Is it possible to help people suffering from chronic subjective tinnitus with osteopathic treatments to improve their acceptance of their sound perception?

Master Thesis zur Erlangung des Grades

Master of Science in Osteopathie

an der **Donau Universität Krems**

niedergelegt

an der **Wiener Schule für Osteopathie**

von **Bettina Schlatte – Cehovin**

Bergheim, Dezember 2006

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Danksagung

Ich möchte an dieser Stelle jenen Personen danken, die mich durch ihre Mithilfe an der Entstehung der Master – Thesis unterstützt haben.

Mein Dank gehört allen Patienten, durch deren Teilnahme diese Arbeit ermöglicht wurde, sowie der freundlichen Kooperation der Gruppenleiterin der Tinnitus – Selbsthilfe, Frau Eva Malisa.
Frau Dr. Verena Greimel danke ich für die freundliche Übermittlung des Tinnitus – Fragebogens.
Ich bedanke mich auch bei Mag. Katharina Musil für die unkomplizierte und stets freundliche Art, mit der sie die Arbeit betreut hat sowie bei Frau Dr. Brigitta Doblmayr und Frau Mag. Lucy Clegg für die Unterstützung bei der Übersetzung.

Ein großes Dankeschön gehört meiner Familie, meinem Vater für die Beratung in statistischen Fragen, meiner Mutter für die Betreuung meiner Kinder, und meinen Kindern, die viel Verständnis in dieser Zeit gezeigt haben.
Meinem Bruder Christian danke ich für die Unterstützung am Computer, die wertvolle Zeitersparnis gebracht hat.

Weiters möchte ich mich besonders bei meinem Partner Walter bedanken, für die Geduld und den wohltuenden Ausgleich in den stressigen Phasen der Entstehung der Master Thesis.

Master Thesis

Is it possible to help people suffering from chronic subjective tinnitus with osteopathic treatments to improve their acceptance of their sound perception?

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2006

Abstract:

Research question: Is it possible to help people suffering from chronic subjective Tinnitus by osteopathic treatment to improve their acceptance of their sound perception?

Objective: This study examines the influence of osteopathic techniques on the acceptance of the interfering noise in patients with chronic subjective tinnitus.

Methodology: Randomised controlled clinical trial. 41 patients with chronic subjective tinnitus were allocated randomly into a treatment group (theese participants received five osteopathic treatments - each three weeks apart) - and a waiting/control group (the participants of this group did not receive any treatment during the six to eight week waiting time). The Tinnitus Impairment Questionnaire TBF 12 (Greimel et al, 2000) and the Visual Analogous Scale (VAS) were used as measuring instruments of the tinnitus parameters (impairment, loudness and annoyance levels of the tinnitus).

Results: With regard to the tinnitus impairment (TBF12) an average improvement of 45% was accomplished in the treatment group, however there was an insignificant deterioration (4%) in the waiting group. There was a 38 per cent or rather a 48 per cent average improvement in the treatment group with regard to the loudness and the interference level of the tinnitus (VAS). In the waiting group the positive effects were insignificant (plus 11% or 9%).

Conclusion: The results show that osteopathic treatments can have a positive effect in the chronic stage of tinnitus. They should, however, also be examined by more adequate studies with a larger number of patients over a longer period of observation.

Key – words: chronic subjectiv tinnitus, clinical trial, osteopathic treatments, improvements

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1 Introduction

1.1 The phenomenon tinnitus in medical history

„If a man is touched by the hand of a spirit and his ears sing then you should grind some myrrh, roll it in wool and sprinkle with ceder blood and chant the spell: A KIR.GAB has made EA" ... (Thompson, 1931, p. 3, quoting Feldmann, 1998, p. 2). This hieroglyphic inscription can be found in King Assurbanipal's library (668 -662 B. C.) in Ninive. Auditory sensations where considered to be supernatural in Babylonic medicine and were treated with drugs and by conjuring the help of the gods and spirits. Old Egyptian papyri, the old wisdom of the Ayur - the Veda Myth and even the Corpus Hyppocraticum tinnitus report and Hippocrates (466 – 377 B. C.) give pulsations of the veins as the cause for these auditory sensations. In the original Greek text three different words are used in this context: echoes = sound, bỏmbos = humming, und psỏphos = faint noise. The Persian scientist Avicenna (Ali ibn Sina, 980 – 1038) differentiates between the three kinds: "sonitus" = tone, pitch, peal, noise; "tinnitus" = ringing; "sibilus" = whistling , rustling, and hissing.
Feldmann (1998) states that famous people such as Martin Luther, Ludwig van Beethoven, Friedrich Smetana and even Francisco Goya suffered from tinnitus.
The following quotation by Goebel (2003,p.97) holds true even today :"*The first treatment of tinnitus was described on Egyptian papyri millennia ago. And despite intensive research, however, many questions concerning the causes for and the treatment of tinnitus have remained unsolved*." (trld. B.D.)

1.2 The phenomenon tinnitus – definition and epidemiology

Goebels states that the erroneous perception of sounds and noises in the absence of a relevant external stimulus is called tinnitus.

The term "somatosounds" has been recommended for the rare cases of objective tinnitus (in this situation individual organic mechano - acoustic signals produced by the respective patient can also be heard by an external observer) in the London definition of 1981.
The majority of cases, however, are those of subjectively realized sensations where only the patients themselves is aware of the symptoms.
Tinnitus is defined as a "*Sound perception which has not been caused by a simultaneous mechanoacustic or electrical signal"* (according to the London Consensus-Conference of the Ciba-Foundation-Symposium 1981,quoted by Goebel (2003, p.2).
It seems to be a symptom that is, in certain respects, comparable to the chronic pain syndrome in its complexity and effects.
Sounds in the ear are the most frequent otological symptom.
According to research done by the German "Tinnitus – Liga" in 1998 three million German adults live with constant noises in the ear, which is 4% of the population. And about half of them are quite seriously affected by chronic tinnitus. Young people are also increasingly affected by it.(German Tinnitus –Liga,1999.)

1.3 Our ear – the most sensitive of our senses

Over the last fifty years technology and industrialization have taken their toll on our hearing. The increase of noisy environments and their acoustic impact have resulted in an enormous over stimulation of our senses.
Our ear, the most sensitive of our organs, cannot cope as it is also exposed to noise even when we are asleep.
Biesinger (2005,p18.) states that "*It is the first fully developed organ to function in the human womb and the last one to fade with death. It is the "„organ of humanization", hearing is* our first fully developed sense."
In his book "The Sound Of Life" A. Tomatis (2003) suggests that the possibility of interuterine dialogue is the first pre-requisite for a person's positive attitude towards life and love.

Not only the strain caused by noise stored in our ears which obscures the nerve links to our emotions and consciousness are mentioned by Biesinger, but also the fact that stress and anguish are disturbance variables in the complex process that leads to the phenomenon in modern civilization known as tinnitus.
It causes discomfort, fear and stress for the patient and is linked to negative impulses and this again has an influence on the loudness of the disturbing noises in the ear. It renders normal existence impossible and develops into a disease.
A decrease in the threshold perceptance value for normal basic noise in the ear can come into existence without any organic change. This can happen when our subjective “sound filters“ have been decreased or used up because of too much stress or when we are at the end of our tether.
According to Schaaf (2004) a critical situation can bring about an increase in the degree of sounds in the ear which are already in existence. This is coupled with a negative assessment (based on an evolutionary or individually acquired experience by learning).Thus a vicious circle is created that eventually uses up all the energy and resources of the individual organism and leads to total exhaustion.

1.4 Possible causes of chronic subjective tinnitus

Many authors such as Feldmann (1992), Goebel (1997), Hesse &Laubert (2001) are of the opinion that it is highly questionable to attribute such a complex dysfunction as tinnitus to one structure.
Possible causes of subjective tinnitus which dealt with in this paper are manifold. Goebel (2003) lists the following causes: cochlear hearing loss (noise trauma, deafness, muzzle blast trauma, sudden deafness), neural ones (acoustic neurinoma),central ones (multiple sclerosis, trauma, circulation disturbances) as well as and stomatognathic causes.
The latter are of interest to the osteopath,since the occurrence of subjective sound perception has not only related to the ear and the auditory pathway.
Biesinger points out the fact that the diagnosis of sound perception must include all anatomic and physiological factors as well as the links to the vegetative nervous and the limbic systems.

An explanation of the changes in loudness of such a disturbance can be traced to the vegetative nervous system (NS), to musculoskeletal areas of the cervical spine (CS) and the jaw joint cartilage.
According to Goebel (2003) problems with the CS, as well as psychosomatic reactions, such as CS tension, psychogenic tension of the CS muscular system makes up 50% of the initial causes.
Goebel reports that Neuhauser (2001) and Rubinstein & Erlandsson (1991) state that the other 50% correlate to craniomandibular dysfunctions such as those of the jaw joint, psychogenic tenseness of the jaw muscle or bruxism as a consequence of dental treatment.
Biesinger (2005) says: *"There are cases where you can reconstruct the beginning of the sounds in the ear with an awkward movement or an instant of imbalance in the body. Here the body's build and stance are of important. In the case of bad posture, e.g. the malposition of the pelvis, problems with the CS or TS are unavoidable, since certain sections of the vertebra are beyond pliabilty. Even a dysfunction of the temporal mandibular joint maybe an influence here."*

1.5 Treatment and therapies used to increase the acceptance of chronic subjective tinnitus – the importance of osteopathy in this area

According to Goebel (2003) the ADANO (the society of German speaking audiology and neuroscience specialists) recommends that at the acute stage (0 – 3 months) important diagnostic and mainly medical intervention is to be performed, while in the sub acute (3-12 months) and chronic stage other treatments will take effect.
After the acute phase naturopathic treatments, corporeal and alternative ones may be included. "The aim of these methods is not to stop the tinnitus, which is impossible, but rather to stimulate and support the self-healing forces of the individual. This an essential contribution to the acceptance of the noises in the ear". (Biesinger, 2005, p.84).
Among alternative methods osteopathy and craniosacral therapies are mentioned. (Biesinger, 2005).

In Germany craniosacral therapy is offered in some tinnitus rehabilitation centres(e.g. St.Urban im Breisgau). According to the Austrian tinnitus league (ÖTL) such rehabilitation centres need to be established. In its magazine “Tinnigram“ they list day clinics for TRT (Tinnitus Retraining Therapy) which work with otolaryngologists and psychologists. As well as psychotherapy other alternative therapies such as Kinesiology, TMC (traditional Chinese medicine), Tomatis method, Shiatsu and many others are mentioned.(ÖTL,2006,p24-25).
In Austria osteopathy doesn’t seem to have gained the publicity and recognition in assisting in therapy as it already enjoys in Germany.

1.6 The objectives of this master`s thesis

In the following treatise the evaluation of a clinical study based on a control-group design should assess the positive effect of osteopathic techniques in the improvement of the acceptance of the noises in the ear (tinnitus annoyance and impairment). As early as in 1997 the Hamburger Universitätsklinikum Eppendorf performed a study of the evaluation of the effects of osteopathic treatment in chronic subjective tinnitus. Dräger (2000, p1) states that in “48% of cases one could see a positive effect in the index of change”.
For further evaluation an adequate clinical research program should be carried out in order to prove the positive effects of osteopathic treatments accordingly.
Feldmann (1998), among others, points out the fact that the degree of awareness in a patient’s perception of tinnitus cannot be rationalized. He asks for more and different approaches to this phenomenon, even philosophical ones.
Osteopathy with its holistic therapy position and its philosophy would be preferable and best suited to take all the various factors of this symptom into consideration.
The aim of this kind of therapy is to reach a functional balance of the various areas of the respective organism and this should have a positive effect and reduce annoyance and impairment considerably.
The flexibility of this system and the resulting feeling of peace and inner harmony should enable the patients to use their resources optimally in order to be able to cope more easily with the disturbing auditory sensations.

2 Fundamental principles and aspects

2.1 The development of our auditory system

2.1.1 Phylogenesis

As knowledge of the origins and development of tissue is of highest importance for osteopathic treatments some interesting basics developed by Tomatis (2003) must be dealt with first: Hearing and listening form the final phase of the development – phylogenisis and ontogenesis – in the increasingly differentiated communication with our environment. Phylogenesis features the development of the membranous labyrinth (cochlea and vestibular apparatus) first in the centralization of the balance system from primitive species of fish right up to the complicated entity known as the human ear. This system has always functioned in liquids and has even formed the balance system in jellyfish (medusae). A change in balance has been signalled by the lateral organ of primitive fish, this developed into the otolithic vescula, then the otosaccus, is a further step in the development, made a more refined indication of changes in position possible. All vertebra features now have vestibular apparatus.

Necessary adaptation to life on solid ground did not only lead to the formation of the tympanic membrane by the closure of the pharyngal seam, but also to the change of the role of the hyoid arch.

In amphibians and birds the columella conducts noise through via the tympanic cavity (filled with air) to the inner ear. Utriculus and sacculus had to be developed as well as the lagena, the predecessor, in a way , to the cochlea, this happened and the upper part of the body of the mammal became erect.

The cochlear duct together with the ossical chain developed for the first time in mammals (the secondary jaw joint developed and the primary jaw joint became the ossical chain) and is connected to the sacculus through the narrow ductus reuniens. Not only does the formation of the three arches out of the utricculus help to fight gravity and thus improves the process of the analysis of the position in a given area, but also the development of the sacculus into the cochlear duct

improves the carriage of the human body, as it makes an analysis of the auditory information received within the labyrinth possible. In order to decode, select and analyze this information the inner ear needs constant conditions.

A hard ossical layer is developed around the membrane, which features regulating systems on the inside and outside to screen it from disturbing noises. Pivoted deep inside the petrous bone it can exert its controlling function undisturbed.

In the inner ear a pressure compensation system (round and oval window), in the middle ear the development of the columella into the stapes as well as the development of the first pharyngal arch into incus anvil and malleus serve as an improved system of the regulation, conduction and processing of sound perception. Also the tuba auditiva, a small pipe filled with air linked to the round window, which serves as a valve and provides safety measures and adaptation.

The meatus acusticus externus, the latest state of the art in phylogenetic development, filters information before transmission to the membranous labyrinth. Obviously the development of the ear was supposed to serve hearing from the very beginning (Tomatis,2003).

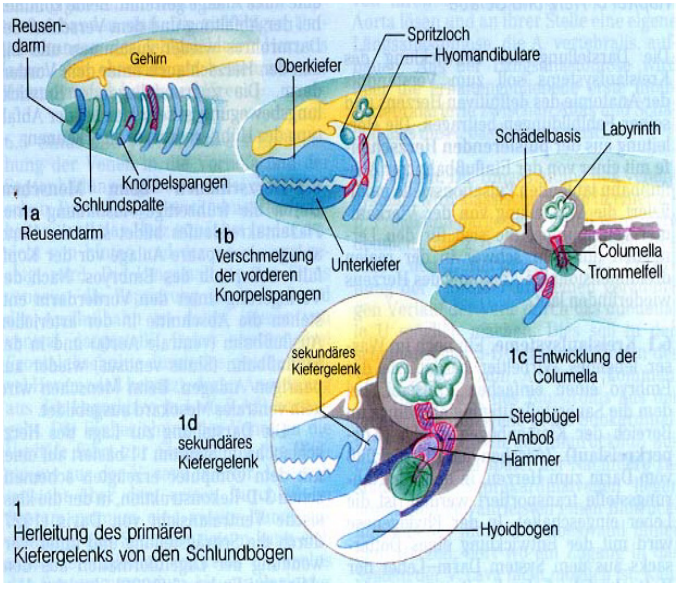


Fig. 1: Development of the primary jaw joint into the ossical chain (Drews, 1993, p.279)

Glossary:

Amboß	incus
Entwicklung der Columella	development of the columella
Gehirn	brain
Hammer	malleus
Knorpelspangen	Cartilage arch
Oberkiefer	upper jaw
Schädelbasis	skull base
Schlundspalte	pharyngeal cleft
sekundäres Kiefergelenk	secondary jaw joint
Spritzloch	injecting hole
Steigbügel	stapes
Trommelfell	eardrum
Unterkiefer	lower jaw
Verschmelzung der vorderen Knorpelspangen	fusion of the cartilage arches

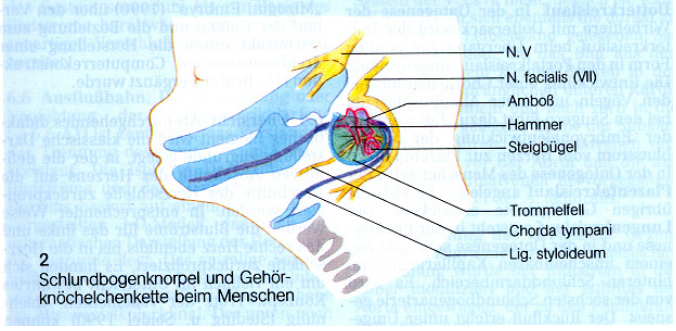


Fig. 2: Pharyngeal arch cartilage and human ossical chain (Drews, 1993, p.279)

Glossary:

Amboß	incus
Hammer	malleus
Steigbügel	stapes
Trommelfell	ear drum

2.1.2 Ontogenesis

Ontogenesis shows numerous parallels to the phylogenetic development. From the third week onwards the ear placods already originate between the first and second pharyngeal arch from the ectoderm and develop into the ear vesicles. The endolymphatic area of the ear vesicles, into which nerve ends reach, communicates with the surroundings, acting in a similar way to the canal system of the lateral organ of fish. After closure the vesical area is similar to the liquor area of brain vesicles. Thus the inner ear is created. It transforms sound waves into neural impulses and registers changes in the equilibrium. Sacculus and the cochlear duct with the Corti organ, as well as the utriculus, the arches and the endolymphatic duct take form out of a ventral and dorsal component and are called membranous labyront. The pouch at the end of the endolymphatic duct is situated underneath the dura after the ear vesicle has been enclosed in the petrous bone, thus serving as the container of the pressure compensation system.

Inside the chondral capsule, which surrounds the endolymphatic cochlear duct, perilymphatic areas develop from the tenth week onwards. They are called scala tympani and scala vestibuli and unite in the syringe of the cochlea (helicotrema). They are separated from the cochlear duct by the basilar and vestibular membrane (Reissnermembran).

From an osteopathic point of view the early relationship between the labyrinth and the liquor area is of interest: Feldmann (1998) mentions the close connection between the perilymphatic duct via the aqueductus cochleae with the subarachnoidal space and a liquid identical to the liquor cerebrospinalis. A functioning pressure equalization can be a prerequisite for the functioning of the Corti organ whose role will be described in detail later.

In the cochlear duct a limbus spiralis is formed on the inside, on the outside we find one row of inner hair cells and three or four rows of outer hair cells.

These sensory nerve cells are covered by the membrana tectoria thus forming the auditory organ proper.

At a very early stage the neuroblasts make room for the ganglion vestibulo - cochleare. The impulses received by the Corti organ are transmitted to the ganglion spirale and via the auditory fibre of the eighth cranial nerve to the central nervous system (Sadler,1998).
The middle ear (tympanic cavity) develops out of an extrophy of the entodermal pharyngal intestinum the first pharyngeal pouch. Thus there exists from the very beginning a functional relationship between the visceral system, since the connection to the pharyngal cavity is kept up in the form of the tuba auditiva. The ossical bones, malleus and incus originate from the cartilage of the first arch and the stapes from the second chondral of the pharyngeal arch. Accordingly the muscle of the malleus (tensor tympany) is innervated by the nerve of the first pharyngeal arch (nervus mandibularis of the nervus trigeminus) and the stapes by the nerve of the second pharyngeal arch (nervus facialis).
The eardrum is bound by the entoderm of the tympanic cavity on the inside and on the outside by the ectoderm of the meatus acusticus externus. In between we find a mesodermal lamella including the basis of the malleus.
The meatus acusticus externus grows downwards in the form of ectodermal epithelial tissue and develops in the seventh month of pregnancy into a secondary canal.This elongation develops simultaneously with the growth of the auricle (Drews 1993).

2.2 The temporal bones – Biodynamic Craniosacral aspects

Sills (2001) describes the temporal bones as extraordinary in their visual beauty and in their intricate relationships within the cranial base and with the rest of the system. It was while gazing at a temporal bone that the incredible thought, *Bevelled like the gills of a fish for primary respiration*, struck Sutherland. The temporal bones contain our hearing mechanisms and the mechanisms that maintain our sense of balance relative to gravity. Resting in a wedge-shaped space between the sphenoid and the occiput, any inertial issue held within their dynamics will be directly transferred to the sphenobasilar junction and vice versa. It is also common for them to hold intraosseous compression within their bony tissue.

The temporal bones have an important relationship to the reciprocal tension membranes. The tentorium cerebelli, the horizontal aspect of the reciprocal tension membrane , stretches between them. Due to their relationship to the horizontal aspect of the membrane system, they will also have a direct relationship to the horizontal structures of the body generally. Their dynamics will thus reflect the overall state of gravity line balance throughout the body. Issues held within horizontal structures, such as major joints, the pelvic diaphragm, the respiratory diaphragm, and the thoracic inlet, will be mirrored within the dynamics of the temporal bones. They express a dynamic equilibrium relative to structural issues within the body as a whole. Issues of traumatization and shock are often reflected in their dynamics, which commonly express compression and torsion. As they will compensate for almost any connective tissue and joint dynamic within the body in some way, it is also common for the temporal bones to be out of synchronization in their expression of motion. Classically, the temporal bones express external rotation as they rotate around an oblique axis through their petros portions. Their squama widens apart as their mastoid portions narrow together. While this occurs, the tentorium flattens and widens between the temporals.

2.3 Development and physiology of the auditory system

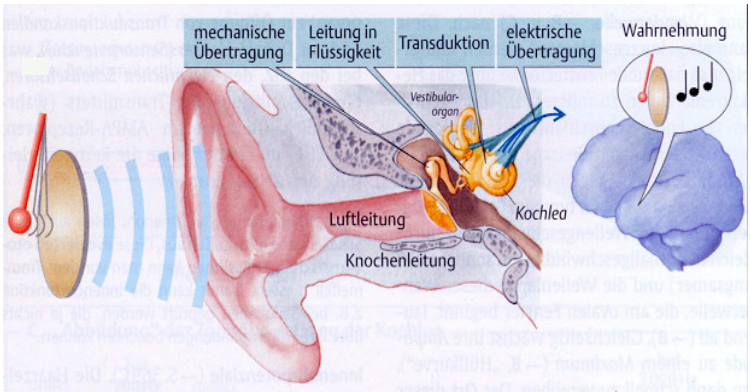


Fig. 3: Sound perception and transmission (Silbernagl & Despopoulos, 2003, p.365)

Glossary:

elektrische Übertragung	electric transmission
Knochenleitung	bone conduction
Leitung in Flüssigkeit	conduction in a liquid
Luftleitung	air conduction
mechanische Übertragung	mechanical conduction
Transduktion	transduction
Wahrnehmung	perception

Frawal (2006) states that the myelinising of the auditive fibres takes place as early as in the 24th to the 28th week of pregnancy. The ear of the newborn child is exposed to an enormous frequency range (0 to 20000 Hertz and above); and it has to learn to switch from bone conduction to air conduction. The sounds registered by

the eardrum and surrounding bones follow the auditory pathway.
After the reception of sounds by the outer ear the eardrum and the ossical chain perform the impedance process between air and liquid. Thus the auditory signal (with an energy of 60% instead of 2%) can enter the liquid ambience of the inner ear via the staples foot plate and the oval window of the scala vestibuli.
The vibration energy received by the per lymph stimulates a wandering wave in the scala media filled with endolymph.
The maximum of the waves is dependent on the frequency (high frequencies near the entrance of the cochlea, low frequencies at the top of the cochlea). Complicated sound perceptions are split up along the scala media (the real functional part containing the 2,5 turns of cochlear coil).
Because of the movement of the basilar membrane hair cells are set into motion. This motion starts the transduction process. Originally mechanical signals are transformed into electric ones.
As I mentioned before the corti organ is the sense organ of our hearing system. On the basilar membrane and the stereocilia there are the three rows of outer hair cells (OHC) and a single row of Inner hair cells (IHC).The three rows of OHCs are covered by a tectorial membrane. The Reissner Membrane separates the endolymph space from the scala vestibuli above. In between the inner row and the outer rows of hair cells we find the Corti tunnel and its lymph which is similar to the perilymph.
The hair cells are surrounded by the endolymph (containing many positive potassium ions) and the perilymphe (containing many positive sodium ions). Considerable electric potential differences between the various liquids and the IHCs are maintained with the help of ion pumps and energy-consuming metabolism processes.
The unusual composition of the endolymph in the scala media causes considerable change in the membrane potential of the sense cells. The stria vascularis is located at the lateral part of the cochlea and constitutes the essential organ for the maintenance of the volume and the composition of the endolymph. Because of the resorption in the saccus endolymphaticus a slow flow from the top of the cochlea through its turns to the saccus endolymphaticus is caused (Feldmann,1998).
The analysis and the modulation of the individual stimulus are realized by efferent

nerve fibres; most of them end at the OHCs and stem from the olive. The motility of the OHCs and their effect on the basilar and tectorial membrane can actively influence the mechanical-physiological processes in the cochlea. Thus the increase or decrease in the sensitivity of the IHCs is caused. The capability of the inner ear to adapt itself to various degrees of loudness and complex sound patterns depends on the function of the IHCs.They are modulated in their sensitivity by the OHCs. The transformation of the frequency-dependent mechanical vibrations into neural activity is the domain of the IHCs.

The sensor potential of the IHCs triggers afferent transmitters which activate nerve action potential In the afferent fibres of the auditory nerve (90% of the afferent synapses end at the IHCs, cf.Schmidt & Schaible 2001)

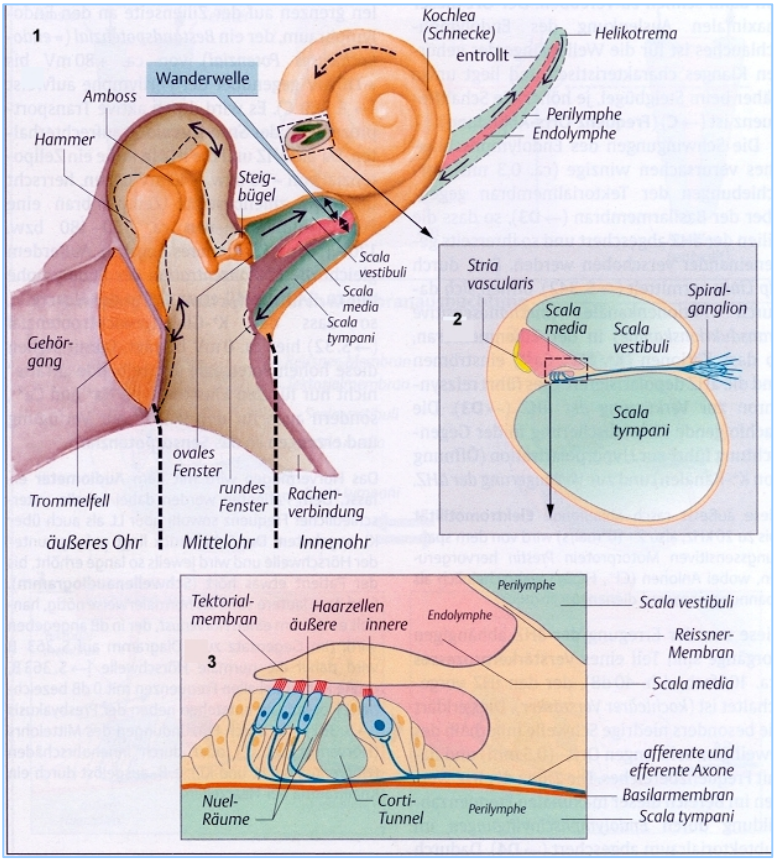


Fig. 4: Sound perception and transmission (Silbernagl & Despopoulos, 2003, p.365)

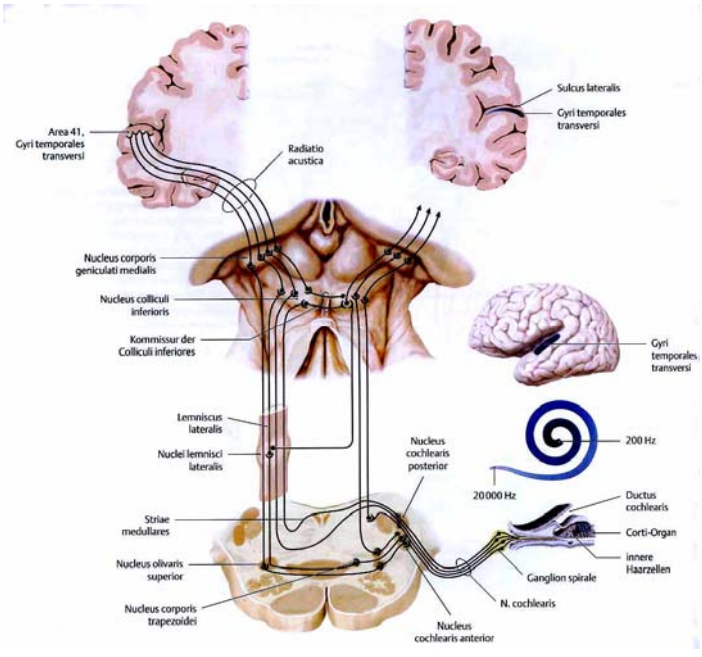
Glossary:

äußere Haarzellen	outer hair cells OHCs
äußeres Ohr	outer ear
Amboss	incus
Gehörgang	meatus acusticus externus
Hammer	malleus
Innenohr	inner ear
innere Haarzellen	inner hair cells IHCs
Membran	membrane
Mittelohr	middle ear
ovales Fenster	oval window
Räume	spaces
rundes Fenster	round window
Steigbügel	stapes
Trommelfell	ear drum
Wanderwelle	wandering wave

2.4 Auditory processing in the central neural system

Schmid & Schaible (2oo1) state that the auditory nerve fibres are the first five to six neurons in series which lead to the auditory cortex and in them the sound is encoded. The higher neurons of the auditory pathway are increasingly specialized in decoding complex sound patterns. In addition they possess interneurons and

collaterals, thus forming a wide neural network of the central auditory system.
The nervus cochlearis leaves the fortress of the inner ear, which is located in the temporal bone, through the meatus acusticus internus and goes on to the nucleus cochlearis anterior and posterior through the cerebellopontine angle. At the level of the cochlear nuclei the suppression of unwanted noise is already effected.
Part of the tonotopic secondary fibres extend from the ventral nucleus to the upper olive (at the base of the fourth ventricle) on the same side, another part reaches the upper olive on the collateral side.
From the nucleus cochlearis posterior the fibres cross over to the opposite side thus forming the lemniscus lateralis. In this way each inner ear is connected to the right and the left part of the auditory cortex. This is important for sound localisation in space.
The following neurons which are in series with the second neurons pass partly contralateral and partly ipsilaterally after a new connection to the colliculus inferior (Relay station, e.g. to the middle ear muscles.)
After that connections to the colliculus superior (coordination between visual and acoustic stimuli, the coordination centre of neck and head muscles), to the cerebellum and above all to the corpus geniculatum mediale in the thalamus are formed, where integration with other sensory modalities take place. In the higher neurons the information of the sound perception is decoded.



Only a small part of the acoustic information (useful sound) is relayed by the radiatio acustica from the corpus geniculatum mediale to the primary autitory cortex (Area 41) and the secondary auditory cortex (Area 42, Wernicke -speech processing center).

Fig. 5: Auditory pathway (Prometheus, 2006, p.366)

Despite the complex net of ipsilateral, contralateral, afferent and efferent ways the tonotopic organisation can be found even in the highest areas.
In the auditory cortex the specialization on certain characteristics of a sound pattern is even more distinct. Superficial elements can be treated as disturbing noise by the CNS and partly eliminated.
According to Biesinger (2005) it is of interest for tinnitus research that the relationship between subjectively perceived loudness of a sound and of its physical energy is approximately in logarithmic order. Fraval (2006) states that a great ability to filter sound or to occlude miscellaneous sound can have a profound effect on the development of the auditory system and on the later ability to learn, language competence, communicative intelligence and social behaviour.
It is a fact that feedback to the muscles of the eardrum takes place, whenever noise arrives at the nucleus olivaris superior. Thus the brain can control eardrum tension and the motion of the stapes at the oval window. Deadening a sound that is too loud or amplifying a soft sound is needed. Because of auditory hypersensitivity similar problems may arise as those of auditory deficits.

2.5 The important and interesting interactions of the auditory system with the body`s other systems

Biesinger (2005) points to the fact that the position of the auditory pathway in the brain stem is coupled to vital functions. Breathing and heart frequency are controlled from here. Alarming sound Perception can lead to “fight or flight“ reactions and the autonomous nervous system reacts with a release of stress hormones accordingly.
Also the way and the amount to which our inner being can be influenced by the tight anatomical and functional connection of the sound perception and the formatio reticularis and the limbic system, which determines our world of emotions, is of enormous importance. In the acute stage of a noise this already decides on the amount of attention given to it. This situation is heightened by activation of the fear and stress in the brainstem. At this point a “memory file“ for continuous tinnitus perception is opened. Here tinnitus is stored and “learned“.

The ear simply functions as receiver, as microphone. For a full understanding of the ear noises all these interactions must be taken into consideration. Feldmann (1998) draws attention to the fact that the unspecific integrational network of the formatio reticularis in the brainstem, in the mid and interbrain is in contact with all parts of the auditory pathway, all other sensory canals and vegetative nuclei.The state of consciousness, sleep patterns and the vast quantity of informational nerve impulses is controlled from here.The arriving afferences are here for our awareness and in order to be transmitted to the cortex.

The psychophysical canal capacity, however, is limited and therefore a process of filtering and selecting must take place between the periphery and the cortex. Furthermore emotional effect is given to all sensory stimuli by the formatio reticularis because of its connection to the limbic system (placed between brainstem and the cerebral cortex, e.g. hippocampus, nucleus amygdalae).

It also stores memories and processes nerve impulses, which enter our consciousness in the form of a tinnitus perception, and is therefore of highest importance for all therapeutic strategies.

Behavorial Integration of the Auditory Pathway

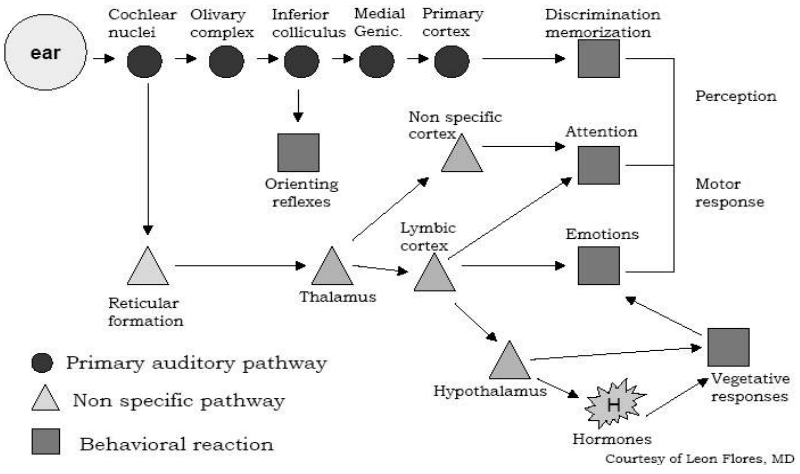


Fig. 6: Behavioral Integration of the Auditory Pathway / „Courtesy of Leon Flores, MD“ (Fraval, 2006)

Feldmann (1998) states that it is highly problematic to define such a complex phenomenon as tinnitus as only one structure, because of the network of the auditory system which is able to perform logistic tasks of the highest order such as habituation, realization, memory and learning.

2.6 Osteopathic aspects of brain stuctures figuring in the phenomenon of tinnitus

Upledger (2006) collected data about the various parts of the brain and the spinal cord. They were offered in seminars called „Das Gehirn spricht“ (The brain talks). He made clear that parts of the brain, structures and regions need more space to fulfil their respective tasks effectively.

- The ARAS (ascending reticular activating system) also known as formatio rectularis consists of a system of neurons which covers an area between the mesencephalon and the brainstem and in varying degrees the spinal cord. It is our alerting system and when activated the sympathic neural system raises the adrenalin level. A constant state of alertness can lead to frequent illness caused by stress. Problems of the tempormandibular joint or bruxism are often the consequence of chronic alertness. Hyperactivity is caused by irrational reaction to noise and other stimuli. A connection in both directions with the endocrine glands, the thymus, the pons, the basal ganglia, the hypophysis and the complete neural system is described. It receives continuously impressions from various sources which increase the state of alertness, or it sends alertness signals to these systems. Sometimes this ends in adrenalin dependence.
- The thalamus can be overwhelmed by incoming sensory stimuli (caution is advised when there is a flood of information).
- The limbic system consists of a pair of amygdalae, the fornix, the hippocampus and the septum pellucidum. It is also called the mammal brain and is to a large degree an emotional system. Since it is in the shape of a horseshoe it can easily be twisted during the birth process and this can lead to fear, panic attacks and a faulty alignment. The limbic system finds it difficult to accept shortcomings or insufficiencies in others.

- The hippocampus forms part of the base of the respective lateral ventricles and has quite an influence on our powers of recollection, emotions and the generalization of fear. Also parts of recollections from former lives are stored here, and are sometimes passed on to the ARAS for processing.
- The hypothalamus is located in the line of the body and controls amongst other vital functions our emotions as well as the endocrine and autonomous nervous system.
- The vagal system has numerous connections to the sympathic nervous system. The vagus belongs to the parasympathetic nervous system whose task it is to replace the energy used up by the sympathetic system. It is also in close connection to the reticular nervous system. Therefore this system can cause vegetative reactions which alert the ARAS and a vicious circle is started.
- The fourth ventricle of the ventricle system has considerable influence on the parasympathetic nervous system and that rigid patterns of thought can lead to disturbances in the intraventricular fluid flow. A release of hypertension in the membrane system inside of head improves the intraventricular liquor flow The third ventricle is the “heart“ of the brain and stores emotions.
- The meninges consist of the dura mater, the arachnoids and the pia mate and show the effects of a pulsating energy system. Tense membranes hinder the arterial and venous blood flow.
- The relaxation of various parts of the body have an influence on the viscosity of the menings and the reception of the healing potency in poorly functioning tissues is improved and this furthers the self-healing process.
- The cerebellum needs space for effective functioning. It is restricted by the form of the tentorium, by traction on the membrane system (the dura spinalis tube). According to Tomatis (2003) it is supposed to be the oldest and wisest brain structure. It has a tremendous influence on which experiences and recollections are stored in the medulla oblongata and at what time they are activated. It determines the motoric coordinating abilities and decides how much energy is left for the inner and for the outer functions respectively. It is also responsible for the composition of tones and rhythms received through

our ears into melodies, songs or symphonies. Without the cerebellum we could only accumulate a lot of noise. A tense neck can reduce the space for the cerebellum because of tension or traction at the myodural bridge (the link between the muscles of the upper cervical area and the dura mater).

- The liquor cerebrospinalis supplies - in the same way as blood does - energy and nutrients and disposes of toxic substances and the like via liver, kidneys, spleen, lymph nodes, etc..It is also found in between cells as the interstitial fluid (the perilymph in the labyrinth is of the same composition as the liquor). It has a considerable influence on the electric fields in the craniosacral system and the links between the nerves and the final synapses in the brain, the spinal cord and the membrane layers of the meninges are embedded in it. A hyperactive synapse can cause disturbances in the electric charge or in the composition of the liquor.
- Arteries transport blood and energy. A release of the menings improves the arterial blood flow. Energy cysts can also block the arterial blood flow.

2.7 Theories and models of dysfunction – found along the auditory pathway

According to Schaaf and Hesse (2004) the search for possible causes for subjective noises in the ear along the auditory pathway is as follows:

2.7.1 The Outer Ear

The awareness of the outer ear is quite frequently impaired by harmless ear wax. The basic ever existent noise (people who are exposed to absolute silence in a soundproof chamber soon experience this acoustic impression) will become audible and registered as tinnitus.

2.7.2 The Middle Ear

Changes caused by the inflammation of the middle ear can induce the auditory system to overcome the silence resulting from lack of transmission of sound, such

as ventilating problems, e.g. otosclerosis (calcification of the ossical chain).

2.7.3 The Inner Ear

The main cause for tinnitus are dysfunctions of the inner ear and central sections of the auditory pathway.
According to Biesinger (2005) a dysfunction of the stereocilia (that means more than one million of moveable mechanical parts) in most cases caused by exposure to noise in the acute or chronic stage belongs here.The frequency indicates where the problem is located.
Furthermore damage in the ion pumps or in the ion canals caused by certain drugs, such as nicotine, as well as a disturbance in the motoric mechanism of the hair cells and in the signal transmission of the synapses, or spontaneous discharge of the eighth cranial nerve can account for tinnitus.
How the sensitivity of the inner ear is controlled has been described above.
Stress can also lead to maximal alertness. The so-called “manager tinnitus“ is most probably caused by increased activity in the area of the ion pumps and synapses resulting in dysfunctions.
Therefore the most diverse combinations of problems can be found with tinnitus patients.
Jastrebboff and Hazell (2004) state that it is natural to assume that indeed the inner ear is the dominant, or even exclusive, factor responsible for tinnitus. Clinical results showed that the auditory nerve section in an attempt to separate tinnitus generators from central auditory pathways in the brain does not help tinnitus in the majority of patients and in about 8% actually makes tinnitus worse.
Feldmann (1998) describes such findings: The localisation of the damage after each operation (destruction of the cochlea, labyrinthectomy, severing of the auditory nerve) necessarily results in a shift towards the centre.
Goebel (2003) reports about plasticity processes in the auditive cortex – which independently from original peripheral causes lead to a centralization and thus generate tinnitus proper (phantom tinnitus).

2.7.4 Theories and models of dysfunction along the auditory pathway and their osteopathic implications

Sutherland found that dysfunctions in the areas of easily mechanically irritated openings can impair, directly or indirectly , the hearing ability.
This is also the case with the arteria tympanica anterior, a branch of the arteria maxillaris. It pervades the fissura petrotympanica and supplies the eardrum. Close to it there is the attachment of the ligament of the anterior process of the malleus. In this way the compression of the pars petrosa ossis temporalis could affect the arterial supply for the eardrum and eventually its ability to conduct sounds physiologically to the oval window.
Another important aspect is the venous drainage of this area. The venes terminate in the plexus pterygoideus which drains into the sinus petrosus superior. Both drain into the internal jugular vein which leaves the cranium in the foramen jugulare.
The sinus petrosus superior, which is formed by the splitting of the tentorium as it attaches along the petrous ridge, can be affected by dural strains of the tentorium cerebelli.
Drainage via the inferior petrosal sinus may be compromised by somatic dysfunction of the petrobasilar suture.
Fissures and foramen formed out of two different bones (foramen jugulare, fissura petrotympanica) are prone to such dysfunctions. The jugular foramina are the narrowest points in the drainage system. Located in the occipito - mastoid suture, between the occiput and the temporal bones, this pair of opening is the path for the internal jugular veins, receiving the outflow of the major sinuses of the head. Dysfunctions in the area of the sutura occipitomastoidea can compromise the venous drainage of the head.
Increased cranial pressure inhibits the reservoir function of the saccus endolymphaticus, which according to Frick, Leonhardt und Stark (1987) serves the pressure equalization in the membrane labyrinth, the function of the Corti organ and the metabolism of the individual cells (ion milieu) is Influenced.

Another important system for pressure balance and drainage is according to Möckel und Mitha (2006, p.157) the eustachian tube. "*It lies in a groove formed by the junction of the petrous bone in the area of the pars petrosa of the os temporale of the ala major of the os sphenoidale. Dysfunctions can influence drainage, airing and pressure equalization of the middle ear and the cellulae mastoideae*."

Sutherland states that primary respiration causes continuous physiological activity which opens and closes the tuba auditiva.

A study of the cranial articular dysfunctions (e.g. strain pattern of the base) considering especially the connective tissue which attach to ossa temporalia and ossa sphenoidalia is essential for the biomechanical integrity of the auditory system. Fraval (2006) draws attention to the internal auditory meatus. Pressure may result in affecting the endolymphatic mechanism and may be the result in lymphadenitis in the facial canal. Lesions of the sphenoid, occiput or temporals, leading to dural tension about the adjacent cervical fascia, approximation of the common parts crowding the nerve centres in the pons must be considered.

Also Sills (2004) says, that bone, membranes, fascia, and all other connective tissues are a functioning whole and express motility and motion as a unified field. They have tensile capacity, reflecting reciprocal tension in response to pressure or load from any layer. This unified field responds to any stressor that impinges on its action via densification and contraction.

Vertically orientated connective tissues meet transverse divisions in the body such as *pelvis, respiratory diaphragm, and thoracic inlet* (jugular veins and arteries, the vagus and phrenic nerves pass through, and tension held in this area can generate backpressure against fluid flow in and out of the cranium and can contribute to venous sinus congestion). These structures all attach to the pelvis and spine, therefore inertial issues can be fed into vertebral and dural dynamics and generate fixations or adhesions within the vertebral column and dural tube.

Part of the vertical arrangements of fascia are the pretracheal, buccopharyngeal, alar fascias, the carotid sheats (surrounding the internal carotid artery, internal jugular vein and vagus nerve), and the prevertebral fascia (forming a tube around the cervical vertebra and the deep cervical muscles). All merge with the pericardium and diaphragma below.

The upper cervical area and the mandible are in close proximity and intimately related.

The temporomandibular fossas of the temporal bones create the articulatory surfaces for the condyles of the mandible. So temporal bone dynamics will directly affect temporomandibular joint function.

The complexity of the temporomandibularjoint (TMJ), temporal bone, and tentorium responds to gravity along with the hip joints, the pelvic diaphragm, sacral base, the respiratory diaphragm, and the shoulder girdle. These structures work together to express balance and compensation in relationship to gravity.

The temporalis muscle is very responsive to stress. Chronic tension can generate inertia in TMJ function and can affect the motion and motility of mandible and temporal bones. Also emotional tension is reflected in these muscles (holding back expressions of suffering or emotion that would be too dangerous or painful to allow; the oral segment including upper cervical area, occiput, theTMJs and mouth can hold tension related to unresolved oral needs issues). As the trigeminal nuclei have connection to the sympathetic nervous system, the TMJs may express nervous system action.

Also important ligaments of the TMJ can individually generate various TMJ issues, which can be transferred to either the temporal bone or sphenoid bone (capsular ligament, temporomandibular ligament, stylomandibular ligament, sphenomandibular ligament). The sphenomandibular ligament has some fibres that penetrate the petro-tympanis ligament and attach to the malleus of the ear. Tensions held in this structure can give rise to hearing problems and tinnitus.

Another important bone is the hyoid bone (embriologically built from the hyoid arch, like incus and malleus and the stylomandibular ligament). It helps to balance all the various tension patterns and pushes and pulls of the muscles and connective tissues in the anterior cervical area. There is a relationship to the mandibular and the temporal bone (via the stylohyoid muscle and digustric muscle).

2.8 Possible classifications

Zenner (1998 as quoted by Goebel, 2003) establishes the category of forms of tinnitus according to the mechanism of is origin and the generator regions.

category	form of tinnitus	generator region
I soundconduction tinnitus		middle ear vibration
II sensorineural type Type I: Type II: Type III: Type IV:	 motor tinnitus transduction tinnitus transformation tinnitus extrasensoric tinnitus	 outer hair cells inner hair cells auditory nerv other category
III central tinnitus	primary central tinnitus secondary central tinnitus phantom tinnitus	brain, CNS brain, CNS

Fig. 7: Tinnitussystematology by Zenner(1998) quoted by Goebel (2003, p.28)

Feldmann (1998) not only classifies according to pathophysiology and etiology, but also according to sound characteristics, range of frequencies, intensity and degree of annoyance, duration and development of the tinnitus. Pathophysiology and etiology (partly coinciding with the localisation of the disturbance) are most important for nosology and clinical ranking.
Of pragmatic value is the differentiation between compensated (noises in the ear do not impair the patient's quality of life essentially) and decompensate or complex tinnitus (an individual form of syndrome where impairment of the life style is considerable).

2.9 Diseases associated with tinnitus

Biesinger (2005) stresses the importance of research for possible causes so that serious problems which require a specific therapy are not overlooked.

- Acute hearing loss (affecting one ear) in the sense of a loss of sound perception is often accompanied by tinnitus and patients have a good chance of recovery. This is frequently caused by a collapse of the energy supply (only one artery supplies the inner ear) or caused by virus damage (e.g. mumps, herpes, influenza, measles and adeno viruses).
- Acute muzzle blast trauma can damage the inner ear. If the hair cells cannot be restored the impairment is often accompanied by a high frequency tinnitus.
- Chronic noise trauma deafness is a result of continuous noise (85 – 90 dB is the limit, 80 dB is the loudness of a speaker. According to the German Tinnitus –Liga 25% of young Germans have measurable noise related hearing problems.) which cause tinnitus many years later.
- With Meniere's syndrome (a sudden attack in the form of high pressure in the inner ear) patients feel extremely inhibited because of the sudden vertigo accompanied by tinnitus and hearing impairment. The endolymph irritation is coupled with pressure damage in the part responsible for the equilibrium in this disease.
- Immunogene inner ear deafness is the result of immune complex sedimentation along the delicate blood vessels of the inner ear caused by virus and bacteria infection, often accompanied by tinnitus.
- Some drugs, especially acetylsilicylacid, quinine, some diuretic agents, antibiotics and chemotherapy medicines can cause inner ear problems accompanied by noises in the ear.
- Idiopathic inner ear deafness e.g. old age deafness, the reflection of a lifelong strain of noise or of hereditary origin causes problems in hearing and understanding of speech, can cause noises in the ear.

- Craniocerebral trauma: head injuries when the temporal bone is affected or a concussion of the labyrinth can lead to deafness and tinnitus.
- Acoustic neurinoma, a harmless increase in tissue in the nervus statoacusticus should not be included in a diagnosis of tinnitus.

2.10 Tinnitus is also diagnosed as an element of other illnesses which are not related to ENT- problems

Such problems are possibly appropriate for osteopathic treatment (especially for the visceral osteopathy).

- Circulatory (vascular) distress can impair on the function of the inner ear and have to be diagnosed.
- According to Dräger (2000) the kidneys, the suprarenal glands have a visceral influence on blood circulation, rheology and water balance (it must be noted that the inner ear is also influenced by the saccus endolymphaticus and that a benign intercranial hypertension can cause this), on blood volume and blood pressure regulation. At this point the importance of the regulating function of the aorta carotis interna has to be mentioned. Since it is close to the apex partis petrosae a loss in the elasticity of the blood vessel because of a poorly functioning temporalia can cause a deterioration of the auto regulation.
- In the visceral osteopathy the connex between the os temporale and the kidneys is considered important.
- Lip and sugar metabolism disorders can increase noises in the ear and should be treated.
- CNS diseases such as meningitis, tumors, infections (borreliose, lues II,etc.), multiple sclerosis, can cause damage in the tissue of the central auditory system and thus lead to tinnitus problems.
- Dysfunction of the cervical spine and the jaw joint can contribute up to 50% of tinnitus problems (Goebel (2003)).

