

# MISOPHONIA

## **Definitions:**

Misophonia is a rare and poorly-understood condition, sometimes called *soft sound sensitivity syndrome*, or *4S*. The term misophonia now seems to be preferred among audiologists. It is considered one particular form of *decreased sound tolerance* or *DST*. Misophonia is characterized by a very strong negative reaction to particular body or environmental sounds, called “triggers” usually but not always associated with those sounds being produced by particular people and in certain situations. Patients with misophonia can often tolerate high levels of other sounds produced by “non-trigger” people and environmental sounds produced in “non-trigger” situations. Triggers can also be visual or associated with certain environmental settings, thoughts, or other sensory contacts like smell or touch. Triggers often can have an “anticipatory” stage which occurs before a trigger sound is experienced.

Neuroscientist Dr. Pawel Jastreboff defines misophonia as “*abnormally strong negative reactions of the autonomic and limbic systems of the brain to specific sounds resulting in enhanced functional connections between the auditory and limbic system for these sounds. Misophonia refers behaviorally to a fight or flight reaction to specific meaningful sounds or events associated with those sounds. Misophonia is considered an auditory symptom, but is not related to the peripheral (inner ear) auditory mechanism. It is not fear or hatred of all sound*”.

**A Complex Condition and Reactions:** Researchers agree that misophonia appears to involve the development of conditioned response mechanisms that are fairly complex, involving the auditory system, the brain's Limbic System centers, the *autonomic nervous system*, the *parasympathetic nervous system*, and cortical short term, long term and working memory centers. According to Dr. Jastreboff the problem of misophonia occurs due to the creation of a *conditioned reflex arc* ( a sequence of circuits activating) , yielding an immediate autonomic (unconscious) reaction, further enhanced by a *feedback loop*, which creates the vicious circle scenario”, reinforcing the reactions to continue re-occurring and neurologically strengthen via frequent repetition. An analogy of conditioning would be the effects on mind and body as athletes “train” over time to develop their sport's skills much more effectively, except that for the athlete the training conditioning is conscious, where for misophonia it is largely unconscious. Misophonia then is not a single process and mechanism, but a complex group of systems and one that suggests it is a single damaged “spot” or single mechanism.

## **A Brief History of Misophonia**

Misophonia is a term first used by neuroscientist Dr. Jastreboff in 2002 as part of his updated published research on *Tinnitus Retraining Therapy (TRT)*. Previously misophonia had not been identified as a distinct “condition” in medical, audiological or psychological literature. If misophonia was treated, it would be as secondary “symptoms”

to other medical, behavioral and/ or psychological conditions. Even today, misophonia is not considered as a generally known or recognized medical or psychological diagnostic condition. This is one reason why so many physician's and insurers are unfamiliar with the term "misophonia". Dr. Jastreboff further updated classification of misophonia in 2012 as one of the distinct forms of intolerance under the broader category of *Decrease Sound Tolerance* or *DST*, which currently would best be associated with the broad medical diagnostic categories (*ICD-9* code) of *abnormal auditory perception* and/or *hyperacusis*. To date, there still is not a distinct classification of any form of decreased sound tolerance in the psychological classification system, called *DSM-5*.

Misophonia was first treated after 1990 during the first use of Tinnitus Retraining Therapy procedures for severe tinnitus disturbance by Dr. Jastreboff in the United States and Dr. Jonathan Hazell in Great Britain. Dr. Jastreboff observed that nearly 60% of individuals under treatment using TRT demonstrated significant sound intolerance. Soon afterwards he identified hyperacusis and phonophobia as being involved in and having distinct mechanisms in these cases. At that time a new category called misophonia was first mentioned, describing certain reactions which were not exactly explained by either hyperacusis or phonophobia alone. A select few audiologists received direct training in TRT personally from Dr. Jastreboff, including Randall Bartlett in 1999 and most of the other members of the Misophonia Providers group. The Misophonia Providers group was founded by Marsha Johnson, Au.D. , Audiologist, who developed the first misophonia specific treatment called the Misophonia Management Protocol (MMP). Further research over the past three years has shed more light on the misophonia process, its diagnosis and treatment. In February 2012, the First International Conference on Misophonia was held in Phoenix, Arizona, which was attended by audiologist Randall Bartlett.

### **Onset**

Most typically misophonia occurs in childhood, often with pre-puberty or in puberty, but can also occur in adulthood. It typically begins with sudden onset after some emotionally significant precipitating event associated with a first "*trigger*" sound and environmental situation associated with a strongly emotional event. Misophonia as a *secondary symptom* accompanying tinnitus or hyperacusis can occur at any age, usually associated with a condition of auditory damage or *head trauma*. Misophonia symptoms can also occur secondary to *multi-sensory sensitivity problems* demonstrated in early childhood in more complex neurological conditions such as *Autism Spectrum Disorder*.

### **Triggers**

Abnormal sound sensitivities in classic primary misophonia are most frequently to "mouth" noises such as eating, chewing, breathing, lip smacking, licking, whistling or the sound of certain speech sounds. Body sounds are called "*somatosounds*" by Dr. Jastreboff. Most commonly, reactions begin in response to particular individuals only, usually parents of siblings. Sometimes non-speech sounds are also problematic, such as pen clicking, rustling paper, keyboard sound, etc.

In many cases non-auditory visual or other sensory inputs or contextual settings act as triggers, such as particular rooms or objects in rooms. Many patients report being in an apprehensive state even before encountering a sound trigger. This appears to be part of a hypervigilance or monitoring attention process, activating the Limbic System in the brain. Some individuals with multi-sensory hypersensitivities also have reactions to light, odors, the feel of objects, and the sight of certain objects.

