

Tinnitus Management

Like Nothing Else, From No-One Else

Starkey Education & Training

CAN YOU HEAR ME?

If you have any technical problems, please stay logged
on and call Audiology Online at
1-800-753-2160

Presented in Partnership with




This session is
available for
1/.1 CEU

Must stay
logged on for
the full session

Must
successfully
complete a
short quiz

Helpful Tools

- Check the File Share pod for helpful downloads
- Chat Box may be used for questions
- Use the  icon to enlarge your viewing area

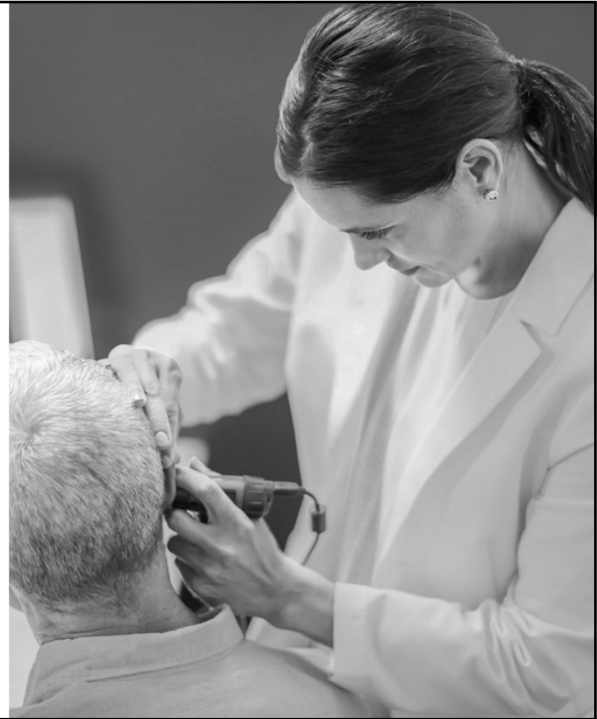
Presented in Partnership with



Outcomes

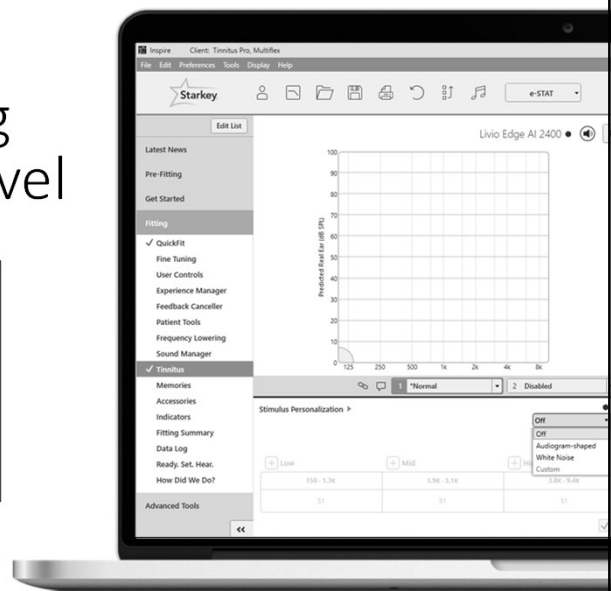
As a result of this course, participants will:

- Describe what sound therapy stimulus options are available with Multiflex Tinnitus Pro
- Explain how to use the Multiflex Tinnitus Pro Wizard to create a personalized tinnitus stimulus
- Explain how to adjust a tinnitus stimulus in the Inspire software