Schaaf and Hesse (2004) also stress the manifold associated relationships between the various disorders and refer to the evolutionary origin of the auditory ossicles (cf. 2.1.2 of this paper). Biesinger (2001, quoted by Goebel & Hiller 2001) also mentions the importance of cervogene factors: as hypothetical afferent nerve structures of the cervical spine are in connection with efferent and afferent neurons of the inner ear or the central auditory pathway.

Goebel & Hiller also include - pathogenetically seen - psychosomatic reaction patterns in the form of myogelosis in the neck.

Dysfunctions in the face or jaw area caused by bruxism, malocclusion, jaw joint misalignment and other dentogenetic factors can, among other things, lead to tinnitus.

Furthermore hypertrophy of the jaw muscles (based on emotionally conditioned hyperactivity of those muscles) are of great importance here.

The whole complex of periauricular problems is called Costen syndrome.

About 50% of the patients affected by the stomatognathic system consider themselves to be suffering from tinnitus problems.

As reasons for emotional conflicts Schaaf & Hesse list as crises in life caused by external influences, personal dependence as opposed to the strife for independence, the lack of awareness with regard to certain conflicts and emotions, submission in contradiction to the exertion of control, a wish to be taken care of conflicting with the will for freedom, self-assertion problems, conscience and guilt conflicts, and sexual or identity conflicts which all can cause psychovegetative reactions such as sleeplessness, cardiac palpitation, stomach pain or tinnitus.

The resulting syndrome falls into two groups, whether it is caused by organic or non organic damage. In the case of a psychosomatic disease where the organic structure is affected by emotions the message is hard to understand for patients. Since tinnitus quite frequently occurs in life crises it is often considered to be the sole cause for the problem.

A decrease in the central auditory filter can lead to an increase in tinnitus perception. In this situation a greater number of active and/or reactive outer hair cells can be found. Since more than 90% of the afferences of the auditory system (including the limbic system) end at the OHCs an emotional conflict can be reflected here.

2.11 Multidimensional tinnitus models

Goebel (2003) describes three tinnitus models which have been developed, to a considerable extent, from behavioural therapy research.

2.11.1 Hallam`s (1984) habituation model

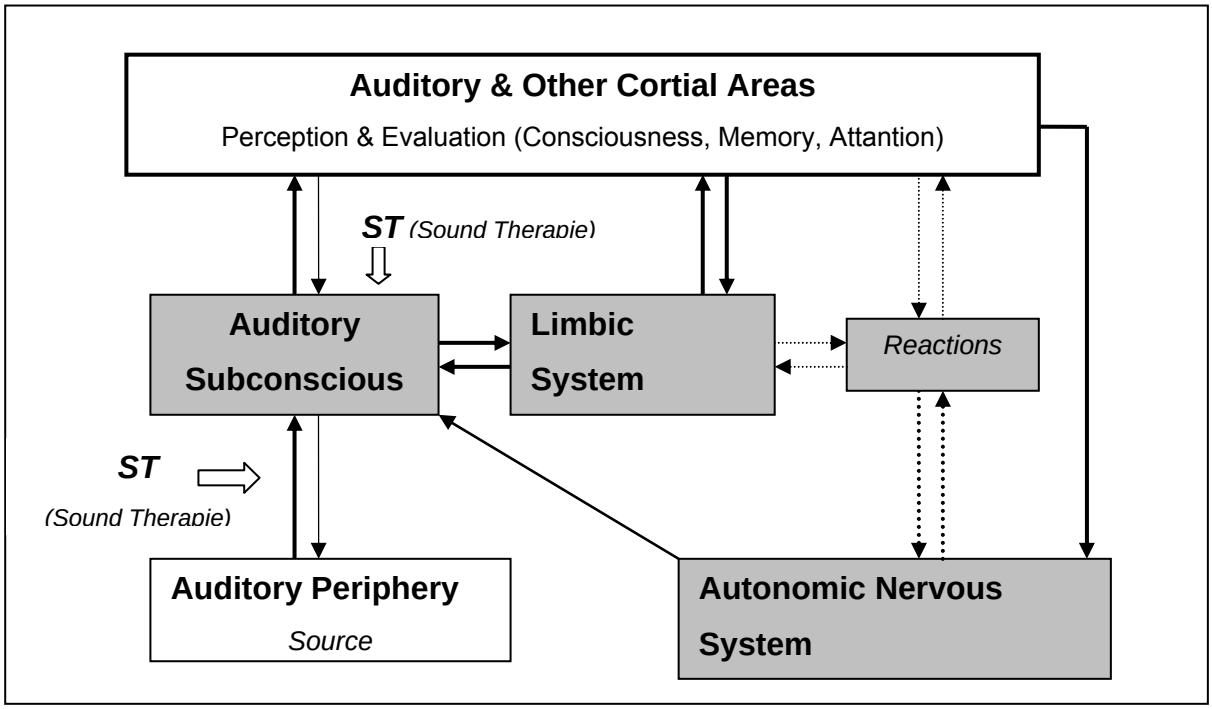
This 1984 model of the first scientifically developed habituation model by Hallam is a multidimensional one. Tinnitus is considered to be a complex subjective experience of a cognitive and emotional nature.
Tolerance is required and reduction of fear leads to improved acceptance of the tinnitus problem.
The controlling of noises in the ear is difficult to manage if this is associated with negative experiences. This leads to physiological fear and strain reactions where the autonomous nervous system is involved.

2.11.2 Jastreboff`s and Hazell`s (2004) neurophysiological tinnitus model

The exact type of damage is not relevant in this neurophysiological model which is based on studies of experiments with animals. More important is the conclusion that the transmission of auditory signals causes abnormal patterns or that the sensitivity of certain neurons is increased.
And this is the basis for psychological intervention and for tinnitus retraining therapy.
The recognition, the decoding of a familiar or personal stimulus (e.g. hearing your own name) takes place mainly in the subcortical area.
Under conditions of increased excitement the risk that tinnitus is decoded increases even if the respective basic signal in the auditory system is very low. As mentioned before perception and evaluation of acute stimuli in the auditory cortex is based on its interrelation with the limbic system (integrating area for sensations, emotions and processes of learning).

Subjective awareness is also influenced by the linking to the prefrontal cortex (responsible for the behaviour) and the autonomic nervous system. Thus the modulating influences of emotional factors, sleeplessness, stress and physical factors can be explained.

Fig. 8: The neurophysiological model (Jastreboff & Hazell, 2004)



2.11.3 Biopsychological models

Since a one - dimensional biomedical paradigma is not applicable, the categorization of diseases recommended by the WHO is used and it is as follows: Impairment (somatic damage), disability (habitual and experience impairment), handicap (impairment of social integration) and serves to complement the bio-psycho - social model in the habituation theory. Tinnitus impairment is seen in a functional context of organic, emotional and social factors.

Factors such as too much emotional attention, fear of diseases, sleeplessness, and lack of concentration can lead to a vicious circle featuring psychological secondary symptoms and considerable impairment consciousness of the patient (vicious circle tinnitus, Fichter& Goebel 1996).

On the one hand the etiology of the tinnitus phenomenon can be deducted, on the other hand an insight into the conditions for the continuation of the problem can be gained this way.

2.12 Diagnosis and indication of auditory sensations

Feldmann (1998) points to the fact that the aim of a tinnitus diagnosis is not solely the verification of the individual pathophysiological mechanism. Here too, as in all osteopathic examinations the differential diagnostic defining of the various causes for the symptom tinnitus must be recognized. Factors of influence on tinnitus must be found. This results in a step by step diagnosis and it serves as the basis for all therapies, or is already part of the therapy. This suits the holistic attitude in the sense of clinical reasoning and ties in with the osteopathic viewpoint.
The number of causes, increasing and influencing factors, as well as the possibilities of reacting and processing are manifold. Thus every tinnitus has its own history and overly strict schemes should not be the aim of diagnostics.
The step by step diagnostics comprise:

1. Specific tinnitus anamnesis
2. Otologic diagnostics (examination of tube function, ear drum microscopy,....)
3. Audiologic and neurootologic diagnosis (language and tone audiometry, otoacustic emissions, threshold of annoyance, BERA (brainstem-evoked-response-audiometry) examination of brainstem potentials,...)
4. Special audiologic diagnosis regarding frequency, intensity of the tinnitus (with the help of an audiometer or a synthesizer)
5. General medical diagnostics
6. Extended medical diagnostics (of use in the individual case) here belong beside visual methods neurological intern, psychological examinations of the CS and the jawjoint status.

7. Objective diagnostic methods (of scientific interest) e.g. OAE (otoacustic emissions - examination of sound emissions of the inner ear, exact diagnosis of the functional state of the OHCs), PET (positron emission tomography to prove cortical activation), NIRS (near infrared spectroscopy to prove changes in the cortical processing), MEG (magneto encephalography to prove changes in the cortical processing),…

2.13 Possible treatments of chronic tinnitus

As mentioned in the introduction the aim cannot be to eliminate the sounds in the ear, but to tame them. The type and intensity of the applied therapy will depend on the degree of annoyance, Biesinger (2005).
Goebel (2003) also suggests for the treatment of chronic tinnitus the indication of therapy. The degree of impairment (I to IV, from slightly annoying to extreme impairment, decompensation). In the case of a psychic disturbance a psychiatric diagnostic is necessary.

2.13.1 Medical treatment

Feldmann (1998) states that a therapy that increases blood flow is not highly successful (15%) in case of permanent chronic tinnitus.
Goebel (2003) suggests calcium antagonists in the cochlear area, antiarhytmics, antiepileptics for central tinnitus problems and also anti depressives because of their soothing effect on the efferences of the auditory pathway and the limbic system.

2.13.2 Apparative sound therapy

Biesinger (2005) recommends an hearing aid device in the case of hearing loss in order to divert from the noises in the ear (acustic defocussing). In combination with a TRT the necessary noise generator can be combined with the hearing aid (tinnitus instruments).

2.13.3 Electrotherapy

According to Biesinger (2005) studies are being done in Germany and Japan with inner ear electrode implants. Their therapeutical use and wider application has to be seen in future.

2.13.4 Orthopaedic treatment - Physiotherapiy and Chirotherapy

Because of the close relationship of the CS and the jaw joint to the structures of the auditory system dysfunctions in this area should be treated (Biesinger 2005). Biesinger stresses the complicated relationships between posture, physique and the position various parts of the body have to one another. This again is in accordance with osteopathic principles.

2.13.5 Surgical treatment or therapy

Goebel (2003) states that surgical methods such as the severing of the auditory nerve or a micro vascular decompression offer relief only for a short amount of time, and can lead later to similar phantom pain's and the return of the disturbing sound perception.

He also mentions saccotomy (release of the saccus endolymphicus with Menière diseases), the implantation of a cochlea implant in serious cases of inner ear deafness, the elimination of a cholesteatom in the middle ear, surgery of the otoscleroses to improve sound conduction and surgery in the case of the round window, among other things.

2.13.6 Psychological therapy

Feldmann (1998) states that the aim of psychotherapy is the reduction of emotional stress factors. Lack of concentration, sleeplessness, fear, anguish and the degree of impairment associated with tinnitus can be diminished. Relaxation therapies,

hypnosis, biofeedback, behaviour therapy, cognitive therapy, “gestalt therapy”, music therapy are all important methods suggested for use in individual and group therapy. In the context of psychotherapeutic therapies multimodal concepts for treatment are increasingly used.

2.13.7 Tinnitus Retraining Therapy (TRT)

This neurophysiological model by Pawel Jastreboff and Jonathan Hazell (2004) has been scientifically proven and has served as a perfectly suited concept since the 1990’es.The processes in the brain that are involved in the controlling of the disturbing noises can be used to make the noises in the ear disappear.
In the German-speaking world the TRT method is achieved by the collaboration with several professional groups. If otolaryngists, psychologists and hearing aid specialists co-operate with music therapists, audio therapists, relaxation treatment specialists the co-therapies can be developed.
Four basic therapy elements should help the desensibilitation of the awareness of the noises in the ear:
Councelling and explanation
Diminishing of the tinnitus - related stress reactions
Treatment of emotional problems
Supply with apparatus
These elements should help the patients to reinstall their acoustic filters in order to remove the tinnitus annoyance from their emotional awareness.
For an improved understanding of such a process Biesinger gives the example of a sleeping mother to whose subconscious the crying of the baby in the next room is transmitted immediately. All filters are passed and therefore it is recognized. With a tinnitus patient the noises in the ear have rooted themselves and equally manifested and the association with a corresponding stimulus can result in permanent attention.

2.13.8 Body therapy

In this case the relaxation effect is the main concern. It is used in clinical and ambulant therapy.

Thorough relaxation serves as the source of positive awareness, release of stress and emotional uncoupling of the noises in the ear.
Alexander method: correct movement and posture (in direct relationship to health or disease) can be learned by intensive body control.
Autogenic training: influence on a person`s thoughts, calming down the vegetative system, improved sleep, higher resilience all these elements are welcome aids in the TRT therapy.
Biofeedback: (in the form of muscle feedback of the CS and jawjoint muscles)
Colour therapy (influence on the vegetative sytem and psyche), *Feldenkreis therapy* (many alternative patterns of movement to rigid patterns of behaviour by introducing delicate, unusual ways of moving creating a physical and mental feeling of wellness).
Hydrotherapy, pleasure or art therapy , Jakobson`s progressive relaxation therapy, *meditation,Tài-chi and yoga* can be performed by the patient independently.
All these methods, however, show little effect as single therapies (Kroener-Herwig 1995 a.o. as quoted by Goebel (2003).

2.13.9 Alternative forms of therapy

Effective elements in this field are suggestive effects, the positive influence of body energies and self-healing processes. These valuable principles should be combined with clinical medicine and psychological treatments.
Biesinger (2005) points, however, to the fact that the results have to be evaluated critically. Success must be assessed exclusively with psychosomatic measuring equipment (standardized tinnitus questionnaires).
Accupuncture (Andersson & Lyttkens 1996 quoted by Goebel 2003):There is no report of any effectiveness with regard to tinnitus.
Ayuraveda, herbal therapies, accupressure, homeopathy, hypnotherapy , kinesiology, Laser-Ginko therapy, neural therapy, Shiatsu, sound therapies (such as the Tomatis method, where high frequency ranges are trained) are included here.
Of more recent therapies neurofeedback and the magnetic field therapy are being tested.

Biesinger ranks **chirotherapy**, **craniosacral techniques** and **osteopathy** as those with the highest success rates.

2.14 Most recent tinnitus research

In order to find out more about tinnitus (Biesinger 2005) scientists will have to concentrate on the following fields:
Whereas studies of the inner ear are highly progressive, sufficient knowledge about the processing of the auditory signals in the brain are still lacking. Therefore fundamental research concentrates on the fields of physiology of the senses, biochemistry and physics. Only through the collaboration of scientists in these fields can success be achieved in the near future. This means that a holistic view of the symptom tinnitus and its processing correlates perfectly with osteopathic findings, where the above-mentioned fields are also included.
Medical therapies (implanted pumps for transportation of medicine into the inner ear) are still in an experimental phase.
Jastreboff developed an experiment with rats (coupling a certain behaviour with tinnitus) which is being of use for the tinnitus research and recognized as such.
Noises in the ear can also be illustrated in the auditory cortex of the auditory system by nuclear spin-tomography where also activities in the neighbouring centres, such as the limbic system or the brainstem can be observed.
Hesse reports in a scientific magazine (HNO 6 , 2006, 54, pp 436 ff.) that transcranial magnetic stimulation of cortical areas which had been defined before and diagnostically by PET and/or NMR (nuclear magnetic resonance). Here too the problem was that we deal with different cortical stimulation centers.This also ties in with the neurophysiological work done by Jastreboff about neuronal links of the auditory pathway to other cortical areas, particularly with the limbic system.
Most recent research concentrates on the elements of the TRT which are most useful.
The use of a cochlear implant (an electrode implanted in the cochlea) has been tried with tinnitus patients who are nearly deaf.

In many audiological centers the question of which otoacustic emissions (spontaneous noises coming from the ear) correspond to the noises in the ear are being investigated.

2.15 General solutions for the reduction of the annoyance of the tinnitus

According to Goebel (2003) a vicious circle could develop into a “circle of positive coping“ depending on the knowledge of the therapist or the elimination of disturbances by gradual or parallel intervention in different parts.
Considering the multidimensional model of Hazell and Jastreboff two important systems influence the habituation process. On the one hand the autonomous nervous system whose patterns of reaction of tinnitus - specific neuronal activity are decreasing (habituation), the limbic system on the other hand which helps by means of the subcortical filters to keep the tinnitus from being conducted to the auditory cortex (cf. Fig. 8: The neurophysiological model (Jastreboff & Hazell, 2004)).
Goebel reports that many authors have traced the effect of relaxation therapies back to indirect mechanisms. As soon as a patient in the state of relaxation and inner harmony ignores the noises in the ear temporarily, the feeling of helplessness is reduced and he can be convinced of his ability to control the tinnitus problem. Emotional balance and a reduction of phobic reactions lead to a subjective loudness because of the relaxed attitude towards the tinnitus problem. The manifold methods of treatment in the field of cranial osteopathy, especially the biodynamic one can contribute essentially to the coping therapy.

3 Methodology

3.1 Study design (Planned magnitude of sample size)

In this thesis a “clinical study” (randomized controlled trial - RCT) with a pre-test and post test control group design was chosen in order to examine the effects of osteopathic treatments on the acceptance of the disturbing noise in chronic subjective tinnitus. The participants (41 patients) were divided into 2 random groups:

- A treatment group with 20 patients in which treatment was started immediately
- A waiting group of 21 participants who didn’t receive any treatment during the waiting time (to control the extent of the effects of treatment)

For ethical reasons, however, the patients in the waiting group were also treated after the waiting time was over. 13 of these patients were treated 5 times and 8 patients were treated fewer than five times and for this reason the latter were not included in the evaluation of the patients who completed the treatment. For this reason there is an additional evaluation of all 33 patients treated.

A dependant variable is to be found in the results of the TBF-12 (tinnitus impairment questionnaire) and the visual analogue scale.
The osteopathic treatments (black box) served as the independent variable of the treatment group (experimental group), whilst the waiting group (control group) did not receive any treatments during the waiting time.

3.2 Sample size

I recruited the patients (n = 41) through the tinnitus self help group in Salzburg (I wrote to the leader) as well as by hanging up posters giving information about the

study in the waiting rooms of GP'S practices and in chemists' shops in the surrounding area. The patients registered by telephone and they were then divided randomly into a treatment and waiting group (with subsequent treatment)

3.3 Selection criteria – Excluision criteria

The patients taking part in the study, who had suffered from chronic subjective tinnitus (for more than half a year), were asked to fill in a personal data sheet.

Inclusion criteria:

The loudness of the tinnitus and its annoyance level didn't play a role here, but the patient had to be under enough.psychological strain to be interested in new types of treatment. Biesinger (2005, p.86) states *"Even when patients can live positively with the ringing sound in their ears their longing for silence still doesn't disappear"* Manfred Koller, the President of the Austrian Tinnitus League, quotes Biesinger (2005, p.86) by saying that *" Despite the many nice and well meant words on coping with tinnitus all patients long for is for the annoying and often tormenting sound in their ears to disappear"*

Exclusion criteria: serious pathologies such as, acute neurinoma, M.Menière, or other acute diseases of the ear.

3.4 Measuring the tinnitus parameters

The impairment, the loudness and the annoyance were measured in order to record the changes. The tinnitus impairment was measured with the help of the standard tinnitus impairment questionnaire (TBF-12).

The tinnitus loudness and the annoyance were tested psychometrically using the standardised visual analogue scale (VAS).

3.4.1 TBF - 12 (Tinnitus impairment questionnaire; authors: K.V. Greimel, M. Leibetseder, J. Unterrainer, E. Biesinger, K. Albegger, 2000; discrete variable)

The TBF-12 was developed in 1998 during a research project to examine the tinnitus specific impairments which are described in detail in the TBF-12 manual (Greimel et al, 2000).
Audiological measuring methods eventually provide a medical explanation for the causes, but however, they generally have very few therapeutic results. As the psychological strain (a subjective experience) doesn't correspond to medical findings or the sensory quality (volume, frequency) of the noise the degree of impairment had to be measured with a standardised questionnaire. The TBF-12 was developed according to standardised psychometric test criteria. It comprises a screening instrument which assesses the subjective pressure to perform in emotional cognitive and functional communicative areas. It consists of 12 Items (seven for the emotional cognitive and five for the functional communicative area). The answers correspond to a three level scale ("never", "sometimes" and "often").

Quality criteria (cp. Greimel et al, 2000):

Reliability (accuracy of the measurements):
The internal consistency measured via Cronbachs α averages α = 0.90 for the entire test, α = 0.87 for the emotional cognitive area and α = 0.85 for the functional-communicative area.
The reliability of the test (measured according to Pearson Brown Correlations) resulted in for factor 1 rtt = 0.91, for factor 2 rtt = 0.9 and for the entire score rtt = 0.93.
Validity:
Whether the tinnitus specific impairments have really been collected and not symptoms which are related to other problems affect the validity of the criteria (there

is a high correlation with the end result of Goebel & Hiller's,1998 tinnitus questionnaire), the validity of the construct (tested via a depression questionnaire), ADS-L; Hautzinger & Bailer,1992, the list of conditions, BL; v. Zerssen, 1975, and the questionnaire to assess the quality of life WHOQOL-26, WHOQOL Group, 1998) as well as the validity of the contents (The correlation between the TBF-12 and the medical opinions lies at 94 per cent) were examined.

Objectivity: The three level answers to the questions in the categories "never = 0" "sometimes = 1 "and "often = 2 ", allows for independent figures if we add the respective numbers to the identical assessments of the diverse patient self-assessments.

Evaluation (cp. Greimel et al, 2000):

By adding the respective numbers to the corresponding factor item the raw value for factor 1 "emotional cognitive impairments" (Item 3, 4, 6, 8, 10, 11 and 12; these items include anger, fear, frustration, lack of control and limitations in the cognitive area), Factor 2 "functional communicative impairments" (Item 1, 2, 5, 7 and 9). These are related, above all, to a conditional loss of competence (social contact with other people, limitations in society, at work, at home and in close family circles) which was collected for the whole questionnaire. Tables in the appendix of the manual allow the raw values to be converted into Z and T-values.

The standardisation was taken from a sample of N=1079. T values with a mean of M = 50 and a distribution SD were = 10 measured.

The corresponding percent ranks also show how many percent of the sample obtained results which were the same or lower value than a specific test person. Further therapeutic steps can be justified based on the tests. The outcome of the results and whether the therapy primarily corresponds with the emotional cognitive, psychological area of the functional communicative area - which is more likely to produce organic results must be taken into consideration when planning further.

3.4.2 The visual analogue scale (VAS) (steady, continuous variables)

*"*The volume of the occlusion and the subjective loudness of the *tinnitus don't correspond with each other, this can only be measured using the visual analogue*

scale and psychometric testing.“ and*. “The loudness will be ascertained optimally with the visual analogue scale as a progress control and to evaluate the effects of therapy”* Lenarz (1989) quoting Dräger (2000, p.22).

Goebel (2003) also recommend recording the loudness and the discomfort of tinnitus experience using the visual analogue scale. The end results of the tinnitus questionnaire show a high correlation with the VAS.

Draeger (2000) states that the tinnitus loudness as well as the tinnitus annoyance was recorded on 100 millimetre scale for both the left and right ears. The left end of the scale is marked with a zero (= no sounds and no annoyance) and the right end with one hundred (extremely loud and extremely annoying, maximum annoyance) After the patient has marked the orthogonal scale the value is measured using a millimetre ruler without a decimal place. This value gives the loudness or the annoyance as a figure in percent, separately for the right and the left ear and then afterwards the arithmetic mean for both ears can be calculated. Goebel (2003) says that according to the ADANO (Association of German Speaking Audiologists and Neurologists) a graded scale for the ambulant and out patient treatment of chronic tinnitus can allocate the level of VAS annoyance to the corresponding degree of severity.

There are 4 different quartiles or degrees of severity

Level I corresponds with VAS: 0 – 40; hardly any psychological strain, recommended therapeutic treatment - self help and counselling.

Level II corresponds with VAS: 40 – 60, compensated tinnitus, slightly disturbing Therapeutic treatment: counselling, relaxation exercises and TRT according to the psychological diagnosis.

Level III corresponds with VAS: 60 – 80, de - compensated Tinnitus, excruciating tinnitus, psychological comorbidity is not rare.

Therapeutic treatment: ambulant TRT over 1 – 2 years according to the psychological diagnosis and possibly integrated ambulant psychotherapy and psychological comorbidity patient therapy

Level IV corresponds with VAS: 80 – 100; de-compensated tinnitus, extreme psychological strain, mainly with psychological comorbidity.

Therapeutic treatment primary multi-modal inpatient psychotherapy with tinnitus coping therapy and if necessary, bridging with ambulant psychotherapy.

3.5 The course of the treatments

The experimental or treatment group received five treatments two to three weeks apart. Before the first treatment the personal data sheet (PB, socio-demographic data), the TBF-12, the VAS, Goebel & Hiller's (2001) structured tinnitus interview (STI) as well as the osteopathic anamnesis and the findings sheet (OAB) were filled out and then the first treatment was carried out.
The VAS was shown to the patients before and after each treatment (they were given a new scale questionnaire each time so that no comparisons could be made). The osteopathic findings sheet was also completed as a control of the course of the examinations at every treatment.
After the final treatment the impairment was measured once again with the TBF-12, the loudness and the annoyance with the VAS scale and a tinnitus self -assessment questionnaire so that the patients could assess and evaluate the results of the series of treatments. The data from the control group (waiting group) was also collected at the beginning along with the PB, the TBF-12, the VAS scale, the STI and the osteopathic findings sheet. After a treatment free waiting time of six weeks the TBF-12 and the VAS were completed again at their second appointment. As all of the patients took part in the study with the promise of treatment an osteopathic findings sheet was filled out at the second appointment and the participants/patients were then treated.

After four further treatments (the same procedure as with the treatment group) there was also a final examination (the same procedure as with the treatment group).
In total thirteen of the patients completed the course of treatments in the waiting group and eight patients did not receive all five treatments and were therefore not included in the evaluation of all the patients treated. The results are presented in the next chapter using tables, scales and graphs.

3.6 Data collection instruments

The data collection instruments (personal data sheet, Goebel & Hiller's (2001) STI, the TBF-12, the VAS and the OAB the tinnitus findings sheet) are listed in the appendix.

3.6.1 Personal data sheet

Alongside the ***TBF-12*** and the *VAS* **a personal data sheet** was used to measure the tinnitus parameters and this was used to collect socio-demographic data, any psycho-social disappointments (marital status) or frustrations in professional performance (professional life) were assessed here and then again later in the osteopathic anamnesis.

3.6.2 Structured Tinnitus Interview

As a supplement to the actual TBF-12 self-assessment Goebel & Hiller's (2001) ***STI (Structured Tinnitus Interview)*** was also used. As an instrument used in behavioural medicine tinnitus diagnostics according to Goebel & Hiller (2001, p.7) it deals with a "*systematic developed, structured and half standardised interview process".*

The STI is divided into six sections (personal data, tinnitus anamnesis, tinnitus associated problem areas, aetiological factors of the tinnitus, psychological aspects of tinnitus and therapeutic measures)

The 58 items included in the STI are described in further detail in (Goebel & Hiller's, 2001) behavioural medicine tinnitus diagnostics (corresponding detailed background information is provided for each item) Qualitative descriptions of the anamnesis, associated problem areas and the aetiology of tinnitus are also explained. The use of differentiated documentation of relevant findings makes a clinical assessment possible. A quantitative evaluation of the psychological aspects of the tinnitus is also possible. Cumulative values for individual disturbance areas as well

as for the entirety of the psychological aspects of the tinnitus can be calculated. The scale values obtained and the STI score can be compared with the table in the appendix and depending on the value can be put into one of 4 quartiles (degree of severity). The categorisation of ambulant tinnitus patients ranges from level 1 (0 – 3 points, compensated) Level 2 (4 – 7 points, probably compensated) Level 3 (8 – 12 points, probably de-compensated); Level 4 (13 – 40 points, de-compensated). The profile of the annoyance can be characterized according to 7 sub-scales as it provides a guideline for the main areas which should be taken into consideration during treatment, for example, if relaxation and sleep problems are marked high on the scale then the application of relaxation techniques is necessary. High values on the “dysfunctional cognition“scale suggest the existence of a problematic attitude towards the tinnitus which could be modified in the framework of a targeted cognitive behavioural medicine. High values of the “emotional burden“scale are often connected with additional depression problems.

3.6.3 Osteopathic anamnesis and findings sheet

The ***Osteopathic anamnesis and findings sheet*** was used to obtain, examine and document additional valuable information on the functional or holistic causes of the disturbances within the organism, which could be related from an osteopathic point of view. Particular reference was made in the findings sheet to the disturbance factors in the visceral area which includes the heart/circulation, breathing (especially to the diaphragm), metabolism and the kidney functions. In the craniosacral system the PRM (primary respiratory mechanism) functions, dysfunctions of the SSB (symphysis spheno basilaris), the ossa temporalia, the tentorium and the sakrum were examined in every patient.

In the structural area the horizontal lying areas such as the pelvis, shoulder girdle (structures of the thoracic inlet), the cervical spine-

especially also the connecting occiput - atlas-axis (OAA), vertebra cervicalis III (C-3) and the connecting vertebra cervicalis VII and vertebra thoracica I (C-7, Th1) and the functioning of the jaw joint were examined. Noticeable problems which differentiated from the norm were divided into six regions

(temperomandibular joint - head, cervical spine, thoracic spine, lumber spine, sacrum and limbs).
Additional results were collected according to the current condition of the patients in the consequent treatments and were documented along with the changes.

3.6.4 Tinnitus self-assessment questionnaire

The ***Tinnitus self-assessment questionnaire*** was used by the patients to self assessment and evaluate the results. The loudness and annoyance of the tinnitus as well as its influence on the hearing, physical and mental conditions are characterized. Schönweiler and his staff quote Dräger (2000, p.24), when they point out that “our results demonstrate the necessity of giving patients the opportunity to carry out a self- assessment”.

3.6.5 Evaluation and presentation of the results

All the data and results are illustrated in chapter 5.
The evaluation of the **socio-demographic** (collected via a personal data sheet) **data** is presented separately for the treatment group and the waiting group using bar charts and tables.
The evaluation of the **STI** is presented according to the various sections of the STI in blocks which belong together in graph form (bar charts). In order to make a comparison between the characteristics of the treatment and waiting groups the details of the tinnitus anamnesis, associated problem areas and aetiology (qualitative descriptions) are presented according to the group.
The psychological aspects of the tinnitus (possible quantitative evaluations were possible) are illustrated separately for the **treatment** and the **waiting group**s. The psychological aspects for all 33 patients are also illustrated. The evaluation of the **osteopathic anamnesis and findings sheet** is included for all **33 patients treated according** to the most commonly affected systems from the visceral area, the structural area and the cranial area. The evaluation of the data of the measuring

instruments – the **TBF 12** and the **VAS** with regard to loudness and annoyance at the beginning and end of the treatment time or waiting time are also presented separately in table and graph form for the treatment and waiting groups. The data for the 13 patients treated in the waiting group is presented separately. Finally the mean value of all 33 patients with regard to loudness and annoyance for each of the 5 treatments were collected and the changes illustrated in graph form. The evaluation of the **tinnitus findings sheet** for all **33 patients treated** follows in table and graph form.

4 Treatment techniques

4.1 Therapies in the craniosacral field

In the field of the craniosacracral therapy biodynamic principles and treatments proved to be very helpful in most cases because of the influence of the vegetative nervous system already at the beginning of the treatment.

4.1.1 Fundamental Principles - an introduction to Biodynamics

4.1.1.1 Health

Sills (2001) quotes Sutherland´s discoveries and fundamental principles extensively. One aspect of the basic idea is to be able to palpate and hear " **Health**" within the system and to respond to the inertia within its fluids, cells and tissues. Sills (2001, volume one, p.98) quotes Jealous, writing in his paper *Around the Edges* that: *"The health in our body cannot become diseased. The health in our body is available 24 hours a day and one hundred percent from conception until death, it then transpires. It does not expire."*

It is important to understand the role of **primary respiration** in the self-healing **process** and to appreciate the appearance of what Sutherland (2004) called the **breath of life** and the manifestations of its **inherent healing potency**. The practitioner's role is to assist and facilitate this inherent healing intelligence.

From a biodynamic point of view from work carried out in the cranial field, the breath of life is seen to be the primary mover and organizer of the human system. Awareness and appreciation of its manifestations have become the heart of clinical work.

Jealous in Sills (2001, volume 1, p.36) states, *"The breath of life comes into the body. We can sense various rhythms that are created from it, and we can perceive that process taking place.*
We can actually perceive the breath of life coming into the body, coming into ***the midline****, and from the midline, generating the different forms of rhythms in the bioelectric field, fluids and tissue. Essentially, what's happening is genesis. It never stops. Moment to moment we are building new form and function."*
An organizational and orientional midline is generated within the **bioelectric matrix**. Fluids, cells, and tissues naturally align to this midline which is the main orientional axis of the body. The structural axis of the body is a derivative of this midline function. Structure and function naturally orient to the primal midline.
This shows, that our embryological development and our creation is a constant and ever-present process.
Sutherland (2004) believed that the potency of the breath of life is an expression of life itself which is fundamental to the proper functioning of the body. This intelligence which is taken up by the cerebrospinal fluid like transmission, generates a **tide-like fluid motion** in the body. The strength of this fluctuation is sometimes called **fluid drive**. A potent system will strongly manifest its fluid drive and its healing resources.

4.1.1.2 Different rhythm forms

The rhythms, generated by the action of the breath of life have different qualities which are known as the ***CRI*** (cranial rhythmic impulse of 8 -14 cycles per minute), tidal potencies ***mid-tide*** (2,5 cycles per minute), or ***the Long Tide*** - the most formative breath of life tide (one cycle every 100 seconds).
The deepest tidal phenomenon, the Long Tide was named by Becker (1997).
The ***long tide*** generates a bioelectric field of potency, which is the most fundamental organizing matrix of the human system. The long tide can be perceived as the practitioner settles into a perceptual stillness and holds a wider perceptual field.

At this level, healing is perceived to be a factor of the breath of life and the healing priorities of its potency are more directly perceived.
The long tide seems to arise from, and to return to, “somewhere else.” When it’s centrifugal and centripedal motions are in a dynamic equilibrium, a stable bioelectric field, or matrix, is generated.
The mid-tide and the fluid motion called the fluid tide, a tidal phenomenon generated by the action of the potency of the fluids of the system. Tissues express this as motility, an inner breath-like motion in all the tissues of the body. The fluid component of this tidal motion is called the **fluid tide**.
The CRI *(the cranial rhythmic impulse)* is an outer manifestation of motion generated by the interface of the breath of life. It shows all the conditions of our life and is therefore both variable and conditional.
Primary respiration is the manifestation of the various tidal rhythms generated by the breath of life (two cycles of inner breath called inhalation and exhalation).
From a biodynamic viewpoint the fluids and tissues in the human system seem to organize themselves as a unified tensile field around the bioelectric matrix of the potency of the breath of life.
The **primary respiratory mechanism (PRM)** becomes the **primary respiratory system (PRS)**.

4.1.1.3 The primary respiratory system (PRS)

Sills (2001, volume 1, p.34) states that the PRS includes: *“The dynamic stillness; The potency of the breath of life, the long tide (Tide), the bioelectric matrix and the primal midline; The organizing and integrating function of the potency of the breath of life within the fluids, the mid-tide;*
The organization of the fluid and tissue world to the imperative of the breath of life and its blueprint; The manifestation of these as a unit of function in primary respiratory cycles of inhalation and exhalation.”
Throughout our life the potency of the breath of life carries the fundamental blueprint of the human form and is continuously expressed as an inherent ordering principle. The cellular and tissue world is organised around its expression, when the breath of

life unfolds within the human system. The expression of this inherent blueprint (or matrix) occurs via transmutation. This process begins at the time of conception, is expressed throughout life and continues until the day we die.
The breath of life can be seen as the creative intelligence in action, a divine intention, arising from a profound and dynamic stillness. This stillness is alive, and is the basis of development for all forms.

4.1.1.4 The inherent treatment plan

In the interview mentioned above by Sills (2001, p.79, volume 1), Jealous (2001) goes on to say that : *"We use our hands diagnostically, perceptually, and therapeutically - that's how simple and profound this is. We are not listening for symptoms but for a pre - established priority set in motion by the Health in the patient."*
This is a very useful feature of work with tinnitus patients, because each case of tinnitus has its own history and it is a very complex syndrome.

4.1.1.5 Tissue forces

All connective tissues, including bone, are fluidic and energetic in nature.
When tissue forces are present, deeper forces may be at work such as the interplay factors between the inherent biodynamic potencies and unresolved bio kinetic forces (fluid congestion, tissue compression, tissue changes, adhesions,...).
Once lesions are transmutated the internal form of the lesion is free to re-orient its function to the midline. The midline provides healing forces that balance trophicity at a cellular level.

4.1.2 Useful clinical applications when working with tinnitus-patients

The following chapters show some useful craniosacral biodynamic skills which are explained in further detail by Sills (2001, volume one and two) and Shaver (2004)

4.1.2.1 Chronic stress responses

When we encounter stressors, the neuroendocrine system naturally shifts to a special adaptive state which is a general adaptation response. This response generally originates in certain nuclei within the central nervous system and is mediated by their production of neuroactive chemicals (Chapter 2.5, p. 14, The important and interesting interactions of the auditory system with the body`s other systems).

There are five specific important areas: the amygdala, hippocampus, hypothalamus, locus ceruleus, and other brain stem nulei, and prefrontal cortex.

Sills (2001, volume 2, p. 334) says , that "*One of the great potentials for craniosacral biodynamics is the possibility of accessing and influencing these key structures to facilitate healing in dysfunctional stress responses."*

The stress response may stay on even though the danger has actually passed, and we lose our ability to self-regulate in the normal way. Chronic maladaptive states can lead to physiological and psychological dysfunction (also tinnitus).

Emotional memories mediated by the amygdala and explicit memories mediated by the hippocampus can be recalled within our current experiences, and current experiences can then be incorporated into both. As the pre-frontal cortex (where our present experiences are integrated) communicates to the amygdala and the hypothalamus the present nature of experience (telling them there "is no tiger here"), the amygdala has the opportunity to down-shift its emotional response.

4.1.2.2 What helps to lower, regulate and moderate chronic stress responses ?

Craniosacral biodynamics offers very effective processes to lower, regulate and moderate chronic stress responses.

- **By using BFT (balanced fluid tension) techniques** which work in zone B's fluid fields, with 2-3 cycles a minute, we do not stress the sympathetic nervous system, which is often put under pressure in tinnitus patients.

- **States of balance** within the nervous system and the direction and potency of fluid to areas of relief and hypersensitivity can aid down-regulation and the healing process (The use of occipital cradle hold, listening to the motility and the motion dynamics of the central nervous system, orienting the third ventricle and its floor, where the hypothalamus is to be found , orienting the lateral ventricles and their floors, where the hippocampus is located, and the amygdale which is just in front of the hippocampus, orienting to the fourth ventricle and its floor to where brain stem nuclei are located).
- **The systemic neutrals** are good starting points because accessing them initiates an autonomic clearing process and a return to homeostatis.
- **The still point process** helps the system express its resources. During this process the system has a chance to access and express its potency. Potency may be built up within the fluids and it then becomes available for healing purposes. A settling into a deeper stillness occurs, until the inherent feeling of stillness itself is sensed. The healing process then moves into a whole new dimension. Stillness affects the whole body. It permeates everything and it is the basis for the emergence of life's ordering forces. Potency becomes inertial in order to centre the unresolved forces of an experience (trauma, pathogens, shock,...). Sometimes the inertial forces are so dense and the potencies centring them so coild, that the state of balance is flat and has no depth. The still point process can be very helpful here.
- In the **CV4** process, the still points are encouraged in the exhalation phase, when the fluids and tissues are at the boundaries of their digression. The cerebrospinal fluid tide is in the descending or settling phase, the ventricles of the brain narrow transversely and tissues express exhalation-extension. The aim is to offer options and not to force your intention on the system. If the system cannot access still point, then there is good reason for that. This issue must be recognised and followed by the practitioner. If inertial forces are resolved during still point, tissues will reorganize and realign to the midline. As the system expresses tidal motion once again the patient may sense a general increase in resources, a stronger and fuller fluid tide or a

change in the reciprocal tension dynamics of the tissues.

- **EV4** implies expansion of the fourth ventricle. Potencies and fluids rise longitudinally and ascend in a tide-like fashion. The brain's ventricles widen just as a bird spreads its wings before it is about to fly and the tissues are express inhalation in the form of a tensile surge in their motility. The system is helped to access and manifest its resources as the inhalation intention of the surge is amplified. The practitioner may get a sense of the potency as an
- invisible force within the fluids. EV4 thus helps to manifest resources and they can be used in disassociate processes where the patient has been subject to distress and trauma. If a persons system seems empty or vacant EV4 may help in the reassociative process. In this expression of potency from the core to the periphery the disassociated psyche is helped to find its way back to embodiment. This is re-negotiation of the trauma and its affects with the inherent biodynamic resources of the breath of life.
- **CV4** can help down regulate the central nervous system during states of hyperarousal s and it has an effect on the entire neuroendocrine axis. CV4 and still points in the exhalation phase generally increase the potency and energetic resources of the system. It can bring people to a level of deeper stillness and restore the healing processes.
- In hypoarousal states when the system is functioning according to a different physiology, CV4 can help to build potency and vitality and once again it can shift the system to a more resourced state. Hyperarousal and hypoarousal states, sometimes coupled with dissociation are often seen in tinnitus patients.
- **EV4** is largely covers the manifestation of resources. The system has the chance to manifest its potency more intensively. The system can lead us to the appropriate strategy, with CV4 as the general approach for hyper- and EV4 as the general approach for hypo- and dissociative conditions.

4.1.2.3 The Occipital Triad: (Occiput, Atlas, Axis)

The Atlas and Axis should be floating within their synovial fluids. Inertial issues within the occipital triad can have far-reaching consequences on the structure, fluid circulation, nerve functions and connectivity to the auditory pathway (→ 2.10, p. 25, Tinnitus is also diagnosed as an element of other illnesses which are not related to ENT- problems).

The pain experienced when giving birth, traumatic experiences and postural problems make the top of the spine extremely prone to compressive and torsional patterns and many tinnitus patients suffer from skoliosis. If the occipital triad becomes inertial (some of the tinnitus patients were unsuccessfully treated with atlas-therapy) the cranial base and dural motion may be strongly affected. A variety of symptoms can be generated by these conditions. Compression can stop the blood supply to the brain stem, and the drainage of the head. This generates a backpressure to the venous sinus system and backpressure into the cranium that restricts cerebrospinal fluid fluctuation.

4.1.2.4 Temporal bone dynamics

If we consider the horizontal relationships of the cranial base, the temporal bones, the shoulder girdle and the sacral base; sense the process as a dynamic, metabolic function and the temporal bone relationship (Pivots- sphenosquamous pivot, anterior dural girdle, petrobasilar articulation, petrojugular articulation, occipitomastoid articulation, jugular foramina, internal auditory meatus, petrotympanic fissure- anterior tympanic branch of the internal maxillary artery,(→2.7.4, p.20, Theories and models of dysfunction along the auditory pathway and their osteopathic implications), when observing motility, intraosseos motion – petrous part-enchondral, pars tympanica and squamosa-membranous ossificaton.

4.1.2.5 The triune autonomic nervous system – Social nervous system re-establishment

The position of the hand position approximates the pharyngeal arch structure which contains cranial nerve fibres V, VII, IX and part of X, put the thumb lightly in the ear canal with the fingers spread over the mandible and upper anterior neck; visualize the inner ear structures – the stapedius and tensor tympani and cranial nerves – V and VII, in the direction of the petrous temporal bone and its inner ear structures. The patient should relate to any person, pet, or relationship from any phase of their life, with whom they had a fully resourcing connection – including visual, auditory, and or kinaesthetic components of the encounter when working with Becker's three – phase process (1997), which directs the expression of health, potency, fluid, and tissue processes, reorganization and realignment).

4.1.2.6 The sacral waterbeds

Sacral dysfunction – can become a major inertial factor in the system, leading to facilitation within the brain stem and initiation of hyperarousal states via the hypothalamus-pituitary-adrenalin axis. (Evaluate for osteopathic lesions – Vertebra lumbalis V - L5, facets L5 to Vertebra sacralis I – L5/ S1, sacroiliac joints, sacrococcygeal, whole fluid field - synchronize with transverse axial breathing, on the Stillness and Presence of Health – let go any sense of tissue – balance sacrum on his waterbeds – sense sacrum floating – become aware of the whole fluid field of the sacrum – let it expand – sense whole sea of fluid – wait – changes – still point – breathing – regular rate – Rebalance = check the system for one fluid wave)

4.1.2.7 Clinical applications continued

- The motility of the central nervous system: (moves to lamina terminalis)
- The dynamic of the third ventricle (neuro-endocrine-immune-perceptual functions), soft ignition (evaluation of CNS and ignition system)
- Cerebrospinal fluid flow
- The venous sinuses (superior and inferior petrosal sinus, cavernosus sinus, jugular vein,...,) and the middle cerebral artery and a.labyrinthy

- The temporomandibular joint (hyoid, scapula, sternum, C2, upper cervical area; (→2.7.4, p. 20, Theories and models of dysfunction along the auditory pathway and their osteopathic implications).
- Transverse structures: pelvic diaphragma, respiratory diaphragma, thoracic inlet are not synchronised when there is a compression of the longitudinal axis – longitudinal fluctuations can stop.
- The condylar spread (disengagement between the condyles of the occiput and the articular surfaces of the atlas), Occiput/atlas junction and the state of balance, disengagement and the O/A.
- Disengagement and facilitation of sphenobasilar reorganization (the system begins to show it priorities, the practitioner should not chase compensatory patterns).

4.2 Treatments from the area of visceral osteopathy

As I have already mentioned the visceral systems (→ 2.10, p. 25, Tinnitus is also diagnosed as an element of other illnesses which are not related to ENT- problems) can influence the way in which the tinnitus behaves.
In the osteopathic anamnesis 13 patients mentioned blood pressure problems (normally high blood pressure), thyroid gland dysfunctions (12 patients), metabolic problems (12 patients) and water imbalances (14 patients). Breathing problems (asthma bronchial) were also mentioned by 8 patients. The following treatments were used most frequently:
treatments of cervical diaphragm (cervical fascia), throat and neck muscles, the ligamentary connections to the heart and lungs and hyoid)
Thoracic diaphragm treatments
Pelvic diaphragm treatments
Treatment of the liver and kidneys.

4.3 Structural techniques

Relaxing mobilisations techniques lend themselves to the cervical spine
(→ 2.10, p. 25, Tinnitus is also diagnosed as an element of other illnesses which are not related to ENT- problems)
OAA, C3, C4 – relationship to ear and N.phrenicus, C7-TH1, TH2, TH3,TH4; ANS regulating, thyroid area, connections to the cervical spine
structures, hyoid (and the surrounding myofascial structures).
myofascial techniques in the transversal sections (pelvic floor, diaphragm, thoracic inlet) and the transitions.

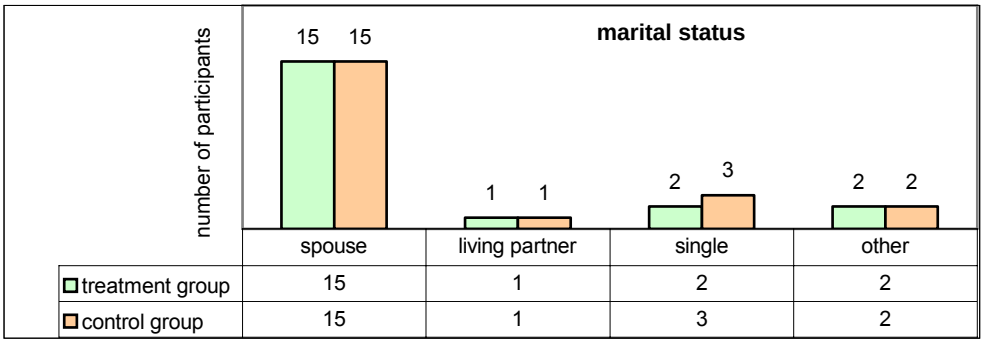
5 Results

The personal information sheet and the structured tinnitus interview were evaluated separately to make a comparison of the group profiles possible. The diagram can be found in chapter 5.1. and 5.2.

5.1 Evaluation of the socio-demographic data (personal information sheet)

The **age of** the 41 participants ranged from 26 to 81.
Average age of the treatment group (Tgr.): 47.2
Average age of the waiting group (Wgr.): 48.0
Altogether, 24 men and 17 women took part in the study.
nine males and 11 females were in the treatment group.
There were 15 men and six women in the waiting group.
Altogether, 33 patients were treated, 19 men and 14 women.

There were many similarities in the **marital status** of the two groups. 15 participants from the two groups were married, one participant per group had a partner but was not married, and two or three patients were single. Two participants per group were divorced.



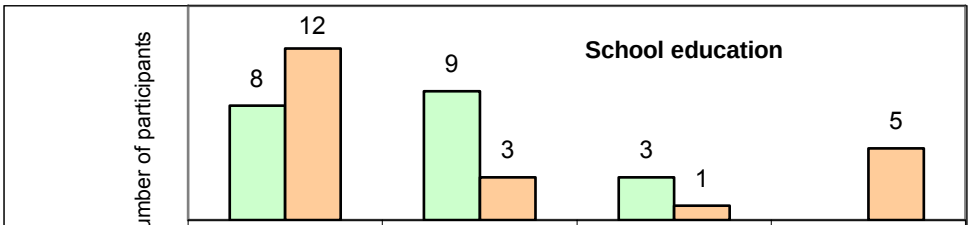
	spouse	living partner	single	other
treatment group	15	1	2	2
control group	15	1	3	2

Fig. 9: Marital status

School education: Eight of the participants in the treatment group and 12 of the participants in the waiting group only had a general secondary school leaving certificate. Nine of the participants in the treatment group and only three of the participants in the waiting group had their “Matura” (The Austrian school leaving certificate for university entrance).

Three participants in the treatment and only one participant in the waiting group had studied at university and only five of the participants in the waiting group mentioned the completion of other forms of education.

We can see that the level of education was higher in the treatment group.



	elementary school	school living exam	academic	other
treatment group	8	9	3	
control group	12	3	1	5

Fig. 10: School education

The professional distribution was as follows:

One worker per group,

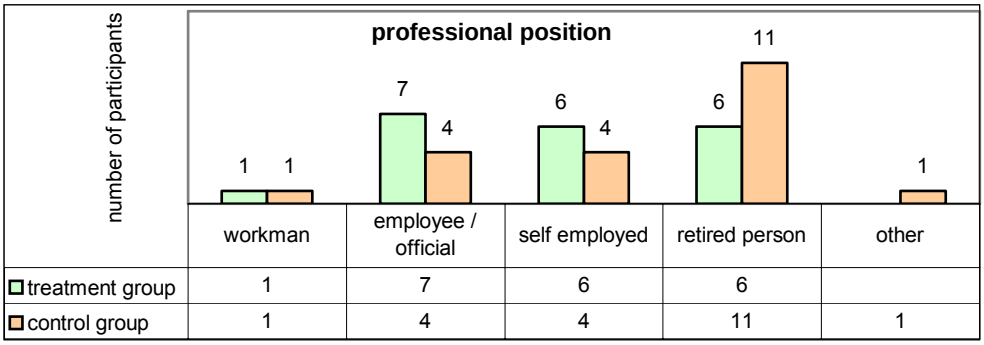
Seven salaried employees/ civil servants in the treatment group and only four in the waiting group.

