

Neuromonics
The Tinnitus Company

Your role in treating the tinnitus patient:



What's your professional responsibility?

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Relief

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Points for Discussion

- Prevalence of tinnitus and need for trained clinicians
- Advanced evaluation and treatment considerations
- Importance of evidenced based treatment options
- Key counseling concepts
- Case Studies

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Why should we treat tinnitus patients?

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Tinnitus Prevalence



- Tinnitus affects one of six people
- 15,000,000 seek medical treatment each year
- 2,000,000 are "disturbed" i.e. affects work, sleep, social
- 800,000 newly diagnosed cases each year¹
- #1 Military Service-Connected Disability¹
 - 30%² - 49%¹ of returning soldiers have Tinnitus

¹American Tinnitus Association
²U.S. Army Center for Health Promotion and Preventive Medicine





What patients are saying...

- "I have suffered in silence for many years. I didn't know there was anything I could do for my tinnitus."
- "I've just always been told to learn to live with it."
- "I can't find anyone who understands what I'm going through or can tell me what to do about it!"





Patient experience...

- **Fear**
 - Where did this sound come from?
- **Anxiety**
 - Is there something more serious wrong?
- **Hopelessness**
 - It's never going to get any better.
- **Anger**
 - Why did this happen to me?
- **Loss of control**
 - Nothing I do makes it any better!





Tinnitus Impact

- Sleep interference
- Relationship difficulties
- Work performance
- Overall Quality of Life



Scope of Practice

- AAA
 - "Audiologists assess and provide audiologic treatment for persons with tinnitus using techniques that include, but are not limited to, biofeedback, masking, hearing aids, education, and counseling."
- ASHA
 - "Assessment and non-medical management of tinnitus using biofeedback, behavioral management, masking, hearing aids, education, and counseling;"





**Audiology
The Best Profession!**

A tinnitus patient's number one ally!

As Audiologists, we have:

- Comprehensive training in auditory disorders
- Knowledge and experience in counseling patients with auditory problems
- Devise treatment plans and develop strategies for patients to manage the impact of their hearing loss



We can do the same for tinnitus patients!





Professional Responsibility

What should we be doing for our tinnitus patients?

- **Evaluation**
 - Comprehensive audiometric and tinnitus testing
- **Education**
 - Basic understanding of the mechanisms at work behind their tinnitus
- **Counseling**
 - Information as to how their tinnitus is impacted their daily life and strategies for management
- **Evidenced based treatment options**





Advanced Evaluation and Treatment Considerations



Tinnitus Assessment Appointment Guide:
www.NeuromonicsProfessional.com

1. Tympanometry
2. OAE's
3. Comprehensive Audiometry
4. Assessment of Tinnitus
 1. Pitch Matching
 2. Loudness Match
 3. Minimum Masking Level
 4. Residual Inhibition
5. Loudness Discomfort Levels





Reactive Tinnitus

- Reactive tinnitus is an extreme and rare condition
- Tinnitus is worsened after exposure to mild – moderate levels of sound
- Increase tends to last for more than a day

Red flags for Reactive Tinnitus



- After RI testing, tinnitus is reported as exacerbated
- Suspected in people who a report of history of:
 - over-use of hearing protection when not indicated
 - have found that nothing reduces their awareness of tinnitus
 - have had trials with other acoustic based treatments that clearly aggravated their tinnitus

• **Follow Reactive Tinnitus Protocol: Stage II**





Decreased Sound Tolerance (DST) and Hyperacusis

- **DST**
 - Discomfort from sounds at a level which most people would not find uncomfortable
 - LDL's < 90 dBHL
- **Hyperacusis**
 - Sounds that normally would be considered loud, but easily tolerated by other persons, would be perceived by the hyperacusis patient as very loud or even painful.
 - LDL's < 70 dBHL



Impact on Tinnitus Treatment

- 8% to 40 - 50% of patients with disturbing tinnitus report hyperacusis.
- If not addressed appropriately, this condition can:
 - Prevent patient from achieving relief from sound therapy
 - Contribute to stress which can exacerbate tinnitus
- **Have to address before tinnitus can be effectively managed!**



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Oasis Product Details

- Two phase, formal treatment protocol
 - **Facilitate habituation**
- Individualized, ear specific stimulus
 - Account for asymmetries
- Data logging
- 4 Musical Programs
 - 60 BPM, resting heart rate
- Moderate to severe tinnitus patient
- TRQ > 35

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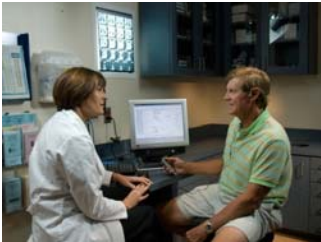


Sanctuary Product Details

- **Situational tinnitus relief**
- Single phase device
- 4 musical programs
- 3 fitting ranges
 - Semi customization
- Quick patient delivery model
- Entry level price point
- Low to moderate disturbance
- TRQ < 35