An unmatched fitting experience on every level

Multiflex Tinnitus Pro



Presented in Partnership with

continued

THE SENSES



Sight



Touch



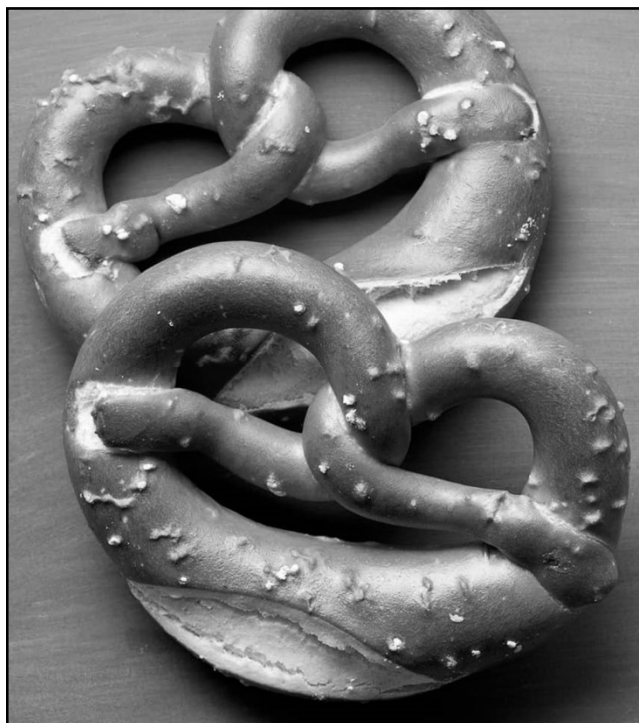
Hearing



Taste



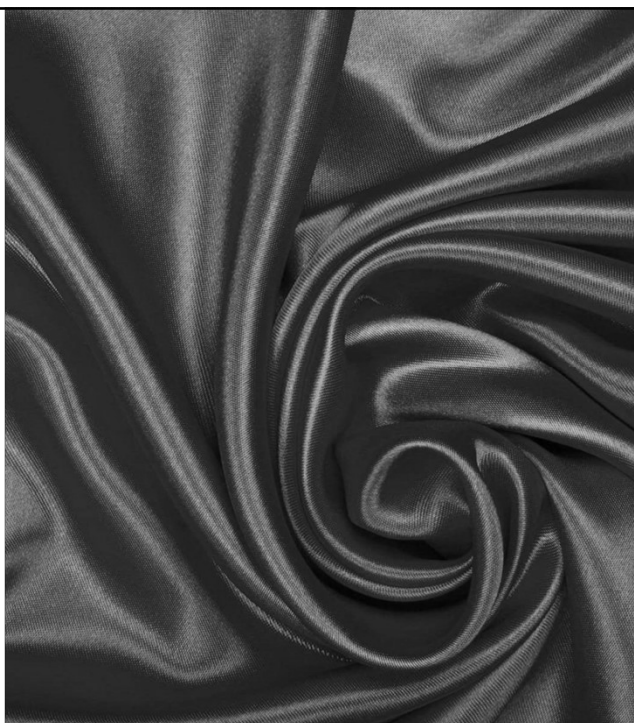
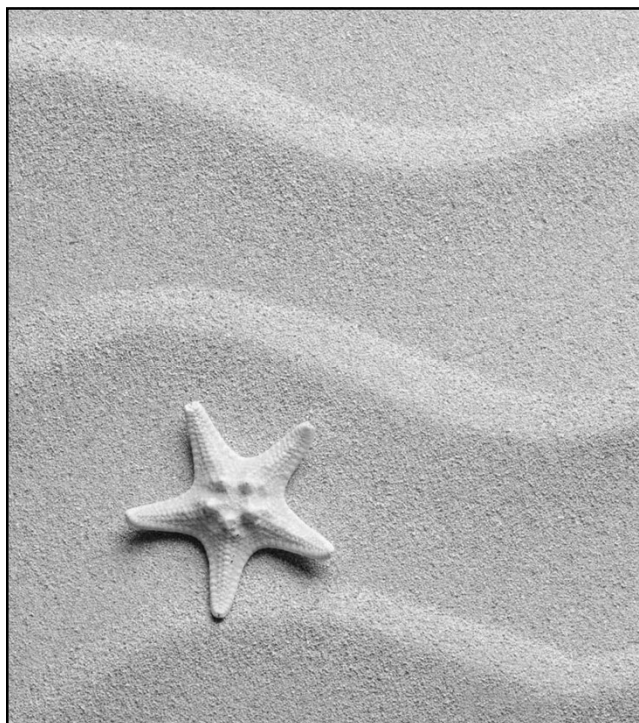
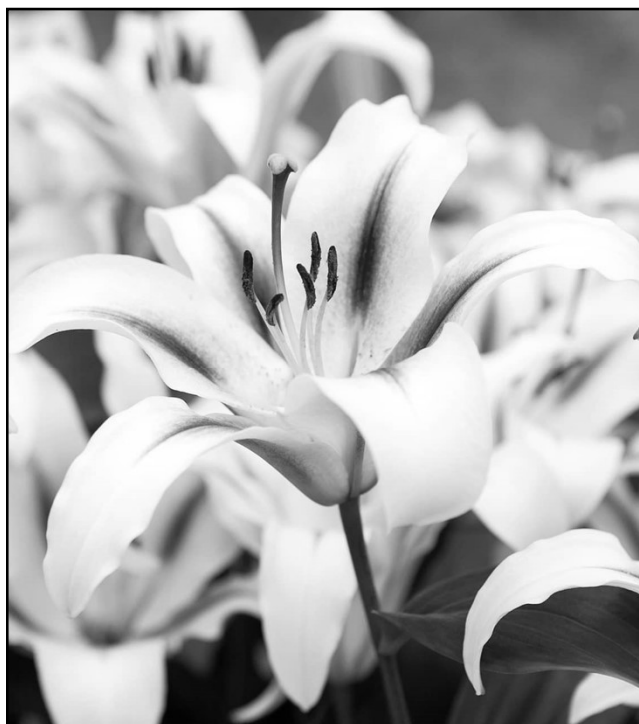
Smell



Presented in Partnership with

continued™

9/9/20



Presented in Partnership with

continued™



How many times have you
had the same exact sound
quality complaint but have
had to address it differently
from one patient to the next?


**The same thing can be said for
patients with tinnitus**



Presented in Partnership with


continued

Tinnitus



American Tinnitus Association

Tinnitus



One of the **most common health conditions** in the United States

U.S. Centers for Disease Control estimates that nearly 15% of the general public, **over 50 million Americans** experience some form of tinnitus.