Six self employed people were in the treatment group and four in the waiting group.

Six retired people were in the treatment group and 11 in the waiting group.

Only one participant in the waiting group indicated “other“.

More participants were retired in the waiting group.



	workman	employee / official	self employed	retired person	other
treatment group	1	7	6	6	
control group	1	4	4	11	1

Fig. 11: Proffessional position

5.2 Anamnesis evaluation and results

5.2.1 Evaluation of the “Strukturiertes Tinnitus – Interview” (structured tinnitus interview) by Goebel & Hiller (2001)

5.2.1.1 Evaluation of the characteristics of the tinnitus anamnesis (Tinnitus characteristics)

In this section the clinical characteristics of tinnitus such as the localization, sound quality, frequency range, volume , time model, masking, point in time and nature of its emergence and previous developments will be examined

Localization - sound quality - frequency range - time sample:

The data for the treatment and the waiting group are represented separately.

Five patients in the treatment group had tinnitus on the right, four on the left, eight on both sides and three in the head.

14 patients heard a sound, five distinguished between a roaring sound and one patient heard another noise.

17 patients had a high frequency tinnitus and three had middle frequency tinnitus.

17 had a steady tinnitus whilst three had a tapping/knocking/rhythmical tinnitus.

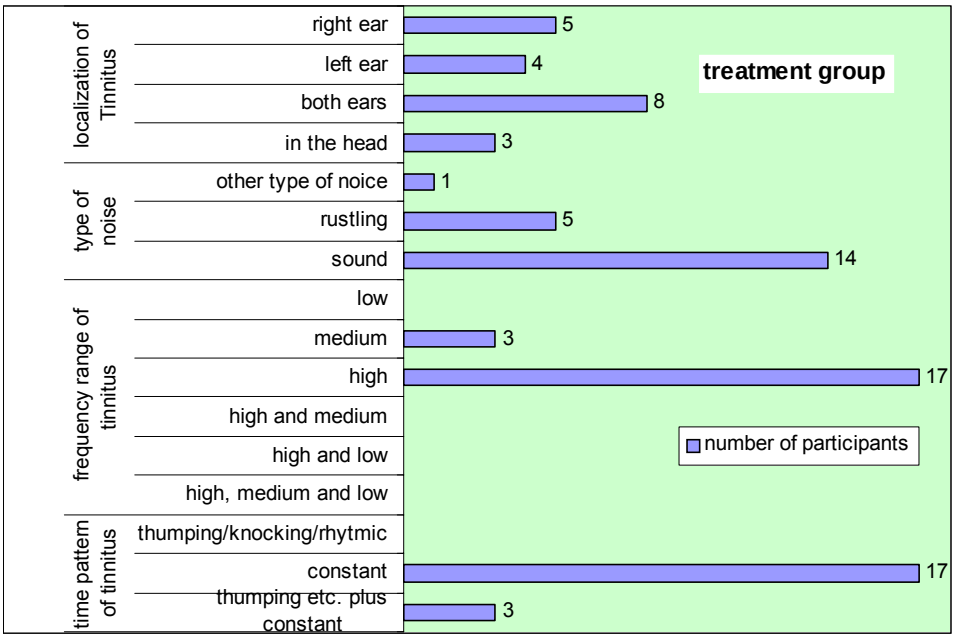


Fig. 12: Localization, noise quality, frequency range, time sample (treatment group)

In the waiting group three patients heard the tinnitus on the right, eight on the left, seven on both sides and three in the head. 15 patients heard a sound and six heard another noise. 16 patients had high frequency tinnitus and five had mid frequency tinnitus.

19 patients claimed it was monotonous and two were aware of a tapping, knocking or rhythmic tinnitus.

The profiles of the two groups show a similar picture.

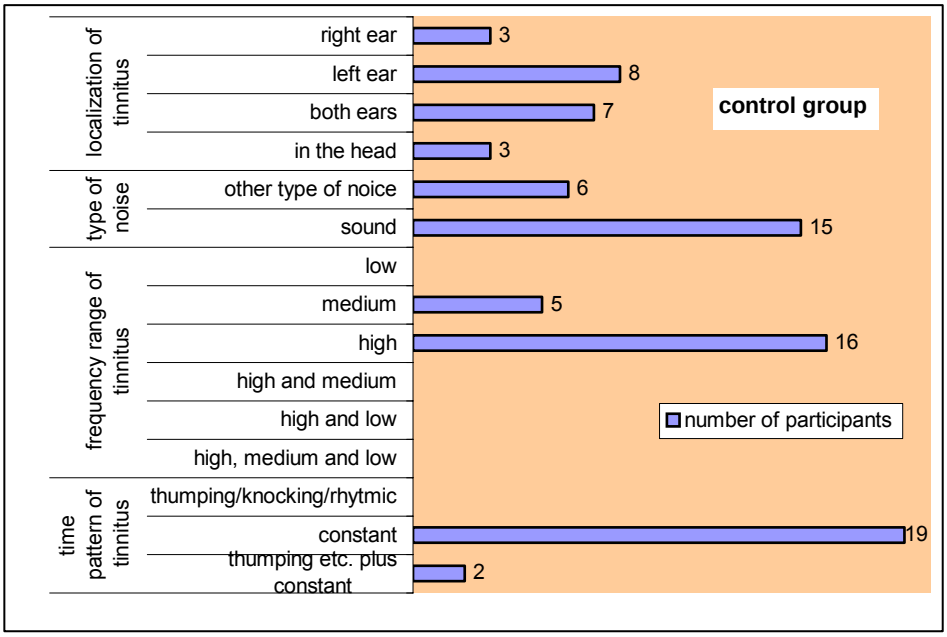


Fig. 13: Localization, noise quality, frequency range, time sample (control group)

The previous extent of the tinnitus:

The duration since the emergence of the tinnitus in relation to the ears shows the following:

In the treatment group for the left or right ear there were two references each for the time period 6 -12 months, four references on the left and one reference on the right for 1 -2 years. One reference for the left and right ear for 2 -5 years. Four references for the right and three for the left ear for 5 -10 years. Two references for the left as well as for the right ear for 10 -15 years. Three references for the right and one reference for the left ear for more than 15 years.

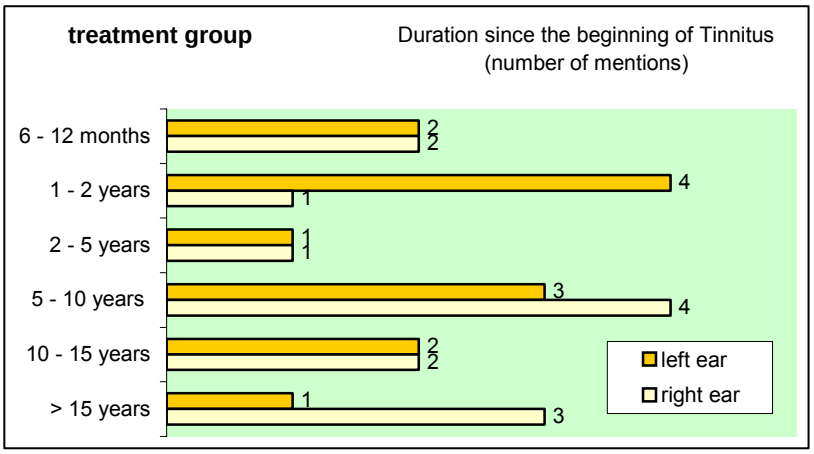


Fig. 14: The previous extent of the tinnitus related to the ears concerned (treatment group)

Three references were carried out in the waiting group for the left and three for the right ear.

One reference left ear for 1 -2 years, one reference left ear since 2 -5 years,

four references for the left ear and three for the right ear for 5 -10 years.

Three references for the right ear and 10 references for the left ear for 10 -15 years.

One reference for the right and three references for the left for more than 15 years.

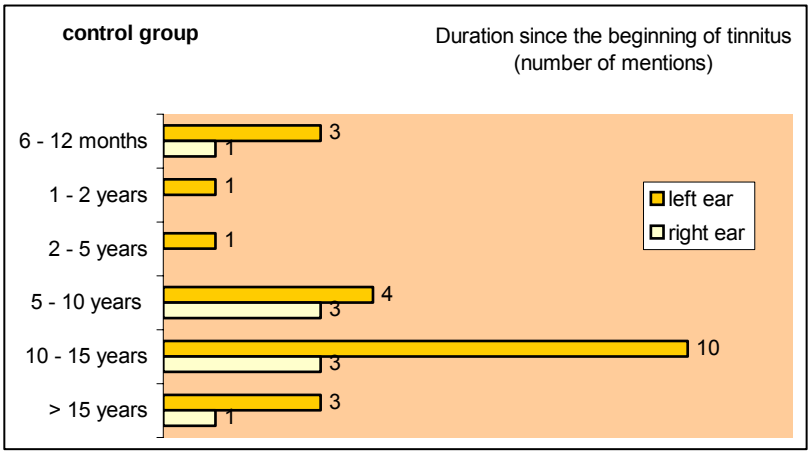


Fig. 15: The previous extent of the tinnitus related to the ears concerned (control group)

It is clear that most of the participants in the waiting group had had tinnitus for more than 5 years, whilst in the treatment group the duration of the tinnitus since its appearance was split equally over the different periods of time.

Character of the beginning and the development of the Tinnitus - loudness:

In the treatment group the beginning was "sudden" amongst 10 patients in total and it „crept slowly in“in 16 patients. All in all the loudness of the tinnitus got stronger in

11 patients, weaker in three patients and in 12 patients it stayed the same.

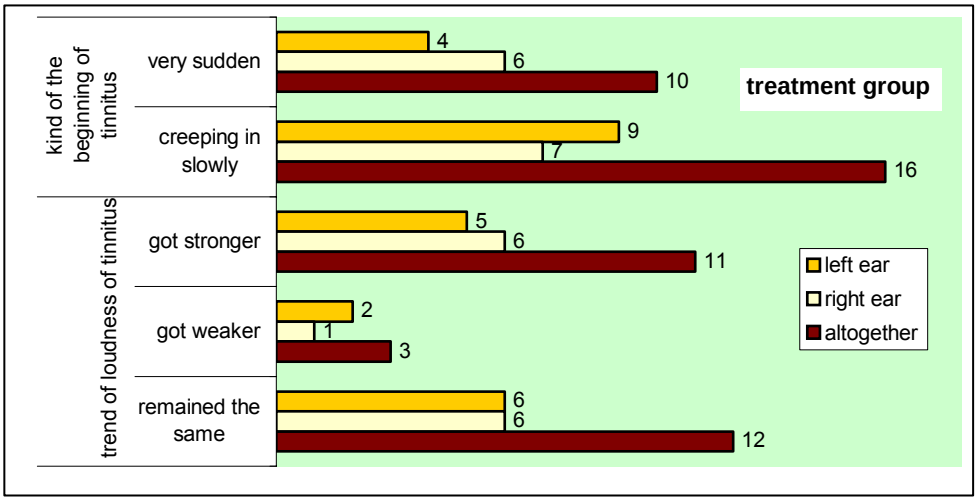


Fig. 16: The nature of the emergence and development of the tinnitus loudness (change of the symptoms over the course of time), treatment group

11 patients in the **waiting group** got tinnitus "very suddenly" and in 17 patients it "crept in slowly". It became more intensive in seven patients and in 19 patients it remained the same.

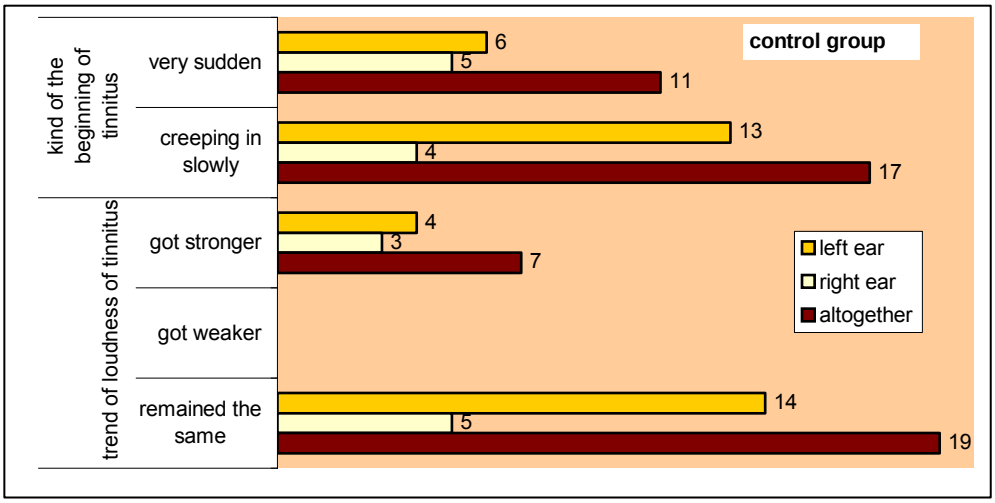


Fig. 17: The nature of the emergence and development of the tinnitus loudness (change of the symptoms over the course of time), control group

Loudness and consistency of the tinnitus:

The grading of the subjectively experienced tinnitus sound:

Degree I: Tinnitus audible during silence

Degree II: The tinnitus audible when there is little background noise and it can be drowned out by ordinary noise

Degree III: Tinnitus drowns out all noises

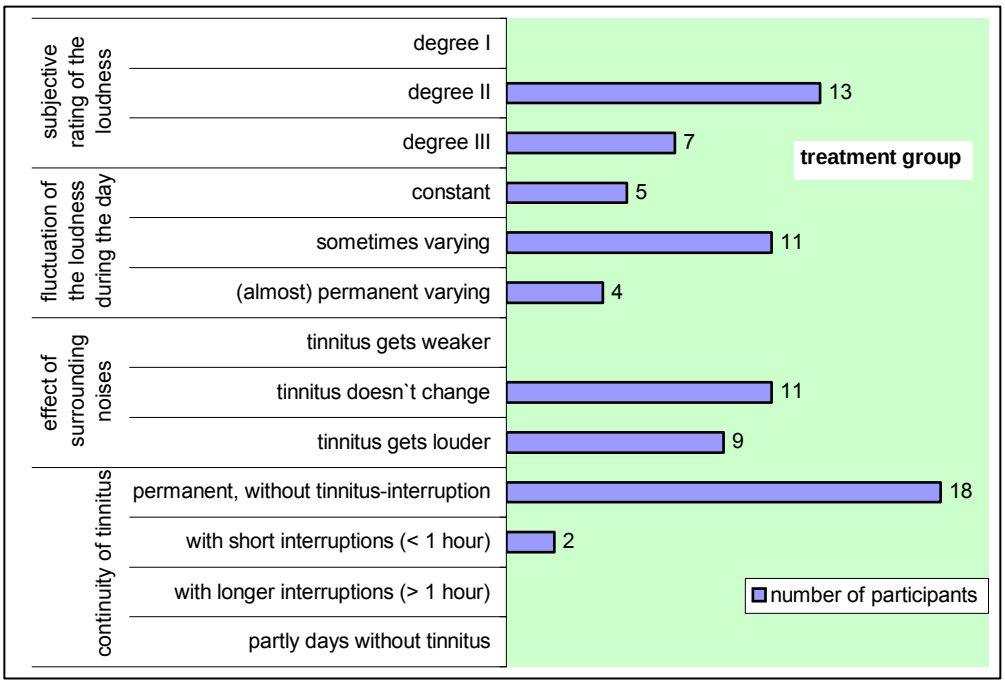
Fluctuations in volume during the course of the day constant versus intermittent tinnitus (fluctuation in the pitch during the course of the day)

13 of the patients in the treatment group showed degree II and seven patients showed degree III.

The loudness remained the same in five patients; varied sometimes in 11 patients and it was permanent in four patients.

If there was a lot of loud background noise the tinnitus got louder in nine patients and remained the same in 11 patients. 18 patients had permanent tinnitus and only two patients had short breaks.

Fig. 18: Loudness and consistency of the tinnitus (treatment group)



In the waiting group two patients showed degree III with regard to the subjective loudness classification, 18 patient's degree II and one patient degree I. Thus, the middle value (degree II) predominates just as in the treatment group.

11 patients felt the loudness fluctuate sometimes, three patients said it fluctuated permanently and seven patients said it was essentially consistently loud.

If there was loud background noise the tinnitus got louder in 12 patients, remained the same in eight patients and became quieter in one patient.

18 patients heard the tinnitus permanently and three patients had short breaks. This profile basically also coincides with the profile of the treatment group.

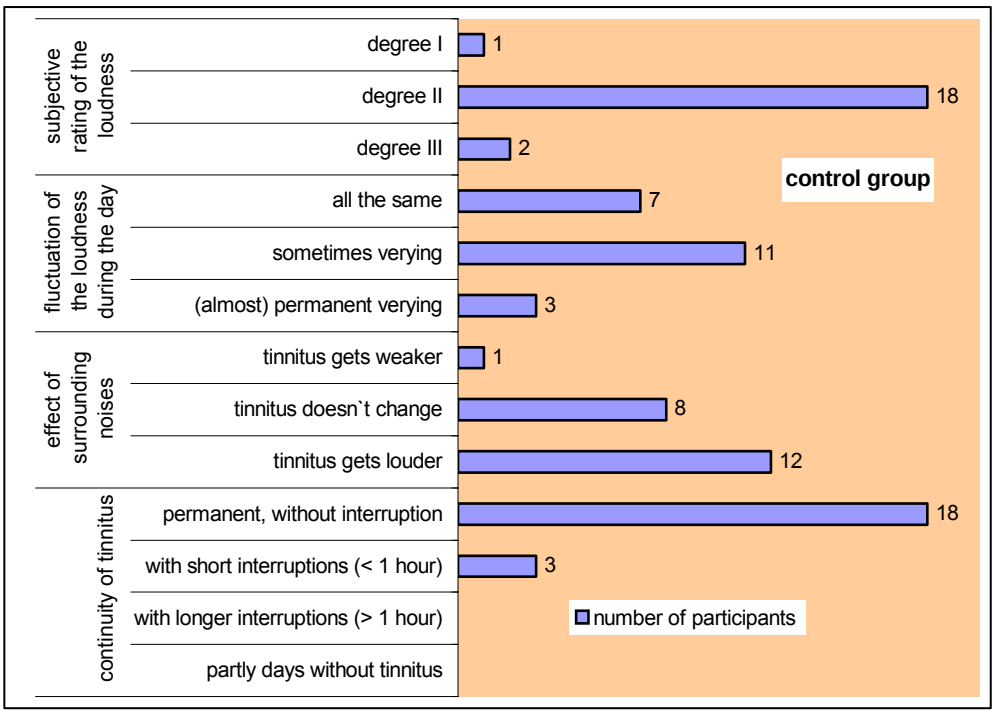


Fig. 19: Loudness and consistency of the tinnitus (control group)

A clearer difference between the two groups can be seen only in the subjective loudness classification (degree III: seven patients of the treatment group and only two patients of the waiting group).

The nature of the subjective tinnitus experience:

Five of the patients in the treatment group considered the tinnitus to be annoying, 14 felt it was annoying sometimes and one patient didn't think it was annoying. One patient felt the tinnitus was tormenting, 11 patients as partially tormenting and eight patients as not tormenting at all.

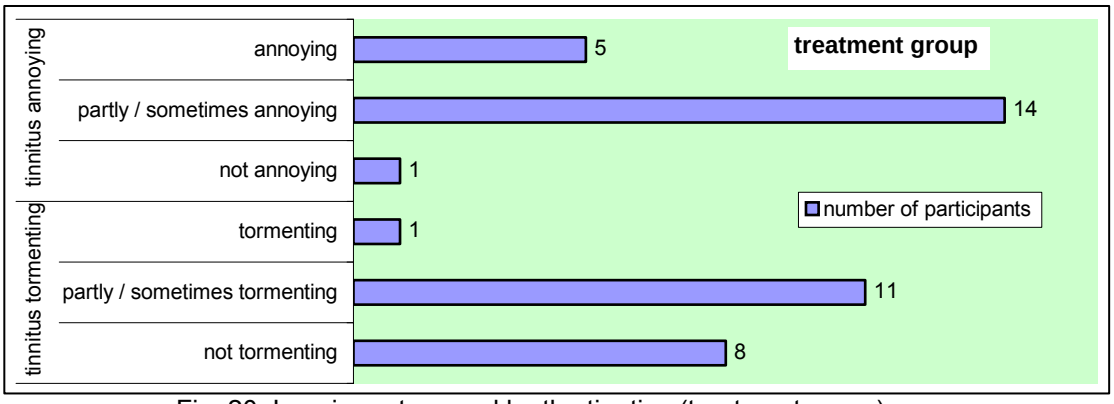


Fig. 20: Impairment caused by the tinntius (treatment group)

Seven of the patients in the waiting group felt the tinnitus was annoying, 11 patients thought it to be annoying sometimes and three patients as not annoying at all.
Two patients classified the tinnitus as tormenting, four patients as sometimes tormenting and 15 patients as not tormenting at all.
11 patients in the treatment group subjectively felt that the tinnitus was partially tormenting in comparison with only four patients in the waiting group!
As for the level of annoyance both groups show similar profiles.

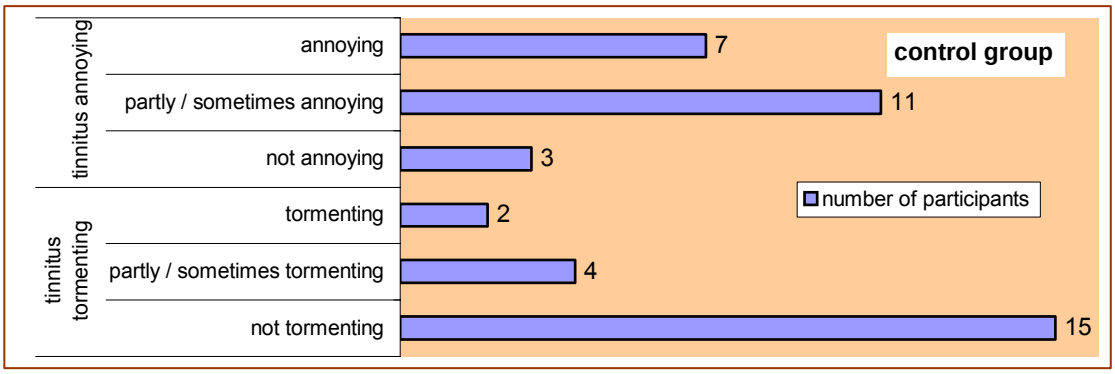


Fig. 21: Impairment caused by the tinntius (control group)

5.2.1.2 Tinnitus related disorders:

Eight patients mentioned a hearing reduction in the treatment group. two mentioned the speech frequency in the right ear, six mentioned the right ear and three mentioned high pitched sounds in the left ear and one mentioned a high pitched sound in both ears.One patient suffered from hyperacusis, three patients suffered from vestibular vertigo and eight patients under non vestibular vertigo.

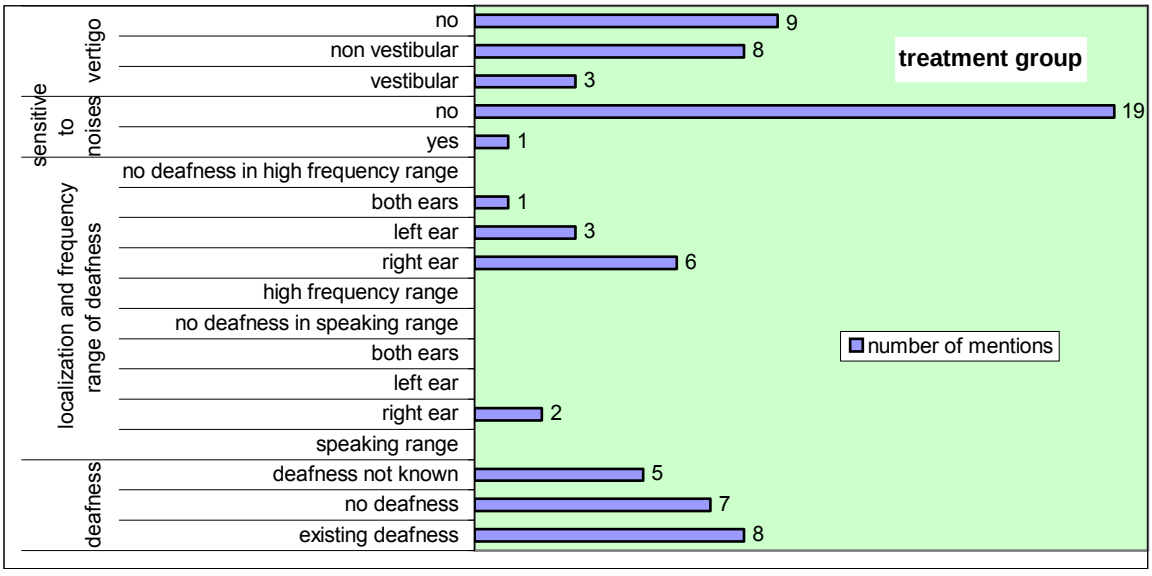


Fig. 22: Problem fields (hearing loss, vertigo and hyperacusis) associated with Tinnitus, treatment group

15 patients in the waiting group mentioned a hearing loss. Of which two mentioned the speech frequency in the left ear, one mentioned the right ear and two mentioned both sides.

At higher frequencies four mentioned the right ear, nine mentioned the left ear and three mentioned both sides. Hyperacusis was seen in one patient. Three patients suffered from vestibular vertigo and four patients from non vestibular vertigo. More patients were therefore affected by hearing loss in the waiting group.

Fig. 23: Problem areas (hearing loss, vertigo and hyperacusis) associated with tinnitus, control group

5.2.1.3 Aetiological factors of the Tinnitus:

14 frequent and medically important aetiological conditions, which can play an important role according to recent scientific research into the emergence and retention of chronic tinnitus, were documented systematically. An exact interpretation follows in chapter 6, discussion.

They include:

- Cochlear hearing loss (malfunction in the inner ear including the auditory nerve)
- Conduction deafness (disturbed conduction of the sound energy to the inner ear)
- Sudden hearing loss
- cerebrovascular dysfunction
- Tinnitus related to malfunctions of the cervical spine (it has been clinically examined as how far tinnitus can be changeable due a twist or a strain of the neck)
- Malfunctions of the jaw joint (Here we can see how far the tinnitus can be changed through biting or straining the jaw)
- Muzzle blast trauma (immediate development or deterioration of the noises in the ears after a bang near the ear)
- Tinnitus after a longer exposure to noise (Loud noise exposure above a noise level of 85-90 dB over a longer time period in the past)
- Morbus Menière (vestibular vertigo attacks and fluctuating hearing loss)
- Condition after a head injury
- Tinnitus as an acoustic neurinoma (CT/ MRI based results)
- Other illnesses of the central nervous system (connected with meningitis, tumors, systemic diseases i.e. multiple sclerosis)
- Ototoxic damage (caused by certain antibiotics, zytostatics or other substances)
- Hereditary disorders (positive family history of tinnitus, hearing loss, deafness or other hearing diseases)
- other Aetiological factors (professional or personal stress)

Treatment group:

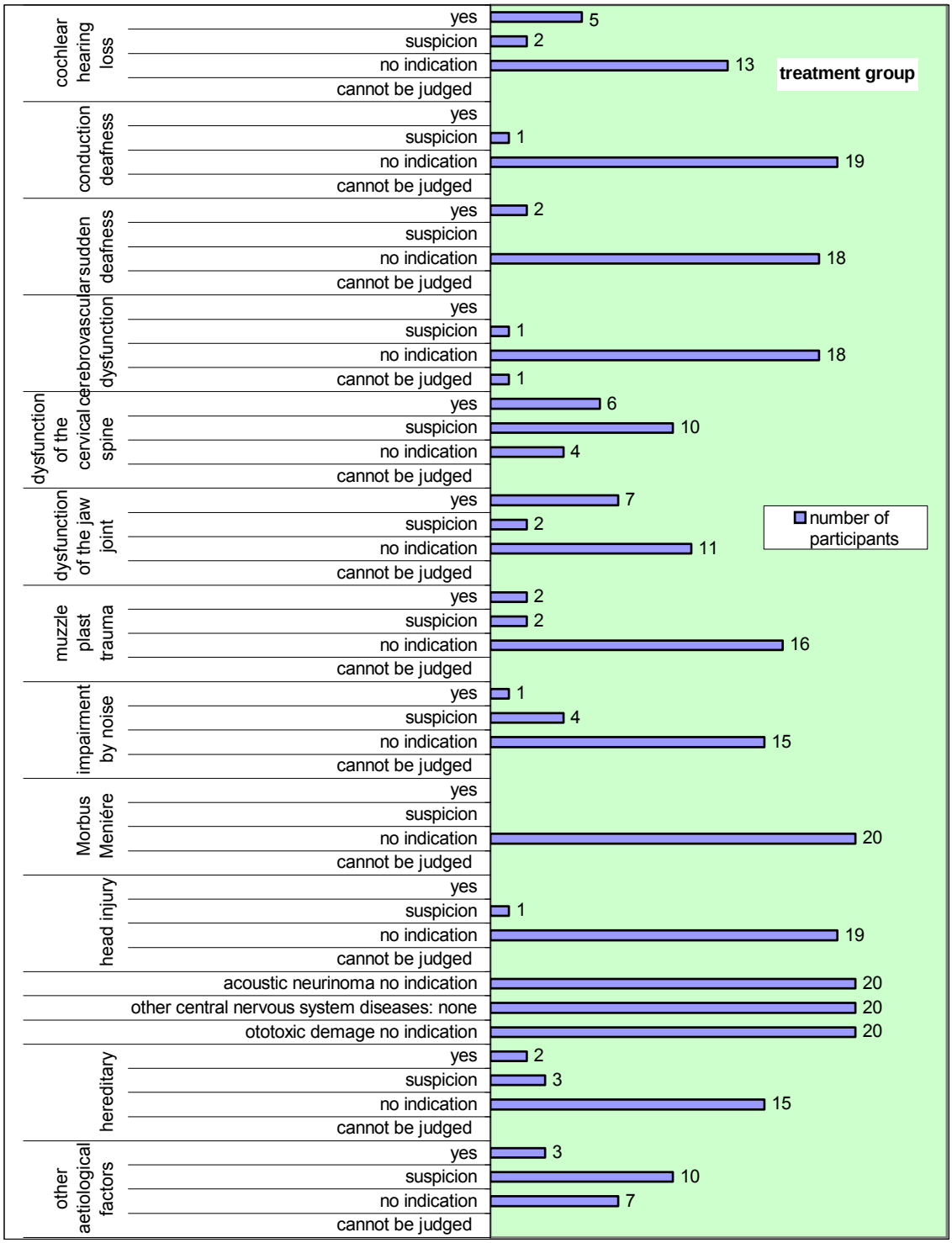


Fig. 24: Evaluation of the details on other aetiological factors (treatment group)

Control group:

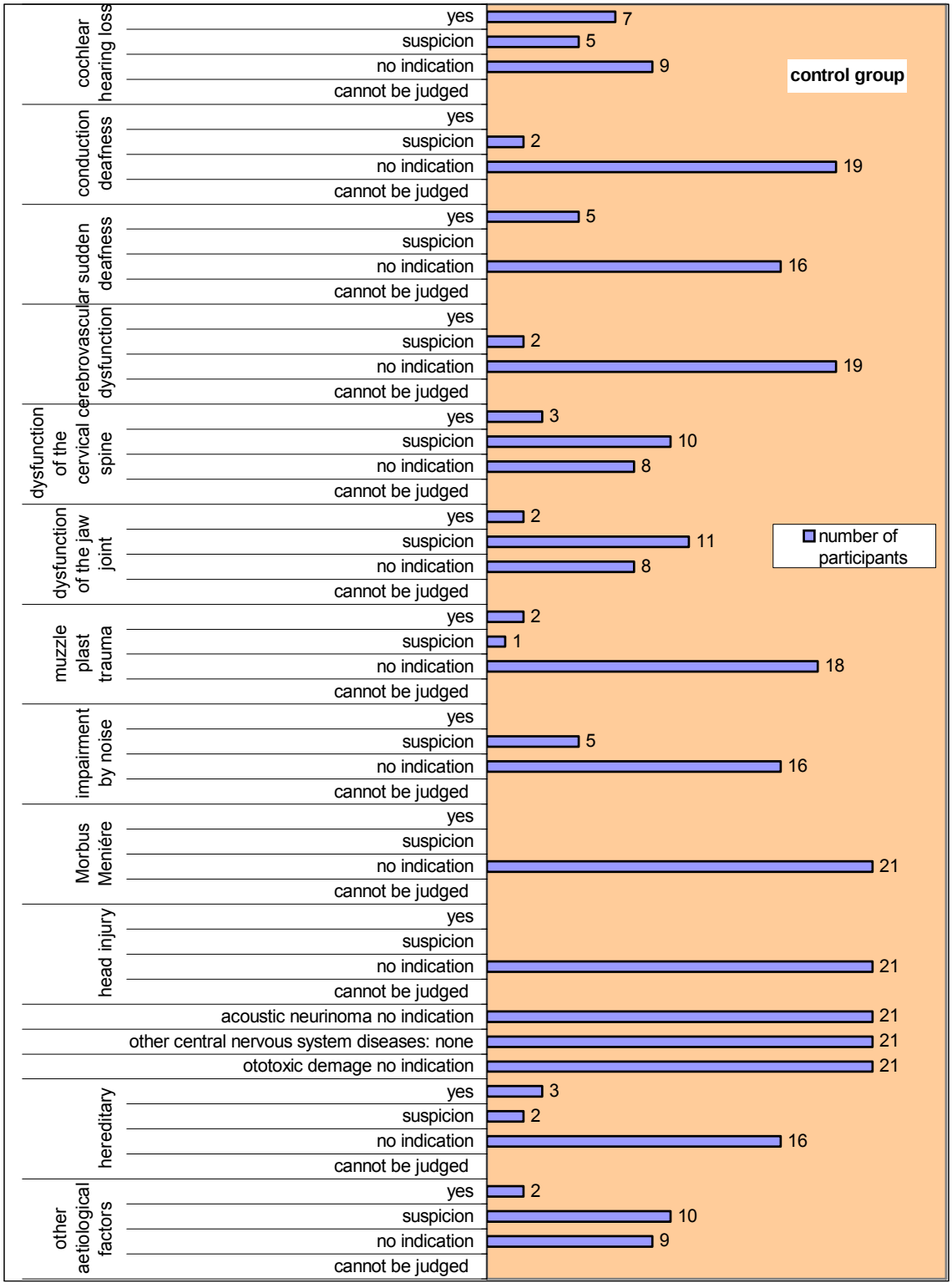


Fig. 25: Evaluation of the details on other aetiological factors (control group)

After analysing the evaluations of other aetiological factors the two group profiles hardly differ.
We can see that in the two groups the most frequent problem fields are to be found in the cochlear hearing loss area (seven patients in the treatment group and 12 patients in the waiting group), the dysfunctions of the cervical spine (16 patients in the treatment group and 13 patients in the waiting group), dysfunctions of the temporomandibular joint (nine patients in the treatment group and 13 patients in the waiting group) as well as other aetiological factors – professional or personal stress was mainly given as a reason (13 patients in the treatment group and 12 patients in the waiting group).
A more detailed analysis and interpretation follow in chapter 6 (discussion).

5.2.1.4 The real burden of the psychological aspects

These values refer to psychological problems which can appear in connection with longer term tinnitus.

These include:
Hearing impairments caused by the tinnitus, the penetration of tinnitus, disturbances to relaxation time and sleeping disorders, emotional strains, dysfunctional cognitions (blaming themselves for their difficulties and their main problems in life,...), psychosocial impairments (social activities), professional grievances.
The psychological full burden is expressed by the STI-score and can be classified on a scale between 0 and 40 points (40= maximum tinnitus impairment) (0= no tinnitus impairment).
The STI-Score defines quartiles according to the degree of the tinnitus impairment (→3.6.2, Structured Tinnitus Interview, p. 42).

Every patient is classified according to 4 classes (quartiles / impairment degrees);

Reference values for outpatient tinnitus patients and an interpretation between compensated and decompensated tinnitus:

0 to 3 points	= class 1, i.e. compensated (hardly limited)
4 to 7 points	= class 2, i. e. probably compensated
8 to 12 points	= class 3, i. e. probably decompensated
3 to 40 points	= class 4, i. e. decompensated (heaviest restriction, unable to work)

Five patients in the treatment group were in the first class (hardly impaired), ten patients in the second class (impaired little), three patients in the third class (impaired heavily) and two patients in the fourth class (impaired most heavily).

In the waiting group seven patients corresponded to the first class, nine patients to the second class, five patients to the third class but no-one was in the fourth class.

Quartile values (1. - 4th quartile) of the treatment and the waiting group:

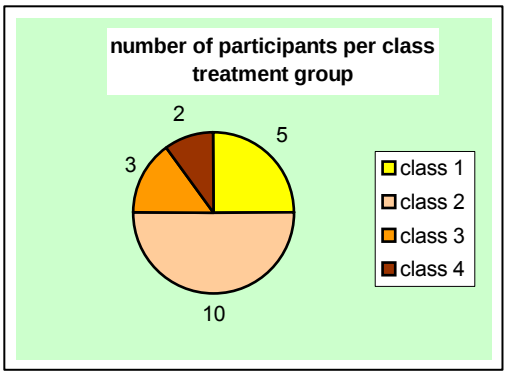


Fig. 26: Distribution of the degree of impairment (treatment group)

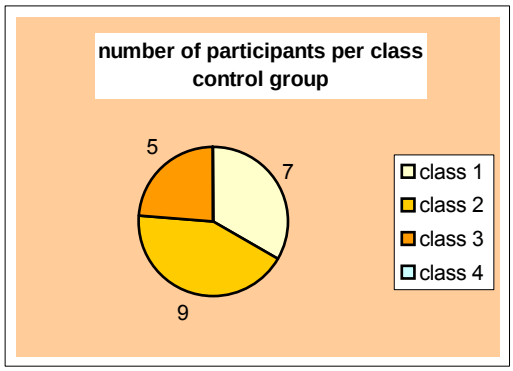


Fig. 27: Distribution of the degree of impairment (control group)

You can see from the graphics that the complete impairment of the psychological aspects was greater within the treatment group.
The following graphic does not serve as a comparison between the two groups but shows the psychological image of all 33 patients treated. Only a small minority of the patients were heavily affected (Class 4) by the psychological impairments.

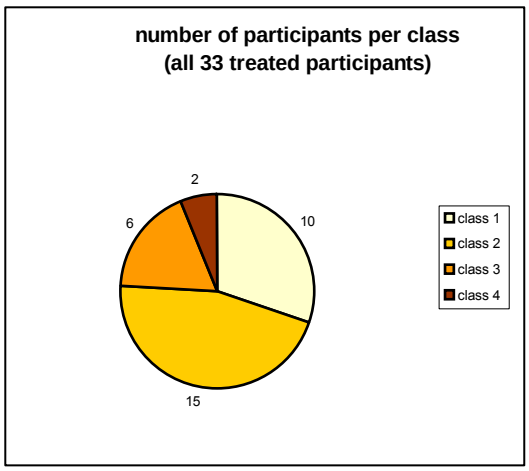


Fig. 28: Distribution of the heaviness degrees of all 33 treated participants

5.2.2 Evaluation of the osteopathic anamnesis sheet

The following anamnesis and result evaluations refer respectively to all 33 patients treated.

5.2.2.1 Visceral area:

The most frequently occurring dysfunctions were evaluated (partly predisposing and emphasizing factors), which were identified in the osteopathic anamnesis and results sheet. Multiple answers were possible amongst many of the patients.

Dysfunctions of the systems:
The cardiac system was affected in 13 patients, the metabolic system in 12 patients (water balance, lipometabolism and sugar metabolism), and the urinary tract in 14 patients and the digestive system in 11 patients. Eight patients showed thyroid gland malfunctions and 11 patients depressive dysfunctions. 3 patients suffered

from migraines and 14 patients had scoliosis. The last point doesn't cover visceral disorders, but was used however, in the list of systems affected because it is becoming an increasing factor with regard to tinnitus.

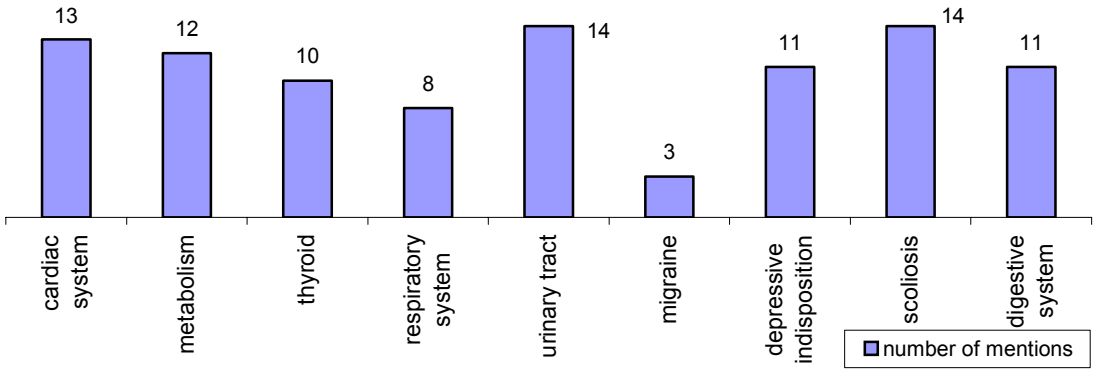


Fig. 29: Number of mentionings of the systems most frequently concerned in the visceral area

5.2.2.2 Regions with the most obvious dysfunctions in the structural area

When the results were recorded prior to every treatment all of the noticeable results were stated (multiple statements possible) and assigned to the corresponding regions.

The regions were divided up into 6 areas: the head (temporomandibular joint), the cervical spine, the thoracic spine, the lumbar spine and the Sacrum, extremities.

The table shows that most of the lesions (24 patients) were to be found in the cervical area.

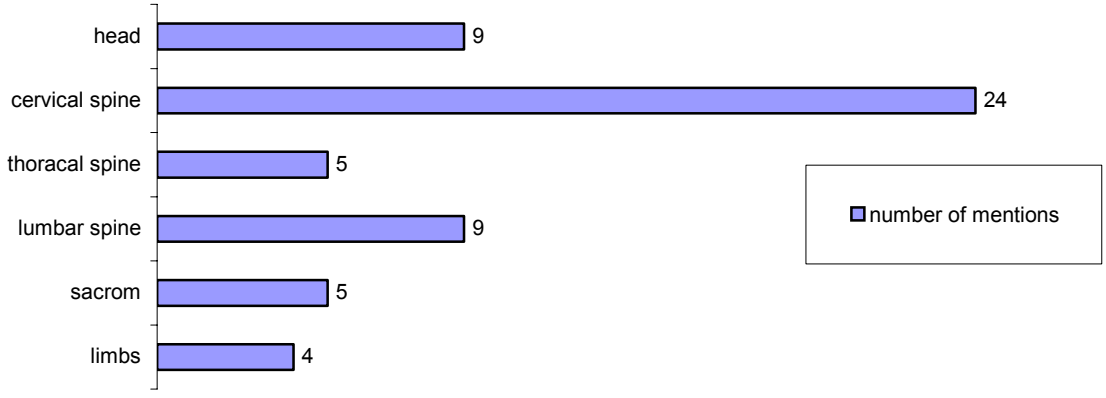


Fig. 30: Number of mentionings of the most striking dysfunctions in the structural area

5.2.2.3 Evaluation of the cranial system and its dysfunctions

Qualities of the PRM (Primary Respiratory Mechanism):

The frequency of the cranial rhythm was low at the beginning of the treatment in 22 patients (lower than 9/min), in six patients in the middle (about 10,11/min) and high in five patients (about 14/min). On completion of the treatment the frequency was low in 12 patients, in the middle in 16 patients and high in five patients.

The amplitude was low at the beginning of the treatment in 21 patients, in the middle in eight patients and high in four patients. At the completion of the treatment the amplitude was low in seven patients, in the middle in 13 patients and high in 13 patients.
The quality of the MRP was generally rather weak at the beginning in 24 patients and at the end rather weak in seven patients.

The trend (tensile motion to the right/to the left) to the right could be felt in 15 patients, in 14 patients to the left and in four patients to both sides. At the end 11 patients had a tendency to the left, 10 patients to the right and 11 patients in both directions.

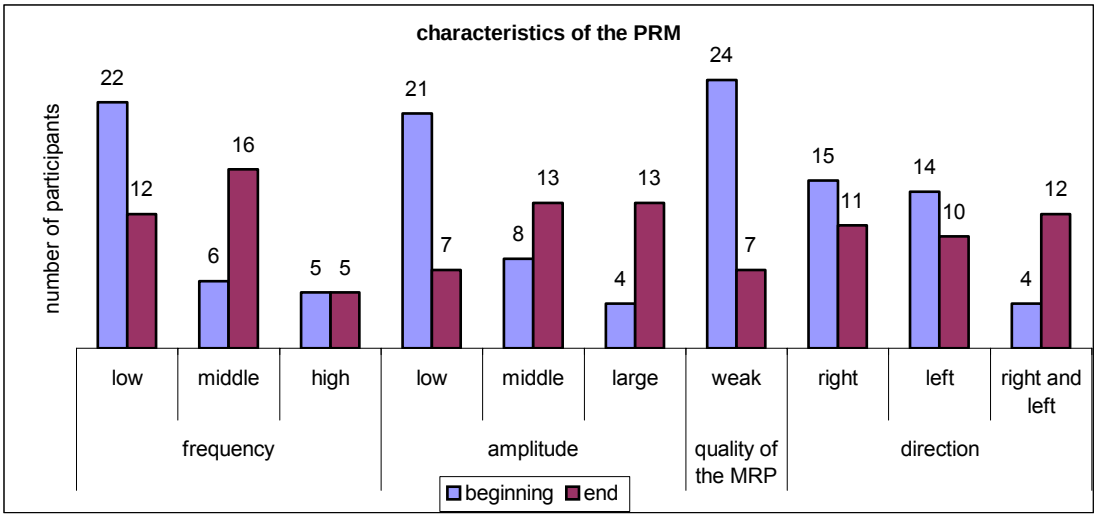


Fig. 31: Characteristics of the PRM (before the first treatment and on completion of the final treatment)

The examination of the SSB (Synchondrosis Spheno - Basilaris) showed the following adaptation patterns:
At the beginning of the treatment four patients showed an extension dysfunction, two patients a dysfunction in torsion on the left, three patients a SBR (side bending rotation) left, eight patients a SBR right, three patients a lateral shear left, two patients a lateral shear right and one patient a superior vertical strain.
Four patients showed a traumatic lesion according to a compression lesion anterior/posterior.
Six patients did not show any dysfunction according to a classic adaptation or compression lesion.

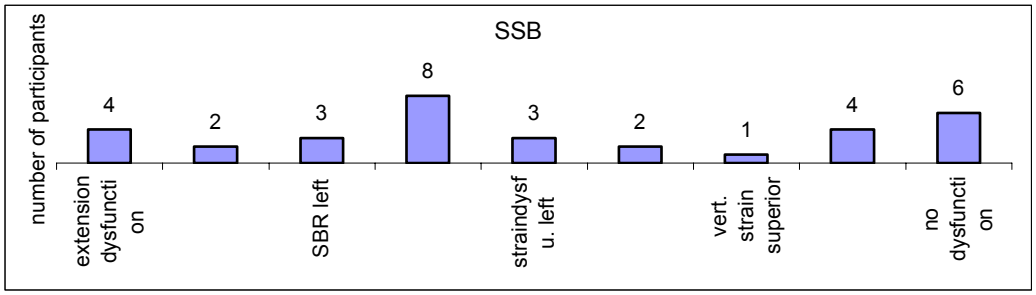


Fig. 32: Dysfunctions of the SSB of all 33 treated participants

An examination of the temporal bone showed an IR (internal rotatation) of the left temporal in 18 patients, an IR of the right temporal in eight patients, an ER (external rotation) of the left temporal in six patients and an ER of the right temporal in nine patients.
On completion of the treatment 11 patients showed an IR of the left temporal, six patients an IR of the right temporal, five patients an ER of the left temporal and seven patients an ER of the right temporal.
At the beginning 28 patients showed dysfunctions of the tentorium cerebelli and at the end 20 patients.

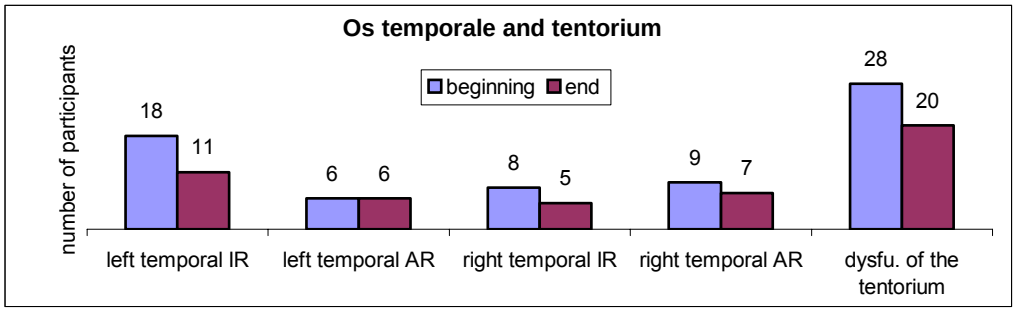


Fig. 33: Position of the os temporale and dysfunction of the Tentorium

5.3 Presentation of the dependent variables/TBF12 results divided into waiting group and treatment group

The incorporation of the patients into the respective per cent ranks from the TBF – 12 (3.4.1 p. 38) can be carried out separately according to factor 1, factor 2 and complete factor with the help of the manual.

The individual results of the patients from the treatment group are shown here and show the changes in the tinnitus impairment after the conclusion of treatment (after five treatments) in comparison with the individual results of the patients from the waiting group which highlight the changes in the tinnitus impairment after the end of the waiting time.

The line charts show that with the exception of one patient the final values of the impairment in the waiting group were lower than in the treatment group. Some final values have even increased slightly here in proportion to their exit value.

