Background information

Tinnitus – alarm in the ear

Buzzing, humming, and whistling – incessantly. Millions of people suffer from agonizing noises in the ear, known medically as “tinnitus”. The causes are as various as the available treatments. Some important facts and useful information are summarized below:

The continuous noise in the ear

The term “tinnitus” is derived from the Latin word “tinnire” (= to ring) and is used to describe auditory perceptions that do not originate from an external noise source. Many people actually describe their tinnitus as a ringing sound, while others hear a buzzing, humming or whistling sound. The various aural impressions all have one thing in common: they are never pleasant.

A symptom, not a disease

Tinnitus is not a disease, but a symptom. It is an indication of problems in the sound-processing system and can be linked to a range of very different disease patterns.

A common and long-established ailment

Tinnitus is not a new ailment. It was known in Ancient Egypt as “Storm in the ear”. Scholars such as Hippocrates and Paracelsus described the sound phenomenon. Famous historical figures, including Luther and Beethoven, suffered from agonizing noises in the ear.

Nowadays around 25 percent of the population of industrial nations are affected by tinnitus at least once during their lifetime. 20 percent of them continue to suffer for a lengthy period or permanently, and around three percent require treatment.
Subjective but not imaginary

The medical world distinguishes between objective and subjective tinnitus.

Objective tinnitus is even audible to the doctor. It occurs very rarely and generally disappears once its cause has been removed.

However, most noises in the ear are only audible to the sufferer himself. They are known as subjective tinnitus. If the sufferers comes to terms with the tinnitus and does not experience a serious deterioration in his quality of life, it is described as compensated tinnitus. However, if the tinnitus impairs his life so seriously that it acquires clinical significance, it is described as chronic complex tinnitus or decompensated tinnitus.

There is a risk, during both the acute and sub-acute stages (up to 12 months), and especially in chronic cases, where tinnitus lasts for more than 12 months, that the sufferer will be unable to “ignore” the noises in his ear and will begin to suffer serious mental trauma.

For a long time, subjective tinnitus was believed to be an imaginary disease. Many have endured an odyssey, have been disappointed by unredeemed promises of salvation, by dubious offers of help, or have believed themselves to be unfairly judged as hypochondriacs. Tinnitus has since become a major topic at many scientific conferences and in numerous publications. A range of specialist fields are covering the topic and are gaining greater insight into the clinical presentation. Thanks to modern imaging procedures, organizational changes in the brains of tinnitus sufferers have now also been highlighted. These not only demonstrate that tinnitus needs to be taken seriously as an ailment, but could also present new ways of overcoming this unwelcome companion.

Puzzling, but not dangerous

Despite intensive research, clear tinnitus triggers have so far seldom been identified. Scientific findings to date point to a large number of causes. Consequently, there is still no single therapy capable of eliminating tinnitus as a symptom. However, scientific strategies have in the meantime been developed, which make the annoying
sounds in the ear manageable, even if they cannot be eliminated. Collaboration between a range of medical specialisms and integrated therapeutic approaches can by now offer most sufferers effective help.

**Hearing – peace of mind**

A key factor in successful treatment involves diverting patients’ attention from the undesirable noise in their ears, as quickly as possible, in order to avoid the tinnitus developing into a chronic problem. However, even if the falsely triggered sound impression has already established itself in the “memory” of the sensory system, the noise can be forced into the background and at least made bearable by deflecting or diverting the way it is perceived. A non-invasive solution can effectively support many tinnitus patients along this route.

**Noisers – the therapeutic counter-noise**

The development of tinnitus noisers or maskers originates from the need to divert patients’ aural sense and to make them feel more positive about their hearing. Noisers provide an acoustic diversion from the ear noise and help to divert hearing back to other noises, thereby drowning out the negative ear noise with new, and pleasant aural impressions. They are frequently also used during tinnitus retraining therapy or during habituation processes, which are designed to take away the inescapable, threatening aspect of the undesirable sound in the ear. At the same time, awareness of the ear noise is desensitized, with the result that the sufferer becomes accustomed to their daily companion “tinnitus”.

Since it requires a volume as loud as the tinnitus to fully mask or hide an ear noise, this may become uncomfortable over time. For this reason, noisers whose sound is quieter than the tinnitus are used. They stimulate the hearing system with a pleasant sound chosen by the patient, and thus help to drown out and ideally to forget, the “inner” noise. Noisers can be helpful in both chronic and acute cases.

**Hearing aids – active hearing**

Most tinnitus sufferers are also hard of hearing. Many of them are able to relieve their problem simply by wearing hearing aids, thus avoiding possible decompensation.
This can be explained by the fact that people who are hard of hearing are more aware of tinnitus, because they fail to hear some of the external sounds that mask it. Hearing aids offset the hearing loss. Sufferers are once again able to focus on the external noises, so that the “internal” noises become less important. In this way, hearing aids perform a similar function to noisers.

The following examination of tinnitus coupled with hardness of hearing is interesting:

Normally, around 30% of external noises are consciously perceived, the rest are unconsciously filtered out. When this filter function is intact, it is also possible to ignore or “hear beyond” subjective ear noises. However, damaged hair cells in the inner ear are no longer able to react properly to an acoustic stimulus, and they give off a continuous impulse. It is also conceivable that even undamaged hair cells release excessive nerve impulses. Both can trigger these false auditory perceptions.

In fact, if the auditory sense is intensively stimulated over a long period, this may cause the sensory perception to remain even after the trigger stimulus has disappeared, so that tinnitus is often described as the “phantom pain in the ear”.

Counteracting this “phantom pain” is therefore an important aspect of tinnitus therapy. If the falsely triggered sensory perception is already established in the “memory” of the sensory system, the noise can be forced into the background and made bearable by deflecting or diverting the way it is perceived.

Defective hair cells are the primary cause of most hearing loss. If persons who are hard of hearing are affected by tinnitus, the noise is generally within the same frequency range as the hearing impairment. This finding also justifies comparing tinnitus with phantom pain and points to a need to fit hearing aids.

**Combination instruments – dual benefits**

If ear noises still dominate even though hearing aids are worn, combination instruments made up of a hearing aid and a noiser are appropriate. They combine the function of a hearing aid and a noiser within a single instrument and can also be used in either way. They make it easier to ignore the continuous internal sound while directing the hearing towards the outside at the same time.
Fitting hearing aids and/or noisers is a familiar aspect of a number of therapeutic approaches. However, an in-depth analysis of the symptoms and personal circumstances of the sufferer must first be conducted. In most cases, integrated therapies and interdisciplinary collaboration between a range of experts such as ENT specialists, psychologists, psychotherapists, along with audiologists and hearing aid acousticians, have proved successful in most cases.

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