American Tinnitus Association

Presented in Partnership with





Causes of Tinnitus



Noise Trauma



Medications



Health Problems



Head and Neck Injury




Hearing Loss

Causes

Head and Neck Injury

- Skull fracture
- Whiplash
- Blow to Face/Head
- TMJ/Jaw Problems



Presented in Partnership with

Causes

Disease and Health Problems

- Cardiovascular Disease
- Hypo/Hyperthyroidism
- Diabetes
- Hypertension
- Depression
- Fibromyalgia

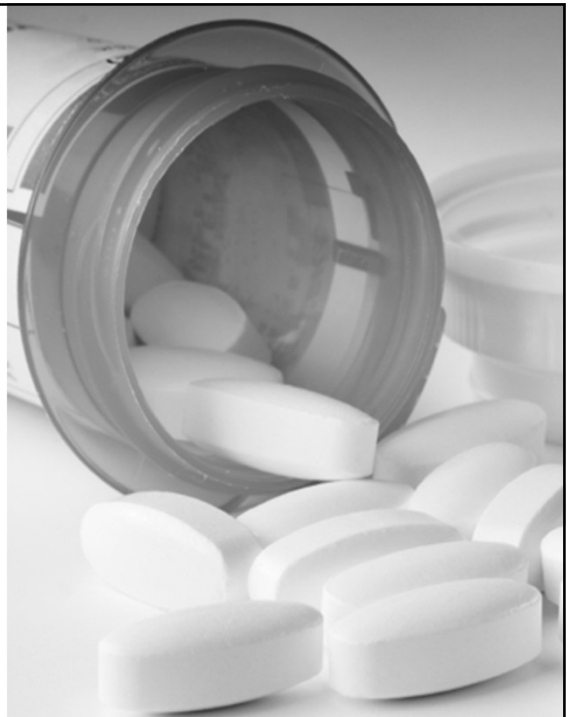


Causes

Medications

500+ prescription, OTC drugs and supplements associated with tinnitus

- Antibiotics
- Painkillers
- Cancer drugs
- Diuretics



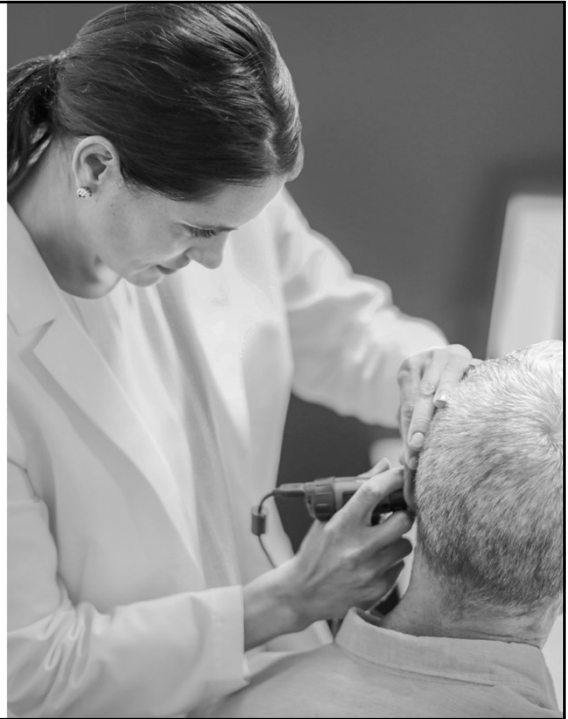
Presented in Partnership with

continued

Causes

Hearing Loss

Almost any form of disorder involving the outer, middle, or inner ear or the auditory nerve may be associated with tinnitus



Tinnitus is more prevalent among individuals with impaired hearing than it is among the normal hearing population.