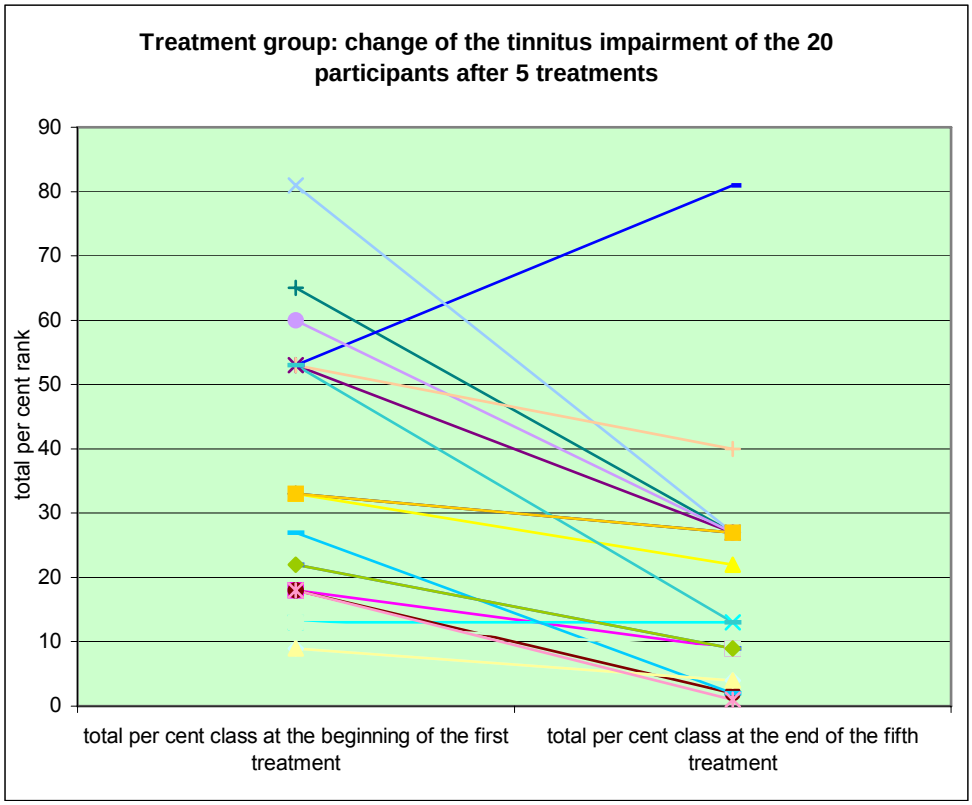


Fig. 34: Change in the tinnitus impairment (treatment group)

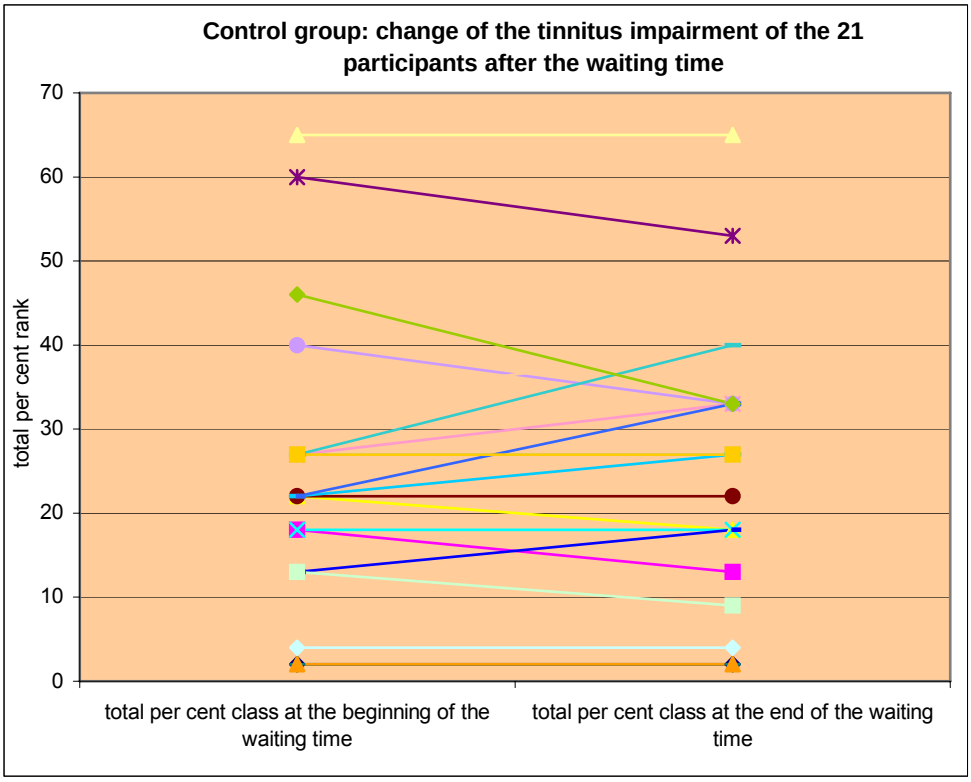


Fig. 35: Change in the tinnitus impairment (control group)

The mean average value of all patients of the treatment group (20 patients) regarding the Tinnitus - impairment at the beginning and at the end of treatment time, as well as the mean average value of all patients of the waiting group (21) regarding the Tinnitus impairment at the beginning and at the end of the waiting time were formed and represented separated in the two groups. The graphic shows a visible change in the form of reduction in the final value in the treatment group at the end of treatment.

The mean average value of the total tinnitus impairment ranking decreased in all 20 patients in the treatment group. It decreased to per cent rank 19 at the end of treatment time from per cent rank 34,3 at the beginning of treatment time.

A minimal deterioration can be seen at the end of the waiting time in the waiting group.

In the waiting group the mean average value of the total tinnitus impairment per cent ranking in all 21 patients increased from per cent rank 24 at the beginning of the waiting time to rank 25 at the end of the waiting time.

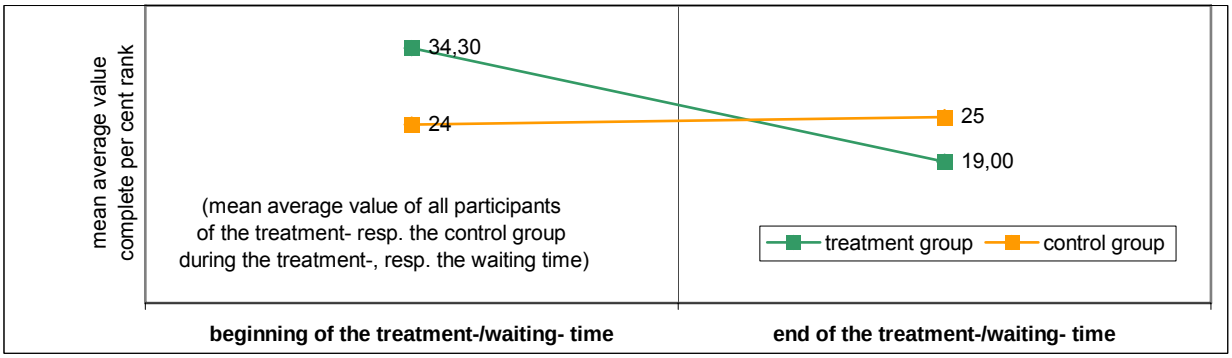


Fig. 36: Changes in the tinnitus - impairment (mean average value)

Change of the tinnitus impairment in per cent:

At the end of treatment time a percentile improvement of 45% was achieved (related to the mean average values of the complete per cent ranks regarding tinnitus impairment) based upon the starting mean average value of all 20 patients of the treatment group.

In the waiting group the bar chart shows a negative development.

In relation to the starting mean average value of the complete per cent ranks for the tinnitus impairment in all 21 patients in the waiting group the bar chart shows a percentile deterioration by 4% at the end of the waiting time.

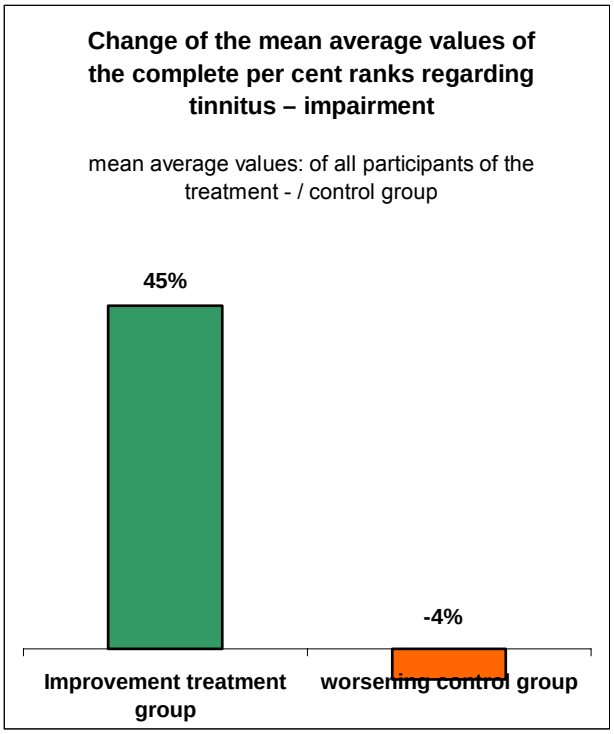


Fig. 37: Change of the mean average values of the complete per cent ranks regarding tinnitus impairment during the treatment - / waiting time in % of the mean average value at the beginning

On consideration of the following bar charts the **change in the complete per cent rank of every patient** it is clear that only one patient has remained the same in the **treatment group** and one patient has deteriorated.

After a more exact analysis in the waiting group there were six improvements, six deteriorations and nine constant results.

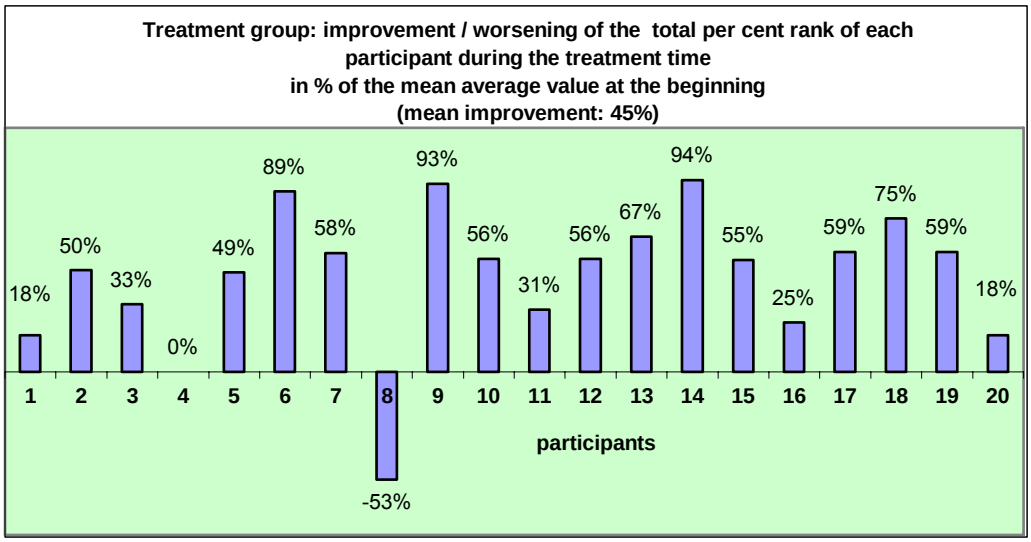


Fig. 38: Change of the complete per cent rank of every participant during the treatment time(treatment group)

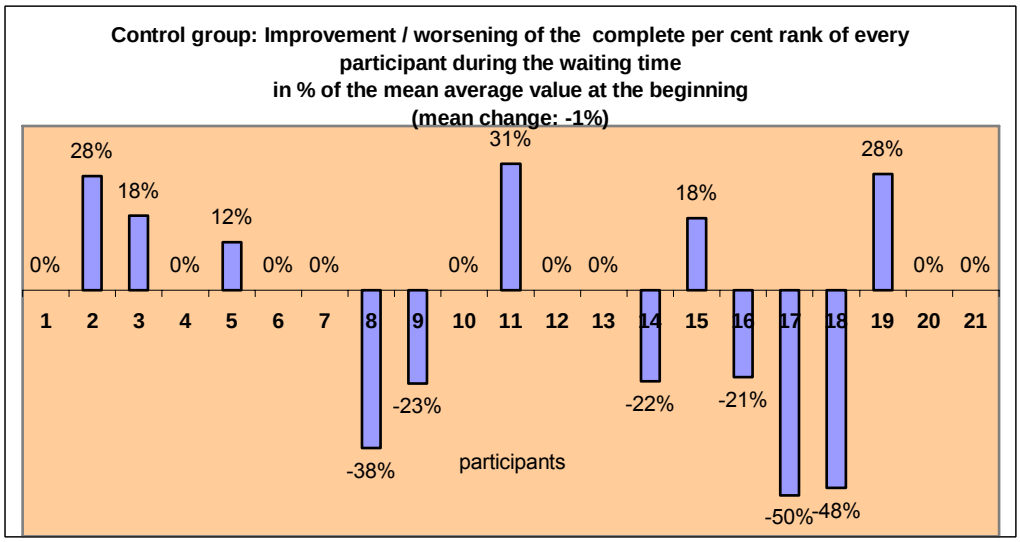


Fig. 39: Change of the complete per cent rank of every participant during the waiting time (control group)

5.4 Presentation of the visual analogous scale:

The development of the loudness and annoyance (mean average values of all 20 patients of the treatment group) over the course of the five treatments (five mean average values) during the treatment time was represented by a line chart. Thereby

the mean average values of the tinnitus loudness for the right and left ears are shown as well as the arithmetic means of both ears.
The mean average values for the tinnitus annoyance also are shown in the graphic. The line chart shows a decreasing intensity in all four curves with regard to loudness and annoyance.

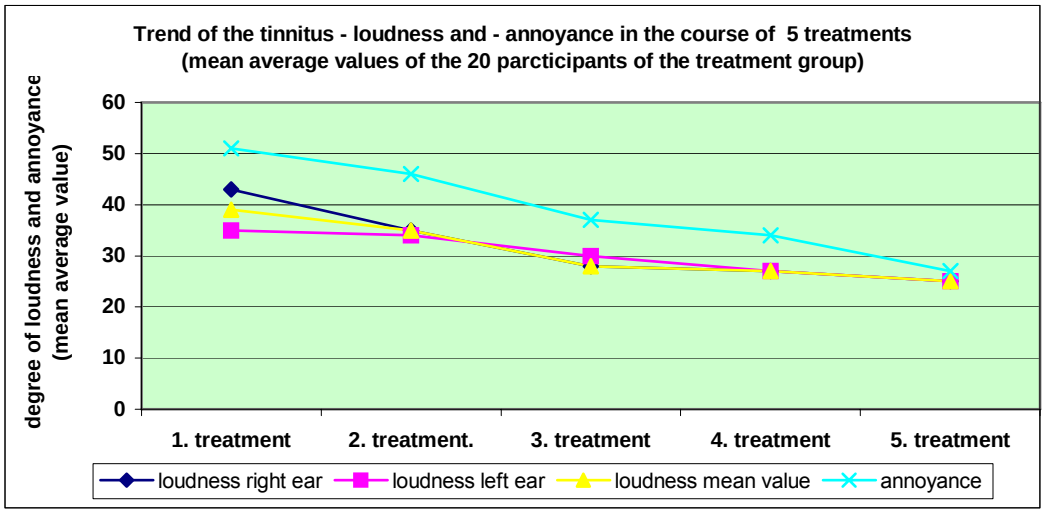


Fig. 40: Development of the tinnitus loudness and annoyance in the course of 5 treatments (treatment group)

A slight decline in the tinnitus annoyance and loudness can also be seen in the waiting group at the end of the waiting time.
The initial mean average values and degree mean average values are represented here (mean average values of all 21 patients regarding the loudness for the right and the left ear, the arithmetical average from both ears, mean average value for the annoyance).

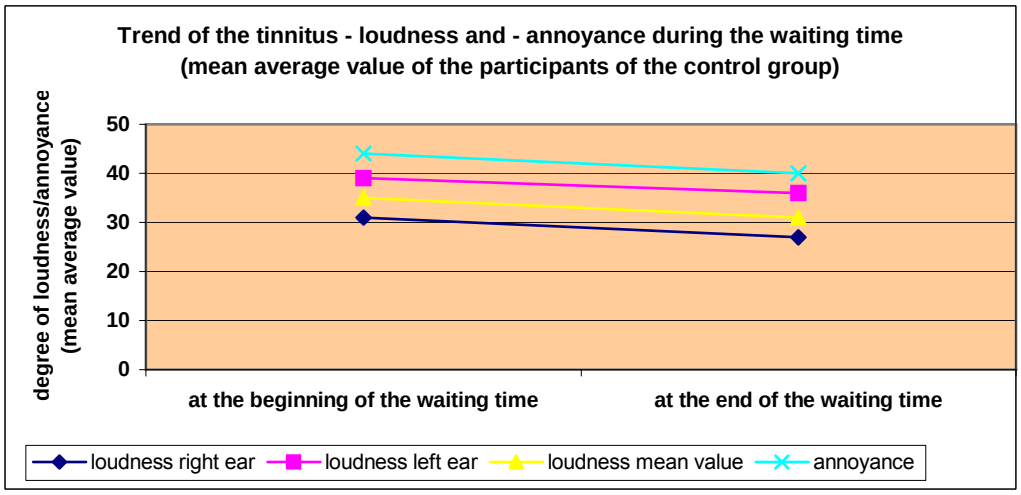


Fig. 41: Development of the tinnitus – loudness and - annoyance during the waiting time (control group)

In the treatment group the percentile change for the tinnitus loudness (mean average value of all 20 patients of the treatment group) for the arithmetical means of both ears is 36% of the starting mean average value.

In the waiting group there was an improvement of 11% of the starting mean average value with regard to loudness (Mean average value of all 21 patients of the waiting group).

There is a difference of 25% between the two groups.
With regard to the tinnitus annoyance the treatment group shows an improvement of 47% of the starting mean average value (Mean average values of all 20 patients of the treatment group) at the end of treatment time.

In the waiting group the percentile improvement of the tinnitus annoyance is 9% of the starting mean average value (mean average value of all 21 patients of the waiting group) at the end of the waiting time.

There is a difference of 38% between the two groups.

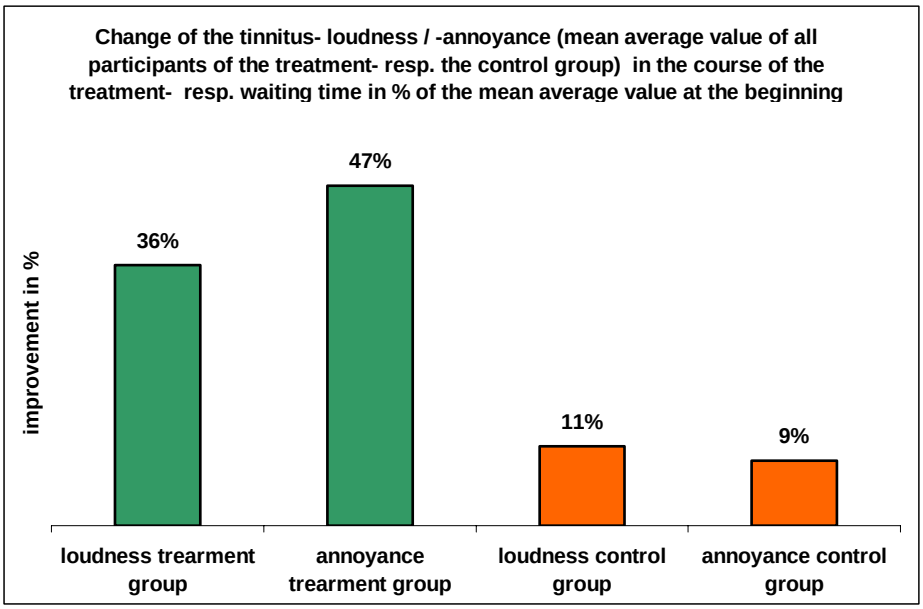


Fig. 42: Change of the tinnitus - loudness / annoyance in the course of the treatment- / waiting time

Presentation of the results of the VAS of the 13 patients treated from the waiting group (does not serve as a group comparison):

As another 13 patients were treated in the waiting group after the waiting time (five therapies), the course of the changes with regard to loudness and annoyance is also represented on the visual analogous scale. The five mean average values for the tinnitus loudness in the right and left ear, as well as the mean average value from both ears are also represented here.

The mean average values for the tinnitus - annoyance also are shown separately in the graphic.

An improvement regarding the loudness and annoyance can be seen here.

Mean average values over the course of five treatments:

The starting value of the annoyance dropped from 42 to 25, the loudness of the right ear from 42 to 27, the mean average value from 38 to 22, the loudness for the left ear from 34 to 18.

It is obvious that both the subjective loudness and the annoyance are influenceable.

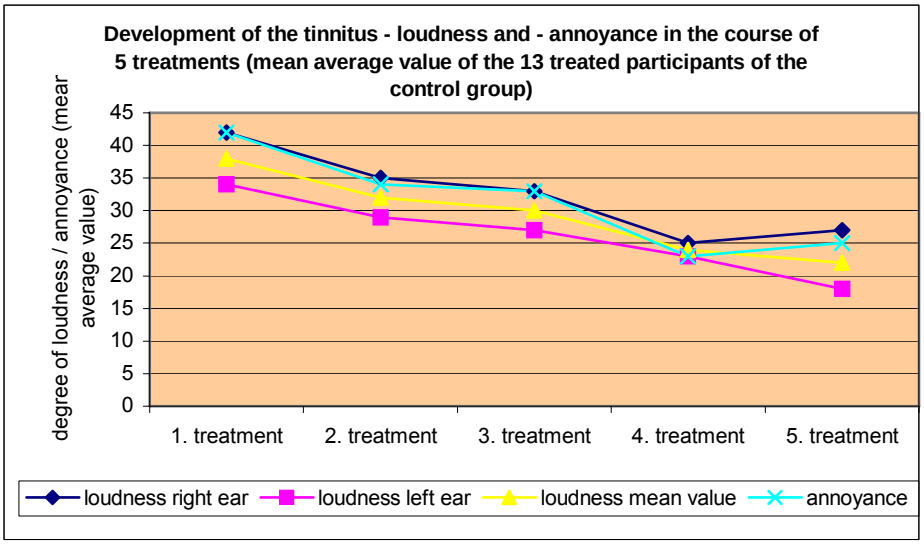


Fig. 43: Development of the tinnitus loudness and annoyance of the 13 treated participants in the control group in the course of 5 treatments

Course of the tinnitus loudness and annoyance of all 33 patients:

The development of the loudness and annoyance (the five mean average values for the tinnitus loudness in the right and left ears, the mean average value from both ears and the mean average value for the annoyance of all 13 patients) over the course of treatment time is represented here.

Positive results can also be seen in this group. The final mean average value was less than the starting mean average value in all four areas.

The mean average value for the subjective loudness of the right ear decreased from 43 to 24, for the left ear from 35 to 22, the mean average value for both ears from 39 to 24 and the annoyance from 48 to 26.

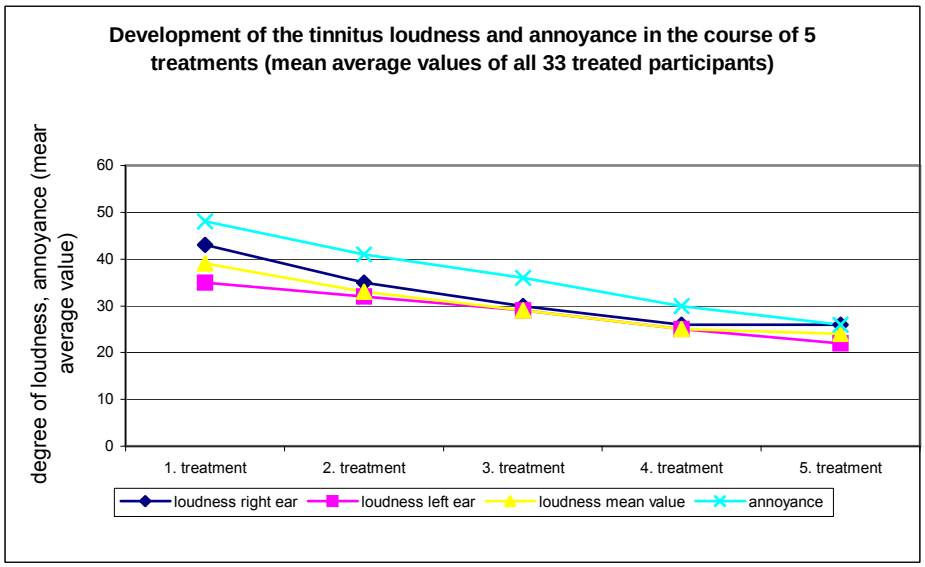


Fig. 44: Development of the tinnitus loudness and annoyance of all 33 treated participants

5.5 Evaluation of the tinnitus assessment sheet (self-assessment of the success of the treatment by the patient

The question " Were the treatments useful ?" was answered very helpful by two patients , helpful by four patients, considerable by 13 patients, a little by 13 patients, hardly bz one patient, there were no patients without improvement.

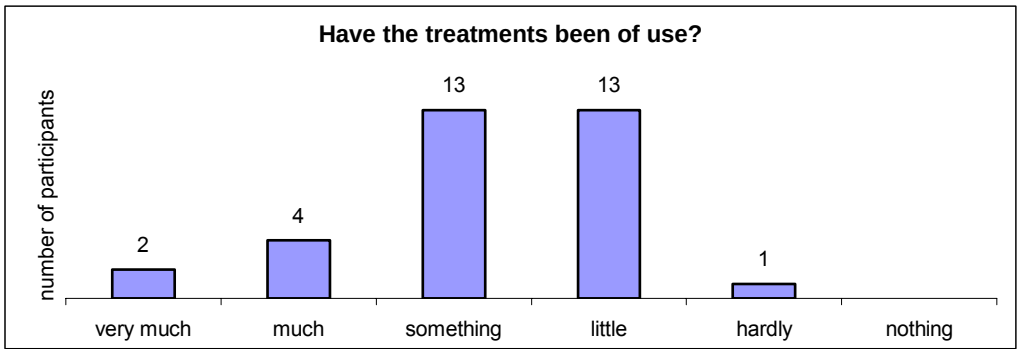


Fig. 45: Self - assessment of the participants regarding the effects of treatment

The question “Did you notice changes?" two patients answered that the loudness of the tinnitus was much better, in 14 patients it was a little better in 17 patients it

remained unchanged and it didn't get worse in any of the patients.
Three patients said that the tinnitus annoyance was much better, 20 patients a little better and 10 patients said it was unchanged.

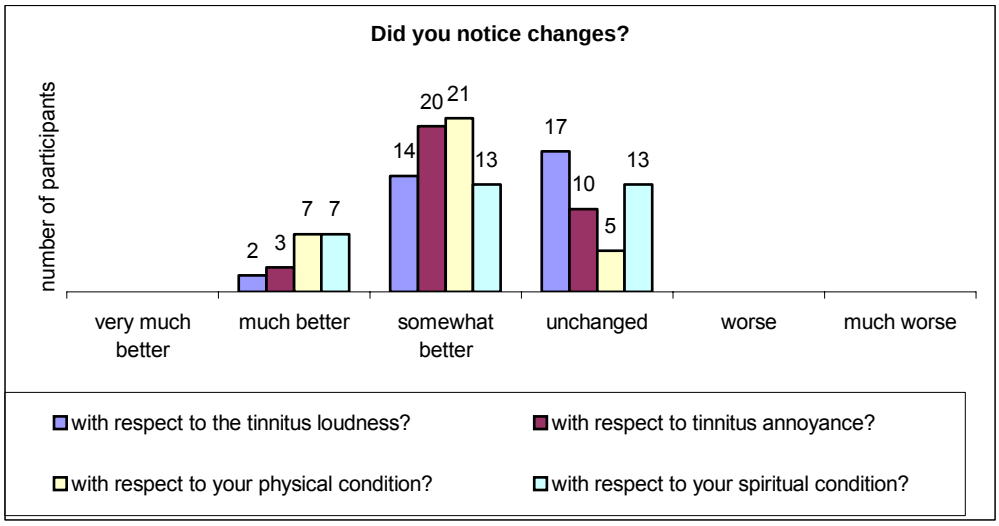


Fig. 46: The patients' self-assessment regarding the perceived changes

Seven patients felt their physical condition was much better, 22 patients said it was a bit better and in five patients it remained unchanged.
Seven patients said they were mentally much better, 12 patients a bit better and 13 patients remained unchanged.
The question "Are you now able to accept the disturbing noise more easily?" one patient answered very much better, seven patients much better, 14 patients a bit better, seven patients unchanged and none worse.

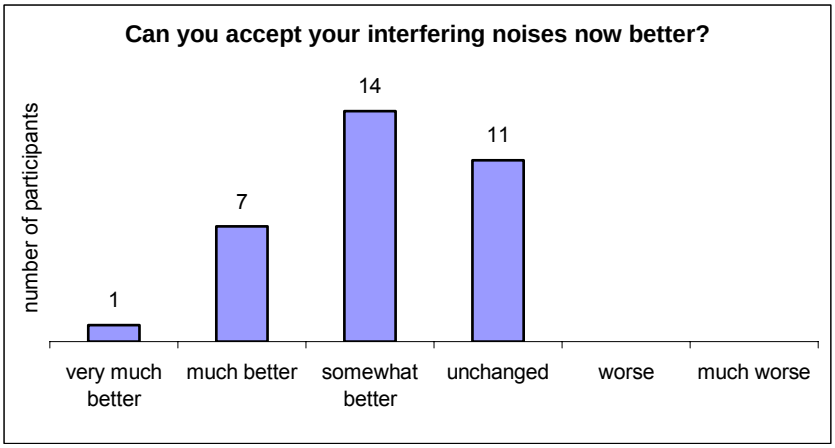


Fig. 47: Self-assessment of the participants regarding the change of the acceptance of the disturbing noises

6 Discussion

To be able to interpret the different results of the measuring instruments (TBF12: tinnitus impairment questionnaire, visual analogue scales; VAS: loudness and annoyance) between the two groups (treatment and waiting group), it makes sense to look at the homogeneity of the characteristics between the groups.

6.1 Sample characteristics

A total of 41 participants, 24 men and 17 women took part in this study.
The medial age of the treatment group was 47.2 years and corresponds roughly to the medial age of the waiting group (48.0 years). The main period of incidence lies according to Goebel (2001) between the ages of 40 and 60 years.
Despite the random allocation of the groups, the number of male participants in the waiting group (15 participants) was lower than in the treatment group (nine participants). In contrast to the treatment group the number of the female participants was almost twice as high as in the waiting group (six female patients).
The patients in the treatment group had a higher level of education..
According to the German Tinnitusliga (1999) men are more frequently affected by tinnitus than women and this also corresponds with the results of this study.

6.2 Tinnitus characteristics of treatment and waiting group

After the evaluation of the STI and the tinnitus characteristics it can be said that the tinnitus characteristics of the patients in relation to a high pitched sounds and a uniform noise correspond to a typical clinical profile.
Goebel (2001) reports that high-frequency, whistling forms of tinnitus with the loss of predominant high frequencies often happen with perceptive deafness and that tinnitus appears a little more frequently on the left. This can be seen particularly in the initial stage.
Depressive patients are affected more often by tinnitus on the left and nervous patients are more affected by tinnitus on the right.

The localization of the tinnitus affected both sides in the treatment group in roughly the same distribution. The left ear was in the majority in the waiting group. The psychological profile of the waiting group did not show a higher degree of impairment than that of the treatment group.

The diagram of the distribution of the degree of psychological impairment shows that the impairment of psychological aspects was greater within the treatment group.

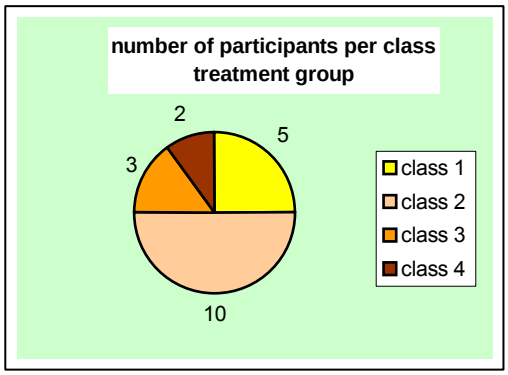


Fig. 26: Distribution of the degree of impairment (treatment group)

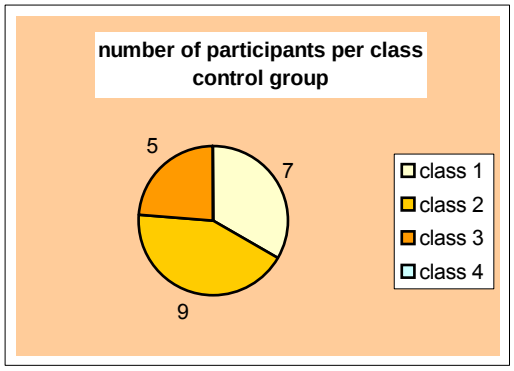


Fig. 27: Distribution of the degree of impairment (control group)

This could perhaps be explained by the fact that the period of time since the tinnitus first emerged was much longer in the waiting group (more than 10 years) than in the treatment group.

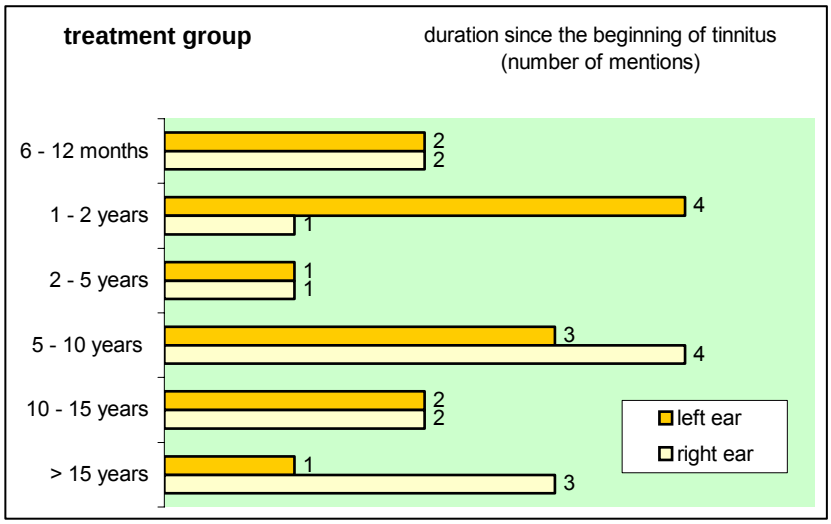


Fig. 14: The previous extent of the tinnitus related to the ears concerned (treatment group)

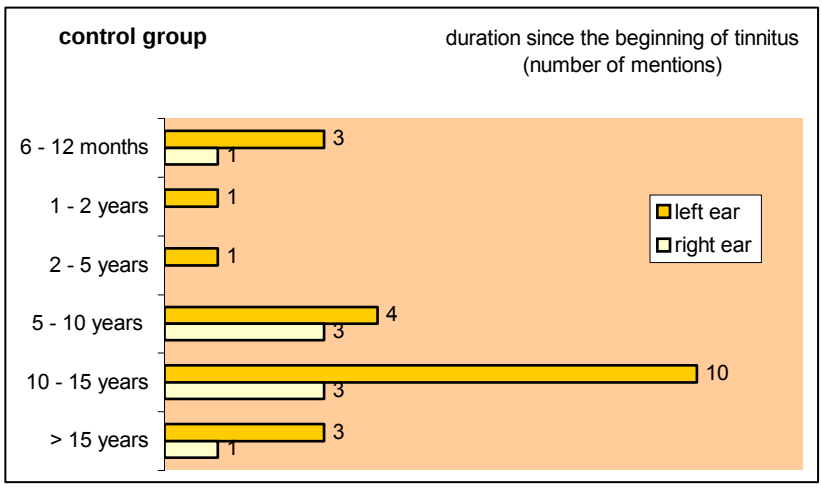


Fig. 15: The previous extent of the tinnitus related to the ears concerned (control group)

Goebel talks about a tendency in the decrease of the annoyance after a longer-term course, perhaps this was the case in the waiting group.

The differences regarding the subjective loudness classification as well as the features of the subjective tinnitus perception also indicate a lower impairment in the waiting group. In the waiting group most patients marked degree II, hardly anyone marked degree III, whilst a third of the patients marked the strongest degree in the treatment group.

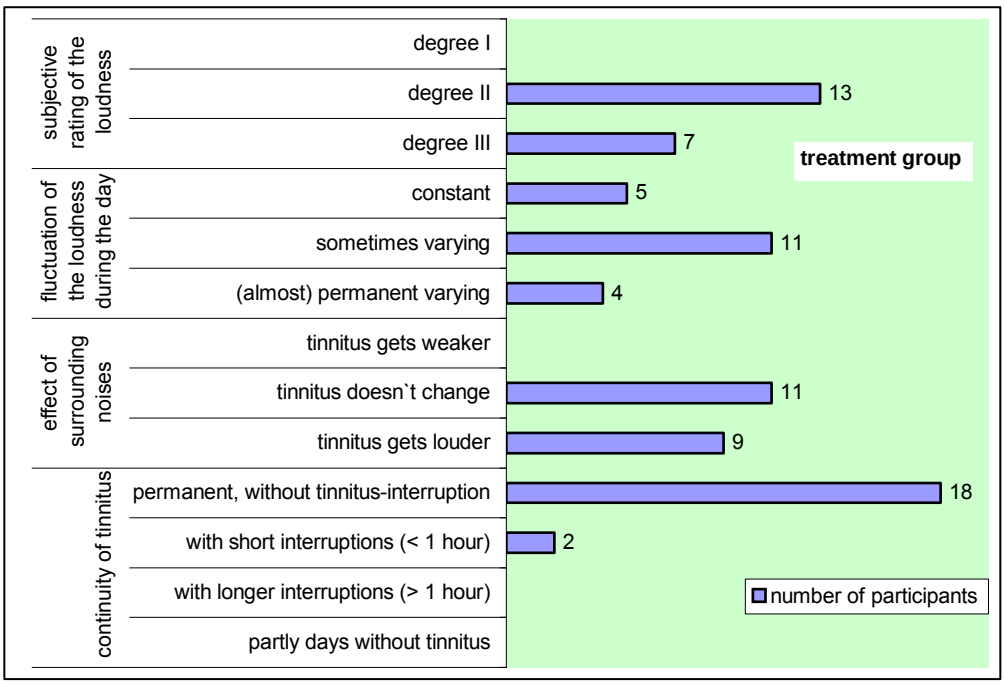


Fig. 18: Loudness and consistency of the tinnitus (treatment group)

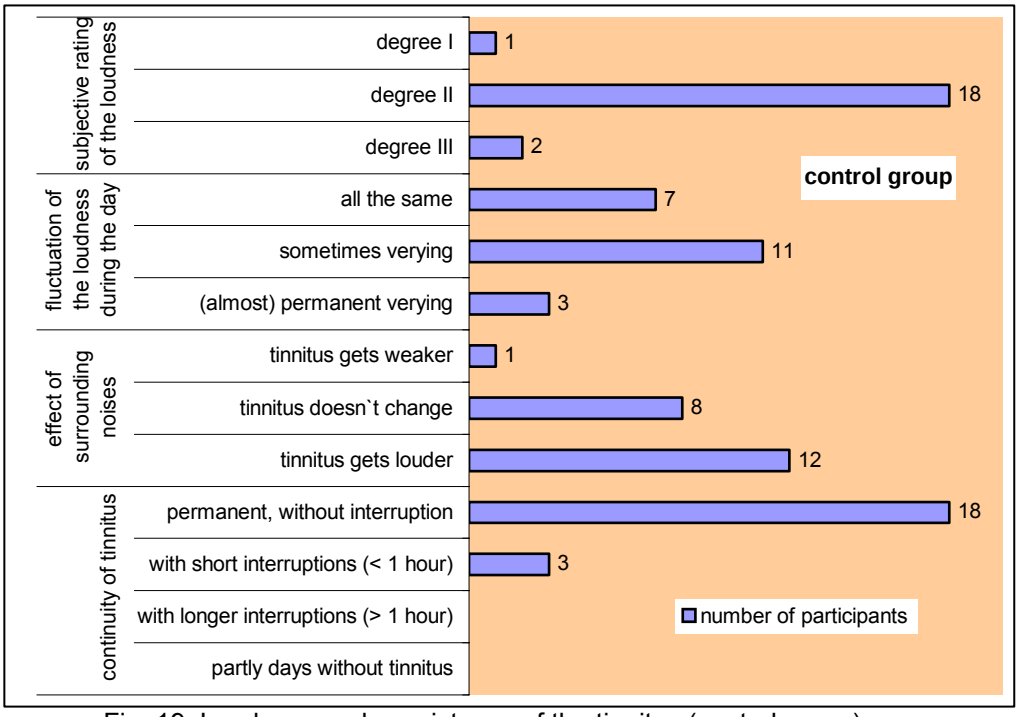


Fig. 19: Loudness and consistency of the tinnitus (control group)

11 patients in the treatment group also described their tinnitus as tormenting. whilst only four felt it was tormenting in the waiting group.

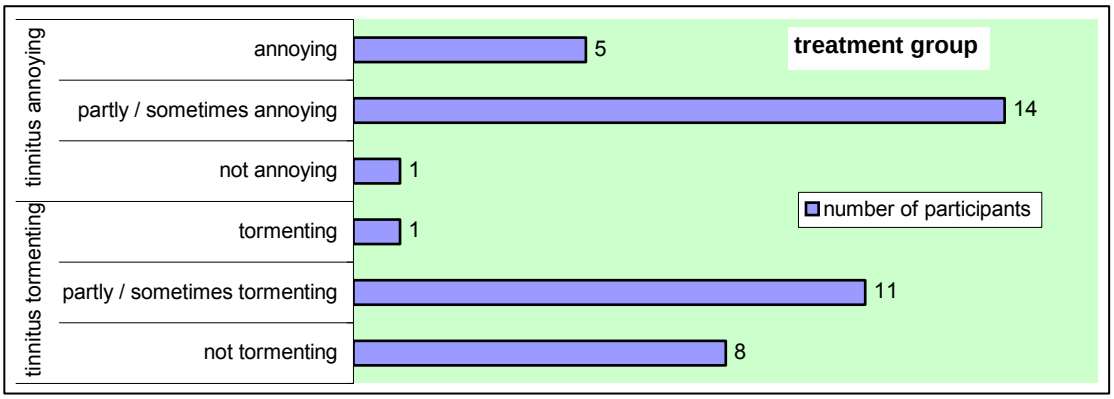


Fig. 20: Impairment caused by the tinntius (treatment group)

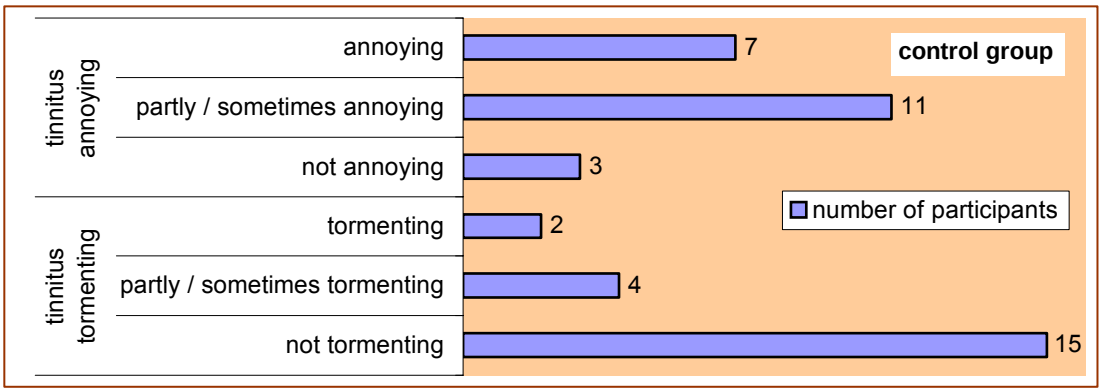


Fig. 21: Impairment caused by the tinntius (control group)

Different degrees of impairment and annoyance also arose in the evaluations of the measuring instruments.

6.3 Interpretation of the results of the tinnitus impairment questionnaire (TBF -12) and the visual analogous scale (VAS)

The measuring instruments also showed group differences in the tinnitus impairment and annoyance at the beginning of the treatment and during the waiting time.

The starting mean average value of the tinnitus impairment of all 20 patients in the treatment group was ranked at 34,3 per cent, around ten points higher in comparison with 24 per cent ranking of all patients of the waiting group. This means that the treatment group was impaired more at the beginning than the waiting group. The final mean average value went down in the treatment group to 19 in comparison with 25 in the waiting group.

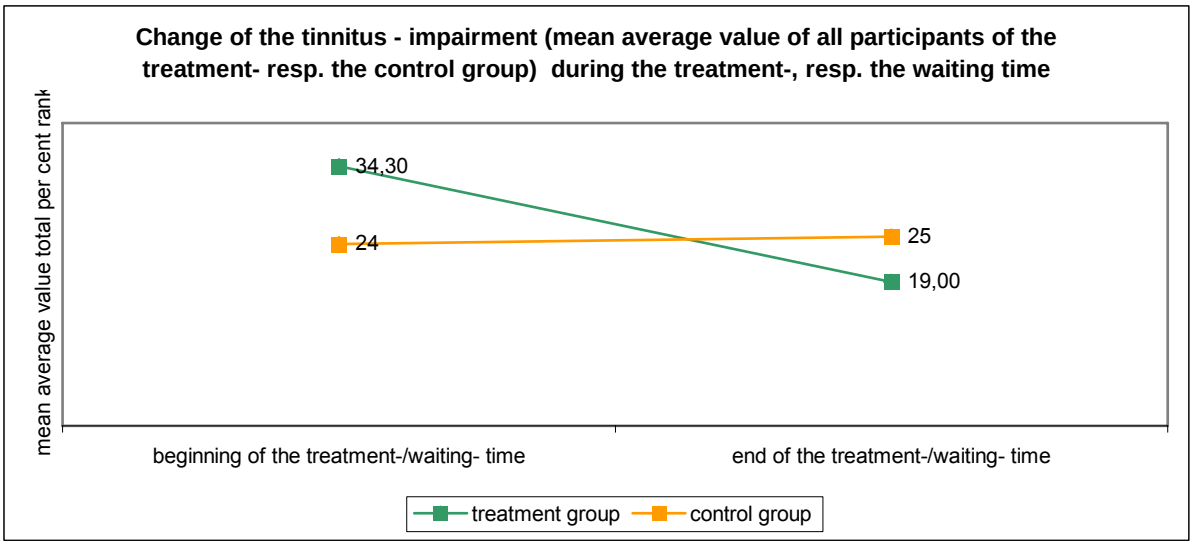


Fig. 36: Changes in the tinnitus - impairment (mean average value)

This means an improvement by 45% of the starting mean average value of the treatment group and deterioration by four per cent of the starting mean average value of the waiting group.

After five osteopathic therapies the participants in the treatment group showed a lower impairment and mean average value than the participants of the waiting group.

Hardly any changes could be seen in the treatment free waiting time in the waiting group and not even the prospect of future treatment affected this.

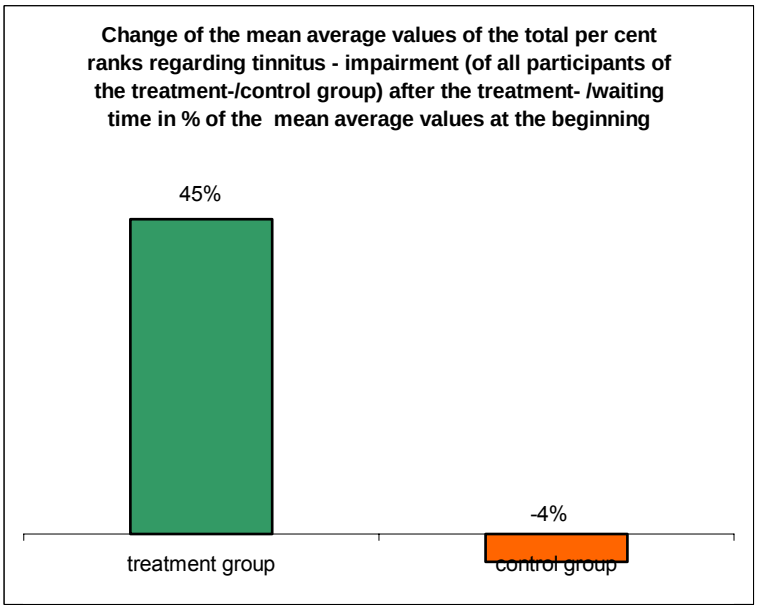


Fig. 37: Change of the mean average values of the complete per cent ranks regarding tinnitus impairment

The graphics also show different results of the two groups in the visual analogous scale (VAS).
The positive change in the tinnitus loudness (mean average value of both ears of all 20 patients of the treatment group) is 36% of the starting mean average value in the treatment group.
In the waiting group there was an improvement of 11% of the starting mean average value regarding loudness (Mean average value of all 21 patients of the waiting group).

An analysis of the change in the tinnitus annoyance in the treatment group shows an improvement of 47% of the starting mean average value at the end of treatment time.

The change in the tinnitus annoyance is an improvement of 9% of the starting mean average value in the waiting group at the end of the waiting time.

A larger difference between the two groups is the result here.

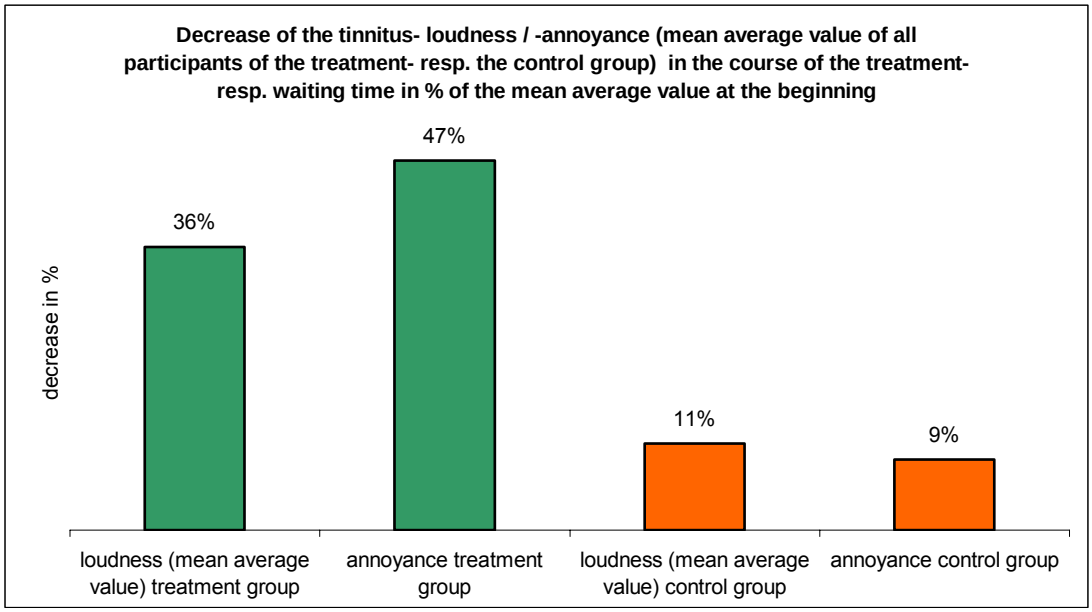


Fig. 42: Change of the tinnitus - loudness / annoyance in the course of the treatment- / waiting time

The value of the VAS with regard to the tinnitus annoyance points to a corresponding impairment degree which conforms to the ADANO step scheme (Chapter 3.4.2 the visual analogous scale (VAS) (steady, continuous variable) of Goebel (2003)).