**Psychological & Medical Conditions That May Coincide with Misophonia:**

Decreased sound tolerance must be considered in the context of overall health status and may be a symptom of a variety of disorders. It is also important to understand that everyone has some degree of misophonia to certain sounds. A classic example is our reaction to the screeching sounds or thought of fingernails on a blackboard. Patients with clinically significant misophonia may show psychological, neurological or developmental conditions that may be primary to misophonia, or secondary to it. This list includes:

- Multi-sensory hypersensitivity
- Hyperacusis
- Tinnitus
- Hearing loss
- Phonophobia
- Tonic tensor tympani Syndrome (TTTS)
- Acoustic shock
- Family relational problems
- Intermittent explosive disorder (IED)
- Major depressive disorder
- Anxiety disorders, including social anxiety disorder, generalized anxiety disorder, post-traumatic stress syndrome (PTSD), and agoraphobia
- Obsessive compulsive disorder (OCD)
- Autism spectrum disorder or Asperger's syndrome
- Traumatic brain injury (TBI)

Because multiple forms of decreased sound tolerance (DST) may be involved in any particular case, conditions also associated with hyperacusis must be carefully considered. Hyperacusis alone can be also a part of a complex medical diagnosis. There are two categories of hyperacusis: peripheral and central. Neurotologist Michael Robb, M.D. reports that conditions associated with peripheral hyperacusis include:

- Bell's palsy
- Ramsey-Hunt syndrome
- Superior canal dehiscence syndrome
- Stapedectomy
- Perilymph fistula
- Hearing loss
- Tinnitus

Conditions associated with central hyperacusis include:

- Migraine
- Cyclic vomiting syndrome
- Head injury
- Lyme disease
- Williams syndrome
- Lacunar stroke
- Epilepsy
- Autism
- PTSD
- Narcotic and benzodiazepine withdrawal

### **Differential Diagnosis & Assessment**

Dr. Jastreboff and researcher James Hall, PhD, points out that distinguishing between hyperacusis and misophonia is necessary, complex and is crucial to choosing the proper treatment strategies. This is one of the important diagnostic tasks we need to perform. The most effective treatment almost always follows an accurate evidence based medical, audiological and psychological diagnosis. In the audiology clinic, Dr. Hall and Dr. Jastreboff recommend beginning with a comprehensive *hearing test* battery for misophonia which includes at the very least, diagnostic otoacoustic emissions, pure tone audiometry for conventional and also ultra-high frequencies (up to 20,000 Hz), loudness discomfort levels (LDLs) from the conventional test frequency range up to 20,000 Hz ultra-high frequency range, tympanometry and word recognition testing. A special feature of Misophonia Assessment here is to conduct a detailed interview to differentiate between the types of sound and non-sound triggers that are being reacted to, those that are not, whether reactions are multi-sensory in nature, involve anticipation, what behaviors are demonstrated by the patients' reaction, and to understand how family relationships are being affected. We also conduct and analyze several questionnaire screenings for various conditions refer to this whole procedure as a Misophonia Assessment, which is always accompanied by a Misophonia Management Consultation.

Depending on the results our Misophonia Assessment as described above, the symptoms, past history of medical and psychological work-up, or lack of it, certain recommendations for additional evaluation by specialized physicians, psychologists or psychiatrists may be made as part of the Individual Treatment Plan.

### **Misophonia Treatment**

Neurologist and psychiatrist Victor Frankel has been quoted as saying “Between stimulus and response there is a space. In that space is our power to choose our response. In our response lies our growth and our freedom”. It is within that space that the therapies of misophonia are targeted. We and our colleagues in the Misophonia Management Group have concluded that a multi-disciplinary treatment approach appears as the best

treatment, and in most cases is essential for progress. This includes following an appropriate Misophonia Sound Therapy such as the Misophonia Management Protocol, Tinnitus Retraining Therapy for misophonia, or Reverse- Progressive Masking Therapy for misophonia, all of which we offer. This must be preceded by a thorough evaluation, and receiving sufficient counseling for the patient and family members to understand the condition and how it may be treated.

Clinically significant misophonia almost always involves changes in behaviors not only from the suffering patient but also within the whole family, as the whole family attempts to cope with the reactions that are occurring. As most triggers are experienced during family interactions, the condition of misophonia is properly viewed as a true family affair. Therefore, having mental health or behavioral professionals involved in misophonia treatment who specialize in family as well as individual therapy can be very beneficial. These professionals are trained and qualified to identify key behavioral and family relationship difficulties that may be relevant to the misophonia problem, before, during or as a result of reactions to triggers. They are also able to f

Qualifications of a licensed psychotherapist or behavioral scientist for misophonia may include strong skills in Cognitive Behavioral Therapy, Dialectical Behavioral Therapy and possibly Mindfulness Therapy, and a strong background working with family therapy, pain management, depression and anxiety. We do not offer psychological services, but in most cases can make direct referrals, suggestions for finding a qualified professional or communicate to professionals for you on your behalf.

### **Contact Us**

For information on how to make an initial appointment for Misophonia Assessment and Consultation and/or auditory testing at Tinnitus & Audiology Center of Southern California, contact our Misophonia Coordinator at (661) 259-1880 or E-mail us at [Hearasn@msn.com](mailto:Hearasn@msn.com) We can make an appointment for her to call you.