— Davis & Amr Rafaie, 2000 —

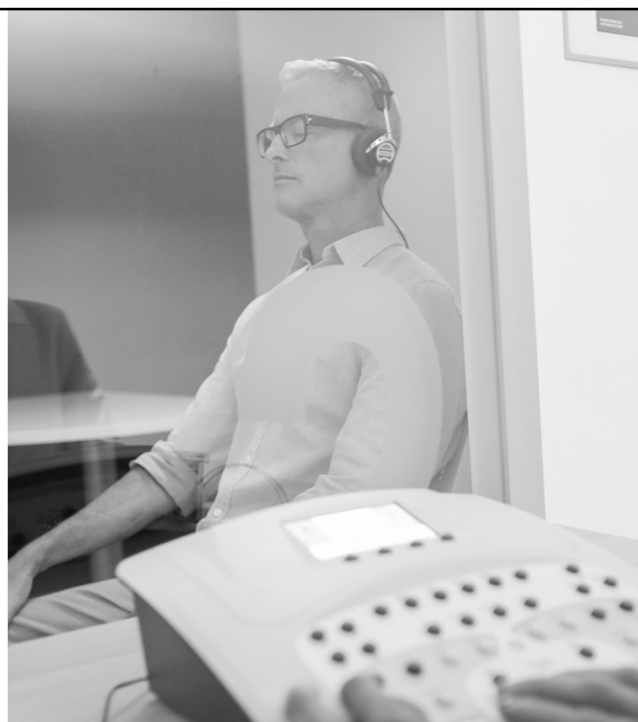
Presented in Partnership with



Tinnitus and Hearing Loss

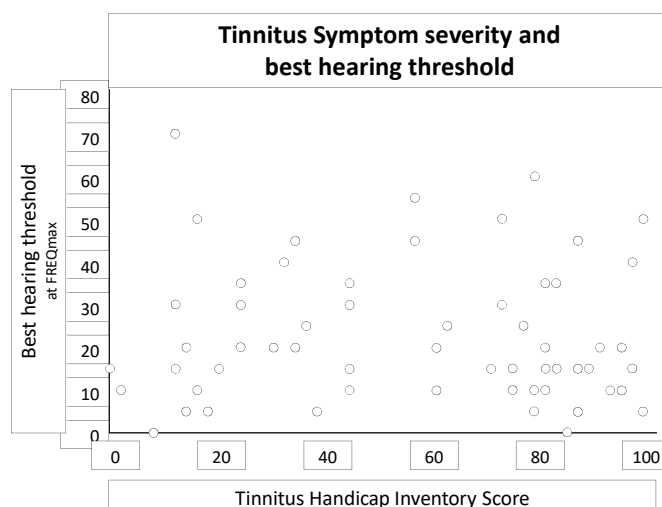
- Any degree of hearing loss
- Any type of hearing loss
- Any cause or type of onset

Changes in hearing loss and changes in tinnitus tend to occur independently of one another



Tinnitus and Hearing Loss

No correlation between tinnitus severity and hearing threshold



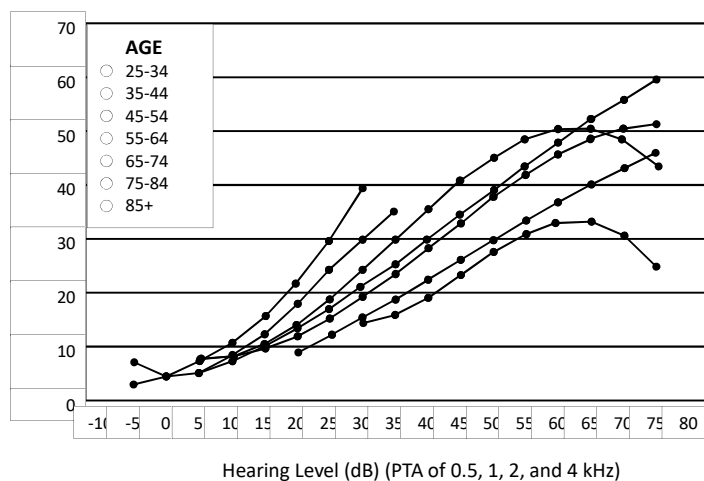
Tsai, Cheung, and Sweetow, Laryngoscope, 2012

Presented in Partnership with

continued

Tinnitus and Hearing Loss

For all age categories, as hearing loss increases, the prevalence of tinnitus increases