Regarding tinnitus annoyance it can also be seen here that the participants in the treatment group with an initial mean average value of 51 which corresponds to class II (VAS: 40 –60, compensated tinnitus, easily, disturbed, therapeutic consequences: counselling, diversion method, TRT after a psychological diagnosis) were more deeply annoyed than the participants in the waiting group (initial mean average value 44 – but this also corresponds to class II).

The final mean average value of the treatment group was 27 (class I - hardly any degree of suffering, counselling and self-help) after five osteopathic therapies are lower than the final mean average value of the waiting group where it was 40 (transition of class I to class II).

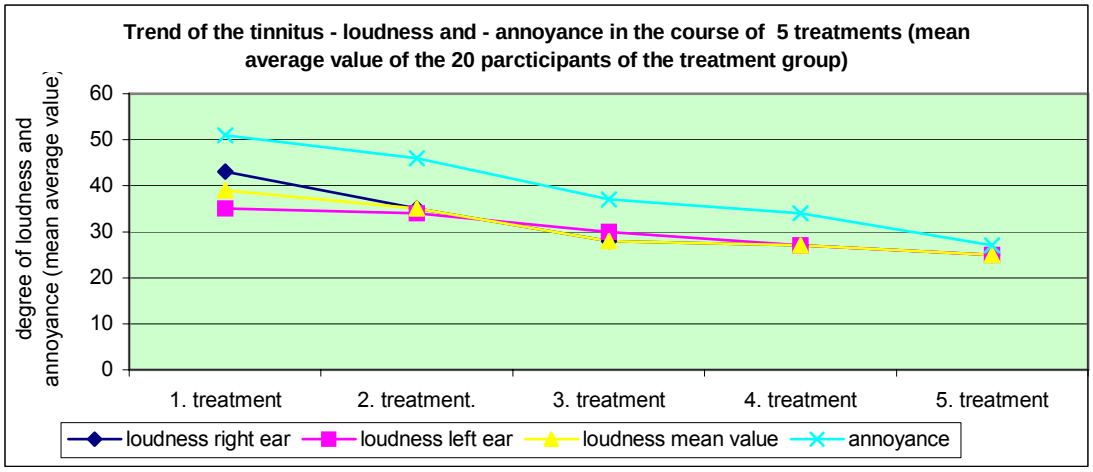


Fig. 40: Development of the tinnitus loudness and annoyance in the course of 5 treatments (treatment group)

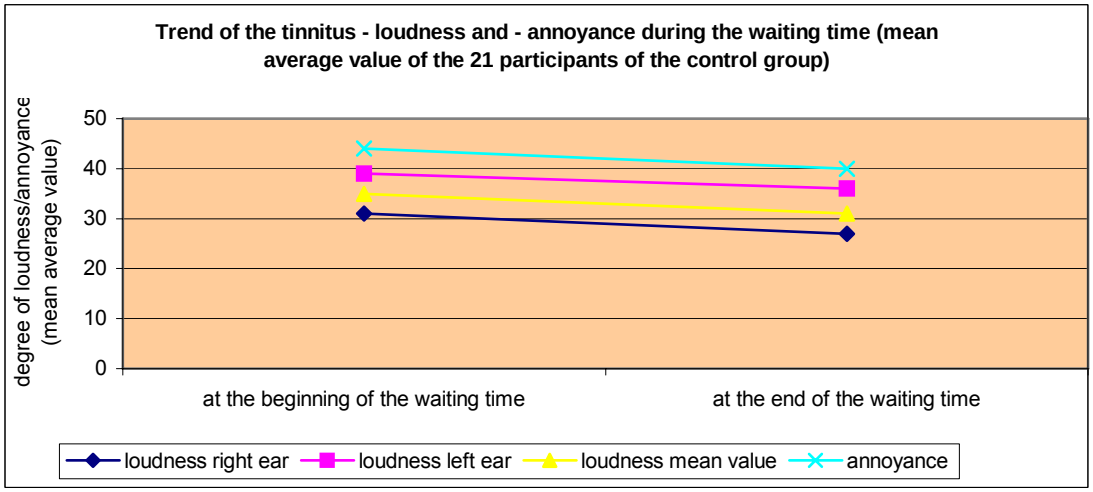


Fig. 41: Development of the tinnitus – loudness and - annoyance during the waiting time (control group)

Maybe the positive results from the treatment group can be related to the higher degree of the impairment and annoyance in the beginning.
It could be assumed that there is a higher possibility of improvement with regard to impairment and annoyance values which have higher starting values than to those with lower starting values.
13 patients in the waiting group (with lower starting impairment values) were, however, also treated with visible success (VAS: improvement in the annoyance mean average value from 42 to 25, improvement in the arithmetical means from 38 to 22).
Osteopathic treatments could also help people who are only slightly affected by tinnitus.

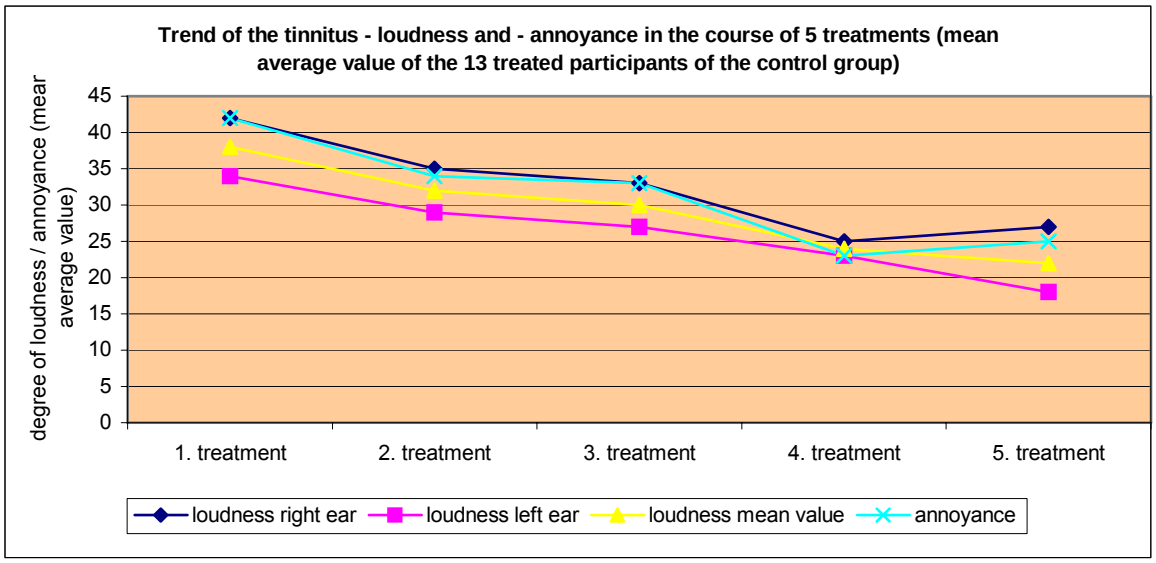


Fig. 43: Development of the tinnitus loudness and annoyance of the 13 treated participants in the control group

All 33 treated patients showed a lower final mean average value at the VAS regarding the subjective loudness (arithmetic mean average value for both ears decreased from 39 to 24, this corresponds to an improvement of 38%) and the annoyance (decreased from 48 to 26, this corresponds to an improvement of 46%).

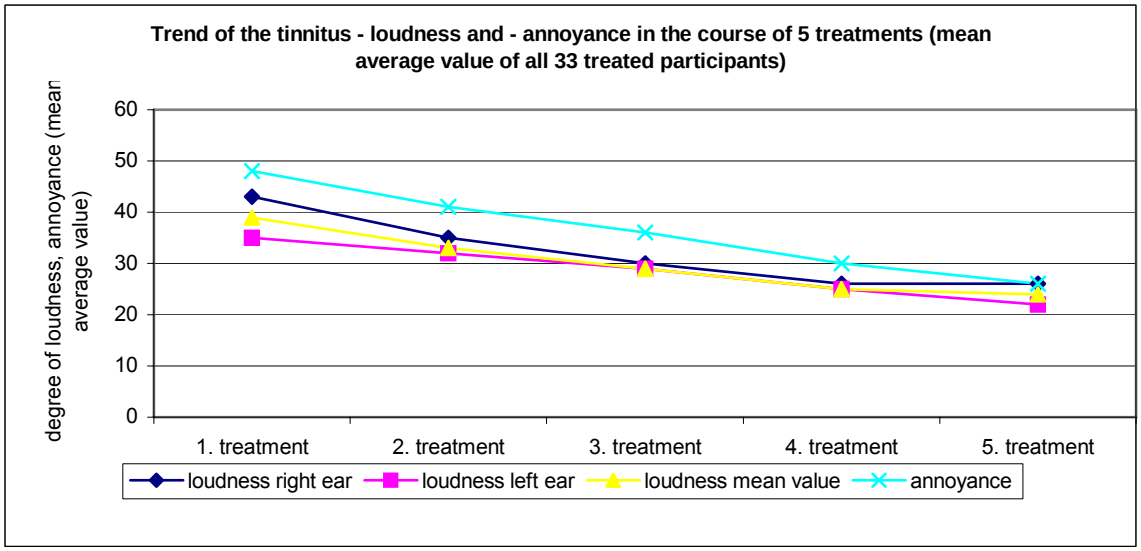


Fig. 44: Development of the tinnitus loudness and annoyance of all 33 treated participants

In the following chapters I will explain the interference factors and the most frequent tinnitus related disorders which appeared in the 33 patients treated. The osteopathic fields, which can be used therapeutically to obtain positive effects are discussed.

6.4 Tinnitus as a symptom of other disorders

It is not uncommon that tinnitus is the “presenting symptom” – the problem that forced the patient to seek medical help in the first place.
Medically important aetiological conditions play an important role according to present scientific cognitions in the emergence and retention of chronic tinnitus and they are already described in chapter 5.2.1.2 as well as in chapter 5.2.1.3,.
More than 50% (15 patients) in the waiting group indicated an ongoing hearing loss whilst only eight patients in the treatment group indicated a loss of hearing. The majority of these lay in the high range sounds. According to Goebel (2001) the loss of hearing is one of the most important clinical risk factors for tinnitus.

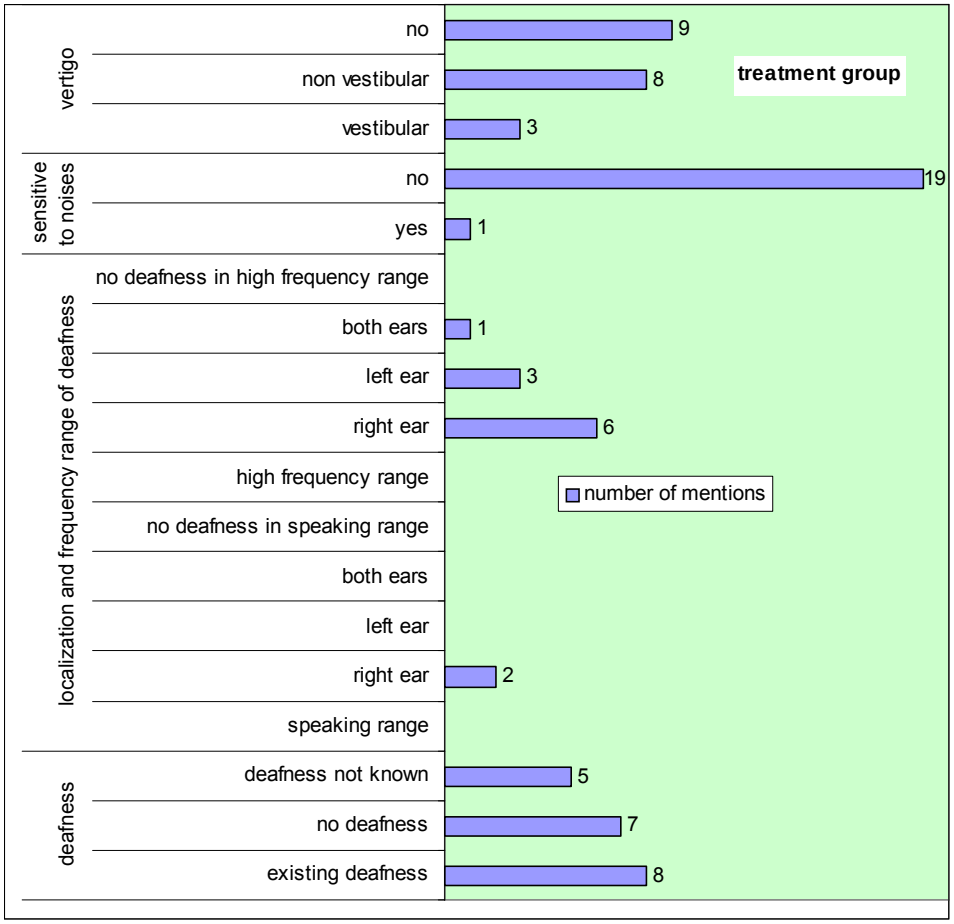


Fig. 22: Problem fields (hearing loss, vertigo and hyperacusis) associated with Tinnitus, treatment group

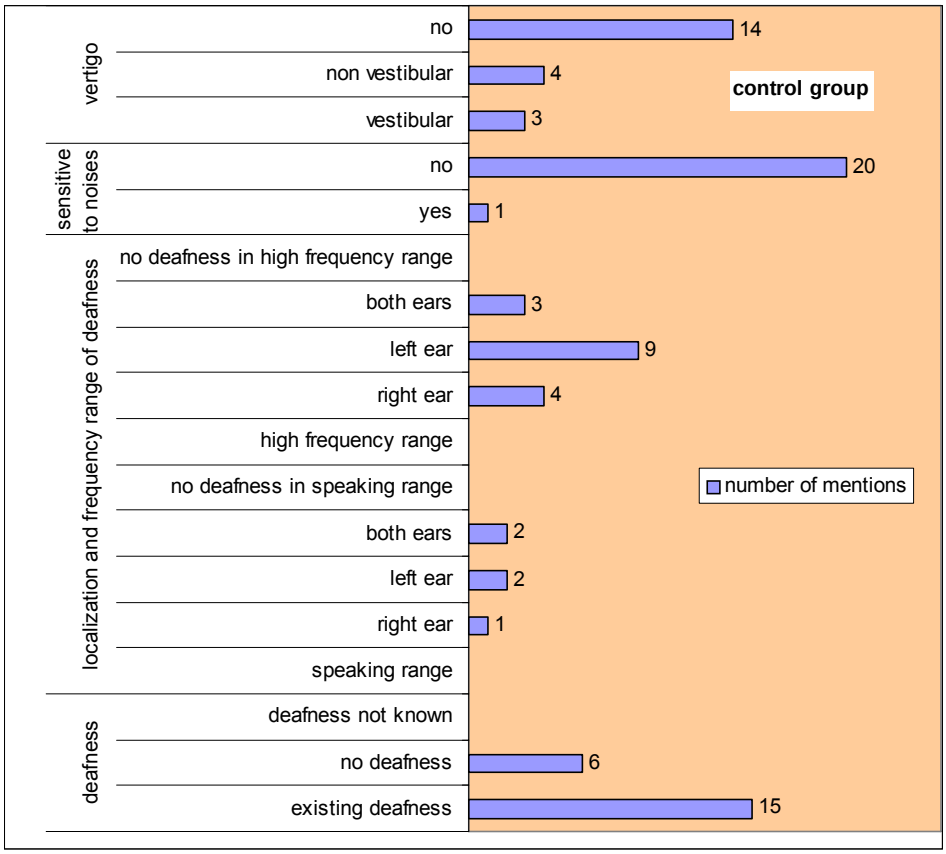


Fig. 23: Problem areas (hearing loss, vertigo and hyperacusis) associated with tinnitus, control group

From an osteopathic point of view in cases of hearing loss therapy can only be used to gain the confidence of the person affected. There is a greater chance of therapy and treatment success of the other disturbing factors (how, i.e. vertigo - eight patients of the treatment group and four patients of the waiting group suffered from not vestibular vertigo).

Tomatis (2003) states that the function of the ear as an organ of equilibrium and the functions as an energy source for the brain and points out that the "body feeling" lies in the ear. It has a tremendous influence over the nervous system. A dialogue between the ear of the body (the vestibular integrator –specializes in slower movements – those we can see, feel and call movements, motions and positions of the body) and the auditory ear (cochlear integrator – specializes in faster movements – those we cannot see, can barely feel or not feel at all and those we can hear) is necessary for an individual to experience movement / sound.

“If the foundation of the somatic vestibular integrator, does not achieve a state of maturity the levels which follow will all rest on an insecure base“ (quote to Tomatis, 2003, p.222).

On evaluation of the osteopathic results and the structured tinnitus interview many tinnitus patients (14 patients of 33 patients treated) showed signs of scoliosis on which a solid, harmonious base, the foundations of creation, posture and the finer listening skills are missing.

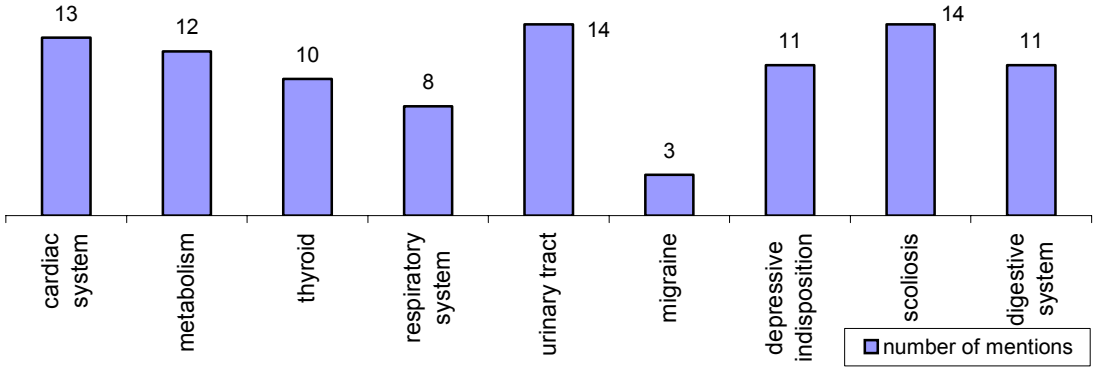


Fig. 29: Number of mentionings of the systems most frequently concerned in the visceral area

Sills (2002, volume 2) says that the TMJ/temporal/tentotrium complex responds to gravity along with the pelvic diaphragm, sacral base, the respiratory diaphragm and the shoulder girdle. These structures work together to express balance and compensation in relationship to gravity.

According to Möckel and Mitha (2006) the diaphragm is of great importance to the malicious dynamics and the circulation of the bodies liquids because they can restrict inter cellular communication. Effective exchanges and the optimal fluctuation of the body’s liquids are an important pre-requisite for the brain’s communication to the body’s other organs. Only when this continuity is uninterrupted by blood, lymph, liquor as well as inter and intra cellular liquid can the body’s real intelligence, the power of the auto regulation work.

In a broader sense asymmetries are possible interference factors which can lead to dysfunctions of the cervical spine, the jaw joint (TMJ), as well as dysfunctions in the cranial field (particularly to the tentorium and temporalia)

Sixteen of the patients in the treatment group and 13 patients of the waiting group indicated malfunctions of the cervical spine in the structured tinnitus interview. It also shows itself a high value (24 patients of all 33 treated patients) at dysfunctions from the cervical spine.
Malfunctions of the jaw joint area were indicated by nine of the patients in the treatment group and 13 patients in the waiting group. Bruxism is also included under this and this in turn can be connected with emotional and psychological conflicts.
Nine of all patients the 33 patients treated indicated dysfunctions in the head area (temporomanibular joint).

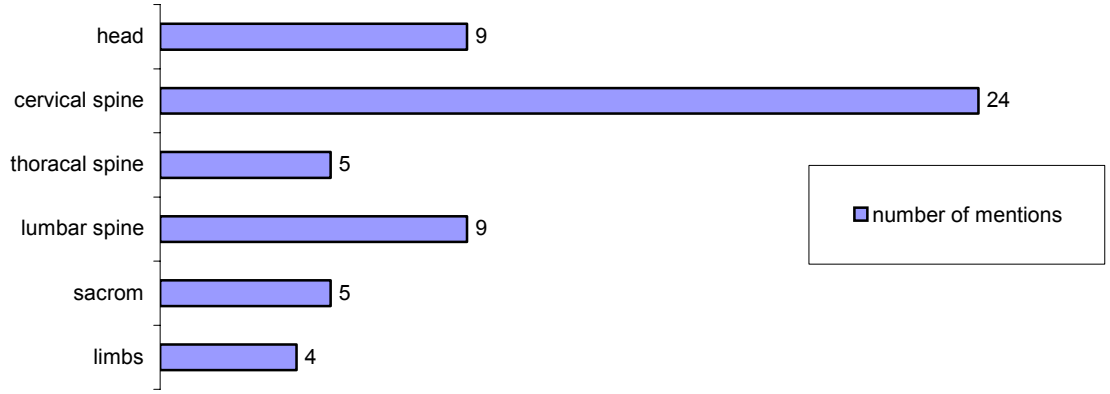


Fig. 30: Number of mentionings of the most striking dysfunctions in the structural area

The details of conflicts could re-mirror themselves in the STI on other aetiological factors (professional or private stress). After all, 13 patients of the treatment group and 12 patients of the waiting group named "stress" as a possible reason for the emergence of their tinnitus.
Hesse (2006) reports that the complex symptom chronic tinnitus is a very variant rich, multifactor disturbances of increased activity or missing hindrances in the different centres of the auditory pathway, which are connected to some extent to stronger emotional, psychosomatic overlappings.
The generally pleasant treatment effect which plays a large role in many people affected by tinnitus may not be disregarded, primarily in those patients, who could make good use of the treatment or those who are already familiar with other relaxing therapies.

The neural processing of sound has long been a natural source of information for basic survival.
Treatments primarily from the biodynamic area already mentioned (Chapter 4.1.2: Useful clinical applications when working with tinnitus-patients, p. 49), which concern the autonomous nervous system, the limbic system, the Formatio reticularis or also the pre-frontal Cortex, could contribute essential aspects to the improvement of the subjective degree of suffering or the annoyance caused by the tinnitus.
These effects can only really be proved according to Hesse (2006) only with audio logical CERA means or the " event related potential " PET and NMR.

The balancing of ANS could have a positive effect also on the regulation of blood pressure and a reduction of the tinnitus during the therapy.
Other interesting experience could be made in treatments to reduce the intracranial pressure (Chapter 2.2, The temporal bones – Biodynamic Craniosacral aspects, p. 9; Chapter 2.15, General solutions for the reduction of the annoyance of the tinnitus p. 35 Chapter 4.1.2, Useful clinical applications when working with tinnitus-patients, p. 49).
There were often Spontaneous improvements regarding the loudness or frequency (a more pleasant frequency or sound) during or after the treatments (i.e. thoracic inlet, occipital base, jugular foramina, venous sinus drainage). Sometimes the tinnitus completely disappeared (for a couple of minutes, hours or days).
Vernon & Press (1996) noticed in a coincidental sample of 1544 patients on the Tinnitus data Registry, that persons with tonal, ringing tinnitus scaled the loudness of their tinnitus more highly on a 100 mm analogous scale than persons with a roaring, non- tonal tinnitus. The authors conclude, that a tonal tinnitus is more disturbing and is perceived to be more intensive than non-tonal tinnitus qualities.
The patients in whom the nature of the disturbing noise changed as a result of the osteopathic treatments felt the new noise to be more pleasant and easier to accept although the loudness had not always been reduced.
Biodynamic techniques having influence on the production, the flow and the potency of the liquor cerbrospinalis, could decrease the tinnitus signal by an improved resorption into the Saccus endolymphaticus. The homeostasis in the tissue is the

prerequisite for physiological metabolism processes which favours an optimal transmission of stimulus at the synapses in the area of the nerve tissue. Tomatis (2003) also points to an interesting detail of the parasympathetic system. It is not only responsible for transmitting information to the internal organs or receiving them but also shows an outer antenna, the Ramus aurikularis of the Nervus Vagus. This provides sensitivity to the lower part of the external auditory canal, the inside and outside of the eardrum and the stapedius muscle. Here we can see the extent of the role the ANS plays in the auditory process. Tomatis discovered the role of the ear in our develpement and our well-being.

Immediate improvements regarding the loudness of the tinnitus which can already be seen during and after treatment could, amongst other things explain the part of the ANS.

It is possible that there are links between the localisation and the characteristics of the tinnitus and the dysfunctions from the craniosacral field.

Through the use of relevant cranialosteopathy techniques (Chapter 4.1.2: Useful clinical applications when working with tinnitus-patients, p. 49) the dysfunction of the Temporalia could be improved in 12 patients and the dysfunction of the tentorium in eight patients. In connection with this it must be pointed to the multitude of the skoliosis and the frequent adaptation patterns (18 patients, i.e. Side bending rotation, Torsion, Strain lateral) of the Symphysis Spheno Basilar (SSB).

Thus not only the arterial supply as well as the venous drain are influenced but the balance is generally disturbed. Perhaps it is a greater challenge for the labyrinth to fulfil its function as an organ of equilibrium than as an auditory organ under these conditions.

The positive influence on the characteristics of the Cranial Rhythmic impulse could be explained by the cooperation of harmonizations from all system areas (ANS, limbic system, structural system, visceral system,...).

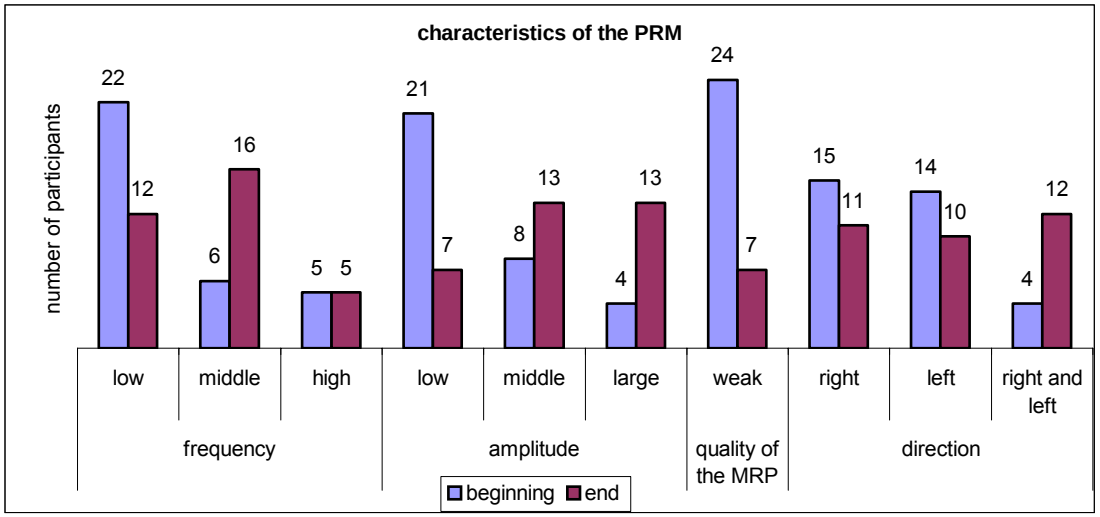


Fig. 31: Characteristics of the PRM (before the first treatment and on completion of the final treatment)

6.5 Self assessment of the patients and placebo effects

As in chapter 3.6.4, p. 44, „Tinnitus self-assessment questionnaire“, the necessity of the subjective self-assessment is highlighted. Jastreboff (2004) also points to it in his book "Tinnitus Retraining Therapy". ". Evaluation of subjective self – assessment of the treatment by the patients showed high levels of satisfaction: 22 patients stated that they could accept their tinnitus sound after five osteopathic treatments more easily.

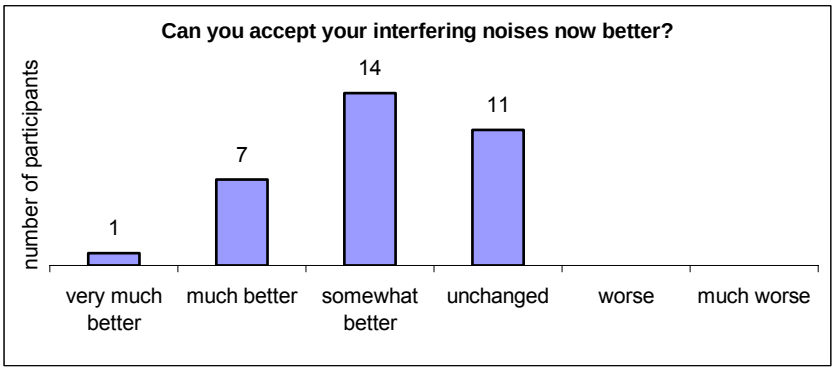


Fig. 47: Self-assessment of the participants regarding the change of the acceptance of the disturbing noises

Obtaining eveidence objectively through audio metric measuring methods were not implemented in this study. According to Goebel (2001) the results of the psycho-acoustic tinnitus analysis (tinnitus matching) correlate only insufficiently with the subjective loudness scaling/ranking or the grading of the tinnitus impairment (measured i.e. with VAS or questionnaires).

6.6 General conclusions and future recommendations

Jastreboff (2004) continues to say that a large number of alternative therapies (i.e. craniosacral therapy), have been used to treat tinnitus. Most of them give some patients temporary relief, which may result from the placebo effect or from temporary changes in autonomic activity. The placebo effect is the temporary (two to three months) improvement of symptoms not related to the effects of treatment and the effects of the placebo effect can reach up to 40%.
In the framework of this study the placebo effect should be limited because patients were treated for a longer period (more then three months). Sometimes they had their last treatment after six months. Sustained results over six months cannot be a placebo effect.
Also the " Study made in Hamburg" (Dräger, 2000) showed positive effects (48% of the patients showed improvement) with osteopathic treatments and chronic tinnitus but the data was collected from treatments over a short period of time (three treatments in one month).
The osteopathic practitioner should also be a skilled counsellor. Jastreboff (2004) states that the effects of counselling and the use of therapies that are relaxing or may reduce anxiety have already been shown to be effective in helping patients to cope with their tinnitus. From the patients' point of view, the final effect of fully successful treatment is that tinnitus disappears completely as an issue, rather than an entity or experience. In practice, it is the same as if tinnitus has disappeared.
The encouraging effects shown in this study by osteopathic treatments have to be treated with caution.

Further studies which evaluate the effectiveness of osteopathic treatments over a longer time period (individually on several months) would be interesting. The effectiveness of retraining therapy which are integrated in osteopathic treatments at clinical tinnitus retraining centres could be demonstrated.

The TRT, (chapter 1.5, p. 4, Treatment and therapies used to increase the acceptance of chronic subjective tinnitus – the importance of osteopathy in this area) is very rarely implemented in Austria at the moment and when most probably only in out-patient form.

Jastreboff (2004) states that the issue of how tinnitus related neuronal activity is processed within the nervous system is basically still open. Centers in the auditory pathways that receive multi-sensory information, particularly from the somato-sensory system are involved in processing of the tinnitus signal.

Tomatis (2003) stated that the vestibular apparatus, lateral line influence, audible spatial input, visual input and touch are important functional capabilities for the establishment of balance and equilibrium.

Furthermore, interference factors from the structural and visceral area point out a multifactor interactions, which can be treated effectively only multimodally. During additional emotional comorbidity psychological therapies and a specific combination with other therapeutic methods would be helpful.

Osteopathic treatments can be applied to all patients regardless of the etiology of tinnitus. The initial reason for emergence of the tinnitus signal is irrelevant but the practitioner must be well informed about fundamental principles of the auditory system and the phenomenon tinnitus.

7 Summary

This clinical study aimed at determining, whether osteopathic treatments help the persons affected by chronic subjective tinnitus to increase the acceptance of their interfering noises.

41 patients (24 men and 17 women) took part in the examination and there mean age was to 47.6 years. They were affected by the tinnitus for between nine months and more than twenty years.

For this work a randomized controlled trial (RCT) with a pre-test and post test control group design was chosen. The 20 participants of the treatment group received five osteopathic treatments (black box) after an initial examination at intervals of approximately three weeks and were also examined again at the end. The 21 participants in the control group (waiting group) did not receive any treatments after the initial examination within the six up to eight weeks waiting time, for ethical reasons they were promised treatment after the waiting time was over. Therefore 33 patients were treated in total.

The tinnitus parameter were evaluated by means of the Tinnitus Impairment Questionnaire (TBF 12, Greimel et al, 2000) and the Visual Analogous Scale (VAS) regarding tinnitus loudness and annoyance. A self-assessment sheet served as the subjective self-assessment. The anamnesis was carried out by means of the Structured Tinnitus Interview (STI after Goebel & Hiller, 2001) where psychological parameters were also included. An osteopathic results sheet provided the documentation. The results (changes) were represented graphically as mean average values.

Positive effects were definitely achieved in the treatment group. As for the tinnitus impairment (TBF12) the improvement was 45%. The loudness improved by 36% and the annoyance by 47%.

Low effects could be determined within the control group until the end of the waiting time. The impairment (TBF12) deteriorated by 4%. The loudness (VAS) improved by 11% and the annoyance (VAS) by 9%.

Although with all 33 treated patients 38 per cent improvement in the tinnitus-loudness and 48 per cent improvement in the tinnitus annoyance was achieved on average, these positive effects of osteopathic treatments on the phenomenon of chronic tinnitus have to be examined carefully. These results should be particularly be confirmed with regard to the long term effects in more adequate studies (larger patient number, a longer treatment and observation time period).

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9 List of figures / Abbildungsverzeichnis

10 Appendix / Anhang

10.1 Abbreviations / Verwendete Abkürzungen

A	=	Amplitude
ANS	=	Autonome Nervensystem
AR	=	Außenrotation
ASS P.	=	Assoziierte Problemfelder
AZ	=	Allgemeinzustand
bes.	=	besonders
BWS	=	Brustwirbelsäule
BFT	=	Balanced fluid tension
BMT	=	Balanced membranous tension
C	=	Halswirbel
C0, C1	=	Occiput Atlas
CRI	=	Cranial Rhythmic Impuls = Frequenzangabe des PRM
CSS	=	Cranio Sacrale System
CV4	=	“Compression “ of the fourth Ventricle (Stillpoints in Exhalation)
EV4	=	Expansion of the fourth Ventricle (Stillpoints in Inhalation)
F1	=	Faktor 1
F 2	=	Faktor 2
F ges	=	Gesamtfaktor
F. B.	=	Feed back
IR	=	Innenrotation
J	=	Jahre
HWS	=	Halswirbelsäule
ISG	=	Iliosakralgelenk
li	=	links
OAA	=	Occiput – Atlas – Axis
PR	=	Prozentrang; PRF1 (Faktor 1), PRF2 (Faktor2), PRges (gesamt)
PRM	=	Primary Respiratory Mechanism
Q	=	Qualität
re	=	rechts
SBR	=	Sidbending Rotation (li, re)
SSB	=	Symphysis Spheno Basilaris
T	=	Tinnitus
TB	=	Tinnitus Belästigung
TBF 12	=	Tinnitusbeeiträchtigungsfragebogen
TMG	=	Temporomandibulargelenk
TL	=	Tinnitus Lautheit
VAS	=	Visuelle Analogskala (VAS L = Lautheit, VAS be = Belästigung)

10.2 Instrumente der Datenerhebung

10.2.1 Personenbogen

PERSONENBOGEN

soziodemographischer Fragebogen

(Alle in diesem Fragebogen enthaltenen persönlichen Daten werden absolut vertraulich behandelt.)

Name: _____

Straße, Hausnummer: _____

Postleitzahl, Wohnort: _____

Telefon privat: _____

Telefon beruflich: _____

Geburtsdatum: _____

Staatsangehörigkeit: _____

Alter (in Jahren): _____

Geschlecht: □ weiblich □ männlich

Familienstand/Partnerschaft:
□ Ehepartner
□ fester Partner (unverheiratet)
□ kein Partner
□ Sonstiges: _____

Schulbildung:
□ Hauptschule ohne Abschluss
□ Hauptschule mit Abschluss
□ Matura
□ Studium
□ Sonstiges

Berufliche Stellung:
□ Arbeiter □ Selbständig
□ Pensionist □ nicht berufstätig seit
□ Haushalt □ Angestellter / Beamter
□ Facharbeiter □ Sonstiges_____

10.2.2 Strukturiertes – Tinnitus – Interview (STI)

Strukturiertes – Tinnitus – Interview (STI) nach Goebel & Hiller (2001)

Untersuchungsdatum:_____
Name des Patienten: _____

I. Tinnitus Anamnese:

1. Auf welchem Ohr hören sie den Tinnitus?
   - □ rechts (oder überwiegend rechts
   - □ beidseitig (oder etwa gleich)
   - □ links (oder überwiegend links)
   - □ im Kopf

2. Wie etwa klingt ihr Tinnitus?
   ▸ Erst Beschreibung des Patienten abwarten und notieren, dann untenstehende Möglichkeiten vorlesen.

   _____

   Art d. Geräusches:
   - □ Ton (z. B. Pfeifen)
   - □ Rauschen o. ä.
   - □ anderes Geräusch
   - □ tieffrequent
   - □ mittelfrequent
   - □ hochfrequent
   - □ gleichförm.
   - □ pochend/ klopfend/ rhytmisch

3. Wann hat ihr Tinnitus begonnen?

rechts: _____	links: _____
Bisherige Dauer:	Bisherige Dauer:

4. Hat ihr Tinnitus urplötzlich oder langsam einschleichend begonnen?

rechts:	links:
□	□ urplötzlich
□	□ langsam einschleichend

5. Hat sich die Lautstärke ihres Tinnitus im Laufe der Zeit verändert?

rechts:	links:
□	□ stärker geworden
□	□ schwächer geworden
□	□ im Wesentlichen gleich geblieben

▸ Mit den folgenden Fragen (9 – 16) soll der aktuelle Tinnitus des Patienten untersucht werden. Beziehe daher alle Fragen auf den gegenwärtigen Zeitraum, d. h. die letzten 14 Tage.
▸ Falls es Unterschiede bez. rechts- und linksseitigem Tinnitus bestehen, gebe eine globale Gesamtbeurteilung.

6. Wie laut ist ihr Tinnitus, wenn sie ihn mit üblichen Umgebungsgeräuschen vergleichen?
   - □ Grad I: Tinnitus hörbar bei Stille
   - □ Grad II: Tinnitus hörbar bei geringen Umgebungsgeräuschen und maskierbar durch gewöhnlichen Lärm.
   - □ Grad III: Tinnitus übertönt alle Gräusche.

Ermittle, ob eine audiologische Tinnitusbestimmung durchgeführt wurde, falls dies der Fall ist, bitte Werte angeben:

Audiogramm vom_____(Datum eintragen)

rechts: Tinnitus =_____dB (HL), _____dB (SL) bei____ Hz

7. Ist die Lautstärke ihres Tinnitus im Laufe eines Tages immer gleich oder schwankend?
   □ im Wesentlichen gleichlaut □ manchmal schwankend □ (fast) ständig schwankend

8. Ändert sich die Lautstärke ihres Tinnitus bei oder nach lauten Umweltgeräuschen?
   □ wird leiser □ ändert sich nicht/kaum □ wird lauter

9. (Falls Lauterwerden bei Frage 8:) Wie lange hält dann der lautere Tinnitus an?
   □ Minuten □ Stunden □ noch am nächsten Tag oder länger

10. Ist ihr Tinnitus tagsüber ständig da?
    □ ständig ohne Unterbrechung
    □ mit kurzen Pausen (< 1 Std.)
    □ mit längeren Pausen (> 1 Std.)
    □ z. T. ganze Tage ohne Tinnitus

11. Erleben sie ihren Tinnitus als lästig?
    □ ja □ teiweise/ manchmal □ nein

12. Erleben sie ihren Tinnitus als quälend?
    □ ja □ teiweise/ manchmal □ nein

13. (Falls Frage 15 zutrifft:) Seit wann erleben sie ihren Tinnitus als quälend?
    □ von Anfang an quälend □ wurde erst später quälend
    quälend seit:
    _____Jahren, _____Monaten

II. Mit Tinnitus assozierte Problemfelder

14. Besteht bei ihnen eine Hörminderung?
    □ ja □ nein □ nicht bekannt

    rechts seit: _____ links seit: _____

Ermittle, ob ein Tonaudiogramm angefertigt wurde: falls dieses vorliegt, bitte Folgendes beurteilen:

Tonaudiogramm vom _____ (Datum eintragen)

1. Sprachbereich (500 – 3.000 Hz)
   □ beidseitige Schwerhörigkeit (= Hörverlust von ≥ 30 dB bei mind. einer der Prüffrequenzen zwischen 500 und 3.000 Hz auf dem besseren Ohr)

   □ einseitige Schwerhörigkeit (= Hörverlust von ≥ 30 dB bei 2.000 Hz oder bei mind. zwei der Prüffrequenzen zwischen 500 und 3.000 Hz auf dem schwerhörigen Ohr)
   □ rechts □ links

2. Hochtonbereich = Hörverlust > 30 dB bei mind. einer Prüffrequenz oberhalb von 3.000 Hz
   □ rechts □ links

3. Art der Schwerhörigkeit
Schallempfindungsschwerhörigkeit: □ rechts □ links
Schallleitungsschwerhörigkeit: □ rechts □ links

15. Sind sie besonders Geräuschempfindlich?
Beurteile: eine klinisch relevante Hyperakusis liegt vor, Kriterien (1 oder 2) plus 3 plus 4 plus 5 für mind. 1 Ohr
erfüllt sind:
(1) Pat. erlebt leise oder durchschnittliche Geräusche (wie Zeitungsrascheln, Ventilator des PC, eigenes Lachen,
Brummen des Kühlschranks) als unangenehm bis schmerzhaft.
□ nicht erfüllt □ vermutlich/ Verdacht □ erfüllt

2. Pat. benutzt regelmäßig Watte oder anderen Gehörschutz in Umgebung mit normalen Geräuschpegeln (z. B. beim Verlassen des Hauses)
□ nicht erfüllt □ vermutlich/ Verdacht □ erfüllt

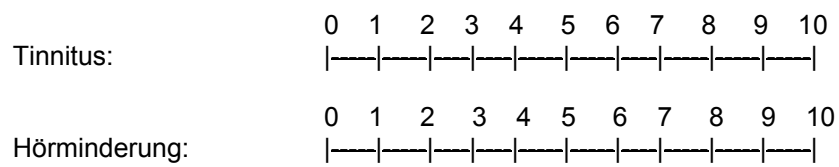
3. Die Geräuschempfindlichkeit bezieht sich nicht nur auf bestimmte Geräusche (z. B. Schreien eines Kindes, Musik), sondern besteht in generalisierter Form bzgl. unterschiedlicher Geräusche und Gelegenheiten.
□ nicht erfüllt □ vermutlich/ Verdacht □ erfüllt

4. Deutliche Beeinträchtigung der Lebensführung durch div. Geräuschempfindlichkeit (z. B. Musiker gibt das Spielen auf, Meiden von Konzerten, Gaststätten, Bahnhofshallen, Straßenbahn)
□ nicht erfüllt □ vermutlich/ Verdacht □ erfüllt

5. Audiometrische Messung der Unbehaglichkeitsschwelle (UBS) bei 500, 1.000, 2.000 und 4.000 Hz ergibt Folgendes: Bei mindestens 3 dieser 4 Messungen UBS < 95 dB
□ nicht erfüllt □ vermutlich/ Verdacht □ erfüllt

16. Haben sie Schwindel?
□ ja, vestibulär (Dreh- o. Schwank-) □ nein
□ ja, nicht-vestibulär (z. B. kreislaufbedingter -)
Falls Schwindel bereits ärztlich abgeklärt:
Diagnose: _____

17. Wir haben über folgende Beschwerden gesprochen (aufzählen …). Schätzen sie jetzt bitte die Stärke dieser Beschwerden auf einer Skala zwischen 0 und 10 ein.



Hyperakusis: 0 1 2 3 4 5 6 7 8 9 10
|——|——|——|——|——|——|——|——|——|——|——|

Schwindel: 0 1 2 3 4 5 6 7 8 9 10
|——|——|——|——|——|——|——|——|——|——|——|

III. Ätiologische Faktoren des Tinnitus

18. Gibt es eine feste ärztliche Diagnose für die Ursache ihres Tinnitus? (Wenn ja:) Wie lautet sie?

Falls medizinische Vorbefunde vorliegen, diese dokumentieren:

▸ Überprüfe die nachfolgenden ätiologischen Faktoren (22 – 36), von denen bekannt ist, dass sie an der Entstehung und Aufrechterhaltung von Tinnitus beteiligt sein können. Berücksichtige die Angaben des Patienten, eigene Untersuchungsbefunde und vorliegende Befunde.

▸ Beachte die jeweils angegebenen Beurteilungs -kriterien. Bei ein und demselben Patienten können durchaus mehrere ätiologische relevante Faktoren vorliegen.

19. Tinnitus bei Innenohrschwerhörigkeit?
☐ 1 = ja 3 = keine Hinweise
2 = Verdacht 9 = nicht zu beurteilen
Beurteilungskriterium:
- Nachweis einer Störung der Cochlea (z. B. typischer Hörverlust) bei Ausschluß einer Schallleitungs- oder zentralen Störung)

20. Tinnitus bei Schallleitungsschwerhörigkeit? (z. B. Otosklerose)?
☐ 1 = ja 3 = keine Hinweise
2 = Verdacht 9 = nicht zu beurteilen
Beurteilungskriterium:
- Nachweis einer Schallleitungsschwerhörigkeit (z. B. Otosklerose: eingeschränkte Funktion der Mittelohrknochenkette)

21. Tinnitus bei Z. n. Hörsturz?
☐ 1 = ja 3 = keine Hinweise
2 = Verdacht 9 = nicht zu beurteilen
Beurteilungskriterium:
- Plötzliche einseitige Hörminderung, meist mit Druckgefühl, (vorübergehend oder längerdauernd) in zeitlichem Zusammenhang mit Beginn bzw. Verschlechterung des Tinnitus.

22. Tinnitus bei celebraler Durchblutungsstörung?
☐ 1 = ja 3 = keine Hinweise
2 = Verdacht 9 = nicht zu beurteilen
Beurteilungskriterien:
- Cerebrale Ischämie in der Anamnese (Schlaganfall, TIA, entsprechende Befunde in Doppler-Sonographie oder Angiographie)

23. Tinnitus bei Funktionsstörungen der Halswirbelsäule („zervikogener Tinnitus“)?

☐ 1 = ja 3 = keine Hinweise
2 = Verdacht 9 = nicht zu beurteilen

Beurteilungskriterien:

- Lautheit des Tinnitus deutlich veränderbar durch Halsdrehung oder –anspannung (nach Untersuchung A)
- z. B. HWS-Schleudertrauma (z. B. Auffahrunfall) unmittelbar vor Beginn bzw. Verschlechterung des Tinnitus
- Lautheit des Tinnitus oft schwankend

24. Tinnitus bei Funktionsstörungen des Kiefergelenks („stomatognathogener Tinnitus“)?

☐ 1 = ja 3 = keine Hinweise
2 = Verdacht 9 = nicht zu beurteilen

Beurteilungskriterien:

- Lautheit des Tinnitus deutlich veränderbar durch Kieferbewegung oder –anspannung (z. B. ruckartiges Zubeißen, starkes Gähnen, Verschieben des Unterkiefers; nach Untersuchung B
- z. B. Kiefer- oder Zahnbehandlung unmittelbar vor Beginn bzw. Verschlechterung des Tinnitus
- z. B. Bruxismus (nächtliches Zähneknirschen), erkennbar z. B. an abgeschliffenen Zahnschneiden
- Lautheit des Tinnitus oft schwankend

25. Tinnitus bei Z. n. Knalltrauma?

☐ 1 = ja 3 = keine Hinweise
2 = Verdacht 9 = nicht zu beurteilen

Beurteilungskriterien:

- z. B. Knall in Ohrnähe unmittelbar vor Beginn bzw. Verschlechterung des Tinnitus
- z. B. Operativer Eingriff im Mittelohrbereich mit starker Lärmbelastung (z. B. bei Otoskerose, Cholesteatom) unmittelbar vor Beginn bzw. Verschlechterung des Tinnitus

26. Tinnitus nach längerer Lärmbelastung?

☐ 1 = ja 3 = keine Hinweise
2 = Verdacht 9 = nicht zu beurteilen

Beurteilungskriterien:

- stärkere Lärmbelastung über mehrere Jahre (z. B. am Arbeitsplatz, bei Schießübungen) vor Beginn bzw. Verschlechterung des Tinnitus

27. Tinnitus bei Morbus Menière?

☐ 1 = ja 3 = keine Hinweise
2 = Verdacht 9 = nicht zu beurteilen

Beurteilungskriterien:

- Tinnitus tritt oder trat im Zusammenhang mit vestibulären Schwindelattacken und fluktuierender Hörminderung auf

28. Tinnitus bei Z. n. Schädel- Hirn-Trauma?

☐ 1 = ja 3 = keine Hinweise
2 = Verdacht 9 = nicht zu beurteilen

Beurteilungskriterien:

- Massive Eschütterung von Kopf oder Ohr (z. B. Unfall, Schlägerei) unmittelbar vor Beginn bzw. Verschlechterung des Tinnitus

29. Tinnitus bei Akustikneurinom?

☐ 1 = ja 3 = keine Hinweise
2 = Verdacht 9 = nicht zu beurteilen

Beurteilungskriterien:

- Befund einer entsprechenden BERA-, computer- oder kernspintomographischen Untersuchung

30. Tinnitus bei anderer zentralnervöser Erkrankung?
    ☐ 1 = ja 3 = keine Hinweise
    2 = Verdacht 9 = nicht zu beurteilen
    Beurteilungskriterien:
    - Tinnitus in zeitlichem Zusammenhang mit infektiösen Erkrankungen wie Hirnhautentzündung, mit Tumoren oder systemischen Erkrankungen (wie z. B. Multiple Sklerose)

31. Tinnitus bei ototoxischer Schädigng?
    ☐ 1 = ja 3 = keine Hinweise
    2 = Verdacht 9 = nicht zu beurteilen
    Beurteilungskriterien:
    - Behandlung mit bestimmten Antibiotika, Zytostatika oder anderen Substanzen unmittelbar vor Beginn bzw. Verschlechterung des Tinnitus

32. Tinnitus bei erblicher Belastung?
    ☐ 1 = ja 3 = keine Hinweise
    2 = Verdacht 9 = nicht zu beurteilen
    Beurteilungskriterien:
    - Positive Familienanamnese mit Tinnitus, Hörminderung, Taubheit oder andere Gehörkrankheiten

33. Tinnitus bei anderen ätiologischen Faktoren?
    ☐ 1 = ja 3 = keine Hinweise
    2 = Verdacht 9 = nicht zu beurteilen
    Bitte beschreiben:

IV. Psychologische Aspekte des Tinnitus

Ich werde ihnen nun einige Fragen zu psychischen Beschwerden stellen, die im Zusammenhang mit längerdauerndem Tinnitus auftreten können.
Bitte beachten sie alle Fragen für den Zeitraum der letzten 14 Tage!

