

For over 80% of people who are experiencing tinnitus for the first time, the sound is not associated with any negative meaning and, therefore, it undergoes the process of spontaneous habituation.

For over 80% of people who are experiencing tinnitus for the first time, the sound is not associated with any negative meaning, and it undergoes the process of spontaneous habituation, identical to that of other meaningless external sounds, such as the sound of a new refrigerator. If, however, the first experience of tinnitus induces a high level of annoyance or anxiety, by being associated with something unpleasant or by occurring during a period of stress and anxiety, then a different scenario emerges. People experience a higher level of annoyance or anxiety linked to the meaning of the new tinnitus sound, and this results in an enhancement of activity in the autonomic and/or limbic systems; tinnitus then becomes a clinically significant problem. These patients start to monitor the tinnitus signal extensively, which further enhances its importance.

Tinnitus becomes a clinically significant problem when the tinnitus-related neuronal activity starts activating the limbic and autonomic nervous systems, resulting in annoyance and anxiety.

An early common concern is that tinnitus is inescapable and cannot be modified or altered. This results in a build-up of increasing alarm and anxiety, with further stimulation of the limbic system (Fig. 2. 11c). Since all auditory signals that indicate threat or danger are assigned a high level of priority and are closely monitored, the neuronal networks involved in their detection become highly tuned to these sounds, further enhancing their detection. The tinnitus signal is treated in precisely the same manner. Enhanced detection of the tinnitus results in a further increase of activation of the limbic and autonomic systems, which, in turn, enhances detection of tinnitus. This feedback loop creates a vicious circle of increasing annoyance and tinnitus perception. The final level of annoyance will depend on the highest level of activity in the autonomic nervous system that the subject can sustain for a prolonged period of time.

Changes in body function result from strong activation of sympathetic autonomic nervous system by tinnitus signal.

Activation of the sympathetic part of the autonomic nervous system results in a number of specific changes in body functions that are reflected in behaviors. Particularly relevant are increased levels of alertness, making sleeping difficult or impossible, alteration of heart rate and palpitations, problems with digestion and bowel activity, nausea and diarrhoea. In some patients, generally enhanced perception affecting all sensory modalities (global hypersensitivity) occurs. The quiet environment associated with sleeping also results in enhanced tinnitus perception,

further interfering with the ability to go to sleep. However, patients more frequently have a problem in sustaining sleep, rather than with falling asleep.

Tinnitus-enhanced autonomic nervous system activity interferes with sleep. Sedatives and tranquilizers are not a long-term solution.

While tinnitus can indeed contribute to sleep disruption, some of the behavioral problems blamed on tinnitus result from sleep deprivation itself, as it causes problems similar to those evoked by tinnitus. There is exhaustion, loss of clear logical thinking and increased irritability; sufferers are more susceptible to making irrational associations, which can enhance their concerns and dislike of tinnitus. The very frequent consequence of sleep disturbance is that many tinnitus patients are taking sleeping pills. This has the negative effect of interfering with normal sleep patterns: decreasing the proportion of the rapid eye movement (REM) stage of sleep that is essential for the rest. Patients might be unconscious for a longer time than without medications but will not necessarily experience more REM sleep. These drugs, commonly in the tranquilizer group, produce significant changes within the central nervous system and especially the limbic system. Although they may be helpful in the short term, when there is intense distress, they do not break the vicious cycle of tinnitus reaction. It is important to recognize the negative side effects of such drugs, the possibility of development of dependence and the fact that they will not help tinnitus in the long term (Ch. 6).

Neither the level of autonomic activity nor the severity of the tinnitus is related to the psychoacoustical characterization of tinnitus perception (e.g., its pitch, loudness). The level of autonomic nervous system activity induced by tinnitus determines its severity.

Neither the level of autonomic activity nor the severity of the tinnitus is related to the psychoacoustical characterization of tinnitus perception (e.g., its pitch, loudness, etc.). It is a common experience that people with relatively quiet, simple tinnitus sounds can experience high levels of annoyance and anxiety, while others with extremely loud, complex and persistent tinnitus can experience very little annoyance or distress. The difference between those suffering because of tinnitus and others who are simply experiencing it, without significant distress, depends on the level of activation of the autonomic nervous system and not on what is happening within the auditory pathways. Ensuring that patients understand these particular relationships is an important part of the TRT counseling process.

Tinnitus is often established during a negative emotional experience with high autonomic system activity.