Borchgrevink et al., 2001



Aggravators of Tinnitus



Alcohol



Noise Exposure



High doses of Aspirin



Caffeine



Stress/Anxiety



Salt



High doses of Aspirin



Caffeine



Stress/Anxiety



Salt

Presented in Partnership with

continued

There is no cure,
but it can be managed



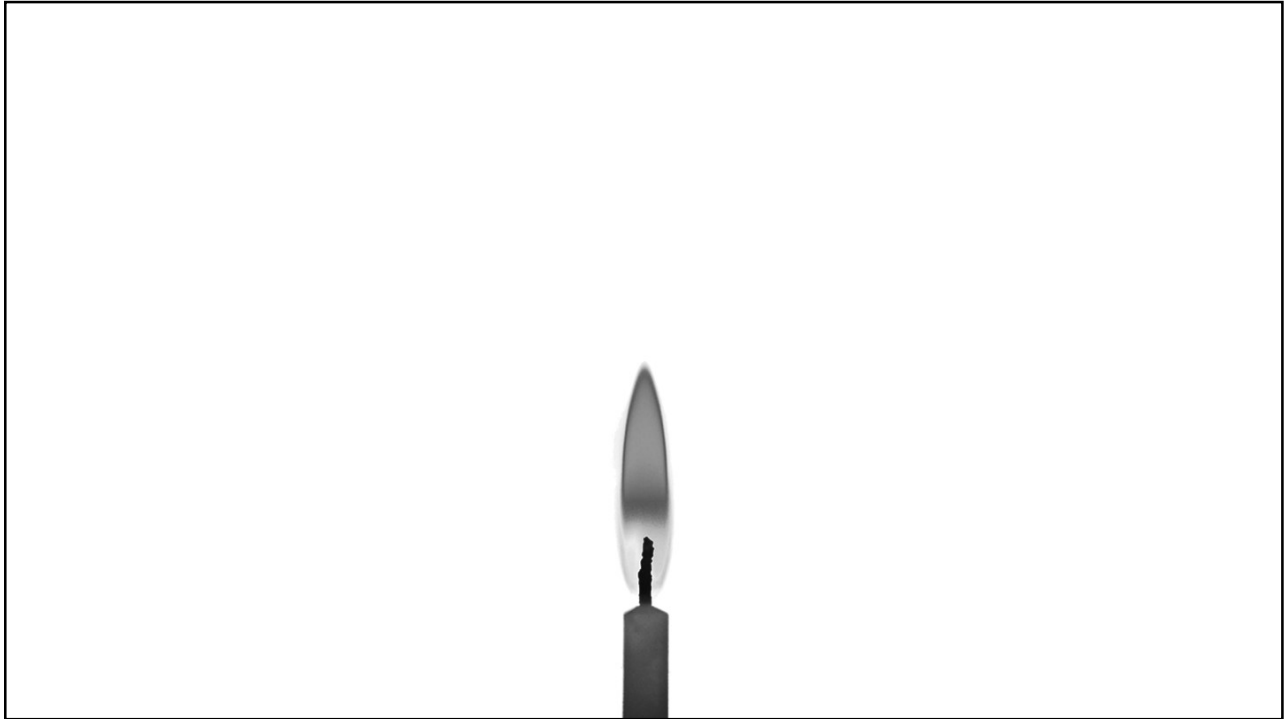
SOUND THERAPY

“Involves the use of external noise in order to alter a patient's perception of, or reaction to, tinnitus. Like other tinnitus treatments, sound therapies do not cure the condition, but they may significantly lower the perceived burden and intensity of tinnitus.”

— American Tinnitus Association —

Presented in Partnership with





“The problem with tinnitus is that because there is still no cure, people are told they just have to live with it. Most of them do, but that doesn’t mean they like it.”

— Dr. Richard Tyler —

Presented in Partnership with

continued™

Multiflex Tinnitus Pro

**Next generation feature for sound
therapy tinnitus management**

Three stimulus options to
effectively mask the user's tinnitus:

White Noise

NEW Audiogram-shaped

NEW Custom

livioEdge^{AI}
2400



AVAILABLE ON ALL STYLES

Multiflex Tinnitus Pro

- Accessed on the Tinnitus screen in Inspire
- Use the dropdown menu to select the stimulus type
- All options offer a 10,000 Hz bandwidth with 16 bands of adjustability

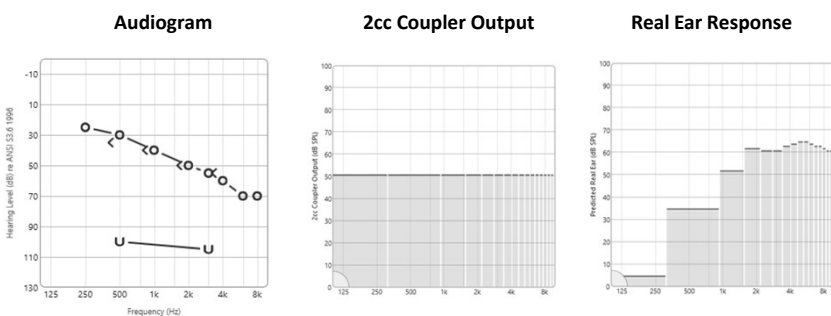


Presented in Partnership with

continued

White Noise

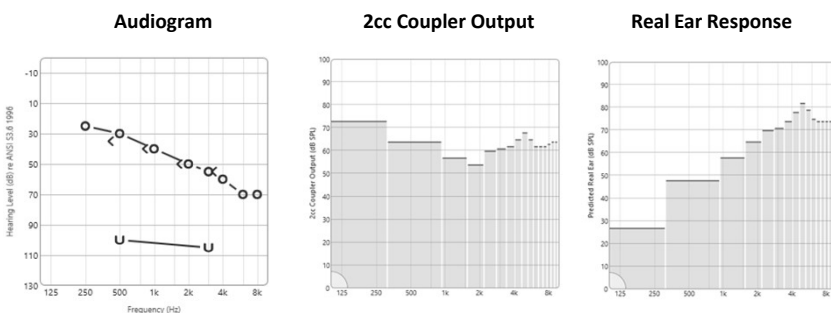
Original Multiflex Tinnitus Stimulus



- Available in all styles and technology tiers of **Livio Edge AI, Livio AI, Livio** and older products
- **Signal level based on PTA** and comprised of equal energy distribution across frequencies
- Flat response may result in some segments of the **stimulus being too loud or too soft**
- **Vent interactions** are accounted for
- **Stimulus is adjustable**

Audiogram-Shaped

NEW with Multiflex Tinnitus Pro

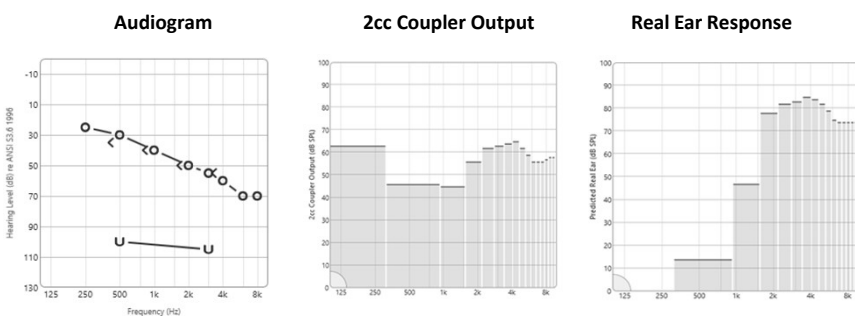


- Available in all styles of **Livio Edge AI**
- **Automatic shaping** of the Multiflex Tinnitus stimulus **based on the hearing loss provides a more tailored masking stimulus**
- **Vent interactions** are accounted for
- **Stimulus is adjustable**