Hörbeeinträchtigung durch den Tinnitus (H)

34. Stört sie ihr Tinnitus daran, an Unterhaltungen mit mehreren Menschen teilzunehmen?
    □ nein □ teilweise/ manchmal □ ja

35. Erscheinen ihnen die Stimmen anderer Menschen aufgrund des Tinnitus wie verzerrt?
    □ nein □ teilweise/ manchmal □ ja

36. Können sie wegen des Tinnitus oft nicht sagen, aus welcher Richtung ein Umgebungsgeräusch kommt (z. B. Auto, Zurufe)?
    □ nein □ teilweise/ manchmal □ ja

Penetranz des Tinnitus (P)

37. Ist ihnen der Tinnitus den ganzen Tag über bewusst?
    □ nein □ teilweise/ manchmal □ ja

38. Können sie den Tinnitus auch bei interessanten Tätigkeiten nicht ignorieren (bzw. nicht „vergessen“)?
    □ nein □ teilweise/ manchmal □ ja

39. Beeinträchtigt der Tinnitus ihre Konzentration?
□ nein □ teilweise/ manchmal □ ja

Entspannungs- und Schlafstörungen (E/S)

40. Fühlen sie sich wegen des Tinnitus oft angespannt oder verkrampft?
□ nein □ teilweise/ manchmal □ ja

41. Brauchen sie wegen des Tinnitus länger zum Einschlafen?
□ nein □ teilweise/ manchmal □ ja

42. Wachen sie nachts wegen des Tinnitus häufiger auf?
□ nein □ teilweise/ manchmal □ ja

Emotionale Belastungen (E)

43. Sind sie oft sehr niedergeschlagen oder deprimiert wegen des Tinnitus?
□ nein □ teilweise/ manchmal □ ja

44. Fühlen sie sich wegen des Tinnitus häufig unter Druck oder gestresst?
□ nein □ teilweise/ manchmal □ ja

45. Sind sie wegen des Tinnitus leichter gereizt?
□ nein □ teilweise/ manchmal □ ja

Dysfunktionale Kognitionen (DK)

46. Denken sie, dass *vor allem* der Tinnitus Schuld an den Schwierigkeiten ist, die sie haben?
□ nein □ teilweise/ manchmal □ ja

47. Denken sie, dass der Tinnitus zum Hauptproblem in ihrem Leben geworden ist?
□ nein □ teilweise/ manchmal □ ja

48. Denken sie, ihr Leben wird nicht mehr lebenswert sein, wenn der Tinnitus in Zukunft andauert?
□ nein □ teilweise/manchmal □ ja

Psychsoziale Beeinträchtigungen (PS)

49. Verzichten sie wegen des Tinnitus häufig darauf, aus dem Hause zu gehen und etwas zu unternehmen?
□ nein □ teilweise/ manchmal □ ja

50. Ist durch den Tinnitus die Zahl ihrer Freunde und Bekannten zurückgegangen?
□ nein □ teilweise/ manchmal □ ja

51. Hat sich ihr Verhältnis zu anderen Menschen durch den Tinnitus verschlechtert?
□ nein □ teilweise/ manchmal □ ja

Berufliche Beeinträchtigungen (B)

52. Fühlen sie sich durch den Tinnitus in ihrer beruflichen Leistungsfähigkeit beeinträchtigt?
□ nein □ teilweise/ manchmal □ ja

53. Waren sie wegen ihres Tinnitus öfters oder längere Zeit arbeitsunfähig?
□ nein □ teilweise/ manchmal □ ja

54. Beabsichtigen sie, wegen des Tinnitus einen Rentenantrag zu stellen?
□ ja □ nein □ bezieht bereits Rente oder hat bereits Rentenantrag gestellt
□ Rente / Rentenantrag vorwiegend aus anderen Gründen

V. Therapeutische Maßnahmen

55. Welche Therapien haben sie bereits wegen des Tinnitus gemacht? (Bei durchgeführten Therapien: Waren diese erfolgreich oder nicht?)

	ERFOLG ?		
	nein	teiw.	ja
□ durchblutungsfördernd	□	□	□
□ Sauerstoffdruckkammer	□	□	□
□ apparative Geräuschstimulation	□	□	□
□ Hörgerät	□	□	□
□ orthopädisch (z. B. Krankengymnastik)	□	□	□
□ zahnärztlich/kieferorthopädisch (z. B. Aufbissschiene)	□	□	□
□ ambulanta Psychotherapie	□	□	□
□ stationäre Psychotherapie	□	□	□
□ Entspannungsverfahren	□	□	□
□ „Retraining“	□	□	□
□ Andere:	□	□	□

10.2.3 Visuelle Analogskala (VAS)

VISUELLE ANALOGSKALA

Name: _____

Datum: _____

□ vor der Behandlung
□ nach der Behandlung

Tinnituslautheit:

Wie intensiv ist ihr Tinnitus im Moment?
Bitte markieren sie ihre Tinnituslautheit mit einem senkrechten Strich auf der Linie zwischen 0 (gar nicht) und 100 (extrem stark).

Rechtes Ohr: 0 ——— 100

Linkes Ohr: 0 ——— 100

Tinnitusbelästigung:

Wie lästig / störend / unangenehm ist ihr Tinnitus im Moment?
Bitte markieren sie ihre Tinnitusbelästigung mit einem senkrechten Strich auf der Linie zwischen 0 (gar nicht) und 100 (extrem stark).

0 ——— 100

10.2.4 Osteopathischer Anamnese und Befundbogen (OA – B)

Osteopathischer Anamnese und Befundbogen (OA – B)

Name:
Alter: Beruf: Familienstand:
Diagnose des Arztes oder Grund der Konsultation:

Qualitative und quantitative Merkmale der Symptome
(wo,wann,wie,Auslöser,wodurch besser oder schlechter,Ausstrahlungen):

Krankheitsverlauf und Einfluss auf Situation des Patienten
bisherige Behandlung:
Untersuchungen:
Andere Beschwerden:(derzeitige Erkrankungen,Lokalisation auf Seite 2)

Erhebung von stattgefundenen Erkrankungen,OP,Verletzungen,…deren Behandlung, und Auswirkung:
Geburten,Schwangerschaften:
Familienanamnese
Vegetative Prozesse (Schlaf,Appetit,Verdauung, Ausscheidung, Energie, Menstruation,Harn):
Habit(Alltag ,Sport,Beruf, Ernährung,…)
Medikamente:
Psychosoziale Situation:
Therapieziele und Wünsche:
Erläuterung des Therapieablaufs:

Kopf:
HNO:
Herz/Kreislauf:
Schilddrüse:
Lunge/Atmung:
Magen:
Immunsystem:
Leber/Galle:
Darm:
Pankreas:
Nieren:
Blase:
Geschlechtsorgane:
Knochen/Gelenke:
Weichteile:
Gefäße:
Allergien:

Untersuchung

Beobachtung
Gang:
Stand:
Ecoute:
Aktiv bewegen
Im Stand(Flex/Ext/lat re li/ Rot).
Passive Tests
Sitz:
Aktiv bewegen
Passiv bewegen
HWS
BWS
LWS
Sakrum
Reflexe
BL
RL
Viszerale Tests(RR Aneurysma, ...):
Craniale Tests:

Cranium:

Frequenz (pro Minute):
Amplitude: □ groß □ mittel □ klein
Qualität:
Richtung:
SSB-Test:
Adaptationsläsionen:
Flexion □ Extension □
Torsion □ links □ rechts
SBR □ links □ rechts
Lateral Strain □ links □ rechts
Vertical Strain Sphenoid □ hoch □ tief
Traumatische Läsion:
Kompression □ anterior □ posterior
□ laterale Kompression
□ keine Dysfunktion
Tentorium cerebelli:

links:	rechts:
Rotation:	Rotation:
□ intern □ extern	□ intern □ extern
□ keine Dysfunktion	□ keine Dysfunktion
Zug nach:	Zug nach:

Auffallendes:
BEFUND:
BEHANDLUNG/ DOKUMENTATION:
NACHTESTEN:
FEEDBACK:

10.2.5 Tinnitus Bewertungsbogen

TINNITUS BEWERTUNGSBOGEN

Name: _____

Datum: _____

Welche Auswirkungen haben die osteopathischen Behandlungen?

1. Haben die Behandlungen genützt?

Sehr viel	viel	einiges	wenig	kaum	nichts
□	□	□	□	□	□

2. Haben sie Veränderungen bemerkt?

	Sehr viel besser	viel besser	etwas besser	unver-ändert	schlech-ter	sehr viel schlechter
In Bezug auf die Tinnituslautheit?	□	□	□	□	□	□
In Bezug auf Tinnitusbelästigung?	□	□	□	□	□	□
In Bezug auf ihr körperliches Befinden?	□	□	□	□	□	□
In Bezug auf ihr seelisches Befinden?	□	□	□	□	□	□

3. Können sie ihr Störgeräusch jetzt besser akzeptieren? □ □ □ □ □ □

10.3 Kasuistiken (Dokumentation der Behandlungsverläufe)

Die Dokumentation der Anamnese und Behandlungen ist eine Abschrift des Osteopathischen Anamnese – und Befundbogens, in dem der jeweils aktuelle Status die Behandlungen, Veränderungen, Reaktionen auf die Behandlungen, Feed Back des Patienten, bei jedem Besuch aufgezeichnet wurden.
Bei der Visuellen Analogskala wurde das arhitmetrische Mittel von re und li, bzw. einseitiger Wert, bei jeder Behandlung angegeben.

Alle 33 behandelten Patienten:

Fall 1
Herr A. 79 J.; 9. 1.2006; Zugang über Aushang beim Arzt
Pensionist
TBF 12 : (PR 1 = 35),(PR2 = 41); PR ges = 33
VAS: 78 (Stufe 3)
T: re, hoher Pfeifton, manchmal auch tief (besonders beim Entspannen); seit 8 J., plötzlicher Beginn, stärker geworden
Anamnese, ASS. P.: arterielle Hypertonie, 2. Ausfall des Gleichgewichtsorgans vor 5 Jahren, T. nach Knalltrauma, Diabetes mellitus, Stat. post. Carotis OP bds., Divertikulose, Fettleber, Impingement li Schulter, Asthma bronchiale, TEP li,
AZ: 1,68 cm groß,hoher RR, Überwicht, gut gelaunt, erstaunlich guter AZ,
Befund: HWS: massive degenerative Veränderungen bes. C5-7, Atlantodentalarthrose, Kyphose mittlere HWS, Uncarthose, Osteochondrose,..
BWS: leicht li konvexe Skoliose, starre Kyphose
LWS: Discusprolaps L4/5
Abdomen: sehr hoher Tonus, Zwerchfellhochtstand; Thorax: asthmatisch
CSS: viel Spannung im Tentorium, schwacher MRP, Temporalia bds. „angesaugt“ TMG dysfunktion
Behandlung: Biodynamisch, Thoracic inlet, Occipital triad, the condylar spread,
Feed back, Reaktion: Ton viel leiser und tiefere Frequenz, Temporale freier, Schulterschmerzen ganz weg. Pat. konnte sich gut entspannen;

30. 01.2006
Asthma stärker (kaltes Wetter), Zwerchfelldysfunktion
Behandlung: Biodynamisch, Diaphragma thorakale, thoracic inlet, triune autonomic nervous system, EV4
Reaktion, F. B.: Temporalia sehr frei, überhaupt kein Ohrensausen,

20.02.2006
RR und Zuckerwerte in Ordnung, starke Schmerzen re Schulter,
Behandlung: Biodynamisch Halsfaszien, C7/TH1, condylar spread, viszeral Niere und Lunge, Mobilisation BWS,
F. B. Schulterschmerzen viel besser, Tinnitus viel leiser und tiefere Frequenz,

29.03. 2006
Tinnitus schwankt, Ärger, Wetter, Lärm, Schulterschmerzen,
Behandlung: strukturelle Mobilisation C7/TH1, Thorax, Schultergürtel, Biodynamisch „Seams“ (Phase V), Diaphragma thorakale und cervikale, Abdomen,
F.B: tief geschlafen, gut entspannt, Tinnitus fast weg,
26.04.2004
Patient war grippig, Muskelfasereinriss re Schulter
Behandlung: CV4, transverse srtuctures, Dynamic of the third venticle
F.B: “wie auf Wolke geschwebt”, Tinnitus kaum, weit entfernt
Abschlussbewertung des Patienten: Störgeräusch konnte viel besser akzeptiert werden, viel besseres körperliches und seelisches Befinden
Abschlussbewertung der Therapeutin: Patient konnte sich sehr gut auf die Behandlung einlassen und gut entspannen, Tinnitus war am Ende nicht mehr das Hauptproblem sondern die Schulterathrosen, Verbesserung bei der VAS von Stufe 3 auf Stufe 1!

VAS

H. A.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
09.01.2006	78	60	69	78
30.01.2006	12	20	16	80
20.02.2006	25	15	20	64
29.03.2006	15	0	8	46
Ende 26.04.2006	15	39	27	20

Abschluss: TBF 12: PR1 = 25, PR2 = 41, PRges = 27
Vas : 20 Belästigung – Klasse 1

Fall 2
Frau A. U.: 28. 11. 2005, 39 J., Zugang erfolgte über Aushang beim prakt. Arzt Sekretärin, kein Partner
TBF 12 : PR1 = 16, PR2 = 29, Prges = 18
VAS 50 Stufe 2
T. : re, nach Hörsturz, heller Pfeifton, gleichförmig, seit nein Monaten
Anamnese, ASS. P: Hüftentzündung, Steißbeinschmerzen, reagiert bei Stress mit Durchfall, kosmetische Ohrenoperation (Geräusch von Säge in Erinnerung) großer beruflicher und privater Stress, schlank, sportlich, niedriger RR
Befund: axiales System: mehrbogige Skoliose Scheitelpunkt Übergang BWS/LWS, li Beckenhochstand, Schmerz am Hiatus Coccygeus, Ligament Iliolumbale und Sakrotuberale bds. schmerzhaft, C7/TH1 hypomobil
craniales S: MRP schwach,langsam, SBRli li Temporale in IR, re in AR, Tentorium „verwrungen“ wenig Mobilität, Sakrum wird „zurückgehalten“, fixiert
Behandlung: Biodynamisch pelvic bowle, „Ei“ im Becken, Sakral waterbeds, Ignition System, Tentorium über Temporalia ausgeglichen (BMF)
Reaktion, F.B.: Tinnitus dumpfer, Frequenz tiefer und gedämpfter, T. verschwand manchmal während der Behandlung. Sakrum „arbeitete ganz schön nach“
28.12.2005

Sakrumschmerz jetzt fast weg, Rückenschmerzen wenn kein Sport, Tinnitus von Stress abhängig, eventuell Berufswechsel, Bruxismus
Behandlung: Ignitionsystem (Funke im Coccygis), EV4, Tentorium über Temporal bone dynamics ausgeglichen
Reaktion: T. stärker während Arbeit am Coccygis, Pat. spürt jetzt Wärme, angenehm, T. schwächer, Steißbeinschmerz fast weg, Bessere CNSmotion und potency
18.01.2006
Kein Steißbeinschmerz mehr, Tinnitus nicht so schlimm, Patient registriert selbst auch Zähneknirschen
Behandlung: Biod. „Ei im Becken“, anterior dural girdle, posterior dural girdle, Balance der sechs Quadranten, Dritter und Vierter Ventrikel,
Reaktion: li Seite im Kopf viel freier und beweglicher, Pat. spürt li Seite ganz kalt, Tinnitus weniger als letzte Mal, MRP kräftiger, mehr Harmonie an SSB,
1. 02. 2006
Pat. hatte T. ein paar Tage ganz vergessen, sehr gut gegangen, Bruxismus
Behandlung: The triune autonomic nervous system – social nervous system re-establishment, the motility of the central nervous system, the temporomandibular joint, condylar spread
Reaktion: sehr entspannt, Tinnitus blieb schwach, auch re Seite etwas freier und größere Amplitude
20.02.2006
T. war tagelang weg nach letzten Behandlung, jetzt li kein T. mehr, gut gegangen in letzten Tagen, weniger Stress, T. steigt bei viel telefonieren
Behandlung: TMJ, the dynamic of the third venticle, transverse srtuctures
Reaktion: Pat. nimmt Knacksen im TMJ selber wahr, Bissschiene in Erwägung gezogen,
Beurteilung des Pat: sehr angenehm, viel besser bezüglich Lautheit und Belästigung
Behandlungen haben sehr viel geholfen
Beurteilung durch Therapeutin: Patientin war sehr kooperativ und konnte sich gut auf die Behandlungen einlassen. Stress ließ sehr nach. Patienten wirkte viel ausgeglichener. Freiheit im Coccygis und Sakrumbereich.
VAS

A. U.	Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
	28.11.2005	45	11	28	50
	28.12.2005	42	10	26	34
	18.01.2005	26	9	18	25
	01.02.2006	15	10	13	14
Ende	20.02.2006	15	0	8	5

Abschluss: TBF12: PR1 = 25, PR2 = 6, PRges = 9
VAS Belästigung – Klasse1

Fall 3
Herr A. H., 71 J, Zugang über Selbsthilfegruppe, Pensionist, verheiratet
22.12.2005 :
TBF12 : PR1 = 1 , PR2 = 20 , Prges = 2
VAS: 20 Stufe 1
T: beidseits, im Kopf, seits 15 J. mittelfrequent, gleichförmig klopfend
Anamnese, Ass. P: Herzinfarkt vor 2 Jahren, Schwindel seit Kindheit, Innenohrschwerhörigkeit, guter Allgemeinzustand und gute psychische Verfassung
Befund: Pat. etwas Übergewicht, Medikamente gegen hohes Cholesterin, axiales Skelett: C0 /C1 Dysfunktion, Li Temporale in IR, MRP: langsamer Rhythmus, große Amplitude, wenig Bewgung an SSB, aber keine Läsion, ZNSmotion etwas starr und leblos, Abdomen hyperton,
Behandlung: biodynamisch occipital triad, temporal bone dynamics, cerebrospinal fluid flow
Reaktion, F.B: Patient fast eingeschlafen, Nacken fühlte sich lockerer an, konnte Kopf besser bewegen, T. sehr leise
27.02.2006
Schwindel war etwas besser, Tinnitus störrte kaum, Patient immer zu Scherzen aufgelegt
Behandlung: Mobilisation obere BWS und HWS, Entspannung Diaphragma thorakale, Mobilisation C0/C1, condylar spread
Reaktion, F.B.: geschlafen, gute Beweglichkeit im Nacken, T. kaum wahrgenommen
Mehr Bewegung ZNSmotion, bessere Kraft MRP
14.03.2006
Schwindel besser, Tinnitus immer gleich wenig, Temporalia angesaugt und gewisses starres System
Behandlung: thoracic inlet, condylar spread, Suturen an Schädelbasis bes. re geweitet, temporal bone dynamics
Reaktion, F.B.: sehr angenehm und entspannt, Temporalia harmonischer li noch etwas in IR fixiert.
6.04.2006: Schwindel weg, T. re nicht vorhanden li leicht, suboccipital freier
Behandlung: Disengagement and facilitation of sphenobasilar reorganization, temporal bone dynamics, Halsfaszien, TMJ
9. 05. 2006: kein Schwindel T. störrt nicht, Pat. war beim Zahnarzt
Behandlung: The venous sinuses and the middle cerebral artery and arteria labyrinthy, cerebrospinal fluid flow
Reaktion, F.B: T. kaum da, fühlt sich im Nacken freier, kann besser herumschauen, Gute Qualität des MRP

A. H.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
22.12.2005	18	15	17	20
27.02.2006	30	18	24	27
14.03.2006	35	15	25	13
06.04.2006	0	10	5	13
09.05.2006	0	8	4	10

Abschluss TBF12 : PR1 = 1 , PR2 = 6 , Prges = 1
VAS : 10 - Stufe1
Beurteilung durch Pat. : Behandlungen sehr genossen, sehr viel geholfen bes. Schwindel weg, kann T. etwas besser akzeptieren, störrt kaum

Beurteilung Therapeitin: Patient war immer gut gelaunt und kooperativ, konnte sich gut entspannen, etwas starrer Gesamteindruck (mag am Alter liegen) aber gute Psyche!

Fall 4
Frau Au., 10. 03. 2006, 46 J. Zugang über Aushang beim Arzt
Verkäuferin, verheiratet, 1 Kind
T.: re, seit 17 J, Summen, Pfeifen, pochend, hochfrequent.
VAS : 59 – Stufe 2-3
TBF12 : PR1 = 25 , PR2 = 53 , Prges = 33

Anamnese, ASS. P.: psychische Lage instabil, hatte schon mehrmals ambulante Psychotherapien, Schilddrüsenprobleme, Ischiasbeschwerden, beruflichen Stress Reizblase,etwas Übergewicht
Befund : HWS dysfunktionen, LWS kaum in Flexion: Schmerzhemmung
Nieren motilität schwach event. re. Nierenptose, Kraft und Amplitude des MRP gering, Zug nach re, viel Unruhe an SSB, re Temporale angesaugt
Behandlung: Biodynymisch: Reise der Elritze, motility of the central nervous sytem, N.ischiadicus
Reaktion: emotionelle Reaktion, Trauer über Kränkung, die die Ursache für Tinnitus war,
re Bein „arbeitete ganz schön“, MRP kräftiger, re Temporale freier
21.03.2006:
Patientin konnte „besser durchatmen“, aber noch immer Angst wegen Arbeitsplatz Kreuschmerzen weniger, unruhige SSB
Behandlung : Biodynamisch: Phase V: „Kopf im Becken“ , Transverse structures, Sanfte Mobilisation HWS, LWS
Reaktion: etwas verwirrt, bekommt leichter Luft, T. nacher viel leiser
7.04.2006:
noch immer beruflicher Stress, aber Ischiasbeschwerden weniger, T. nicht allzu störend, Temporalia nicht harmonisch
Behandlung: viszeral an Nieren, bes. re gearbeitet, the triune autonomic nervous system – social nervous system reestablishment
Reaktion, F.B.: T. ganz weg bei Arbeit an Nieren, sehr entspannt
8.05.2006:
T. jetzt unverändert nicht sehr störend , Pläne über Zeitgestaltung und Stressbewältigung,
Behandlung: evaluation of CNS and ignition system, EV4, sacral waterbeds
Reaktion, F.B.: Becken freier, mehr Harmonie an SSB, MRP noch etwas schwach, T. wieder leiser nach Behandlung
29. 05.2006
T. ändert sich kaum, bei Stress mehr, nach wie vor ängstlicher Gesamteindruck
Behandlung: CV4 biodynamisch und aus Phase V: Seams im Kopf, Ausgleich von Füssen her
Reaktion, F.B. angenehm, T.etwas dumpfer, aber Lautstärke unverändert.
Beurteilg. Pat: Behandlungen haben etwas genützt, etwas besseres körperliches und seelisches Befinden,

Beurteilg. Therapeutin: Der Patientin könnte mit weiteren Therapien kombiniert mit psychologischen Therapien vielleicht noch etwas geholfen werden, um vor allem ihr seelisches Gleichgewicht besser in den Griff zu bekommen

M. Au.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
10.03.2006	59			59
21.03.2006	41			50
07.04.2006	20			22
08.05.2006	30			30
29.05.2006	30			32

Abschluss TBF12 : PR1 = 25 , PR2 = 29 , Prges = 22
VAS : 32 – Stufe 1

Fall 5
Herr B., 14.11.2005 , 44 J. , Zugang über Aushang,
Selbstständig, verheiratet, 3 Kinder
T. seit 5 J. bds. gleichmäßig hochfrequenter Ton, seit 3 Jahren schlimmer durch Hörsturz,
TBF12 : PR1 = 3 , PR2 = 53 , Prges = 13
VAS 51 – Klasse 2
Anamnese, ASS. P.: Hörsturz vor 3 Jahren, Fraktur LWS Querfortsätze in Jugend, VAS, Bruxismus jetzt nicht mehr so schlimm, etwas erhöhte Leberwerte, gesunde Ernährungsweise, aber stressigen Beruf, wenig Regelmäßigkeit, leichte Herbstdepression
Befund : guter Allgemeinzustand, groß, kräftig, viel Spannung im li Nackenbereich, Rot. re schmerzt, Flex HWS vermindert, feste obere BWS Kyphose, Spannung Kiefermuskeln, Dysfkt. li TMG, Lat. Flex. li eingeschränkt in LWS, wenig Bewgung Th10-L2,
craniale System: SBR li, MRP kräftig und langsam, Temporalia li eher IR, re AR, turbulent
Behandlung : Biodynamisch : the bird, third ventrikle, Temporal bone dynamics
Reaktion, F.B : sehr entspannt, T. etwas leiser, li Temporale nicht mehr so angesaugt
23.12.2005:
Patient registriert jetzt selber Bruxismus, T. konstant,
Behandlung: condylar spread, social nervous system reestablishment, TMJ, Mandibula,
Reaktion: Pat. schnell ins Neutral gefallen, sehr weit weg gewesen, T. klingt entfernter, mehr im Hintergrund, temporalia harmonischer
9.01.2006:
Pat. war krank, sehr angespannte Rückenmuskeln, T. unverändert,
Behandlung: CNS motion, condylar spread, release C7/TH1, Reise der Elritze, blitzartiger Ruck bei Arbeit an den Ventrikeln,
F.B.: Pat. hat auch Stromschlag wahrgenommen, „Kopf war wie in einer Blase“, Rücken fühlt sich jetzt ganz leicht an, Pat. fühlt sich sehr gut, T. nicht schlimm
25.01.2006:

Recruitment bestätigt, T. etwas stärker,
Behandlung: EV4, occipital craddle hold für social nervous system, viele Stillpoints und releases, lösen von Zähneknirschen,
F.B.: Geräusch war fast weg, T. jatzt leiser, guter MRP
24.02.2006:
T. gut tolerieren, MRP gut,
Behandlung: soft ignition, third ventricle, temporal bone dynamics
Reaktion: fühlte sich sehr gut, T. konstant, nicht so schlimm
Beurteilung durch Therap.: Pat. sehr kooperativ, konnte sich auf Behandlung einlassen, Unruhen im craniellen System weniger, MRP kräftig, vielleicht wäre T. nach mehreren Serien noch weniger geworden.

H. B

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
14.11.2005	26	26	26	51
23.12.2005	28	28	28	48
09.01.2006	28	28	28	26
25.01.2006	28	28	28	26
24.02.2006	26	30	28	26

Abschluss TBF12 : PR1 = 3 , PR2 = 41 , Prges = 9
VAS 26 – Klasse 1

Fall 6
Frau B. , 32 J., Zugang über Aushang beim Arzt,
Gastgewerbe, verheiratet, 1 Kind
T.: hochfrequentes, gleichf. Grillenzirpen, seit 1,5 J., plötzlicher Beginn seit Tomatistherapie ihres Sohnes !
VAS 31 Stufe 1
TBF12 : PR1 = 16 , PR2 = 29 , Prges = 18
Anamnese, ASS.P.: mit 18 J. „Hirnschwellung“ mit Querschnittsymptomatik ohne Ursache, schnelle Regeneration, Unfälle im HWSbereich, niederer Blutdruck, sehr schlank, Nieren- Blasenprobleme
Befund: mehrbogige Skoliose, flacher Rücken, große Asymetrie bei Claviculae, SSB wenig Bewegung, fast wie Kompression, MRP: sehr kleine Amplitude , HWS Lordose abgeflacht, in Extstellung, temporalia auch kaum Bewegung in IR, Tentorium große Spannung
Behandlung: biodyn., motility of the central nervous system, disengagement and facilitation of sphenobasilar reorganization, écoute Nieren, Blase
Reaktion: kleines Becken freier, T. Frequenz wechselte während Behandlung, wurde aber wieder friedlicher, gut entspannt
3.04.2006
T. war nicht sehr störend, HWS probleme, MRP schwach
Behandl.: biodyn. pelvic bowl, phase V: seams im cranial aerea, Mandibular- und Hyoidbogen,
Reaktion: gute Entspannung, T. nur leise, MRP sehr harmonisch
25.04.2006:

Pat. gibt etwas Schmerzen im Becken- Blasenbereich an , Harnbefund negativ, T. leise
Behandlung: Biodyn. pelvic bowl, Blase, ignition system, temporal bone dynamics
17.05.2006
T. unverändert nimmt ihn kaum wahr, nur bei Stille
Behandlung: viszeral Blase und Niere, biodyn. BFT im HWS bereich, C7/TH1, temporal bone dynamics
Reaktion: gut geschlafen, T. sehr leise, gut entspannt, Temporalia freier
14.06.2006:
T. Kaum belästigend, Stress in der Arbeit, Sakrum erscheint sehr fest, intraossäre Dichte
Behandlung:Biodynamics, sacral waterbeds, CNS motility, , CV4
Reaktion: sehr angenehmes Gefühl, aber Sakrum arbeitet, T. entfernt, etwas müde
Beurteilg. durch Therapie: Patientin wirkte immer überarbeitet und angespannt, konnte sich auf die Therapien aber gut einlassen (beherrscht Yogatechniken), T. von Beginn an so leise, dass er verschwinden müsste, um für Pat. als Erfolg zu gelten.

B. B.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
09.02.2006	33	15	24	31
03.04.2006	33	12	23	30
25.04.2006	14	4	9	5
17.05.2006	13	9	11	10
14.06.2006	14	4	9	11

Abschluss TBF12 : PR1 = 3 , PR2 = 20 , Prges = 2
VAS 11 – Klasse 1

Fall 7
24. 02.2006
Frau Dr. D., 41 J., Zugang über Aushang beim Arzt,
selbstständig. verheiratet, drei Kinder
T.: li, hochfrequent., gleichförmig, seit 1,5 J., langsam einschleichend
VAS:19 Stufe 1
TBF12 : PR1 = 35 , PR2 = 6 , Prges = 13

I. D.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
24.02.2006		33		19
10.03.2006		27		19
30.03.2006		17		24
27.04.2006		16		14
29.05.2006		16		14

Anamnese, ASS. P: immer wieder Probleme mit Zähnen und Kiefergelenk, manchmal Siusitis, RR nieder, Schlaf flach, als Kind Sturz vom Dach
Befund: Skoliose re konvex Übergang zur LWS, sehr flacher Rücken, Th10-L3 in Ext.obere BWS in EXT und sehr fest,
Craniale System : Torsion li, Mandibula nach li deviiert, starke Spannung

Sternocleido. Zug am Processus mastoideus mehr re als li, Temporalia sehr unbeweglich - re in IR und linkes in AR, C0/C1 “zu”, Sternum komprimiert, Halsfaszien angespannt,
Behandlung: Biodyn.: CNS motion, SSB (disengagement and reorganization), Hyoid bone connectid tissue hold
Reaktion: Pat. fast geschlafen, sehr angenehm,T. nicht sehr störrend aber eher unverändert leise, Temporalia etwas freier
10.03.2006
Pat. wirkt müde, Kiefer knackst, MRP sehr langsam und eher schwach
Behandlung: Biodyn. Sternum thoracic inlet relationships, TMJ relationships, occipital cradle hold, emotional NS, viele Stillpoints und shiftings, Long Tide
Reaktion: Pat. tief geschlafen, sehr müde, T. etwas entfernter.
30.3.2006:
Pat. etwas verkühlt, müde, MRP schwach
Behandlung: Temporal bone dynamics, motion of reciprocal tension membrane, Tentorium, cranial base and sutures, Gehörknöchelchen und meatus acust. ext. ,
Reaktion: tiefe Entspannung, TMG etwas freier, subocciptal freier, T. ziemlich gleich
27.04.2006
immer müde, T. konstant leise, unverändert, re Niere mehr Spannung als li,
Behandlung: sacral waterbeds, viszeral re Niere, CV4, temp. bones, Gehörknöchelchen
Reaktion: tiefe Entspannung, T. fern aber hörbar
29.05.2006:
Allergie, Heuschnupfen, sonst gut, T.nicht schlechter
Behandlung: Phase V Biodyn. „Seams“ im Kopf, li dichter, Reise Elritze miteinbeziehen von Corpus amygdalae, Hyppocampus – limb. system
Reaktion: sehr gut entspannt, Behandlungen haben einiges geholfen, kann Geräusch etwas besser akzeptieren, etwas besseres körperliches und seelisches Wohlbefinden
Beurteilung Therapeutin: Patientin machte immer einen sehr antriebslosen müden Eindruck (nicht depressiv, eher Doppelbelastung von Beruf und Familie), konnte sich sehr gut entspannen und Veränderungen gut wahrnehmen, T. aber so schwach, dass kaum noch Verbesserung möglich
Abschluss TBF12 : PR1 = 25 , PR2 = 12 , Prges = 13 ; VAS 14 = Stufe 1

Fall 8
15.12.2005
Herr F., 55 J., Zugang über Bekannte,
Angestellter, Handelsreisender, vier Kinder, verheiratet
T. li.Brummen , tieffrequent, gleichförmig seit 1 Jahr,
VAS- 30 Stufe 1
TBF12 : PR1 = 25 , PR2 = 20 , Prges = 7
Anamnese: Tympanoplastik nach Cholesteatom (1998), Hörsturz vor 1 Jaht, mit T. li, li: Hörminderung von 45 dB , re Hörminderung 70 dB, Sprachbereich, , starke Septumdeviation nach re, Atlas Therapie Kopfschmerz verschwand aber T. blieb, leichter Raucher, etwas Übergewichtig, Nase gebrochen, re kaum Luft
Befund: steifer Nacken, sehr große Spannung im Suboccipitalbereich, wenig Gegenrotation beim Gang, Pykniker Typ, C7/Th! und ober BWS sehr fest, li Schmerz in HWS, Latflex li HWS eingeschränkt und knacksen,

Cranial: Temporale re sehr starr, Tentorium ebenso re sehr fixiert und starr, wenig Expansion bei MRP, langsam, intraossör viel Spannung re Proc. mastoid (vielleicht von OP), SBRli,
Behandlung: EV4, CNSmotion, condylar spread, Arbeit an Frontale und Maxilla, SSB sehr wenig Bewegung,
Reaktion: T. gleich, aber Behandlung angenehm, Temp. noch immer sehr starr
26.01.2006
T. schlechter beim Autofahren (Tunnel), viel Spannung Nacken, C0/C1, Temp.
Behandlung: Mobilisation BWS, HWS, C0C1, condylar spread, temporal bone dynamics, lange Arbeit an SSB,
Reaktion: Pat. bekommt mehr Luft fühlt sich freier und beweglicher, T. ziemlich gleich
24.02.2006
T. immer beim Autofahren schlechter, bekommt neues Auto, weniger Muskelspannung im HWSbereich
Behandlung: Halsfaszien, condylar spread, HWS mobilisation, thoracic inlet, Suturen an Basis geweitet,
Reaktion: freier Nacken, T. etwas angenehmer, MRP größere Amplitude
30.03.2006
T. unverändert, Pat. immer verspannt im HWS bereich
Behandlung: Mobilisation Schultern Nacken BWS, Biodyn.- motion dynamics CNS, SSB, temporal ear hold
Reaktion: sehr entspannt, T. gleich, störrt aber nicht
21.04.2006
Pat. fühlt sich gut, T. nicht störrend
Behandlung: Phase V Biodynamic „Seams im Kopf“ und „Kiemenbögen“ – Mandibular, Hyoid, middle face , upper face
Reaktion: geschlafen, entspannt, T. immer ziemlich gleich nicht sehr störend (nur beim Autofahren), aber Nacken viel lockerer, fühlt sich freier
Beurteilung Therapeutin: Patient muss sehr viel beruflich mit Auto fahren, für T. ungünstig Druckwechsel bei Tunnel wegen seiner OP, System so starr, dass noch mehrere Behandlungen notwendig wären

J. F

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
15.12.2005	35			30
26.01.2006	35			30
24.02.2006	27			30
30.03.2006	20			20
21.04.2006	20			20

Abschluss TBF12 : PR1 = 6 , PR2 = 12 , Prges = 4
VAS-20 Stufe 1

Fall 9
24.01.2006
Frau F., 66 J., Zugang über Selbsthilfegruppe
verheiratet, Pensionistin, drei Kinder
T. Ton, bds. hochfrequent, mittelfrequent, gleichmäßig seit 12 J.
VAS 45-Stufe 2
TBF12 : PR1 = 75 , PR2 = 29 , Prges = 53
Anamnese:Hochtonschwerhörigkeit, Große HWSprobleme, war Friseurin, 2 Mal Hörsturz, Stress, 12 Jahre sehr schlecht geschlafen, Discusprolaps L5, T. besser mit Nahrungsergänzungsmitteln, RR eher hoch, Schlaganfall 1997 kaum Restsymptomatik sichtbar, Schilddrüse hyperaktiv, sehr schlank
Befund: Flexion LWS nicht möglich, obere LWS in Kompression, Th10-L3 Latflex verm. , HWS in alle Richtungen eingeschränkt, Sensibilitätsstörungen li bis in Hand seit Schlaganfall,
cranial: SSB sehr fest, MRP regelmäßig, SBRli, Zug nach re, Viel Zug nach innen bei Temporalia, bes. li,
Behandlung: Diaphragma thorakale und cervikale, thoracic inlet, strukturell mobilisieren LWS, BWS
Reaktion: Behandlung hat gut getan, T. entfernter eher tiefer
9.03.2006:
Pat. wacht nachts immer um 2Uhr auf, HWS noch schmerzhaft, LWS freier
Behandlung: Biodyn. CV4, Reise der Elritze, Ventrikel- und limb. System, viszeral Leber écoute,
Reaktion: sehr schön entspanntes Tentorium, guter MRP, Pat. gut getan, erfrischt, T. nicht viel verändert aber entfernter,
30.03.2006
Pat. hatte Darmgrippe, T. konstant
Behandlung: strukturell BWS mobilisiert, Biodyn. occipital triad ,Temporal bone dynamics, SSB, Halsfaszien
Reaktion: geschlafen, tut gut, T. immer weiter weg nach Behandlung
2.05.2006
T. wieder mehr , Nahrungsergänzung abgesetzt, HWS und BWS sehr starr,
Behandlung : Biodyn. tansverse structures, Mobilisation BWS, C7/TH1, Lift obere BWS, Halsfaszien, Temporal bone dynamics
F.B. etwas ist aufgegangen, so wäre es ideal
Beurteilung Therap.: Pat. müsste laufend Therapien machen um Beweglichkeit zu erhalten, Hörgeräteversorgung wäre indiziert, kann sich sehr schön auf Behandlungen einlassen, Mehr Freiheit im System spürbar,

E. F

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
24.01.2006	31	55	43	45
09.03.2006	40	49	45	31
30.03.2006	36	28	32	26
02.05.2006	40	43	42	43
22.05.2006	35	27	31	26

Abschluss TBF12 : PR1 = 25 , PR2 = 29 , Prges = 22
VAS Abschluss: 26 = Stufe1

Fall 10
16.02 2006
Herr J. F., 81 J., Zugang über Selbsthilfegruppe
verheiratet, Pension, 2Kinder
T. seit 40 J.hohes Surren, gleichförmig, klopfend mit Puls,
VAS 30 = Stufe 1 / TBF12 : PR1 = 6 , PR2 = 65 , Prges = 22
Anamnese: ASS.P.: Innenohrschwerhörigkeit, Hochtonbereich, 6 Mal im Krieg Malaria, manchmal kleine Aussetzer Herz, Arthrosen Knie, guter Allgemeinzustand, schlank, fröhlich, zufriedenen Eindruck
Befund: Skoliose, C7-L2 in EXTstellung, verspannte HWSmuskeln, Schultern hängen in Protraktion, Re Clavicula gestaucht, SCG ant und med., HWS Latflex li eingeschränkt, Occiput, Basis sehr starr
Behandlung: Biodyn. condylar spread, thoracic inlet, occipital triad, cerebrospinal fluid
Reaktion: sehr angenehm, T. jetzt etwas leiser, Kopf freier, Occiputmotion besser
7.03.2006
T. heute eher stärker, HWS verspannt
Behandlung: Mobilisation thoracic inlet SCG, Sternum Schultergürtel, Biodyn. Halsfaszien, thoracic inlet, Foramen jugulare, Suturen Schädelbasis, temporal bone dynamics
Reaktion: fast geschlafen, fühlt sich frisch, kann Kopf gut bewegen, Basis aufgegangen, T. jetzt leiser
27. 03.2006:
jetzt T. nur Surren ohne Puls, manchmal auch im Kopf, Tentorium verkrampft eccentric dynamics,
Behandlung: vault hold, SSB, temporal ear hold - state of balancend Tension and traction
occipital cranial base,
F.B: T. stört nicht sehr im unteren Drittel, Pat. geträumt, Membranen weicher und freier
27.04.2006
geht ganz gut, aber Herzstolpern noch nicht ganz abgeklärt, muss vielleicht operiert werden, keine Angst
Behandlung: Biodyn. Thorax, obere BWS thoracic inlet, BWS mobilisiert, Biodyn. Phase V: Fluida im Kopf , Bögen und Seams, soft ignition
Reaktion: geschlafen, automatische shifts, T. weit weg, viel Freiheit im System
15.05.2006
Pat. mit Rad gestürtzt, Knie verletzt, keine Auswirkung auf T.
Behandlung: Knie behandelt (automatic shifting from an extremity) , CNSmotion, Ventrikelsystem, temporal bone dynamics
Reaktion: T. fast immer gleich wenig Veränderung spürbar, körperlich und seelisch etwas besser
Beurteilung Therapeutin: Pat. sehr motiviert und kooperativ, obwohl T. schon so lange besteht, keine Verbesserung mehr zu erwarten, Pat. bereits schon längst gut kompensiert.

J. F.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
16.02.2006	29	30	30	30
07.03.2006	37	37		36
27.03.2006	22	22		20
24.04.2006	20	20		20
15.05.2006	20	20		20

Abschluss TBF12 : PR1 =3 , PR2 =29 , Prges = 6
VAS – 20 Stufe 1

Fall 11
29.12.2005
Frau G., 65 J., Zugang über Praxis
verheiratet, 2 Adoptivkinder
T. Grillenzirpen, hoch gleichförmig, seit 7 J.
VAS: 70- Stufe 3
TBF12 : PR1 = 46 , PR2 = 65 , Prges = 53
Anamnese, ASS.P. eigene Vermutung privater Stress, Migräne Gallenblasenprobleme, arbeitete früher im Gastgewerbe, Hörminderung re Hochtonbereich, OP: Hysterektomie, Unterfunktion Schilddrüse, Kieferschmerzen, Ohrschmerzen, li Niere schwach, etwas depressiv (Antidepressiva zeitweise)
Befund: Skoliose ,Schmerz untere BWS, steif bei Flexion, HWS Druckpunkt re Trigonum Scapula, Schmerz bis Ohr, Nacken sehr verspannt, 1.Rippe re fixiert – Sturz auf Hand
cranial: MRP schwach, wenig Bewegung
Behandlung: viszeral Niere re, viel Spannung im Nierenbeckenbereich, Omentum minus, sphinkter d`oddy, Leber, Gallenblase, biodynamisch: thoracic inlet, anteriore Halsfaszien Hyoid bone – connective tissue hold, temporal ear hold temporal bone dynamics
Reaktion: psychisch etwas labil, familiäre Probleme, Tinnitus etwas an Intensität angenommen, ANS harmonisiert,
11.01.2006
Tinnitus zur Zeit nicht so schlimm, Schmerzen re Schulter Nacken vorne Druckpunkt re zw. 3.und 4. Rippe, Pat. trägt neues Hörgerät zur Probe
Behandlung: thoracic inlet, venous sinus drainage, Motion dynamics around SSB, TMJ relationships
Reaktion: Wohlfühlen, psychische Verfassung noch nicht ganz stabil, MRP etwas kräftiger und freier
30.01.2006
Hörgerät passt gut, auch Gesamteindruck gut, stabil, Schulterschmerzen re, Kieferhöhle Druck,
Behandlung: strukturell HWS mobilisation, SCG, viszeral re Niere Schmerz auch im ISG bei Behandlung, Biodyn, pelvic bowl, the bird,
Reaktion: kieferhöhle leichter, auch Schulter besser Kopf klarer

8.03.2006
Kopf jetzt klarer , T. für einige Minuten weg nach letzten Behandlung, jetzt da aber nicht so stark, guter psychischer Zustand
Behandlung: biodyn. Motility of CNS, cerbrspinal fluid flow, social nervous system reestablishment,
Reaktion: fast geschlafen, aber Probleme kommen etwas durch, versucht stark zu sein, MRP etwas unruhig
5.04.2006
Pat. nimmt T. manchmal gar nicht wahr, zur Zeit kaum Probleme, am ehesten mit rechtem Nacken
Behandlung: stillpoint process CV4, transverse structures, TMJ and social nervous system
Reaktion: Behandlungen haben einiges genützt, kann Störgeräusch anders verarbeiten, aber trotzdem manchmal lästig,
Beurteilung durch Therapeutin: Patientin hat sich scheinbar im emotionellem Bereich verbessert, das neue Hörgerät dürfte auch dazu beigetragen haben, nahm weiten Anreiseweg in Kauf, da ihr die Behandlungen gut getan haben, MRP Qualität sichtlich verbessert. Wahrscheinlich wären begleitende Therapien in größeren Abständen sinnvoll.

B. G.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
29.12.2005	80	53	67	70
11.01.2006	51	53	52	46
30.01.2006	62	53	58	46
08.03.2006	60	58	59	47
05.04.2006	52	38	45	41

Abschluss TBF12 : PR1 = 35 , PR2 = 29 , Prges = 27
VAS 41- Stufe 2

Fall 12
16.02.2006
Herr G., 76 J., Zugang über Selbsthilfegruppe
verheiratet, Pension, früher Techniker
T. Grillenzirpen, hoch, gleichförmig, seit 15 J. bds.
VAS 15 Stufe 1
TBF12 : PR1 = 1 , PR2 = 20 , Prges = 2
Anamnese, ASS.P.: Patient war Techniker bei Siemens, hat sich alle 2 Stunden aufgezeichnet, wie laut sein T. war (stark, wenig, weg);
vor 9 Jahren Darmkrebs OP, leichte Innenohrschwerhörigkeit, Harnsäurewerte etwas erhöht, niederer Blutdruck, seit 35 J. hohen Cholsterinspiegel,
Befund: HWS nach li abweichend, schmerzhaft, BWS-LWS wenig Flexion, altersentsprechend, TMG dysfunktion., Halsfaszien sehr angespannt, guter kräftiger MRP, keine psych. Probleme
Behandlung: viszerale Arbeit an Nieren, biodyn. Bauch balanced fluid tension, thoracic inlet, Halsfaszien, TMJ BFT,
F.B: T. gleich, sehr leise, Behandlung war angenehm, Kopf etwas freier
2.03.2006

T. manchmal da manchmal weg, selten ganz laut,
Behandlung: Biodyn.TMJ., occipital triad, social nervous system reestablishment temporal bone dynamics
Reaktion: gut getan, T. schwankt immer, guter MRP
20.03.2006
T. auch oft ganz weg, Pat. zufrieden
Behandlung: Temporal bone dynamics, CV4, TMG
Reakton: sehr entspannt, T. gleich leise
30. 04.2006
leichte T. überwiegt, Mandibular und Hyoidbogen, viel Dichte, Halsfaszien
Behandlung: strukturell C7/TH1, BWS oberen Bereich mobilisiert, thoracic inlet SCG re, Biodynamic Phase V: Seams bes. zwischen Zungenbein und Mandibula, TMG
Reaktion: manchmal war ein T. weg (mehrere Geräusche), entspannt
20.05.2006:
hatte vor 1 Woche starke Verkühlung, T. überwiegend leicht
Behandlung: soft ignition Biodynamisch, Halsfaszien, thoracic inlet , temporal bone dynamics, tentorium
Reaktion: nach Aufzeichnungen überwiegt jetzt der leichte T. noch mehr gegenüber dem stärkeren T.
Beurteilung durch Therapeutin: Pat. hat an Studie sehr gewissenhaft mitgearbeitet, genaueste Aufzeichnungen, beherrscht Meditation, vielleicht gehen die Phasen des lauten T. ganz weg nach mehreren Serien

W G.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
16.02.2005	7	7	7	15
02.03.2006	10	10	10	15
20.03.2006	10	11	11	15
30.04.2006	50	50	50	15
20.05.2006	10	10	10	15

Abschluss TBF12 : PR1 =1 , PR2 = 20 , Prges = 2
VAS : 15 Stufe 1

Fall 13
2.03.2006
Herr I., 53 J., Zugang über Aushang beim Arzt
Angestellter, Außendienst, geschieden, einen Sohn
T.: links, Sausen, mittelfrequent, gleichförmig, seit 4J.,
VAS 31 Stufe 1
TBF12 : PR1 = 25 , PR2 = 6 , Prges = 9
Anamnese: ab und zu LWS Beschwerden, in letzter Zeit öfters beim Zahnarzt guter Allgemeinzustand, sportlich, schlank, stressigen Beruf, viel im Auto, M.Raynaud symptomatik
Befund: Skoliose, re Schulterhochtand, TH3-TH11 in Extensionsstellung, C//TH1 sehr fest, Kiefer li Dysfunktion,
Cranial: MRP zeigt langsame Frequenz, Amplitude gering, SBRli, li Tentorium sehr verkrampft, li Temporale in IR Stellung, intraossär viel Spannung Occiput – Inion bereich,

Behandlung: Mobilisation C7/TH1, Biodynamisch Thoracic inlet, SSB motion, harte und weiche Dura, Halsfaszien und upper cervical aerea;
Reaktion, F.B.: gutes release am Temporale, hard potency release, größere Amplitude MRP; T. war nachher re ganz weg,
6.04.2006
Geräusch schaltet manchmal von li auf re, aber eher immer mehr li, Probleme mit kalten Fingern beim Berggehen (Rucksack?), Occiput sehr dicht, Schädelbasis nicht frei,
Behandlung: Biodynamisch, thoracic inlet ober BWS, Foramen jugulare, condylar spread , TMG,
Reaktion: T. etwas leiser, re kaum wahrnehmbar, gut entspannt, Temporale noch nicht frei, MRP größere Amplitude
19. 04.2006
Pat. gibt im Bereich C7/TH Sensible Zone der Haut an, kalte Finger, T. fast immer gleich
Behandlung: upper cervical aerea, thoracic inlet, Diaphragma thorakale, Lift obere BWS, EV4, temporal bone dynamics
F:B: angenehm, Frequenz des T. ändert sich manchmal während Behandlung, re weniger, li etwas leiser, SSB freier, MRP kräftig,
3.05.2006
viel Stress, Wurzelbehandlung am Oberkiefer li,
Behandlung: CV4, TMG biodynamisch (hyoid, scapula, sternum, C2, upper cervical aerea), cerebrospinal fluid
F.B. gut entspannt, alles locker, T. nicht stark
20.05.2006
noch immer hypersensibel am Übergang HWS BWS, T. nicht so schlimm
Behandlung: Abfluss verbessern, thoracic inlet, 1.Rippe li, OAA, condylar spread, temporal bone dynamics, tentorium
F.B: sehr angenehm, T. re sehr schwach, li auch weniger, kann ihn gut ignorieren am liebsten aber, wenn ganz weg
Beurteilung durch Therapeutin: Pat. müsste den Stress auch anderwertig als durch Bergsteigen abbauen lernen, T. wird kaum mehr weniger werden, aber durch eine weitere Serie cranialer Behandlungen, würde das System eventuell noch freier werden.