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Importance of Evidence Treatment Options


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Patient's Perspective


- Sought information from many different medical professionals
- Been given very little information or presented with little to no options
- Tried several over the counter "treatments" to no avail
- Invested a great deal of time, effort, and expense by the time they reach your door

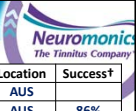




Neuromonics Clinical Outcomes

- Only tinnitus product on the market with over 11 years of documented success
- Peer-Reviewed, Published Clinical Studies as well as the day-to-day clinical environment
- **Neuromonics has consistently delivered success rates between 72-96% in the most diverse patient populations ever studied for tinnitus patients.**






Clinically Proven Results

#	Study	n	Description	Location	Success†
1	T1 – Feasibility	30	Neuromonics, Single Arm	AUS	
2	T2 – NTTP vs. SOC (2008)*	50	Neuromonics, NTT vs. mask/counseling	AUS	86%
3	T3 – 1 vs. 2 Phase (2007)*	35	Neuromonics, Dose Study	AUS	90%
4	Private Practice (2008)*	470	Neuromonics, Multiple Tiers of patients	AUS	92%
5	Lions Ear Institute (2008)*	29	Independent, Single Arm	AUS	75%
6	Oregon Tinnitus (2008)*	24	Independent, Single Arm	US	72%
7	Tavora TRI (2009)*	25	Independent, Single Arm, non-std pts	AUS	90%
8	Tavora AAA (2010)*	70	Independent, Single Arm, registry, 24mo	US/AUS	76%
9	CALM (2009)*	51	Independent, Single Arm, 12mo	US	82%††
10	Hollywood VA (2009)*	35	Independent, Single Arm	US / VA	96%††
11	AUS Veterans	50	Independent, Single Arm	AUS / DVA	74%
12	Multi-Institutional	28	Independent, case series study	US	74%
13	Wazen, et al Multi-Institutional	28 (12)	Independent, prospective	US	74% 84%
14	Treating Tinnitus in Military Members using NTT		PENDING	US / DoD	N/A
		TOTAL	925	RANGE	72%-96%

* Paper / poster † Std/Tier 1 pts with TRQ ≥40% Improved at completion †† All 100% Improved



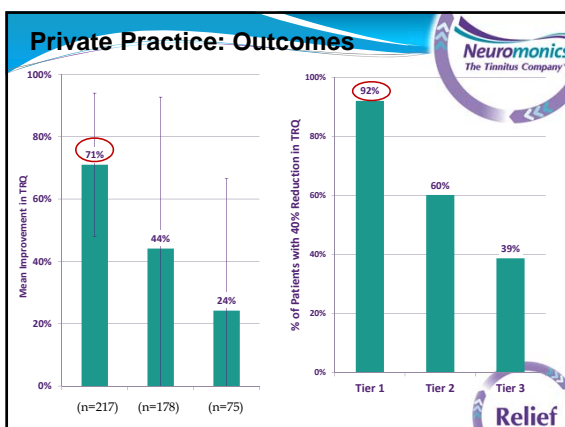
Private Practice Trial

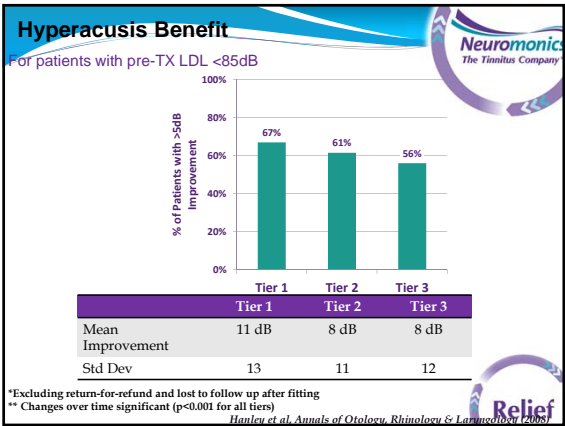
- 7 clinics (9 audiologists)
- Variety of etiologies, referral paths, socio-economic & demographic profiles; 72% male
- Mean age 56 years (range 19-88), tinnitus duration 11 years
- 49% tried other treatments previously
- Standardized treatment protocol
- TRQ as primary pre-/post-treatment measure; awareness, MML, LDL also tracked
- 470 patients (85%) progressed with treatment

Hanley PJ, Davis PB, Paki B, Quinn SA, Bellekom SR. Treatment of tinnitus with a customized, dynamic acoustic neural stimulus: clinical outcomes in general private practice. Ann Otol Rhinol Laryngol 2008;117:791-9.