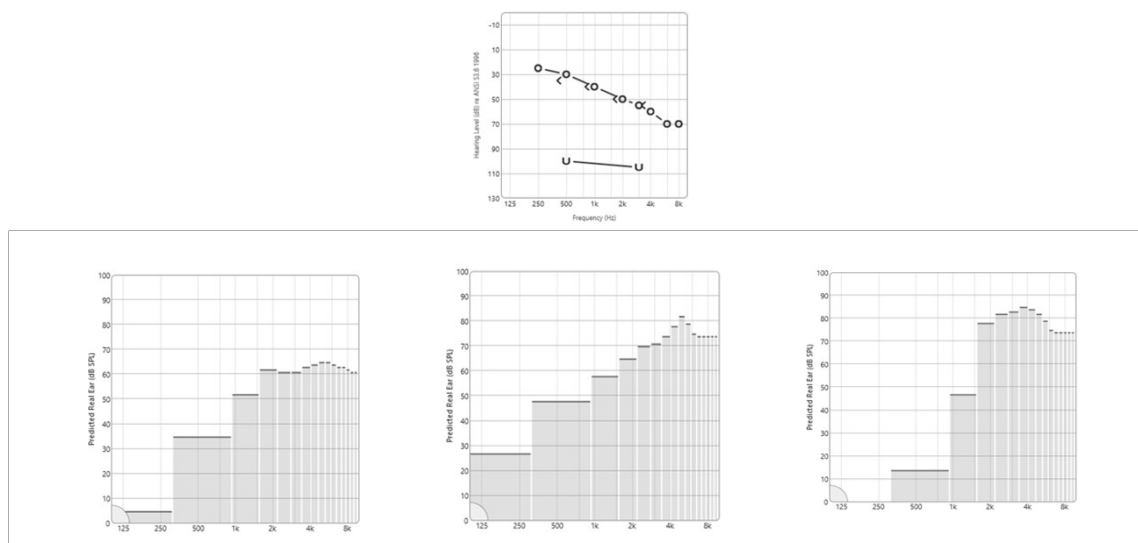
Presented in Partnership with

Custom

NEW with Multiflex Tinnitus Pro



- Available in all styles of **Livio Edge AI**
- **Custom shaping** of the the Multiflex Tinnitus stimulus provides a **personalized stimulus for a greater degree of masking precision**
- **Vent interactions** are accounted for
- **Stimulus is adjustable**



White Noise
Signal level based on PTA
and comprised of equal energy
distribution across frequencies

NEW

Audiogram-Shaped
Automatic shaping of the
Multiflex Tinnitus stimulus
based on the hearing loss

NEW

Custom
Custom shaping of the the
Multiflex Tinnitus stimulus

Presented in Partnership with

Custom

- Personalized shaping of the Multiflex Tinnitus stimulus
- Multiflex Tinnitus Pro Tool is a research-based approach to improving the efficiency of the masking signal
- Minimum Detection Levels (MDLs) and Minimum Masking Levels (MMLs) provide personalized shaping of the tinnitus stimulus



Multiflex Tinnitus Pro Tool

To create a Custom tinnitus stimulus,
go to the Tinnitus screen in Inspire and
click on “**Stimulus Personalization**”

**Make any necessary changes to acoustic
options before running the tool**
(they cannot be changed during testing)



Presented in Partnership with



Multiflex Tinnitus Pro Tool Display

Active frequency region

Instructions

Stimulus Controls

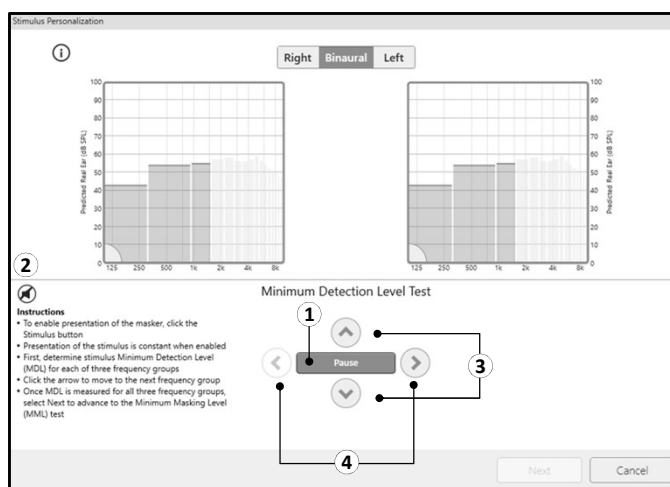


Minimum Detection Level (MDL) Test

GOAL

To identify the softest detectable level of the Multiflex Tinnitus stimulus

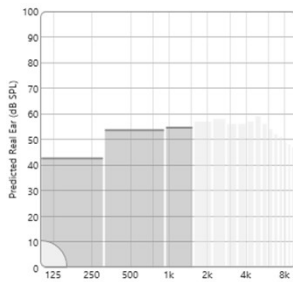
- 1 Click on the 'Stimulus' button to turn it ON
- 2 Hearing aid microphones will mute automatically when the stimulus is ON
- 3 Use the up and down arrows to increase or decrease the level of the stimulus in the frequency group displayed to **identify when the stimulus is just detectable**
- 4 Use the right and left arrows to make measurements in the other frequency groups