H. I:

Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
2.03..2006	30	40	35	31
06.04.2006	30	41	36	22
19.04.2006	10	30	20	30
03.05.2006	20	30	25	20
20.05.2006	5	25	15	12

Abschluss :
VAS 12 Stufe 1
TBF12 : PR1 = 10 , PR2 = 6 , Prges = 4

Fall 14
28.11.2005
Herr K., 58 J., Zugang über Bekannte
Pension, verheiratet, 2 Kinder
T. seit 10 J. hochfrequentes gleichförmiges Pfeiffen, bds.
VAS 25 Stufe 1
TBF12 : PR1 = 16 , PR2 = 29 , Prges = 18
Anamnese: leichte Schwerhörigkeit Hochton re, Probleme mit HWS, leichte Depressionen früher Suizidgedanken, hoher Blutdruck, Schlafprobleme,leichte Verdauungsprobleme (Blähungen), wenig Nierenenergie, Glaukom OP re
Befund: leichte Skoliose, re konkav LWS, C7/ TH1 prominent und fest hypermobil C4,5,6, suboccipital viel Spannung, Schultern hängen, Kopf weit vorne, mittlere BWS in Flexion, L3 starke Kompression in EXT stellung TH11 – L3, MRP schwach, kleine Amplitude, sehr wenig Bewegung an SSB,
Behandlung: Biodyn. EV4, Reise der Elritze, Ventrikelsystem, cerebropinal fluid, nach release SBRot li an SSB spürbar, Temporalia Becker hold
F.B.: gut entspannt, Magen hat sich auch beruhigt, ein höherer Begleitton des T. ging weg, freiere SSB, besserer MRP
15.12.2005:
Frau und Enkelkind im Krankenhaus, hohe Belastung, aber kaum Enfluss auf T.
Behandlung: biod. transverse structures, vizeral Magen Leber Omentum minus, SSB keine Adaptationsläsion mehr aber Temporale und Tentorium bds noch unter Zug,
motility of the central nervous system, condylar spread, CV4,
F.B. gut entspannt, T. nicht störrend, kein hoher Begleitton mehr seit letzten Behandlung
12.01.2006
Pat. muss auch anderes Auge operieren gehen, T. unverändert
Behandlung: cerebrospinal fluid, the venous sinuses, dynamic of the third ventricle, sacral waterbeds, Nieren viszeral
F.B. geschlafen, entspannt, T. immer gleich wenig, etwas schwacher MRP
31. 01.2006
Pat. war Auge lasern, Druck wider O.K., wirkt müde, MRP schwach,
Behandlung: thoracic inlet, C7/TH1, condylar spread, Occiptal triad, venous sinuses system, temporal bone dynamics, Nieren
F.B. sehr fein, ausgeruht, T. da, aber schwach
23.02.2006
etwas Verdacht auf Helicobaktor, Magenprobleme, familiäre Belastungen
Behandlung: SSB, Suturen an Basis (vor allem li sphenosquamosa am rigidesten), Occipital triad, viszeral Magen, Omentum minus, Duodenum, sphinkter D `oddy, triune autonomic nervous system social nervous system reestablishment
F.B: fein erholt, MRP etwas kräftiger, T. kommt ihm leiser vor, kaum wahrnehmbar, Beurteilung durch Therapeutin: trotz starker familiärer Belastung hat Pat. seinen T. gut im Griff, würde sicher besser schlafen, wenn in Familie weniger Probleme wären, System mit Hilfe osteopathischer Behandlungen wieder mehr Potency und Ressourcen zur Verfügung

K.

Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
28.11.2005	25	25	25	25
15.12.2005	21	21	21	25
12.01.2006	21	21	21	25
31.01.2006	21	21	21	9
23.02.2006	21	21	21	9

Abschluss TBF12 : PR1 = 6 , PR2 = 6 , Prges = 2
VAS 9 Stufe 1

Fall 15
10.01.2006
Herr M. K.; 64 J., Zugang über Aushang beim Arzt
Pension, verheiratet, 2 Kinder
T. hoher gleichf. Ton seit 5 J., wurde erst später quälend, bds.
VAS 41 Stufe 2
TBF12 : PR1 = 75 , PR2 = 53 , Prges = 65
Anamnese, ASS. P: Leichte Hörmimderung im Hochtonbereich bds., Gastritis, Art. Hypertonie, z.N. aorto- coronarer 4fach Bypass OP, Z.n. Prostatektomie, Stents und Herzschrittmacher, Medikamente: gegen Bluthochdruck, erhöhte Harnsäurewerte, und Cholesterin, Blutverdünnung, leichtes Übergewicht, gute psychische Verfassung, ausgeglichen, betreibt vorsichtig Sport,
Befund: Übergang HWS BWS sehr fest, zieht re Schulter vor um Schrittmacher zu schützen, Stechen in li Brust, Sternum viel Kompression, MRP eingeschränkt Zug eher re, System wird eingebremst, Tentorium Zug nach innen,
Behandlung: Biodynamisch, temporal bone dynamics, thoracic inlet sternum, occipital triad, transverse structures,
F.B. sehr gut gegangen viele positve Gedanken; T. wesentlich leiser, kräftiger MRP

26.01.2006
neue Medikamente Blutdruck besser im Griff,
Behandlung: biodynymisch: Sternum release fire in the bone, viel Hitze automatic shifting, Angst frei, thoracic inlet, temporalia, Zug der Membranen stark, state of balanced tension and traction, cranial base, SSB disengagement and reorganization
F.B. Wärme bis Zehen gespürt, T. wieder leiser, MRP kräftiger
10.03.2006
C7/Th1 freier, T. immer ähnlich, weniger Tabletten RR gut eingestellt, Kreatin etwas erhöht,
Behandlung: transverse structures, Magenausgang, Omentum minus, Leber Nieren, SSB, occipital triad, venous sinuses,
F.B. schön geträumt, T. leiser System freier
28.03.2006
SSB noch fest Temporalia noch Zug nach innen, RR in Ordnung
Behandlung: triune autonomic nervous system, the dynamic of the third ventricle soft ignition, Potency besser, thoracic inlet
F.B. T. viel leiser als beim ersten Mal, System kann sich besser entfalten, weniger Angst

2.05.2003
Blutdruck in Ordnung, Pat. kann Sport betreiben
Behandlung: biodynamic Phase V Bustkorb, Herz, Kopf (seams und archs)
F.B. sehr wohltuend, T ganz leise, aber Pat. hat noch Hoffnung, dass T. ganz verschwindet, Behandlung hat sehr geholfen bessere Akzeptanz, körperlich und seelisches Befinden gestiegen

M.K.

Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
10.01.2006	44	18	31	41
26.01.2006	50	30	40	30
10.03.2006	34	32	33	23
28.03.2006	18	10	14	16
02.05.2006	10	7	9	7

Abschluss TBF12 : PR1 = 25 , PR2 = 41 , Prges = 27
VAS 7 Stufe 1

Fall 16
28.11.2005
Herr Kl., 56 J., Zugang über Bekannte
Hauptschullehrer, verheiratet, eine Tochter
T.: seit 10 J. bds. hohen quälenden gleichf. Ton, besonders stark seit Tochter ersten MS schub hatte
VAS 79 Sufe 3-4
TBF12 : PR1 = 66 , PR2 = 41 , Prges = 53
Anamnese: viel Musik gehört, MS von Tochter sehr belastend, hat sich für Tinnitusklinik in Deutschland angemeldet, vor 30 J. baktrielle Meningitis, Antidepressiva, leichter Schlaf, sehr sportlich, schlank, Migräne, niederer Blutdruck, Gehörgangsexostosen, LWS bandscheibenprobleme,
Anamnese: leichte Skoliose, starre obere BWS, HWS eher hypermobil, L5 S1 Dysfunktion, langsamer rhythmus Zug eher nach re, schwacher MRP
Behandlung: biod. Arbeit an harter und weicher Dura, CNS motion, Elritze, Becken von Füssen her, Midline Stille danach war Schädel etwas weicher
F.B. angenehm müde T. fast gleich, vielleicht eine Spur weniger,
16.01.2006
T sehr stark , nach körperl. Anstrengung noch mehr,Tochter 2.MS Schub, Psyche nicht in guter Verfassung,
Behandlung: soft ignition, triune autonomic nervous system social nervous system reestablishment
F.B. T eher mehr re, li etwas besser, etwas tiefer,
6.02.2006:
Pat. in Arbeit Probleme, SSB sehr fest, starker Zug der Membranen
Behandlung: EV4, lange Arbeit an Membranen, Tentorium, limbisches System, Elritze,
F.B.li T. etwas schwächer, gut entspannt

24.02.2006
nach Ferien gut erholt, aber T. noch immer stark, Sorge um Tochter
Behandlung: ignition system, EV4, soft ignition, dynamic of the third ventricle
F.B. sehr entspannend, T. aber kaum verändert, MRP aber gut
27.03.2006
Pat. psychisch etwas instabil, zu viele private und berufliche Probleme, Starre SSB,
Behandlung: triune autonomic nervous system social nervous system reestablishment, temporal bone dynamics, CNS motion, soft ignition, CV4
F.B. körperliches und seelisches Befinden nach Behandlung besser, aber kein Einfluss auf Tinnitus
Beurteilung der Therapeutin: hier wäre auf alle Fälle eine psychologische Begleitung sinnvoll, um die Doppelbelastung in der Familie und am Arbeitsplatz zu erleichtern. Ich habe den Pat. zufällig nach einem halben Jahr wieder getroffen, nach 4 Wochen Tinnitusklinik und 9 Wochen Sommerferien hat sich der Pat. erholt, und kommt nun auch mit dem T. besser zurecht. Die osteopathischen Behandlungen hatte er in sehr guter Erinnerung.

P KI

Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
28.11.2005	77	62	70	79
16.01.2006	78	77	78	70
06.02.2006	78	40	59	70
24.02.2006	80	60		75
27.03.2006	82	83	83	83

Abschluss TBF12 : PR1 = 94 , PR2 = 53 , Prges = 81
VAS 83 Stufe 4

Fall 17
17.01.2006
Herr L., 70 J., Zugang über Praxis
Pensionist, verheiratet, 2 Kinder
T. seit 10 J. hochfrequentes gleichf. Sausen im Kopf, bei hohem RR oder Arbeit auch re tiefes Geräusch
VAS 35 Stufe 1
TBF12 : PR1 = 66 , PR2 = 41 , Prges = 53
Anamnesse, ASS.P: Hochtonbereich leichte Hörminderung, früher bei Rettung gearbeitet, laut, wenig Schlaf, dann Kaufmann, Blasen OP (Blasenkrebs vor 2 Jahren), vor 9 J. Prostataschälung, Nieren OP (Oxalate), vor 10 J. Herzinfarkt übergangen, chron. Asthma bronchiale (Pulmicort spray),
Befund: Nackenmuskeln verspannt, leichte Skoliose, LWS Lat flexion nach li eingeschränkt, Vorlauf li Ilium, Thorax sehr starr, SSB leichter Strain lat re, Tentorium Zug li nach innen, li Sut. sphenosquamosa rigid, Vitalität MRP schwach,
Behandlung: Biodyn. the bird, the dynamic of the third ventricle, SSB motion disengagement and reorganization, thoracic inlet, Thorax
F.B.: Pat. konnte sich gut entspannen, T. leiser, bessere HWS Beweglichkeit

31.01.2006
kaltes Wetter, Asthma schlechter,Pat. sitzt viel vor Computer,
Behandlung: drei Diaphragmen (Pelvic, thoracal, thoracic inlet), obere BWS Sympatikus dämpfend, plötzlich Tinnitus ganz weg
temporal bone dynamics, SSB motion
F.B. T. ganz weg
15.02.2006
T. blieb für drei Tage verschwunden, jetzt wieder leicht da,
Behandlung, viszeral und biodyn. Thorax Lungenblase thoracic inlet, C7/Th1, Halsfaszien upper cervical aerea,T. wieder verschwunden, kein Asthma mehr hörbar Pat. tief eingeschlafen
F.B. T. weg, Pat. hatte Kontakt mit irgendeiner Person, guter MRP
28.03.2006
T. wieder weg für ein paar Tage , jetzt nicht so störend, aber noch Astma wegen Kälte
Behandlung: thoracic inlet , Halsfaszien, States of balance (occipital craddle hold, motion of CNS, ventricle system and the floors, limbic system), temporal bone dynamics
F.B.: sehr schön entspannt, Herzzone aufgegangen, T. sehr leise
25.04.2006
sehr gut gegangen in letzter Zeit
Behandlung: tranverse structures, pelvic bowl, thoracic inlet, SSB and temporal bone dynamics, Tentorium freier, guter MRP
F.B. Pat. immer sehr entspannt, T. fast ganz weg, Behandlungen bezüglich T.Lautheit und Belästigung viel besser
VAS 4 Stufe 1
Abschluss TBF12 : PR1 = 3 , PR2 = 12 , Prges = 2

B. L.

Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
17.01.2006	50	35	43	35
31.01.2006	55	30	43	56
15.02.2006	18	17	18	20
28.03.2006	14	16	15	15
25.04.2006	7	2	15	4

Fall 18

11.11.2005
Herr Lü. , 47 J. Zugang über Praxis
selbstständig (Immobilieninvestment), verheiratet, 2 Kinder
T.: seit 1,5 J. sehr hohen Pfeifton, gleichmäßig
VAS 40 Stufe 1-2
TBF12 : PR1 = 6 , PR2 = 29 , Prges=9
Anamnese: Raucher, Arbeitsstress, schlank, sportlich, guter Allgemeinzustand,
Befund: Blockwirbel C2 C3, mehrbogige Skoliose, li Iliosakralgelenk komprimiert, Bruxismus nachts, starke Streckhaltung HWS C3 C4 C5, Lipom über unterer BWS, li Suboccipitalbereich sehr fest, re freier, re Schulterblatt höher, SSB sehr fest, strain vertikal hoch, Temporalia sehr stark angesaugt, in IR, Sakrum intraossäre Läsion,

starke Spannung der Membranen,
Behandlung: Biodyn. Sacral waterbeds, freier vor allem li ISG, condylar spread, Pat. sehr entspannt, occipital triad,
F.B.: sehr entspannt, TMG weniger Spannung, geht re besser auf li noch etwas Dysfunktion, T. etwas leiser
12.12.2005
Duraspannung hat sich gebessert, auch weniger Zug der Temporalia spürbar,
Behandlung: temporal bone dynamics, Pat. schläft ein (kann normalerweise kaum ruhig halten), condylar spread, EV4 Occiput und Temporale freier
F.B.: Frequenzen ändern sich, sehr entspannt
11.01.2006
am Tag der letzten Begandlung war T. für eine Viertelstunde weg; noch nie da gewesen, Schneeschaufeln, viel Skifahren T. stärker
Behandlung: transverse structures, thoracic inlet, third ventricle: the bird, States of balance (occipital craddle hold, motion of CNS, ventricle system and the floors, limbic system)
F.B. gut geschlafen, hat selber gut das Weiten an der Schädelbasis vor allem li gespürt, T. etwas leiser, re kein T. mehr
26.01.2006
re kein T., Pat. war verkühlt, beim Skifahren auf re Rippenbogen gestürzt
Behandlung: Nieren Leber écoute, Diaphragma, transverse structures, soft ignition third ventricle, Halsfaszien, TMG relationships,
F.B.: hat sehr gut getan, T. etwas leiser
28.03.2006
re kein T. aber li immer laut, Belästigung dadurch nicht so groß
Behandlung: Mobilisation HWS, TMJ hyoidbone temporal hold relationships, Basis freier, EV4 unter Scapulaewinkel, temporal bone dynamics, SSB disengagement and fazilitation,
F.B. Behandlungen geholfen in Bezug auf Belästigung und körperliches Befinden
Beurteilung durch Therapeutin: Pat. zu viel gestresst, um wirklich zur Ruhe zu kommen, müsste auch sein Verhalten ändern, hat T. trotz großer Lautheit gut im Griff Für seine Verhältnisse konnte sich Pat. sehr gut entspannen und auf Behandlungen einlassen.

J. Lü

Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
11.11.2005	36	98	67	40
12.12.2005	3	81	42	35
11.01.2006	3	88	46	48
26.01.2006	0	66	33	32
28.03.2006	0	76	38	35

Abschluss TBF12 : PR1 =3 , PR2 = 20 , Prges = 4
VAS 35 Stufe 1

Fall 19
Herr M., 46 J.
22.12. 2005
Zugang über Aushang beim Arzt

Selbstständig, Kommunikationstrainer, verheiratet, drei Kinder
T.: seit 10 J. hochfrequenten T. gleichförmig, Rauschen, bds.
VAS 19 Stufe 1
TBF12 : PR1 = 10 , PR2 = 29 , Prges = 13
Anamnese, ASS.P.: Knalltrauma, niederer Blutdruck, HWS Beschwerden, Rekruitment im Hochtonbereich, T. schlimmer nach Sport – HWS, viel telefonieren, Nackenmuskeln verspannt, Zysten auf Schilddrüse, Nierensteinzertrümmerung vor 2 J. , gut gelaunt, schlank, sehr sportlich
Befund: C7/Th1 auffallend prominent, sehr fest, mittlere BWS in Extstellung, C0/C1 Kompression, Tentorium verkrampft, Sut. occipitomastoidea bes. li verspannt, Zug am Proc. Mastoideus, MRP kräftig, TMG Bruxismus
Behandlung: Biodynamisch Hyoid temporal hold relationships TMJ, States of Balance triune autonomic nervous system, Social nervous system reestablishment, nieren écoute,
F.B. sehr freies Gefühl im Nacken, T. li nicht wahrnehmbar,
23.01.2006
T. leise, mehr nach Laufen und telefonieren,
Behandlung: C7/TH1, thoracic inlet, TMJ motion, SSB motion, Condylar spread
F.B.: sehr angenehm, entspannt, T. kaum wahrnehmbar
1.03.2006
Pat. registriert selber Nackenverspannung und Bruxismus
Behandlung: obere BWS mobilisation, Nierenécoute, Biodynamisch: thoracic inlet, C7/Th1, Halsfaszien, TMjoint, States of balance (occipital craddle hold, motion of CNS, ventricle system and the floors, limbic system),
F.B.: nach Behandlung alles ganz weich und fast weg, viel Freiheit im System
20.04.2006
re T. kaum mehr wahrnehmbar, Knie li falsch belastet beim Laufen (li Sprunggelenk)
Behandlung:biodyn. Sakral waterbeds, li Talus, Knie, Nieren, thoracic inlet, Hyoid und Mandibularbogen, temporal bone dynamics
F.B.: long tide gut spürbar, T. fast weg nach Behandlung
29.05.2006:
re T. kaum da, Nackenspannung, li noch da, aber gehört für Pat. zum Fluss dazu, weniger Kopfschmerz bei Föhn
Behandlung: transverse structures, motility of the CNS, Tentorium, temporal bones, condylar spread, cerebrospinal fluid, venous sinuses,
F.B: körperliches und seelisches Wohlbefinden gesteigert, kräftiger MRP; T. sehr leise, aber nicht ganz weg
Beurteilung durch Therapeutin: T. sehr gut kompensiert, als Trainer kann Pat. gut mit Stress umgehen, sehr positive Lebenseinstellung, da Pat. viel läuft, müsste er auch Entspannungs- und Dehnungsübungen einbauen, sehr kooperativ, aber T. wird wahrscheinlich nicht verschwinden.

F. M.

Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
22.12.2005	20	8	14	19
23.01.2006	23	0	12	19
1.03.2006	20	13	17	13
20.04.2006	7	18	13	15
29.05.2006	3	5	4	10

Abschluss TBF12 : PR1 = 6 , PR2 = 29 , Prges = 9
VAS 10 Stufe 1

Fall 20
28.02.2006
Herr Ma., 45 J., Zugang über Praxis
Angestellter, Sicherheitsdienst, verheiratet
T: seit 5 J. hochfrequentes Pfeifen, gleichförmig, bds.
VAS 38 Stufe 1
TBF12 : PR1 = 16 , PR2 =12 , Prges = 9
Anamnese, ASS.P.: vor 2 J. rheumatische Beschwerden, Autoimmunerkrankung, Bänderriss re Schulter, schlank, sportlich, gute Psyche , etwas gestresst,
Befund: re Schulterhochstand, Clavicula re li große Asymetrien, BWS Lateralflexion nach li eingeschränkt, untere BWS wenig Flexion, C7/TH1 und C0/C1 Dysfunktion, TMG Dysfunktion re, SSB sehr wenig Bewegung, MRP geringe Amplitude, rigider Eindruck
Behandlung: Nieren, Nebennieren écoute, Biodynamisch: pelvic bowl, thoracic inlet, Halsfaszien, TMG states of balance, SSB motion
F.B.: T. unverändert, Pat. gut geschlafen, entspannt,
1.03.2006
keine Veränderung
Behandlung: Biodyn. CV4, gutes Weiten spürbar, Phase V: „seams“ im Kopf, T. vorübergehend lauter und leiser,
F.B.: mehr Freiheit im Kopf, T. fast gleich
27.03.2006
Pat. war verkühlt, immer etwas unruhig
Behandlung: Biodynamisch: transverse structures, upper cervical aerea, TMJ motion, States of balance (occipital craddle hold, motion of CNS, ventricle system and the floors, limbic system), viszeral Leber, Nieren
F.B. sehr entspannt, aber T. nur eine Spur weniger
20.04.2006
alles unverändert, SSB immer angespannt
Behandlung: BFT, sacral waterbeds, EV4, the triune autonomic nervous system social nervous system reestablishment, ober BWS, SCG re Clavicula strukturell behandelt
F.B.: Nacken und Kopf freier, aber T. fast unverändert
24.05.2006
Behandlung: biodynamisch: condylar spread, SSB disengagement and facilitation of sphenobasilar reorganization, temporal bone dynamics
F.B: keine Veränderung der Lautstärke aber mehr Freiheit im System, besserer MRP, Verbesserung bezüglich körperlichen Wohlbefindens
Beurteilung durch Therapeutin: möglicherweise handelt es sich um ein Stoffwechselgeschehen, das am ehesten mit Nahrungsergänzungsmitteln, auf biochemischer Ebene zu beeinflussen ist.

G. Ma.

Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
28.02.2006	28	28	28	38
01.03.2006	30	30	30	35
27.03.2006	27	27	27	32
20.04.2006	27	26	27	33
24.05.2006	25	25	25	32

VAS 32 Stufe 1
Abschluss TBF12 : PR1 = 10 , PR2 = 6 , Prges = 4

Fall 21
22.12.2005
Frau M., 43 J., Zugang über Aushang beim Arzt
selbstständig, Übersetzerin, verheiratet
T: seit 10 J. hochfrequenten gleichförmigen Ton, bds. plötzlich nach Knalltrauma, oft laute Musik gehört, Hochtonschwerhörigkeit li und Rekruitment,
VAS 80 Stufe 4 !
TBF12 : PR1 = 66 , PR2 = 93 , Prges = 81
Anamnese : HWS und TMG probleme, Schädeltrauma in Jugend, 2 Mal Thrombose re und li Unterschenkel, Schwindel, Kopfschmerz, Bruxismus Beißschiene, Allergie Milch, friert leicht, speichert stark Wasser, etwas Übergewicht, Discusprotrusion L5/S1, humorvoll
Befund:
Schultern nach vorne oben gezogen eher Flachrücken, viel Spannung ATM bds mehr re, C7/Th1 „Stiernacken“, suboccipitaler Bereich sehr fest, übrige Hws sehr mobil, LWS in alle Richtungen eingeschränkt, Spannung erhöht im Nieren Nebennieren Bereich,
cranial: SBRre, schwacher MRP, viel Spannung Tentorium, Temporale bes. re
Behandlung: biodynamisch: Pelvic bowl, sacral waterbeds, ignition system, Bauchlage Nieren , Blase, RL: TMjoint motion states of balance, SSB motion
F.B. sehr erholt, Kiefer freier, knirschen besser, T. etwas leiser
23.01.2006
T. noch immer ziemlich laut, Pat. in Deutschland akute LWS Beschwerden, Lumbago, Spritzen
Behandlung: biod. pelvic bowl, sacral waterbeds, L5/S1, C7/TH1, transverse structures, TMJ, SSB motion, Nieren Nebennieren
F.B: T. jetzt nur noch brummen, knirschen besser, weniger Spannung im LWS bereich
31.01.2006
je ausgeruhter umso besser, T. aber nicht mehr so schlimm, wie zu Beginn
Behandlung: biodyn: states of balance: Pelvic bowl, Nieren, Hüfte re, Diaphragma thoracale thoracic inlet, occipital triad, temporal bone dynamics
F.B.: etwas besser als letztes Mal, Temporale freier, MRP kräftiger
28.02.2006
noch etwas Kreuzschmerzen, manchmal Ohr wie verschlagen, dann auch T. schlechter.
Behandlung:occipital triad, temporal bone dynamics, soft ignition dynamic of the third ventricle, Hyoid and mandibular arch and seams, Keifergelenk re viel freier,
F.B.: sehr entspannt, T. angenehmere Frequenz, besser erträglich
20.03.2006:
LWS beschwerden nach Golfspielen, T. nicht so störrend
Behandlung: biodyn. Becken , sacral waterbeds, pelvic bowl, EV4, Phase V „seams im Kopfbereich“, temporal bone dynamics, Mobilisation C7/TH1, condylar spread
F.B.: li T. fast nicht mehr wahrnehmbar, fühlt sich freier im LWS Bereich, Kiefer entspannt

25.04.2006
Tiefkühler kaputt, gleiche Ton wie T. nervt, aber gut im Griff, Hormonstäbchen entfernt, fühlt sich besser, hat Wasser verloren
Behandlung: viszeral Nieren Nebennieren, biodyn, Bauchorgane, SSBmotion, third ventricle orientation ,soft ignition, hypothalamus, hyppocampus, amygdalae, limb. system,
F.B.: li T. kaum re auch nicht schlimm, fühlt sich körperlich und seelisch viel besser, kann T. viel besser akzeptieren
Beurteilung durch Therap.: Pat. TMG dysfunktionen gelöst, weniger Kieferprobleme, Temporalekomplex freier, auch weniger LWS Beschwerden, hormonelle System funktioniert besser, sehr komplexes Geschehen auf hormoneller Basis, cranial mehr Freiheit SSB und Basis, Temporale; T. besteht schon so lange, dass er nicht ganz verschwinden wird (Innenohrschaden).

G. M.

Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
22.12.2005	74	0	37	80
31.01.2006	74	18	46	70
28.02.2006	54	0	27	47
20.03.2006	74	0	37	30
25.04.2006	58	5	32	22

Abschluss TBF12 : PR1 = 16 , PR2 = 53 , Prges =27
VAS 22 Stufe 1 !

Fall 22
6.12.2005
Frau Mü., 67 J., Zugang über Praxis
Witwe, Pensionistin, 2 Kinder
T: sehr hoher gleichförmiger Ton, seit 1 Jahr nach Verkühlung,
Hörminderung Innenohr Hochtonbereich,
VAS 56 Stufe 2
TBF12 : PR1 = 35 , PR2 =12 , Prges = 18
Anamnese, ASS P: HWS beschwerden, Schwindel, war früher Schneiderin, depressive Phasen früher, Schilddrüsenprobleme, früher starke Wechselbeschwerden, 1,82 m groß, kräftig, aber nicht adipös, zysten auf Leber und Nieren
Befund: leichte Skoliose, obere BWS sehr starr und in Ext., viel Spannung im Nacken und Kieferbereich, „Stiernacken“ C//TH1, C0/C1 in Kompression, Pat. ist tapfer, kann viel ertragen
Behandlung: mobilisation BWS, Schulter li, C7/TH1, thoracic inlet, third ventricle, the bird, Nierenécoute,
F.B: Zug li Körperseite hinauf und re Seite hinunter gespürt, dann umgekehrt, Schwebezustand ganz frei, weisses Licht zum dritten Auge (Pat. macht auch Reiki), T. verschwommener nicht mehr so hoch
12.01.2006
schläft in Bauchlage, T. lauter, auch beim Handarbeiten
Behandlung: Bauchlage sattle down biod. obere BWS, C7/TH1, RL: thoracic inlet,

occipital craddle hold, Halsfaszien, SSB Ausgleich Balance, Membranen harte und weiche Dura, Occiput Cerebellum weiter, Griff im äußeren Gehörgang Temporal bone dynamics, Tentorium freier,
F.B. Kopf sehr weit und oben offen, zuerst weisses dann blaues Licht hinein, Pat. hatte Gefühl, nicht atmen zu müssen
31.01.2006
hohe Surren weg, T. eher nur nachts, re sehr wenig, li Schulter noch Beschwerden
Behandlung: Mlobilisation untere HWS bis TH4, Transverse structures, pelvic bowl li Hüfte, EV4, Halsfaszien upper cervical aerea, TMJ
F.B: wohlig müde, Zug vom Kierfer bis Stirn spürbar, guter MRP, Frontale schwimmt
T. re weg
20.03.2006
li auch nicht mehr so stark und weniger schrill, re weg
Behandlung: biodyn. soft ignition, third ventricle, lymbic system, temporal bone dynamics, schönes Weiten und gute Kraft MRP spürbar
F.B.: blaues Licht in Körper nach unten, alles offen und breit, dann Strahl ins Herz gespürt
13.04.2006
Pat. immer gut gelaunt, reist viel, weniger Handarbeit
T. re weg
Behandlung: transverse structures, thoracic inlet, occipital triad, temporal bone dynamics, evaluation CNS motion
F.B: wieder Schwebezustand und Öffnen des Körpers gespürt, Behandlung sehr viel geholfen für Belästigung und Lautheit, besseres körperliches und seelisches Befinden
Beurteilung durch Therapeutin: Pat. sehr viel Erfahrung in alternativen Methoden, macht auch Kinesiologie und Reiki, kann sich optimal auf Behandlung einlassen Behandlungen in größeren Abständen günstig. Da T. noch nicht so lange ein Problem, würde er in diesem Fall eventuell ganz verschwinden.

Ch. Mü.

Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
06.12.2005	39	39	39	56
12.01.2006	13	39	26	50
31.01.2006	10	44	27	11
20.03.2006	0	10	5	5
13.04.2006	0	10	5	5

Abschluss TBF12 : PR1 = 1 , PR2 = 12 , Prges = 1
VAS 5 Stufe 1

Fall 23
Herr N., 20.12. 2005, Zugang über Selbsthilfegruppe
Pension, verheiratet, 2 Kinder, 66 J.
T.re seit 7 J. helles Surren, drei verschiedene Töne, nach Hörsturz
VAS 72 Stufe 3
TBF12 : PR1 = 35 , PR2 = 29 , Prges = 27

Anamnese, ASS.P: Hörsturz, Hörminderung li Trommelfell durchstoßen, re 65% Hörleistung, Pat. bezeichnet sich selbst als Hysteriker, Psychopharmaka, HWS und LWS Probleme (war früher Tapezierer, arbeitet jetzt auch noch sehr viel), sehr angespannt, Bruxismus, Gastritis, mit Rauchen und Trinken aufgehört, schlank, sportlich, macht sich selbst viel Stress, Neurodermitis anfällig, Discusprotrusion L4/L5
Befund: LWS geht nicht auf in Flexion, BWS kyphose, C0/C1 und Kieferbereich re viel Spannung,
cranial: Strain vertikal hoch, viel intraossäre Spannung Mastoid re, Starre SSB, MRP unruhig, wenig Amplitude
Behandlung: LWS Bereich begonnen, sacral waterbeds, Pelvic bowl, dauert lange, bis Pat, entspannt, thoracic inlet , vom Kopf aus CNSmotion, condylar spread, Foramen jugulare, soft ignition
F.B: Pat. erstaunlich gut entspannt, weniger T.Belästigung als Lautstärke
28.02.2006:
Kälteeinbruch: T.lauter,
Behandlung: Mobilisation BWS, LWS transverse structures, Omentum minus Magen erzählt viel von persönlichen Ereignissen (Scheidung, Kinder) gut entspannt, thoracic inlet, Halsfaszien, TMJ Bruxismus weniger, EV4
F.B. sehr gut entspannt, auch Organe, T. angenehmere Frequenzen
23.03.2006
Pat. hat viel gearbeitet, LWS schmerzt, gefeiert, Magenprobleme
Behandlung: viszeral, Magen omentum minus, Flexura Duodenojejunalis, Sphinkter Oddy, transverse structures, thoracic inlet, occipital triad, EV4
F.B.: Tentorium noch zu viel Spannung, li Apex partes petrosa zu viel Kompression, Ohrgeräusche dumpfer, Magen entspannt
25.04.2006
nach Arbeit WS Beschwerden, T. vom Stress und Schlaf abhängig
Behandlung: Mobilisation LWS, BWS, transverse structures, thoracic inlet, condylar spread, temporal bone dynamics,TMJ
F.B. Psyche bestens nach Behandlung, T. auch leiser
24.05.2006
Druck im Ohr, wetterfühlig
Behandlung: CV4, temporalbone dynamics, triune autonomic nervous system social nervous system reestablishment, limbic system
F.B. gut gelaunt, Lautheit immer mehr als Belästigung, körperliches und seelisches Befinden besser, aber wenig Veränderung in Bezug auf T.
Beurteilung durch Therapeutin: Pat. neigt zu Neurosen, Abgrenzung wichtig, T. in diesem Fall kaum zu beeinflussen, eher durch Ausgleich des ANS positiven Einfluss auf Organe

P. N.	Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
	20.12.2005	77		39	72
	28.02.2006	63		32	65
	23.03.2006	65		33	55
	25.04.2006	63		32	58
	24.05.2006	60		30	52

Abschluss TBF12 : PR1 = 35 , PR2 = 29 , Prges = 27
VAS 52 Stufe 2

Fall 24
24.01.2006
Frau N., 54 J., Zugang über Aushang beim Arzt
Lehrerin in Sonderschule, Witwe, 4 Kinder (ein Behindertes)
T. seit Infektion vor 1Jahr ständiges Pfeiffen, hoher Ton, bds
VAS 39 Stufe 1-2
TBF12 : PR1 = 66 , PR2 = 12 , Prges = 33
Anamnese: große Belastung im Beruf und mit Sohn, Schlaf schlecht, müder Eindruck, aber positive Einstellung zum Leben, Handarbeit als Hobby, Knieprothese re vor einem halben Jahr, noch immer Beschwerden, Nebenhöhlen, Divertikel im Darm,
Befund: „Stiernacken“ sehr verspannter Nackenbereich, große Brust, etwas Übergewicht, kann noch nicht so gut Knie belasten, Spannung Hals Faszien, cranial: APKompression, sehr schwacher MRP, Abflussproblem, Stau
Behandlung: transverse structures, thoracic inlet, C7/TH1, Halsfaszien, condylar spread, SSBmotion disengagement and facilitation of sphenobasilar reorganization
F.B. sehr angenehm, re viel leiser nach Behandlung
2.03.2006
müder Eindruck, möchte Knie noch einmal im Krankenhaus kontrollieren lassen
Behandlung: transverse structures, pelvic bowl, biodyn. states of balance Knie automatic shifting from an extremity, motility of the CNS, cerebrospinal fluid flow, Reise der Elritze,
F.B.hat gut getan, T. wieder leiser, Belästigung sehr wenig
29.03. 2006
T. kaum verändert, immer viel Nackenverspannungen
Behandlung: Phase V Biodynamics, „seams“im Kopf, soft ignition, mehr potency, thoracic inlet, temporal bone dynamics, systemic neutral unter Scapulawinkel,
F.B. T. immer besser nach Behandlung, kräftigerer MRP
27.04.2006
T. unverändert, viel Handarbeiten
Behandlung: pelvic bowl, EV4, the dynamic of the third ventricle, Mobilisation BWS, thoracic inlet
F.B. sehr angenehm, T. leiser, freier
16.05.2006
Patientin immer sehr müde, hat viel zu leisten, MRP schwach
Behandlung: cervikale Diaphragma, transverse structures, occipital triad, soft ignition, temporal bone dynamics
F.B. Behandlungen sehr angenehm, aber T. nur kurz danach leiser oder ganz weg fühlt sich durch T. aber kaum beeinträchtigt
Beurteilung: Wegen der großen Belastungen im Beruf und zu Hause sowie immer wieder Verspannungen wegen Patchworkarbeit ist T. auf Dauer schwer in Griff zu bekommen, Arbeit am Knie könnte noch mehr Balance bringen

G. N.

Datum	Lautheit rechts	Lautheit links	Lautheit ar. Mittel	Belästigg.
24.01.2006	36	36	36	39
02.03.2006	25	36	31	17
29.03.2006	30	34	32	40
27.04.2006	40	40	40	30
16.05.2006	30	20	25	18

Abschluss TBF12 : PR1 = 35 , PR2 = 12 , Prges = 22
VAS 18 Stufe 1

Fall 25
21.11.2005
Frau O., 40 J. , Zugang über Praxis,
Kosmetikerin, selbstständig, verheiratet, 2 Kinder
T. seit 2,5 J., mittelfrequentes Rauschen, wie Welle,
VAS 95 Stufe 4
TBF12 : PR1 = 75 , PR2 = 41 , Prges = 60
Anamnese: Pat. extrem belastet, Schwindel und leichte Hyperakusis, akute LWS Beschwerden, HWSprobleme,
Befund: Spannung Kaumuskeln, HWS C7/TH1, C0/C1 Dysf., sehr feste obere BWS, LWS schmerzbedingte Schonhaltung keine Flexion, li ISG schmerzhaft, re auch etwas, SSB wenig Bewegung, sehr viel intraossäre Spannung Occipput Inion
Behandlung: pelvic bowl, sacral water beds, Hitze spürbar, CV4,
F.B. weniger Kreuzschmerzen, T. etwas zurückgegangen, besserer MRP
23.012006
T. sehr unangenehm, Akuter Prolaps LWS, Cortison, „Lähmungsgefühl“ flüchtig li Bein, alle neurologischen Untersuchungen negativ
Behandlung: transverse structures, pelvic bowl, CNSmotion, EV4,
F.B. sehr gut getan, sehr entspannt, T. etwas leiser
31.01.2006
Pat. noch immer im Krankenstand, LWS besser, aber Schwindel und pulsieren lästig
Behandlung: EV4, occipital triad, condylar spread, sanfte Mobilisation HWS
F.B. hat sehr gut getan, auch T. wieder etas weniger
15.02.2006
Patientin hat von Neurologin Antidepressiva bekommen, kann jetzt besser schlafen, kann sich Symptome nicht erklären, wird Heilpraktiker aufsuchen
Behandlung: biodyn. Reise der Elritze Ventrikelsystem, limbisches System, soft ignition, venous sinuses
F.B. sehr entspannt, T. leichter
9.03.2006
Pat. macht auch Ausleitungstherapie, Akupunktur, ist noch immer auf der Suche nach Erklärung für Symptome, hat Arbeit für eine Weile ruhend gemeldet.
Behandlung: EV4, occiptal triad, venous sinuses cerebrospinal fluid, limbic system, Entspannung Weichteiltechniken HWS
F.B. sehr gut getan, T.nicht mehr so schlimm, aber Schwindel, Pat. hat trotz negativer Befunde Angst vor Tumor
Beurteilung: Es dürfte sich in diesem Fall um eine vegetative Entgleisung im Akutstadium des LWSschmerzes gehandelt haben, MRI ohne Befund , mehrmals untersucht, alle neurologischen Untersuchen auf der Neurologie ohne Ergebnis
Wegen der psychischen Problematik wäre eine kombinierte Therapie mit psychologischer Betreuung sehr ratsam, müsste auch von der Patientin gewollt werden. Etwas Angst vor böser Erkrankung noch immer vorhanden.

E. O.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
20.12.2005	82	86	84	95
23.01.2006	95	95	95	88
31.01.2006	90	90	90	95
15.02.2006	85	86	86	92
09.03.2006	70	70	70	60

Abschluss TBF12 : PR1 =46 , PR2 = 20 , Prges = 27

VAS 60 Stufe 3

Fall 26
6.12.2005
Frau P., 62 J., Zugang über Aushang Praxis
Witwe, Pension, früher Friseurin, keine Kinder
T. mittel und hochfrequentes Rauschen, gleichmäsig seit 6 J.,
VAS 40 Stufe 1-2
TBF12 : PR1 =66 , PR2 = 41 , Prges = 53
Anamnese: Hochtoninnenohrschwerhörigkeit, Nierenversagen mit 10 J. nur mehr eine Niere, mehrere Schädeltraumata, Schläfenbeibruch li, Oberarmfraktur li, Handgelenk li gebrochen, 2 Mal Helikobaktor, gutartige Tumoren Uterus (Total OP), Hormonersatz, schlank,
Befund: sehr verspannter Nacken, C0/C1, Kiefergelenke bds. Dysf., strain lat re, Temporalia stark angesaugt, viel Spannung ATM, SSB fest
Behandlung: transverse structures, thoracic inlet, Halsfaszien, SSBmotion, temoporal bone dynamics
F.B.: angenehm freies Gefühl im Nacken, T. jetzt leiser
9.01.2006
schlechter Schlaf, temporale, Parietale li sehr fest, condensed,
Behandlung: Temporal bone dynamics, starker Zug vom Tentorium, wie Strudel, Wechsel Zone B zu Zone C, lösen und Transmutation spürbar, spontanes F.B. jetzt ganz ruhig, Rebalancing von Füßen her
16.02.2006
Pat. auf Eisplatte gestürzt, Kopfschmerzen
Behandlung: condylar spread, occiptal triad, Halsfaszien, SSB disengagement and sphenobasilar reorganization, venous sinuses, viszeral Magen,
F.B. sehr angenehm, Kopfschmerz weniger, T. geht nicht hinunter
8.03.2006
noch immer schwacher MRP spürbar, li Frontale und li Tentorium viel Dichte und Spannung
Behandlung: motility of the CNS, cerbrospinal fluid flow, vault hold, SSB motion, Frontale freier, Nieren viszeral,
F.B. T. leichter, Kopf arbeitet stark aber kein Schmerz
29.03.2006
Pat. weist auf leichte Schilddrüsenprobleme hin, T. nicht so lästig
Behandlung: Nieren, thoracic inlet, C7/TH1, Halsfaszien , Hyoid bone temporal hold relationships, SSB motion, temporal bone dynamics
F.B. Pat. viel ruhiger, T. auch leiser, Behandlungen haben etwas geholfen bezüglich Lautheit und Belästigung
Beurteilung: Patientin trotz der vielen Unfälle und Operationen in sehr gutem Allgemeinzustand, T. würde nur bei ständig begleitender Therapie (bes. HWS Bereich) immer wieder etwas leiser werden, aber nicht verschwinden.

M. P.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
06.12.2005		38		40
09.01.2006		41		42
16.02.2006		37		50
08.03.2006		41		31
29.03.2006		40		40

Abschluss TBF12 : PR1 = 46 , PR2 = 41 , Prges = 40
VAS 40 Stufe 1-2

Fall 27
21.12.2005
Frau R., 27 J., Zugang über Aushang beim Arzt
Angestellte, Büro, kein Partner
T. seit 10 Monaten Rauschen, hoch und gleichförmig, links
Anamnese: Pat. macht Abendmatura, Stress auch in der Familie (Schwester geistig behindert), mehrere Wurzelbehandlungen, Kiefergelenksdysfunktion bds. , Nackenverspannung, etwas Übergewicht, Ernährung unregelmäßig
VAS 50 Stufe 2
TBF12 : PR1 = 35 , PR2 = 20 , Prges = 22
Befund: „Stiernacken“, Kompression C7/ Th1, C0/C1, Skoliose li lumbal konvex, obere BWS sehr fest, re thorakolumbal konvex, Th1-5 sehr flach und fest, Pat. wirkt sehr angespannt
cranial: SBRli, MRP schwach, verdrehtes Tentorium, temporale li sehr fix,
Behandlung: zuerst in Bauchlage strukturelle Mobilisation BWS, RL, HWS Mobilisation, thoracic inlet, EV4 unter Scapulawinkel, condylar spread, Temporalia BMT, Weiten, SSB noch starker Zug, SBRli spürbar, SSB disengagement and sphenobasilar reorganization,
F.B. Arme sehr schwer, müde, eingeschlafen, guter MRP
31.01.2006
Prüfungen und Büroumbau, T. eher im Kopf, vorübergehend lautes Pfeifen und wieder weg
Behandlung: Pelvic bowl, thoracic inlet Halsfaszien, TMJ, temporal bone dynamics,
F.B. gut entspannt und müde, Frequenz tiefer
17.02.2006
Migräne nach fortgehen, Schlaf jetzt besser,
Behandlung: Mobilisation BWS HWS, transverse structures, condylar spread, CV4, temporal bone dynamics, Halsfaszien
F.B. entspannt, Frequenz hat gewechselt, weiter entfernt, freier
20.03.2006
psychologische Belastung wegen Schwester und Matura aber T. stabil
Behandlung: EV4, soft ignition, dynamic of the third ventricle, limbic system
F.B. sehr gut getan ist zuversichtlich, Temporalia etwas freier
20.04.2006
Matura in 1 Monat, T. konstant, nicht mehr so störend beim Einschlafen, MRP besser Nacken lockerer
Behandlung: transverse structures, thoracic inlet, condylar spread, triune autonomic system - social nervous system reestablishment, temporal bone dynamics
F.B. sehr angenehm, positive Einstellung, Belästigung gesunken, Lautheit nicht viel verändert
Beurteilung: Pat. sehr kooperativ, wird nach der Matura eventuell noch um einiges besser werden, momentan der Stress zu groß, trotzdem T. gut im Griff, wichtig ist aber HWS Zone frei zu halten.

A. R.

Datum	Lautheit rechts	L. im Kopf	ar. Mittel	Belästigg.
21.12.2005		22		50
31.01.2006		35		42
17.02.2006		33		47
20.03.2006		35		45
20.04.2006		15		6

Abschluss TBF12 : PR1 =16 , PR2 = 12 , Prges = 9
VAS 6 Stufe 1

o
Fall 28
02.03.2006
Herr R., 52 J.,Zugang über Aushang beim Arzt
derzeit arbeitslos, verheiratet, 2 Kinder
T.: seit 10 J. Peifen und Grillenzierpen, eher hochfrequent, gleichförmig, bds., nach Hörsturz
VAS 40 Stufe 1 aber subjektive Lautheit viel stärker !
TBF12 : PR1 = 25 , PR2 = 53 , Prges = 33
Anamnese: Schwerhörigkeit im Sprachbereich li mehr als re, Aortenaneurysma thorakal vor Juni 2005 Jahr diagnostiziert , künstliche Herzklappe Juli 2005, früher Borrelieninfektion, niederer Blutdruck, wirkt eher depressiv, wegen Gefäßproblemen zur Zeit keine Arbeit, schlank
Befund: Skoliose Konvexität bei TH10 li, Streckhaltung HWS, große Narbe von OP am Sternum, Schmerzhafter Thorax beim Bewegen, klicken der Herzklappe deutlich hörbar, Li Hüfte Dysfunktion, Schmerz und Bewegungseinschränkung, Wärme tut gut, psychische Verfassung momentan nicht so gut, wird über das Arbeitsmarktservice vermittelt, MRP schwach, Tentorium, Membranen Restriktionen, Temporalia bds. angeaugt in IR,
Behandlung: biodyn. Sternum (fire in the bone), Halsfaszien, upper cervical aerea, thoracic inlet, Diaphragma
F.B.: Frequenz jetzt eher nur Rauschen, angenehmer
5.04.2006
Pat. trägt zur Probe Hörgerät, kommt damit aber nicht zurecht, zur Herzkontrolle bestellt, noch keine Arbeit
Behandlung: EV4 unter Angulae scapulae, thoracic inlet, Halsfaszien, CNS motion, temporal bone dynamics
F.B.: re Wärme und angenehmere Frequenz, entfernter
22.05.2006
Herzkontrolle alles in Ordnung, aber Klicken stört, besonders beim Liegen, nimmt Hörgerät nicht mehr
Behandlung: pelvic bowl, BFT in Seitlage thoracic inlet, sternum, Klappengeräusch in SL leiser, dann RL, condylar spread, CNS motion, Klicken wird leiser, cerebrospinal fluid
F.B.: sehr angenehm wenn Wärme ausstrahlt, T. beruhigt sich dann
14.06.2006
noch keine Arbeit, T. stört nicht so, MRP schwach
Behandlung: temporal bone dynamics, EV4, disengagement and facilitation of SSB reorganization, BWS Sternum BFT
F.B.: Wärme tut sehr gut, entspannt, MRP kräftiger
3.07.2006
Arbeitet wieder, T. deshalb keine Änderung, besser für Psyche,
Behandlung: pelvic bowl, sacral waterbeds, li Hüfte BMT., Sternum BFT, condylar spread, temporal bone dynamics
F.B.: tut immer gut, angenehmes Gefühl im Ohr, T. leiser
Beurteilung: Patient sehr kooperativ, hat aber immer noch Angst nach der Operation, würde durch optimale Hörgeräteversorgung T. eventuell noch mehr in den Hintergrund drängen können; begleitende Therapie um Faszien, Membranen und Emotionen noch mehr zu harmonisieren, indiziert.