Patient Suitability Criteria

Tier 1 (46%)	Tier 2 (38%)	Tier 3 (16%)
<ul style="list-style-type: none"> • Largest group: <ul style="list-style-type: none"> ▪ 43% patients assessed ▪ 46% of patients progressing • Best fit with suitability criteria • Hearing loss mild-moderate • +/- decreased sound tolerance • Absence of Tier 2 / 3 attributes 	<ul style="list-style-type: none"> • High apparent psych needs (20%) • Low tinnitus disturbance (TRQ<17) (15%) • Severe hearing loss in one ear (>50 dB 4FA) (8%) 	<ul style="list-style-type: none"> • "Reactive" tinnitus (5%) • Multi-tone tinnitus (2%) • Pulsatile tinnitus (2%) • Meniere's disease (1%) • Severe hearing loss binaurally (1%) • Comprehension (2%) • Unprotected noise exposure (3%) • Compensation claimant (3%)





Clinical Outcomes

(after 6 months of treatment*):

- 40% + Reduction in Tinnitus Disturbance**..... **95%**
- 40% + Reduction in Tinnitus Awareness..... **84%**
- 5dB + Reduction in MML***..... **78%**
- 5dB + Improvement in LDL****..... **69%**

Davis, P, Paki, B, Hanley, P. Neurotonics Tinnitus Treatment: Third Clinical Trial. Ear and Hearing, 2007; Vol. 28, No. 2; 242-257.

*Clinical measures reported by participants with significant levels of tinnitus disturbance prior to treatment.
 **Measured by the Tinnitus Reaction Questionnaire
 ***Participants with pretreatment minimum masking level of greater than 5dB
 ****Participants with decreased sound tolerance



Patient Satisfaction

- Relief from Tinnitus **97%**
- Improved ability to fall Asleep **94%**
- A Sense of Control of Tinnitus **94%**
- Improved ability to Relax **94%**



Davis, P, Paki, B, Hanley, P. Neurotonics Tinnitus Treatment: Third Clinical Trial. Ear and Hearing, 2007; Vol. 28, No. 2; 242-257.

Neuromonics Advantages

- Rapid relief & sense of control
- Improved relaxation and sleep
- Reduced awareness and disturbance
- Improved tolerance of loud sounds
- Long-term benefit
- Proven efficacy with over 900 subjects studied





Key Counseling Concepts





Keys to Success Counseling

- Be confident in your recommendations
- Reference clinical data and your own experience
- Insist on a positive prognosis
- Acknowledge their desire for a quick solution
- Facilitate discussion of tinnitus emotions
- Collaborative with direction and focus
- Identify and challenge cognitive distortions



Counseling

- Reinforce incremental changes
 - Use TRQ and test battery to measure tinnitus impact
- Gradual changes are not always apparent
 - Develop list of goals at treatment outset
- Encourage patient to STOP SELF MONITORING
 - Our role as their clinician





Counseling

Troubleshooting

Lifestyle factors that may impede progress:

- Period of acute stress
- Repeated noise exposure/ noisy hobbies
- Straining to hear
- Lack of sleep







Counseling

Role of the "Tinnitus Coach"



Psychologist specializing in Cognitive Behavioral Therapy

- Significant anxiety or depression
- Suicidal ideation
- Cognitive distortions / mindset barriers
- Greif or anger over onset







Case Studies



Case I

- 40 year old college professor
- Ringing tinnitus for several decades
- Worsened last year but he was told there was nothing he could do about it.
- Fit with **Oasis** device
- Prior to the fitting, his **TRQ score was 52**
- Awakening several nights per week with the tinnitus and was unable to go back to sleep.
- It bothered him both when he awakened and when trying to fall asleep.
- Made him avoid both quiet and noisy environments.
- **TRQ score went from 52 to 27**, no longer awakened during the night by his tinnitus
- Now has several mornings a week without tinnitus
- During the day his tinnitus has receded to the point he has to think about it to notice it's there.





Case II

- Bilateral high frequency SNHL 4000-8000 Hz
- TRQ of 71 with 90% awareness/disturbance.
- Described her tinnitus as "screaming" and that her "teeth hurt."
- Had tinnitus for 18 years.
- Goal to give patient sense of control over tinnitus, improve concentration and lessen bad tinnitus days.



Case II cont.


- Pt fit with Neuromonics Oasis
- 2 month f/u: **TRQ from 71-59 with 80/70% awareness/disturbance.**
- At that time patient was using her device at very specific times as opposed to targeting when tinnitus was most disturbing. Pt was counseled on using when it was bothering her. Kept on Phase 1.
- 4 month f/u: switched to Phase 2 with **TRQ of 35 with 70% awareness/disturbance**
- 7 month f/u: **TRQ of 22 with 50% awareness/disturbance.** Moved to maintenance phase.



Case III

- Loud buzzing/static sound in his ears.
- "I lost the freedom to relax"
- Felt that he is not as calm of a person, being easily irritated, and less a part of social gatherings.
- Pulling away from others and the closeness to his wife and children.
- Pt fit with Neuromonics Oasis
- Now a greater sense of control over his day.
- Regained the ability to relax
- Improved overall quality of life





Thank You!