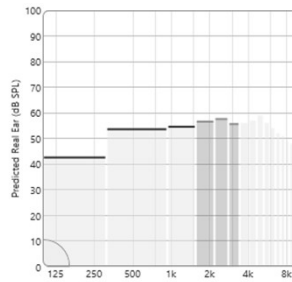
Presented in Partnership with

Frequency Groups

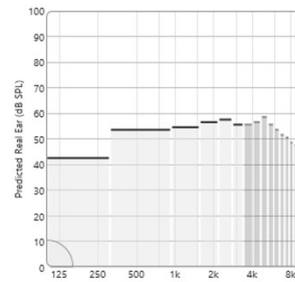
Frequency groupings are consistent with the low, mid and high band groupings in Inspire



Low
150 Hz to 1.3 kHz



Mid
1.9 kHz to 3.1 kHz



High
3.8 kHz to 9.4 kHz

Minimum Detection Level (MDL) Test

Once MDLs are measured for all three frequency groups, select Next to advance to the Minimum Masking Level (MML) test



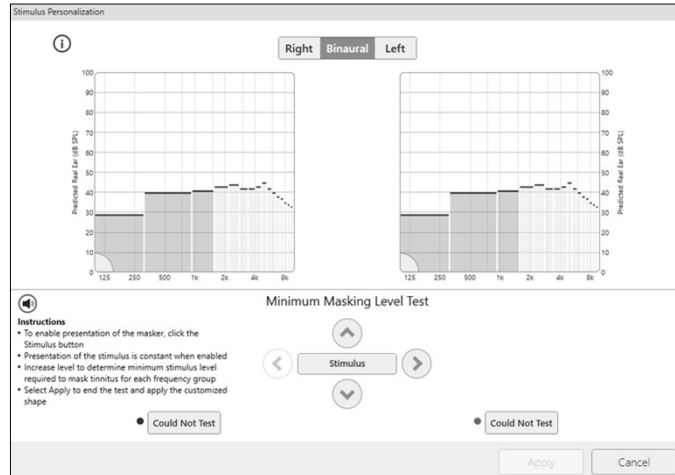
Presented in Partnership with

Minimum Masking Level (MML) Test

GOAL

To identify the softest level of the Multiflex Tinnitus stimulus required to just notice or mask the tinnitus depending on the management approach of choice

- Display and controls are the same for this test
- Increase the stimulus level to determine ***the softest stimulus level required to just detect or mask the tinnitus*** for each of the three frequency groups



Could Not Test

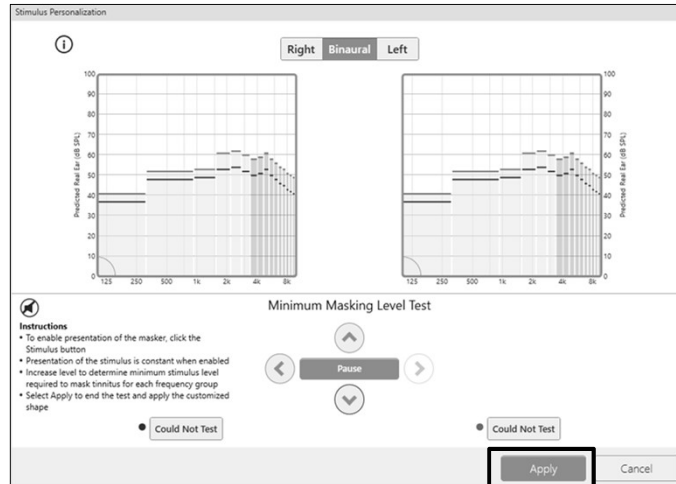
If the Minimum Masking Level is not identified before the maximum stimulus level is reached, a pop up will prompt selection of 'Could Not Test' with directions to move to the next frequency grouping.



Presented in Partnership with

Minimum Masking Level (MML) Test

Once testing for each frequency grouping is **complete**, select 'Apply' to end the test and apply the custom shape to the tinnitus signal.



Efficient and Effective Masking

Stimulus Personalization Testing in Inspire typically only takes a few minutes and is less time consuming than tinnitus measurements like pitch-matching

Fournier et al., 2018

- MDL and MML measurements can be used to rapidly design a stimulus that is both efficient and effective at masking tinnitus
- To efficiently mask tinnitus, only those frequency bands that are effective at masking tinnitus should be included in the stimulus, and the level of the stimulus in these bands should be no greater than needed to achieve masking

Presented in Partnership with

Patient Involvement

“People actively involved in their health and healthcare tend to have better outcomes.”

