peak in to the truly impressive and manifold capabilities and possibilities of laser acupuncture. They can offer an appeal to put aside the usual scepticism and take the time to further engage in this topic to find out that it offers a valid alternative to "retirement" or even slaughter of one's own horse. As a general statement, I want to add that this form of acupuncture is a genuine holistic treatment method, which not only treats the back, the tendon, the distal phalanx apparatus, the hip dysplasia or the cough but much rather the entire animal

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including the listed symptoms. Noteworthy is furthermore that virtually all my patients present due to chronic conditions and all medication such as antibiotics, corticoids, steroids etc. are discontinued. This in return implies the need of diligence and sense of responsibility, which requires knowledge and experience.

Conclusion

Based on my 25 years of experience with laser acupuncture in the treatment of various diseases of diverse severity and form in all aspects of veterinary medicine of equine and canine patients, I have to conclude that it is an extremely potent therapy for almost any disease. It has been demonstrated on thousands of treated horses and dogs that treatment with appropriate impulse laser has a highly anti-infective, anti-inflammatory, tissue demarcating as well as regenerative effect on even severely damaged tissue. The local effect of the laser is significantly complemented by the autonomous and immune-system-supporting properties of acupuncture. It would be desirable, if in the future, this treatment received the attention it deserves, primarily for the benefit of the patients and their owners. The presented cases by themselves, which all had been pre-treated long-term with qualified measures, demonstrate that laser acupuncture in this consequent manner constitutes the optimal treatment of various acute and chronic disorders. •

Please see www.akupunkturtierarzt.de
for more information.

Indications in dogs and horses –



Image 16: Severe dyspnoea with nostrils drastically expanded and panicked expression



Image 17: 30 min after treatment initiation – regular nostril position, calm expression

Where can laser acupuncture help ?

- Backproblems incl. „Kissing Spines“, Spondylosis
- Acute and chronic lameness
- Ataxia, Wobbler
- Distorsions, strains, contusions
- Laminitis
- Arthrosis
- Acute and chronic bronchitis, pneumonia, sinusitis
- Liver disease, renal disease, cardiac disease, colic
- Gynaecological disease, obstetrics
- Roaring
- Dental cysts, purulent sinusitis
- Occular injury, corneal oedema
- Wound healing, abscess treatment
- Post-operative wound treatment
- Post-operative recovery
- Optimisation of performance and endurance without Doping

Literature available upon request.



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After completion of his studies of veterinary medicine in Hannover in 1979 and obtaining his doctorate on the topic of COPD in horses, Dr. Petermann worked at the Animal Clinic Wahlstedt before opening his own practice with special focus on equine medicine. He has been specialised in acupuncture since 1986, with abundant continuing education domestically and abroad and is the author of several reference books on the topic of acupuncture in dogs and horses. He has been managing his practice since 1995 as a practice focussing solely on acupuncture for dogs and horses. He is director of training for the veterinary section of the German Academy for Acupuncture and Auricular Medicine (DAA) and acts as a speaker at veterinary and human medical congresses world-wide.

In addition, Dr. Petermann has been President elect of the International Veterinary Acupuncture Society (IVAS) since September of 2014.