Origin of TRT

The Origins of Tinnitus Retraining Therapy (TRT) by Pawel J. Jastreboff
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Fifteen years ago I barely knew the term tinnitus. At that time I undertook on the challenge to create an animal model of tinnitus and to work on the mechanisms of this phenomenon. In the mid 1980s, while working at Yale University, I created the neurophysiological model of tinnitus, which postulated the involvement of the limbic (emotional) and the autonomic nervous systems in tinnitus, pointing out the crucial role played by the limbic system. This essential postulate of this model was confirmed 12 years later by the result of the PET study by Lockwood and Salvi, which was just published in January 1998.

As with many basic scientists, I always thought about the possible implementations of my theoretical and experimental work in practice. From this dream came the idea of the implementation of the neurophysiological model of tinnitus in clinical practice, now known as TRT. Only a basic scientist like myself can understand frustration and difficulty in finding someone who is ready to take a risk and use somebody else idea in practice. I was lucky to find not one but two such people, to whom I am very grateful, who were ready to take the risk! In 1988, I presented TRT and the neurophysiological model of tinnitus to Dr. Jonathan Hazell and audiologist Jacqui Sheldrake in London. They adopted TRT as the dominant treatment approach to their tinnitus patients at once. Soon after starting to implement TRT it was obvious to them that patients were improving much more rapidly than when they used a program of partial masking and coping strategies.

The model and outline of TRT were published in 1990 (Jastreboff, P.J., Phantom auditory perception [tinnitus]: mechanisms of generation and perception, Neuroscience Research, 1990; 8:221-254). In the same year, I established the University of Maryland Tinnitus & Hyperacusis Center. Since then, we have seen about 1000 patients, more than 80% of whom have shown significant improvement. This success rate reflects the efforts of many hardworking and dedicated people in our center and our close collaboration with Jonathan and Jacqui. TRT has been refined over the years both in Baltimore and in London, and undergoes continuous modifications aimed at shortening its duration and

enhancing the effectiveness. I am frequently asked what is the essence of TRT. In a few words: TRT is a method aimed at habituating of reactions of the body induced by tinnitus, and habituation of perception of the tinnitus signal itself. Our goal is to retrain the patients' brain so they treat tinnitus similar to the way they treat the sound of a refrigerator in their kitchen, which they are normally not aware of, and when they do hear the sound, it is not bothersome. The method retrains reflexes involving connections of the auditory with the limbic and autonomic nervous systems, and retrains the subconscious part of the auditory pathway to block the tinnitus signal. TRT always consists of two components: intensive one-on-one directive counseling, and sound therapy, most frequently with the use of sound generators (which emit low level of broad-band noise), following a specific habituation protocol. Tinnitus should never be masked in TRT, because one can never habituate signal one cannot detect.

All of us in London and Baltimore become very excited seeing such the positive treatment outcomes. Satisfied patients created a growing demand for the popularization of TRT. Jonathan has started to incorporate some information about TRT in Dr. Coles' and his Nottingham Tinnitus Course since 1992. TRT received recognition in Europe very quickly, and Jonathan and Jacqui were helpful in establishing many clinics across the continent. In the past two years, we have offered three courses aiming specifically at teaching TRT at the University of Maryland in Baltimore, and about 80 people have thus far participated. Of these participants, about 50 are now beginning, or have begun, to implement TRT throughout the U.S. Thus far over 90 additional clinicians have expressed interest in attending future training courses. We will try to fulfill this obligation this year.

Recently, it has became a significant problem, to patients and to us, that some people claim to offer TRT without possessing sufficient knowledge of the method. TRT seems to be easy, but in reality it is complex, and it requires specific understanding, knowledge, and instruction. We see patients who believe they were offered TRT, but were disappointment with the treatment outcome. While talking with them it became readily apparent that either they received improper counselling, or improper instruction on how to use sound generators in their particular subtype of tinnitus. Others were simply given devices without any counseling at all!

TRT is still a new and developing procedure and not enough information describing it in detail has been yet presented in the literature. Moreover, complexity of TRT make it unlikely to learn it by reading papers - the situation is similar to attempt to learn surgery for removal of acoustic tumor by studying literature. Therefore, it is impossible to acquire sufficient knowledge to treat tinnitus patients

just by reading published material or by attending a few lectures. Due to the lack of sufficient published materials TRT is frequently misunderstood as cognitive therapy, a coping protocol, or partial masking. It definitely implements many aspects of basic knowledge of neuroscience, psychology, psychoacoustics, physiology, and audiology, accumulated over the years, but combines this knowledge in unique manner. We have found that even the participants in our courses (which we believe provide a solid basis for treating the majority of tinnitus cases with TRT), still need at least a year of clinical work with TRT and many additional interactions with us before they become proficient in TRT.

Since presently there is no objective method for assessing tinnitus (the new PET study offers only a possibility), and there is no data in literature presenting results of TRT from different centers in similar manner, I do not feel in a position to evaluate qualifications of the people using TRT, about whose work I am not sufficiently familiar with. The demand for TRT is exceeding all expectations. We have to refer more than 70% of potential patients to other centers. I choose to refer tinnitus sufferers only to the centers where there is at least one person who learned TRT in our course in Baltimore and has had subsequent interactions and discussions of cases with us, so we feel reasonably confident they are implementing procedures that contain all of the essential components of TRT.

I do not claim that TRT is the only effective method for treating tinnitus, but I strongly believe that it is the best method available at this time. The fact that TRT works exceedingly well in the treatment of hyperacusis is an added advantage. Moreover, TRT works regardless of pathology, tinnitus description, or trigger. We do have difficulty with some patients who have severe psychiatric illnesses, who are on heavy psychotropic medications, who have language difficulties, or who are just not following the protocol. We continue to improve our approach to tinnitus and hyperacusis patients and to refine our research with the ultimate goal of eventually finding a true cure.

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