L. R.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
02.03.2006	79	79	79	40
05.04.2006	60	68	64	35
22.05.2006	34	40	37	34
14.06.2006	18	22	20	25
03.07.2006	30	40	35	30

Abschluss TBF12 : PR1 = 6 , PR2 = 20 , Prges = 4
VAS 30 Gruppe 1

Fall 29
12.12.2006
Frau Sch., 56 J., Zugang über Aushang beim Arzt
Mittelschullehrerin, geschieden, 1 Sohn
T.: seit 5 J, mittelfrequentes Rauschen wie Wassserleitung, eher li
VAS 68 Stufe 3
TBF12 : PR1 = 66 , PR2 = 41 , Prges = 53
Anamnese: HWS Probleme, Schwindel, Bruxismus, OP Knöchel re, großer privater Stress, 2 Mal Schleudertrauma, Atemprobleme (Beklemmung) und Brennen im Hals, Glaukom, Nebenhöhlen anfällig, RR hoch, gutartige Schilddrüsengeschwüre, re Schulter operiert, Eileiter durchtrennt, Nierenfunktionsstörung
Befund: leichtes Übergewicht, „Stiernacken“, C7/TH1 Dysfunktion, Kopf protrahiert, leichte Skoiose re konvex obere BWS, Ödem re Unterschenkel, LWS sehr steif, MRP ganz schwach, wenig Bewegung an SSB, Zug nach innen Tentorium und Temporalia, ATM viel Spannung
Behandlung: CNS motion, disengagement and facilitation of SSB reorganization, temporal bone dynamics, Halsfaszien, TMJ
F.B.: zuerst schwindlig, dann müde, jetzt besser, MRP etwas kräftiger
28.12.2006
muss Tabletten gegen Hypertonie nehmen, Bruxismus stark, privater großer Stress
Behandlung: pelvic bowl, Nieren écoute, transverse srtuctures, thoracic inlet, Halsfaszien, temporal bone dynamics, sanfte Mobilisation BWS, Übergang HWS, Schultergürtel
F.B. Pat. bekommt mehr Luft und Blut für den Kopf, fühlt sich freier, T. weniger stark
16.01.2006
Schwindel und viel Anspannung im Nacken, Scheidung noch nicht ganz abgeschlossen,
Behandlung: thoracic inlet, condylar spread, CNS motion, soft ignition dynamic of the third ventricle, vizeral Magen, Nieren,
F.B.: tiefer Schlaf, 1 Mal Bruxismus, guter MRP, große Amplitude, nachher lockerer, T. entfenter,
2.03.2006
nach Semesterferien entspannter, aber Brennen im Hals und hinter Brustbein bis zu den Ohren, internistisch abgeklärt
Behandlung: mobilisation BWS, HWS, Schultergürtel, biodyn. thoracic inlet, sternum, Halsfaszien, SSBmotion, emotionales NS (ANS, limbisches System)
F.B: alles fließt besser, freies Denken

24.04.2006
keine Stimme, Infekt, Bronchitis, viel Spannung im Nacken
Behandlung: biod. the dynamic of the third ventricle, soft ignition, SSBmotion, thorax, thoracic inlet
F.B. kann Störgeräusch viel besser akzeptieren, MRP viel kräftiger, Temporale freier
Beurteilung: Patientin konnte sich sehr gut auf Behandlungen einlassen, trotz großer privater Probleme Humor bewahrt, begleitende Therapie sinnvoll um ANS und Ressourcen zu erhalten, bis Scheidung ganz abgeschlossen

R. S.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
12.12.2005	35	45	40	68
28.12.2005	39	36	38	50
16.01.2006	25	30	28	37
02.03.2006	36	36	36	42
24.04.2006	35	33	34	32

Abschluss TBF12 : PR1 = 25 , PR2 = 12 , Prges = 13
VAS 32 Stufe 1

Fall 30
21.12.2005
Herr S., 59 J., Zugang über Aushang beim Arzt
Pensionist, verheiratet,
T.: seit 12 J, zischen hoch gleichförmig, im Kopf
VAS 98 Stufe 4
TBF12 : PR1 = 35 , PR2 = 53 , Prges = 40
Anamnese, ASSP.: vor 7 Jahren Sohn tödlich verunglückt, bds Innenohrschwerhörigkeit (60-70 dB), Dysthymie, erste Sakralsegment lumbalisiert, Discusprolaps L5/S1, Skoliose linkskonvex Scheitel bei L2/L3, 1993 alle Zähne verloren Stressreaktion auf Arbeit, Schilddrüsen li Knoten, erhöhte Cholesterin und Triglyzeridwerte, schlank, geht 2 Mal in Woche turnen, starke Bronchitis zur Zeit
Befund: Skoliose, li Kniegelenk nicht frei, viel Spannung im Nacken, MRP schwach , SSB sehr fest, LWS schmerzhaft bei Bewegung,
Behandlung: transverse structures, Magen, Lunge, Thorax, thoracic inlet , Halsfaszien, condylar spread, temporal bone dynamics
F.B.: MRP kräftiger, SSB freier, aber li Temporale noch Spannung, gut entspannt, Lunge freier
9.02.2006
Darmpolypen entfent, ein Leberwert erhöht, T. schwankt sehr, Vollmond, …
Behandlung: viszeral Nieren, Leber, pelvic bowl, transverse structures, C7/TH1, thoracic inlet, Temporal bone dynamics
F.B. but entspannt aber T. noch immer laut
13.03.2006
T. schwankt, Patient wirkt immer sehr nervös, hört sehr schlecht, will kein Hörgerät tragen
Behandlung: pelvic bowl, Diaphragma, thoracic inlet, SSB disengagement and facilitation of SSB reorganization, temporal bone dynamics,

F.B. schön frei, T. entfernter
27.04.2006
T. auch schon weg gewesen für einen Tag, aber nach Training (Schaukelbrett im Fitnesscenter) wieder ganz arg.
Behandlung: transverse structures, SSB motion, condylar spread, occipital triad, Mobilisation BWS und LWS
F.B.: angenehm wieder weiter weg
3.05 2006
labile Persönlichkeit, T. unterliegt großen Schwankungen
Behandlung: EV4, temporal bone dynamics, viszeral Leber, Nieren, Mobilisation HWS, occipital triad
F.B.: T. nur vorübergehend besser, zwischendurch wieder sehr laut
Beurteilung: in diesem Fall dürfte die psychische Komorbidität eine große Rolle spielen, T. wird langfristig nicht dauerhaft beeinflussbar sein nur durch osteopathische Begandlungen, Hörgerät und psychologische Unterstützung notwendig.

W. S.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
21.12.2005	98	97	98	98
09.02.2006	40	40	40	35
13.03.2006	80	80	80	70
27.04.2006	65	0	33	55
03.05.2006	28	27	28	30

Abschluss TBF12 : PR1 = 35 , , PR2 =29 , Prges = 27
VAS 30 Stufe 1

Fall 31
16.01.2006
Herr Sl., 66 J., Zugang über Praxis
Universitätsprofessor (Gletscherkunde), verheiratet, 2 Kinder
T.: bds. T. seit 30 J. hohes Pfeifen und auch andere Töne manchmal wie Konzert im Kopf
VAS 55 Stufe 2
TBF12 : PR1 = 25 , PR2 = 29 , Prges = 22
Anamnese, ASS.P.: Claviculafraktur re, niederer Blutdruck, Antidepressiva, Schlafmittel, Magen empfindlich, Teilresektion Prostata, Bluttfettwerte erhöht, etwas Übergewicht, immer wieder depressive Phasen, wurde vom Zwillingsbruder und Eltern mit neun Jahren getrennt
Befund: Kyphose, viel abdominale Spannung, HWS in EXT, viel Spannung Nacken und suboccipital, SSB sehr fest, Torsion re, Tentorium verkrampft, Temporale sehr fixiert, MRP große Amplitude
Behandlung: EV4, SSBmotion, temporal bone dynamics, third ventricle the bird,
F.B.: gefühlt, dass Kontrolle abgegeben wurde, sehr gut; T.harmonischer
21.02.2006
Herzrythmusstörungen, Vorhofflimmern, 24 Stunden EKG, Belastung Arbeit und zusätzliche Verpflichtungen, Druck im Kopf weg seit letztem Mal,
Behandlung: condylar spread, occipital triad, EV4, soft ignitoin
F.B: li an Basis viel aufgegangen, freier, alles wie geschmiert, T. besser

8.03.2006
Probleme mit Darm wegen Antidepressiva, T. war nach letzten Behandlung für ein paar Tage weg
Behandlung: viszeral Colonflexuren, li Niere (Zyste), Magen, Milz,
SSB disengagement and facilitation of SSB reorganization, temporal bone dynamics,
F.B.: T. Phasen wo ganz weg, schöne Ampöitude
4.04.2006
kleiner Nierenstein im Ureter, T. kommt und geht
Behandlung: Pelvic bowl ,transverse structures, SSB motion, the triune ANS - Social nervous system reestablishment
F.B. T. geht hinunter, Temporale freier, Parietale bds noch zu starr
24.04.2006
Schmerzen zwischen Scapulae, T. kommt und geht
Behandlung: EV4 unter Scapulae Winkel, Phase V Biodynamic; „Seams“ im Kopf Herzzone geöffnet, SSB disengagement and facilitation of SSB reorganization, temporal bone dynamics
F.B.: T. wieder schwächer geworden, li Zug am Temporale nachgelassen,
Beurteilung: sehr kooperativer Patient kann Veränderungen gut wahrnehmen, Behandlungen haben ihm sehr viel geholfen Störgeräuch besser zu akzeptieren und auch seelisches Befinden zu verbessern, je nach depressiven Phasen wäre begleitende Therapie sinnvoll.

	Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
H. S.	16.01.2006	55	47	51	55
	21.02.2006	54	48	51	54
	08.03.2006	45	40	43	46
	04.04.2006	28	32	30	35
	24.04.2006	30	30	30	35

Abschluss TBF12 : PR1 =25 , PR2 = 6 , Prges = 9
VAS 35 Stufe 1

Fall 32
10. 01.2006
Herr W.,56 J., Zugang über Aushang beim Arzt
Selbstständig, Krankenstand, verheiratet
T.: seit neun J. spitzer Pfeifton im Kopf, gleichförmig
VAS 43 Stufe 2
TBF12 : PR1 = 1 , PR2 = 20, Prges = 2
Anamnese, ASS.P.: vor 8 J. Sturz auf Hinterhaupt (Stiege), 2 Mal Fuss gebrochen, Bronchiuskarzinom, Lebermetastasen, Nierenmetastasen, Wirbelsäulen Metastasen,
schlank, den Umständen entsprechender Allgemeinzustand, Chemotherapie, Psyche trotzdem nicht in schlechtem Zustand, kämpft und ist zuversichtlich,
Befund: Skoliose, C7/TH1 prominent und sehr fest, hängende Schultern, Pat. ist sehr groß, viel Spannung in Halsfaszien,
cranial: MRP ganz schwach, winzige Amplitude, wenig Kraft, li Temporale mehr angesaugt als re, li eher dichter als re, Unruhe an SSB
Behandlung: Biodynamisch: Neutral dauert etwas lange, EV4 (Occiput sehr hart, lange Zeit für Entfaltung der Meningen), the dynamic of the third ventricle, soft ignition, Wärme und schönes Weiten gespürt, Rebalancing

F.B.: Pat. gut geschlafen, sehr entspannt, T. etwas besser
23.01.2006
Lautstärke wechselt, neue Untersuchung mit PET Scan, noch keine Ergebnisse, Kontakt zu Innsbrucker Radiologie
Behandlung: transverse structures, thoracic inlet, soft ignition, SSBmotion
F.B.: MRP besser spürbar, weichere Meningen, Pat. sehr gut getan. T.jetzt leiser
21.02.2006
nach letzten Behandlung T. für ein paar Minuten weg gewesen (erstmals), noch keine neuen Befunde, stabile Psyche versucht Leben jetzt zu genießen
Behandlung: transverse structures, pelvic bowl, SSB motion, the triune ANS - Social nervous system reestablishment, limbic system, Angst spürbar, drei “Entladungen”, rebalancing von Füssen aus
F.B: T. etwas leiser, Behandlung tut immer sehr gut, fühlt sich frischer
14.03.2006
noch immer Chemotherapie, T. war wieder für ein paar Minuten weg,
Behandlung: biodyn. Bauchorgane, viel Spannung im gesamten Dickdarm, thoracic inlet, condylar spread, temporal bone dynamics
F.B: immer sehr entspannt, vitalisiert, besserer MRP
5.04.2006
war in Innsbrucker Klinik, wird neue Therapie ausprobieren,
Behandlung: EV4, soft ignition, limbic system,
F.B.: Behandlungen sehr angenehm, T. danch leiser, nicht so schrill,
Beurteilung: nur begleitende, unterstützende Therapie möglich um Ressourcen auszuschöpfen, Patient kann Veränderungen sehr gut wahrnehmen

H W.

Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
10.01.2006	40	32	36	42
23.01.2006	21	26	24	41
21.02.2006	19	19	19	20
14.03.2006	30	30	30	20
05.04.2006	25	28	27	27

Abschluss TBF12 : PR1 = 1 , PR2 =20 , Prges = 2
VAS : 27 Stufe 1

Fall 33

3.11.2005
Frau W., 38 J., Zugang über Praxis
Krankenschwester, Lebenspartner
T.: seit 18 J. einzelner Ton wie Wasserkocher, hoch, gleichförmig, re
VAS 27 Stufe 1
TBF12 : PR1 = 25 , PR2 = 53 , Prges = 33
Anamnese, ASS.P.: T. trat nach Sturz auf Unterkiefer auf, zusätzlich private Krise, mehrere Schädeltraumata als Kind, vor 2 Jahren Hörsturz, leichte Hochtonschwerhörigkeit re, manchmal Asthma, Spasmus Pylorus, Migräne, Kiefergelenksdysfunktion bds,
Befund: Patellaabnützung li, li Ilium Vorlauf, Kyphose, viel Spannung Nacken, suboccipital, re Schulter schmerzt bei endradiger Bewegung, normal gewichtig
cranial: SBRli, Tentorium re in IR, re Temporale angesaugt, TMG sehr fest, Druckschmerz Schläfen, Bruxismus,

Behandlung: transverse structures, pelvic bowl, condylar spread, SSBmotion, temporal bone dynamics
F.B.: sehr müde, gut entspannt, T. um eine Spur leiser
22.11.2005
Pat. hat gekündigt und wird Arbeitsstelle wechseln, T. zur Zeit nicht so schlimm, Training für Kniegelenksmuskulatur
Behandlung: neutral von Füssen her, pelvic bowl, Diaphragma, Magen, Halsfaszien, occipital triad, SSB disengagement and facilitation of SSB reorganization,
F.B.: T. ein Mal li ganz laut, dann wieder weg,
22.12.2006
manchmal asthmatisch vor schlafen, T. nicht schlimm zur Zeit
Behandlung: Thoracic inlet, Halsfaszien, condylar spread, temporal bone dynamics, Tentorium
F.B.: sehr müde, fast bamstiges Gefühl an Körpervorderseite, T. fast weg
24.01.2006
Neue Arbeit im Hospiz, T. schlimmer seit Arbeitsbeginn
Behandlung: CV4, venous sinuses, cerebrospinal fluid flow, TMJ, Hyoid and mandibular arch
F.B.: Wärme und Weiten spürbar, gut entspannt , T. jetzt nicht mehr so lästig
2.02.2006
T. hängt sehr von der Arbeit ab
Behandlung: CV4, TMJ, the triune autonomic nervous system social nervous system reestablishment,
F.B.: T. weniger nach Therapie, aber in Arbeit wieder schlimmer, Membranen weniger rigide, Zug des re Tentoriums und re Temporale etwas weniger
Beurteilung: Patientin sehr aufopfernd, aber kann nicht gut mit Stress umgehen, T. sehr von jeweiligen Situation am Arbeitsplatz abhängig, eher unterstützend, aber kaum längere Zeit anhaltende Verbesserung möglich.

M. W.

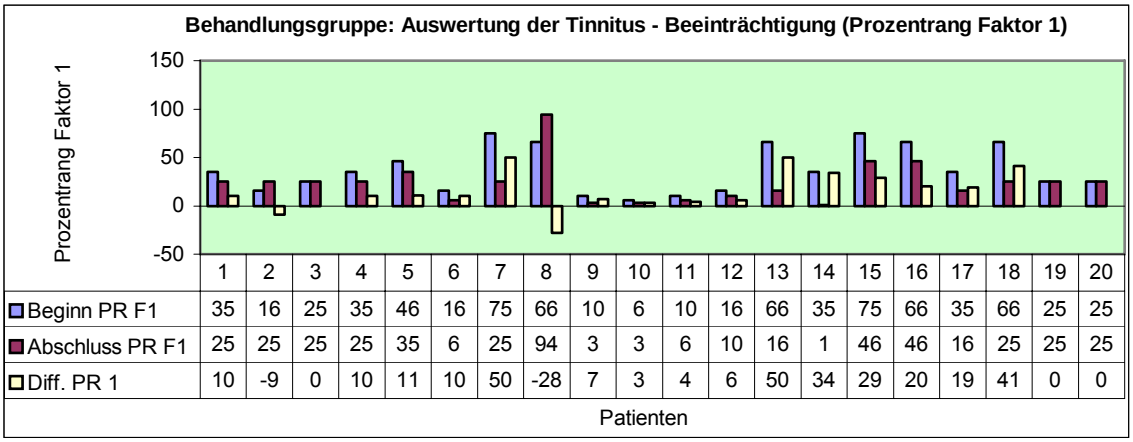
Datum	Lautheit rechts	Lautheit links	ar. Mittel	Belästigg.
03.11.2005	27			27
22.11.2005	26			23
22.12.2005	10			10
24.01.2006	26			45
02.02.2006	31			34

Abschluss TBF12 : PR1 = 25 , PR2 = 41 , Prges = 27
VAS 34 Stufe 1

10.4 Grafische Darstellungen der Auswertungen

Es folgen die Grafiken bezüglich des Tinnitus – Beeinträchtigungs – Fragebogen (TBF 12) getrennt nach Faktor 1, Faktor 2, und Gesamtfaktor (Einzeldarstellung jedes Patienten getrennt nach Behandlungs – und Wartegruppe).
Es werden der Ausgangswert, der Endwert, sowie die Differenz dargestellt.
Faktor 1: Item 3, 4, 6, 8, 10, 11, 12 PR F1 = Prozentrang Faktor 1
Faktor 2: Item 1, 2, 5, 7, 9 PR F2 = Prozentrang Faktor 2
Gesamtbeeinträchtigung: Item 1 bis 12;
Gesamt Prozentrang Faktor 1 und Faktor 2 = Ges. PR
Diff PR = Differenz Prozentrang

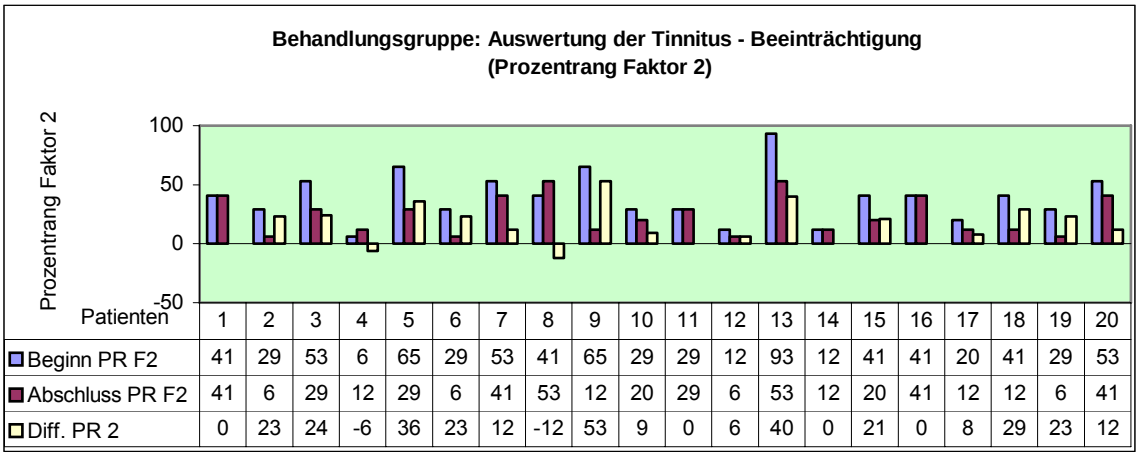
Faktor 1 der Behandlungsgruppe:
Es wird ersichtlich, dass sich 15 Patienten bezüglich **Faktor 1** (emotional – kognitive Beeinträchtigung) verbessert haben, drei Patienten gleich geblieben sind, und zwei Patienten sich verschlechtert haben.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Beginn PR F1	35	16	25	35	46	16	75	66	10	6	10	16	66	35	75	66	35	66	25	25
Abschluss PR F1	25	25	25	25	35	6	25	94	3	3	6	10	16	1	46	46	16	25	25	25
Diff. PR 1	10	-9	0	10	11	10	50	-28	7	3	4	6	50	34	29	20	19	41	0	0

Fig. 48: Auswertung der Daten der Behandlungsgruppe & PR F1 und Differenz zu Beginn und Abschluss

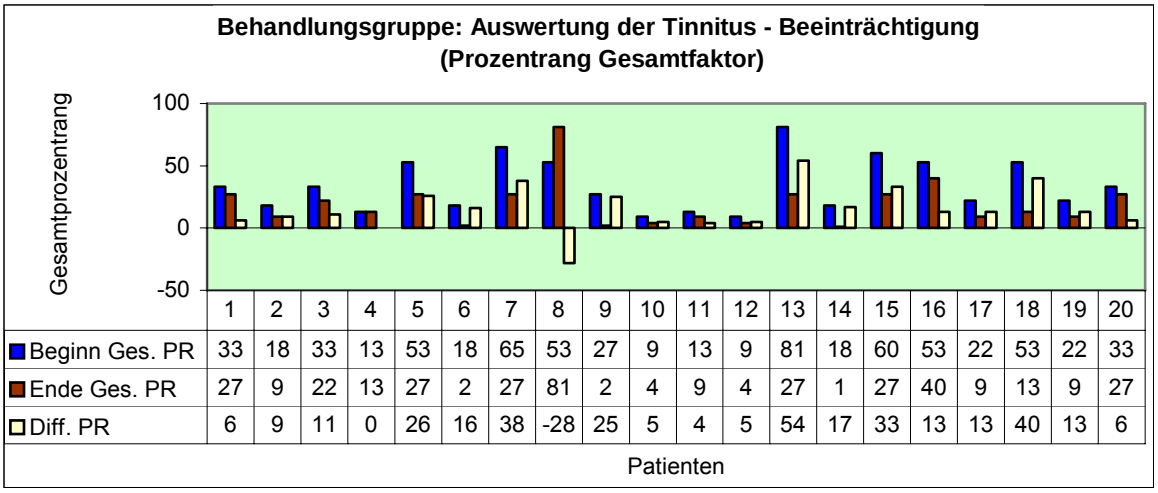
Es haben sich bezüglich **Faktor 2**, 13 Patienten verbessert und 2 Patienten verschlechtert haben. Vier Patienten haben sich nicht verändert.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Beginn PR F2	41	29	53	6	65	29	53	41	65	29	29	12	93	12	41	41	20	41	29	53
Abschluss PR F2	41	6	29	12	29	6	41	53	12	20	29	6	53	12	20	41	12	12	6	41
Diff. PR 2	0	23	24	-6	36	23	12	-12	53	9	0	6	40	0	21	0	8	29	23	12

Fig. 49: Auswertung der Daten der Behandlungsgruppe / PR F2 und Differenzen zu Beginn und Abschluss

Wenn man das Ergebnis der **Gesamtbeeinträchtigung** betrachtet, so haben sich 18 Patienten verbessert, 1 Patient hat sich verschlechtert, und ein Patient hat sich nicht verändert.

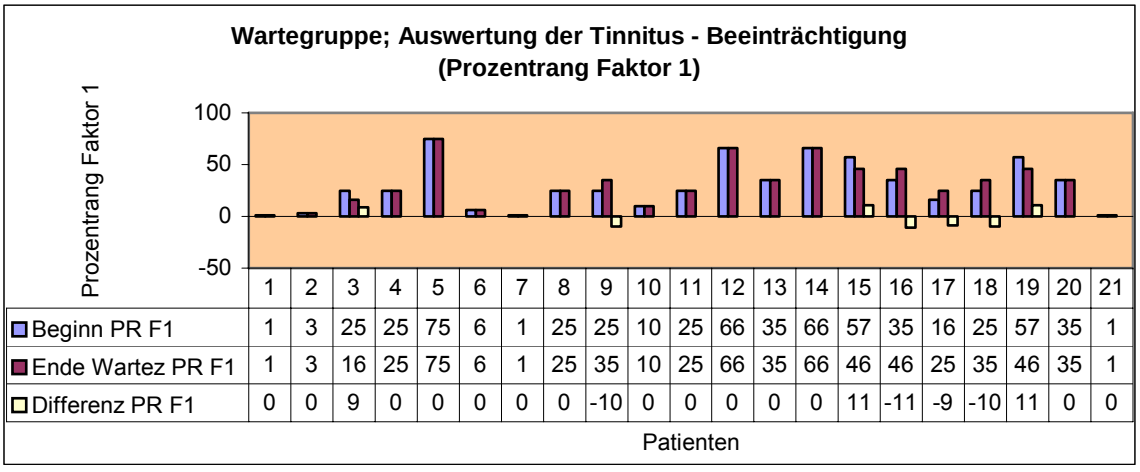


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Beginn Ges. PR	33	18	33	13	53	18	65	53	27	9	13	9	81	18	60	53	22	53	22	33
Ende Ges. PR	27	9	22	13	27	2	27	81	2	4	9	4	27	1	27	40	9	13	9	27
Diff. PR	6	9	11	0	26	16	38	-28	25	5	4	5	54	17	33	13	13	40	13	6

Patienten

Fig. 50: Auswertung der Daten der Behandlungsgruppe / PR gesamt und Differenzen zu Beginn und Abschluss

Wartegruppe Faktor 1:
Das Diagramm zeigt, dass sich drei Patienten am Ende der Wartezeit verbessert und vier Patienten verschlechtert haben. 14 Patienten sind gleich geblieben.

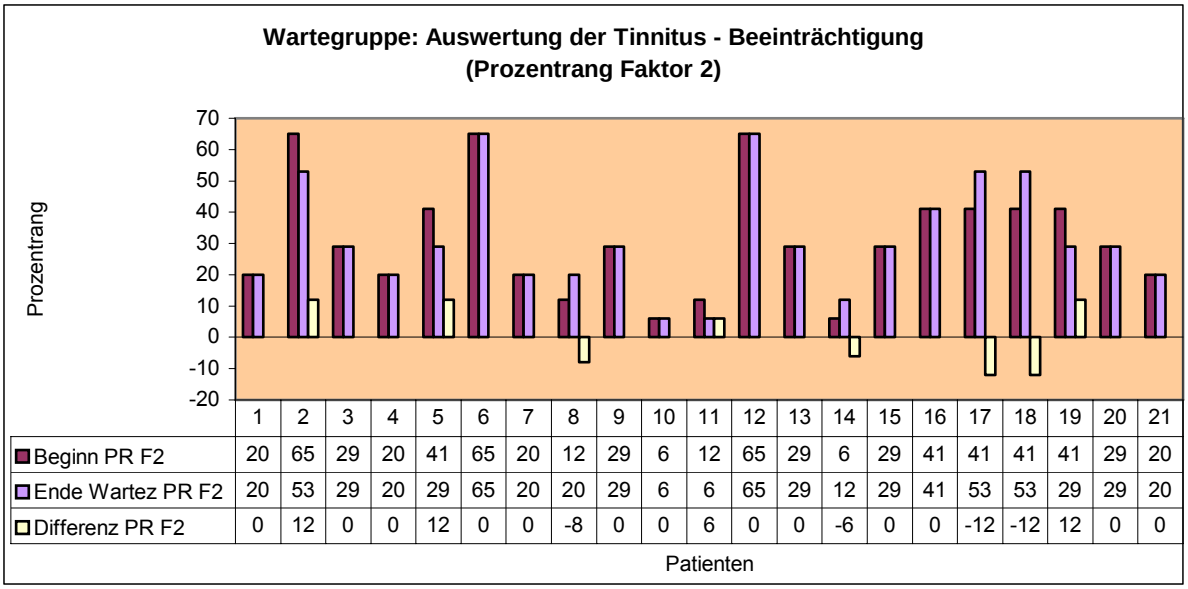


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Beginn PR F1	1	3	25	25	75	6	1	25	25	10	25	66	35	66	57	35	16	25	57	35	1
Ende Wartez PR F1	1	3	16	25	75	6	1	25	35	10	25	66	35	66	46	46	25	35	46	35	1
Differenz PR F1	0	0	9	0	0	0	0	0	-10	0	0	0	0	0	11	-11	-9	-10	11	0	0

Patienten

Fig. 51: Auswertung der Daten der Wartegruppe / PR F 1 und Differenzen zu Beginn und Abschluss

Wartegruppe Faktor 2:
Es wird ersichtlich, dass sich vier Patienten verbessert, vier Patienten verschlechtert haben, und 13 Patienten gleich geblieben sind.

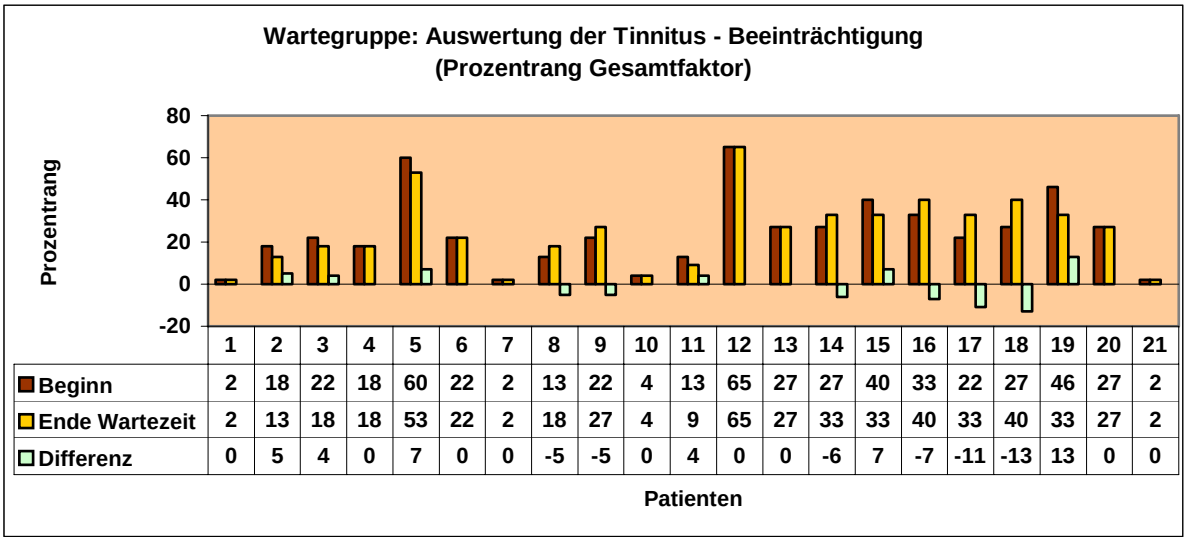


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Beginn PR F2	20	65	29	20	41	65	20	12	29	6	12	65	29	6	29	41	41	41	41	29	20
Ende Wartez PR F2	20	53	29	20	29	65	20	20	29	6	6	65	29	12	29	41	53	53	29	29	20
Differenz PR F2	0	12	0	0	12	0	0	-8	0	0	6	0	0	-6	0	0	-12	-12	12	0	0

Patienten

Fig. 52: Auswertung der Daten der Wartegruppe / PR F2 und Differenzen zu Beginn und Abschluss

Wartegruppe Gesamtfaktor:
Die Abbildung zeigt, dass sich 6 Patienten verbessert, 6 Patienten verschlechtert haben, und 9 Patienten gleich geblieben sind.

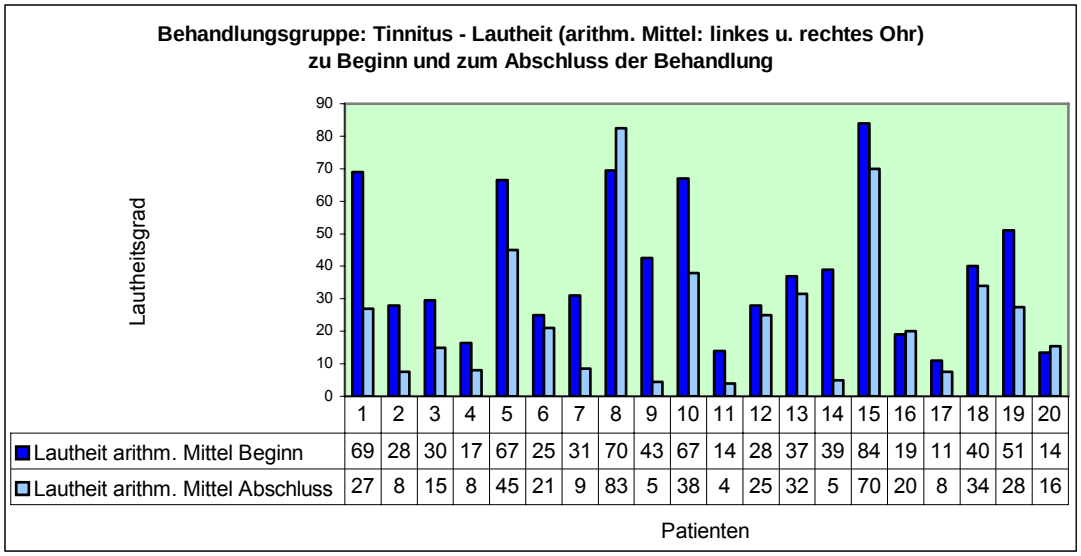


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Beginn	2	18	22	18	60	22	2	13	22	4	13	65	27	27	40	33	22	27	46	27	2
Ende Wartezeit	2	13	18	18	53	22	2	18	27	4	9	65	27	33	33	40	33	40	33	27	2
Differenz	0	5	4	0	7	0	0	-5	-5	0	4	0	0	-6	7	-7	-11	-13	13	0	0

Patienten

Fig. 53:Auswertung der Daten der Wartegruppe / PR gesamt und Differenzen zu Beginn und Abschluss

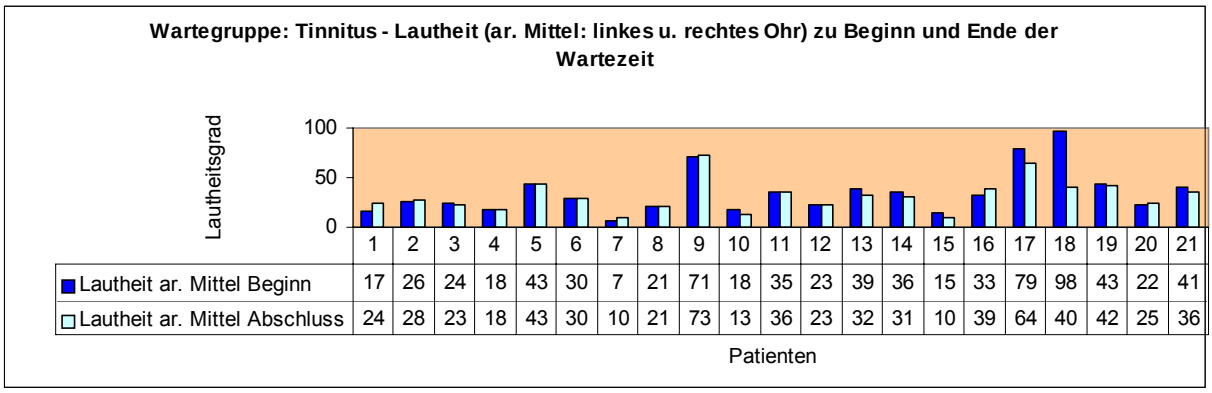
Es folgen nun die Darstellungen der Grafiken zur **Visuellen Analogskala** bezüglich **Tinnituslautheit und Belästigung** für jeden einzelnen Patienten getrennt nach Behandlungs – und Wartegruppe dargestellt.
In der Grafik wird das arithmetrische Mittel der Tinnitus - Lautheit zu Beginn und zum Abschluss der Behandlungen der Behandlungsgruppe dargestellt, um einen deutlicheren Überblick bezüglich der Veränderungen zu gewinnen (Behandlungsgr.)



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Lautheit arithm. Mittel Beginn	69	28	30	17	67	25	31	70	43	67	14	28	37	39	84	19	11	40	51	14
Lautheit arithm. Mittel Abschluss	27	8	15	8	45	21	9	83	5	38	4	25	32	5	70	20	8	34	28	16

Fig. 54: Auswertung der Visuellen Analogskala zur Tinnitus – Lautheit (arithmetrisches Mittel von li und re Ohr) zu Beginn und Abschluss der Behandlungen (Behandlungsgruppe)

Lautheit der Wartegruppe:
Die Abbildung zeigt, dass sich 1 Patient wesentlich verbessert, 8 Patienten minimal verbessert, 6 Patienten unverändert und 6 Patienten sich minimal verschlechtert haben. Also im Wesentlichen kaum Veränderungen.

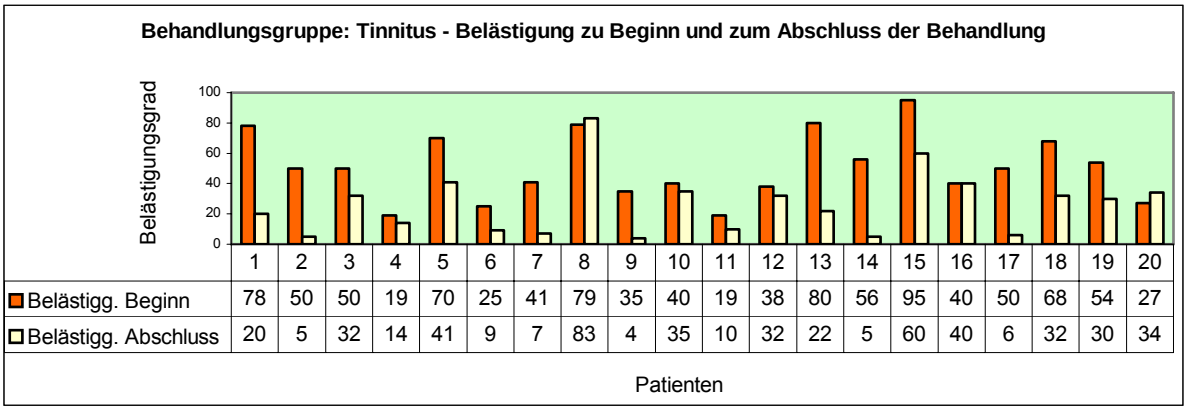


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Lautheit ar. Mittel Beginn	17	26	24	18	43	30	7	21	71	18	35	23	39	36	15	33	79	98	43	22	41
Lautheit ar. Mittel Abschluss	24	28	23	18	43	30	10	21	73	13	36	23	32	31	10	39	64	40	42	25	36

Fig. 55: Auswertung der Visuellen Analogskala zur Tinnitus – Lautheit

(arithmetrisches Mittel von li und re Ohr) zu Beginn und Abschluss der Wartezeit (Wartegruppe)

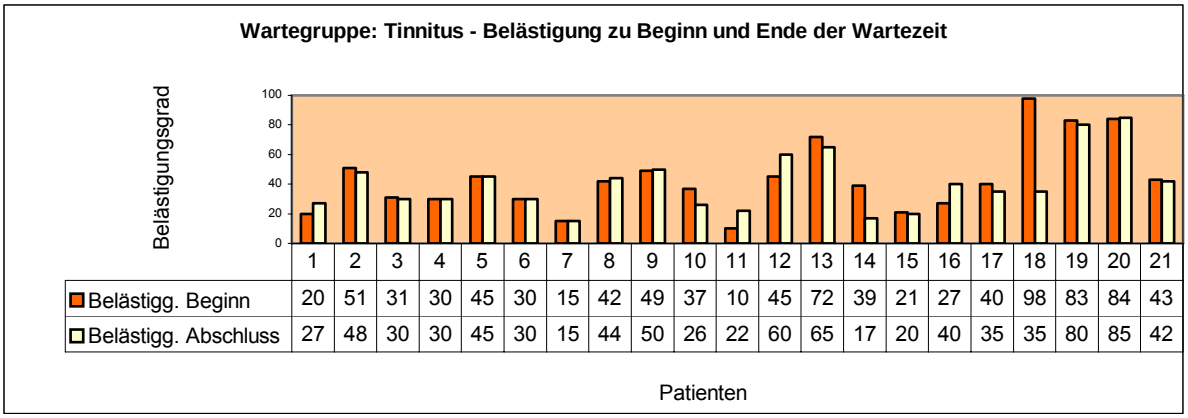
Im anschließenden Balkendiagramm wurde die **Tinnitus - Belästigung** zu Beginn und zum Abschluss der Behandlungen der **Behandlungsgruppe** dargestellt, um einen deutlicheren Überblick bezüglich der Veränderungen zu erhalten.
Die Abbildung bezüglich der Tinnitus – Belästigung zeigt, dass sich auch hier 17 Patienten (entsprechen den gleichen 17 Patienten der vorhergehenden Lautheitsskalierung) und zwei Patienten etwas verschlechtert, und ein Patient gleich geblieben ist.
Nach dem **ADANO – Stufenschema** → Kapitel 3.4.2 verbesserte sich:
1 Patient um drei Schweregrade (von Schweregrad IV auf I)
2 Patienten um 2 Schweregrade (von III auf I)
8 Patienten um 1 Schweregrad (IV→ III, III → II, II → I)
8 Patienten blieben in der gleichen Klasse (haben sich jedoch bis auf 2 Patienten innerhalb ihrer Klasse verbessert)
1 Patient (Nr.8) hat sich um I Schweregrad verschlechtert (jedoch nur um 11 % → untenstehende Grafik).



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Belästigg. Beginn	78	50	50	19	70	25	41	79	35	40	19	38	80	56	95	40	50	68	54	27
Belästigg. Abschluss	20	5	32	14	41	9	7	83	4	35	10	32	22	5	60	40	6	32	30	34

Fig. 56:Auswertung der Visuellen Analogskala zur Tinnitus – Belästigung (arithmetrisches Mittel von li und re Ohr) zu Beginn und Abschluss der Behandlungen (Behandlungsgruppe)

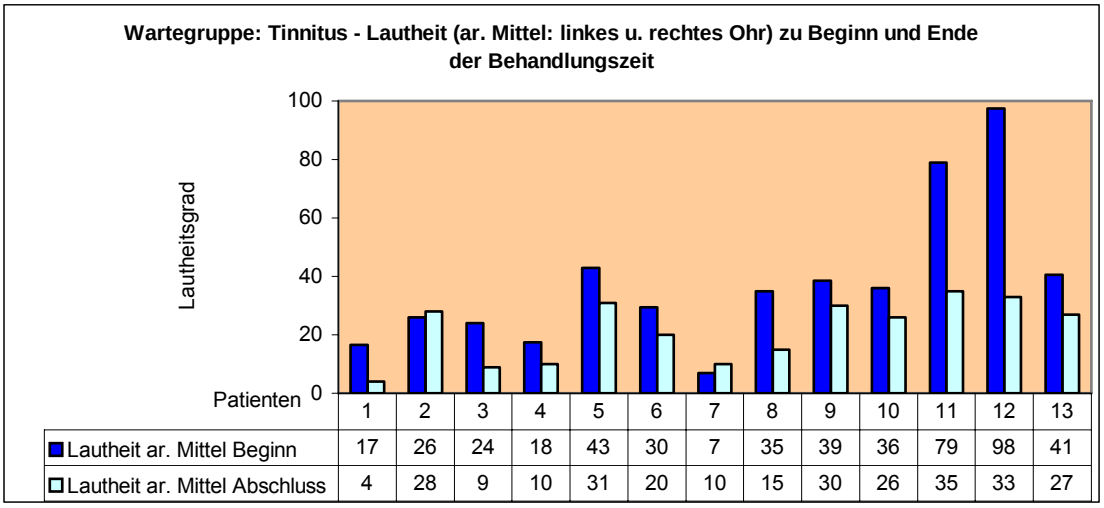
Wartegruppe Tinnitus – Belästigung:
Es wird ersichtlich, dass sich 1 Patient stark verbessert (um drei Klassen), 9 Patienten minimal verbessert, und 7 Patienten minimal verschlechtert haben. 4 Patienten sind unverändert geblieben.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Belästigg. Beginn	20	51	31	30	45	30	15	42	49	37	10	45	72	39	21	27	40	98	83	84	43
Belästigg. Abschluss	27	48	30	30	45	30	15	44	50	26	22	60	65	17	20	40	35	35	80	85	42

Fig. 57: Auswertung der Visuellen Analogskala zur Tinnitus – Belästigung (arithmetrisches Mittel von li und re Ohr) zu Beginn und Abschluss der Wartezeit (Wartegruppe)

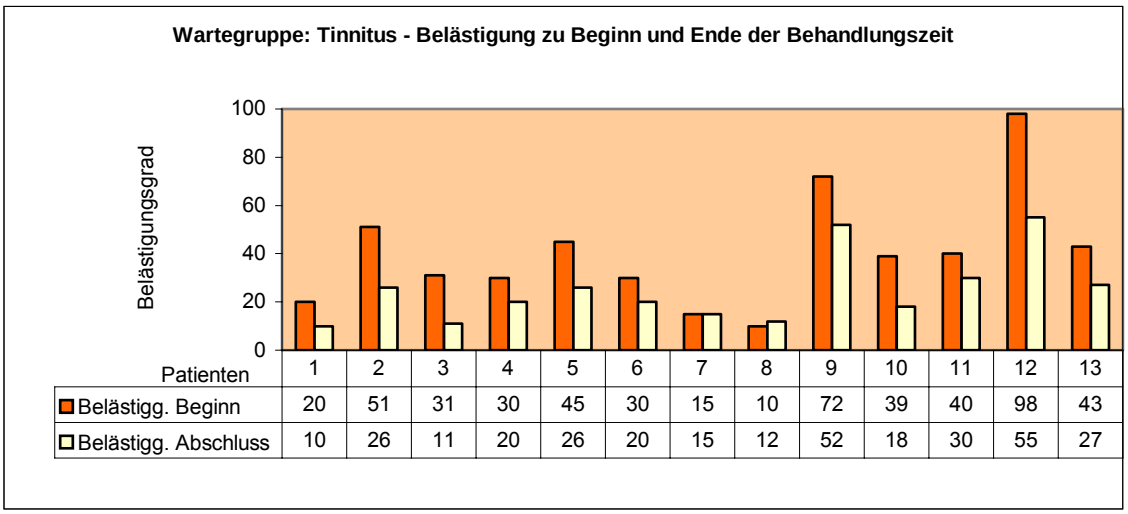
Es wurden auch die Anfangs – und Endwerte der VAS – Lautheit und Belästigung der **13 behandelten Patienten der Wartegruppe** in den nachfolgenden Abbildungen dargestellt. Bezüglich der **Lautheit** haben sich 11 Patienten verbessert (2 davon wesentlich), und 2 Patienten minimal verschlechtert.



Patienten	1	2	3	4	5	6	7	8	9	10	11	12	13
Lautheit ar. Mittel Beginn	17	26	24	18	43	30	7	35	39	36	79	98	41
Lautheit ar. Mittel Abschluss	4	28	9	10	31	20	10	15	30	26	35	33	27

Fig. 58: Auswertung der Visuellen Analogskala zur Tinnitus – Lautheit (arithmetrisches Mittel von li und re Ohr) zu Beginn und Abschluss der Behandlunszeit (Wartegruppe)

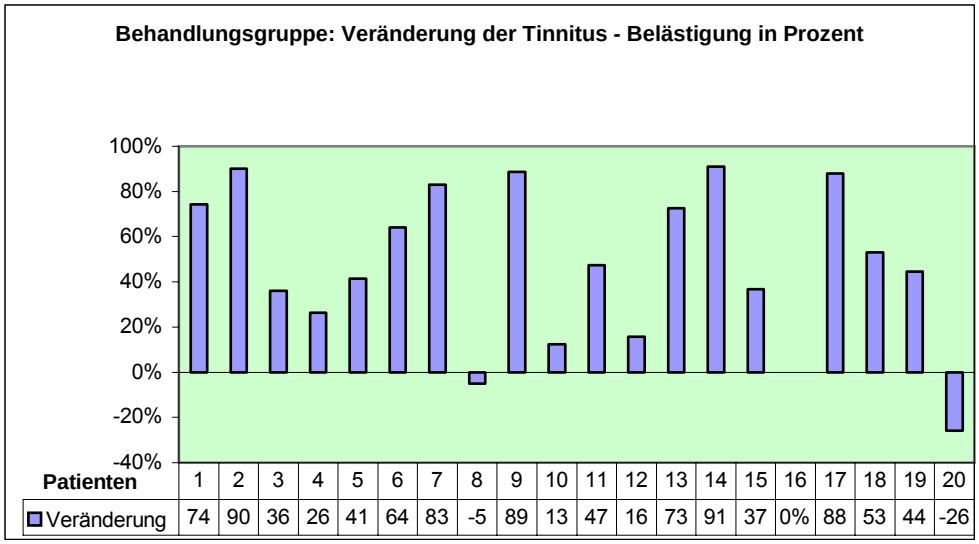
Auch bezüglich der **Belästigung** zeigt sich eine Verbesserung bei 11 Patienten, 1 Patient ist gleich geblieben und 1 Patient hat sich minimal verschlechtert. Man kann erkennen, dass bei Pat. Nr. 2 und 8 die subjektive Einstufung bezüglich Lautheit und Belästigung nicht ganz miteinander korrelieren.



Patienten	1	2	3	4	5	6	7	8	9	10	11	12	13
Belästigg. Beginn	20	51	31	30	45	30	15	10	72	39	40	98	43
Belästigg. Abschluss	10	26	11	20	26	20	15	12	52	18	30	55	27

Fig. 59: Auswertung der Visuellen Analogskala zur Tinnitus – Belästigung (arithmetrisches Mittel von li und re Ohr) zu Beginn und Abschluss der Behandlungszeit (Wartegruppe)

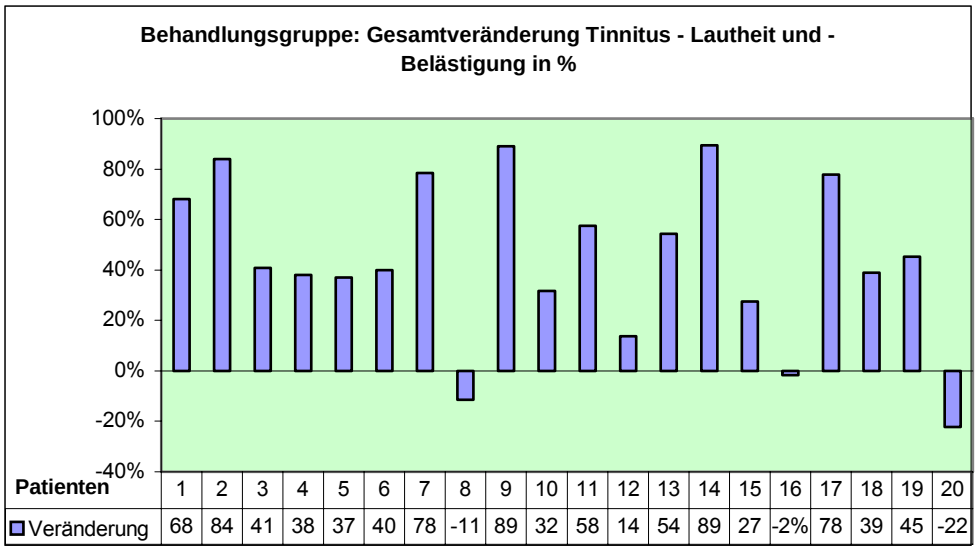
Es folgt die prozentuelle Darstellung für die Veränderung der **Lautheit jedes einzelnen Patienten** der **Behandlungsgruppe** am Ende der Behandlungszeit ausgehend vom Anfangswert.
Neun Patienten haben sich um über 50 % verändert. Zwei Patienten haben sich etwas verschlechtert.



Patienten	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Veränderung	74	90	36	26	41	64	83	-5	89	13	47	16	73	91	37	0%	88	53	44	-26

Fig. 60: Veränderung der Tinnitus – Belästigung in % (Behandlungsgruppe)

Die **Gesamtveränderung bezüglich Lautheit – und Belästigung** bei der **Behandlungsgruppe** zeigt eine Verbesserung bei acht Patienten um mehr als 50 %. Drei Patienten haben sich etwas verschlechtert.



Patienten	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Veränderung	68	84	41	38	37	40	78	-11	89	32	58	14	54	89	27	-2%	78	39	45	-22

Fig. 61: Gesamtveränderung der Lautheit und Belästigung in % (Behandlungsgruppe)