("Health Policy Brief: Patient Engagement," Health Affairs, February 14, 2013)

Multiflex Tinnitus Pro

Demo



Presented in Partnership with

continued

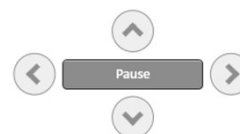
Stimulus Activation

Stimulus will turn off when moving between frequency groups during the MDL and MML tests

Ensure the stimulus button is blue when testing



Stimulus OFF

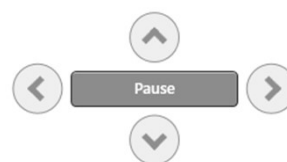


Stimulus ON

Hearing Aid Microphones

Hearing aid microphones will automatically mute whenever the Multiflex Tinnitus is ON (stimulus button is blue) during MDL and MML testing

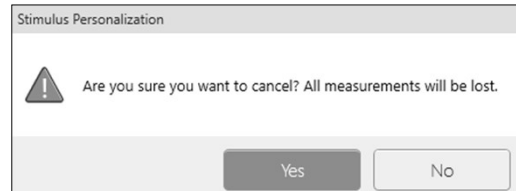
Pause the stimulus or click the speaker icon to unmute the hearing aids to talk to the user if necessary (e.g. to answer questions or provide instruction on the task)



Presented in Partnership with

Canceling MDL or MML Testing

If testing is canceled during the MDL or MML tests, **all measurements will be lost.**

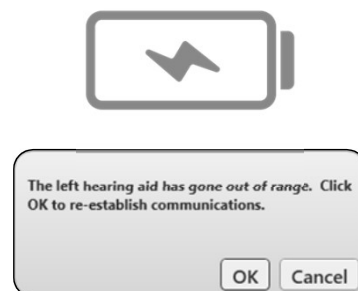


Battery Strength

Always create a Custom tinnitus stimulus with good batteries/charge.

A pop-up message will appear if a battery dies or connection has been interrupted; however, **you cannot reconnect a hearing aid in the middle of the MDL or MML tests.**

You will be forced to cancel testing and all measurements will be lost.



Presented in Partnership with

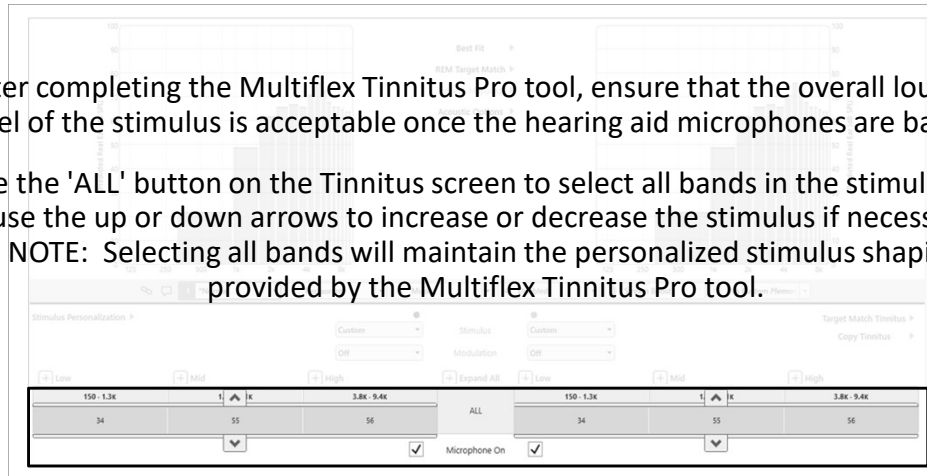


Custom Stimulus Level

After completing the Multiflex Tinnitus Pro tool, ensure that the overall loudness level of the stimulus is acceptable once the hearing aid microphones are back on.

Use the 'ALL' button on the Tinnitus screen to select all bands in the stimulus and use the up or down arrows to increase or decrease the stimulus if necessary.

NOTE: Selecting all bands will maintain the personalized stimulus shaping provided by the Multiflex Tinnitus Pro tool.



Hearing aid user comments that the signals heard during MDL/MML testing do not match their tinnitus

Explain that the signals may not align with their tinnitus, and refocus their attention on level/volume as needed for each task

Include this in initial instructions

Presented in Partnership with



Hearing aid user reports asymmetric tinnitus
(e.g. 60% right ear, 40% left ear)

Run the Multiflex Tinnitus Pro Tool bilaterally and then adjust the overall level for each ear as needed on the main Tinnitus screen in Inspire

Use the 'ALL' button to select all bands in the stimulus and use the up or down arrows to increase or decrease the stimulus as needed

Hearing aid user cannot identify a Minimum Masking Level for all three frequency groups

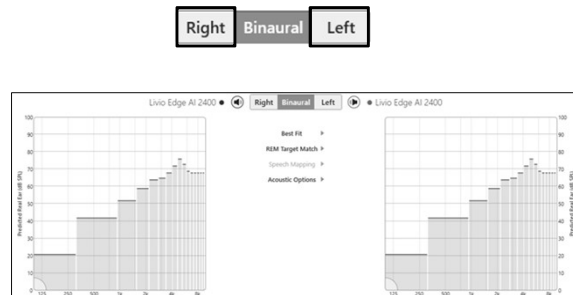
On the rare occasion that the hearing aid user cannot identify a Minimum Masking Level for all three frequency groups, rerun the Multiflex Tinnitus Pro Tool and use the maximum level allowed for each grouping prior to selecting 'Could Not Test'

Presented in Partnership with



Ear-Specific Considerations

- All Multiflex Tinnitus stimuli consider ear-specific hearing thresholds
- Any of the stimuli may be used in just one hearing aid
- If creating a Custom stimulus for one ear, the Right or Left side may be selected before or after selecting 'Stimulus Personalization'



Modulation

Modulation remains available for all of the Multiflex Tinnitus stimulus options



Presented in Partnership with

Stimulus Modifications

- **All stimuli may be modified** (frequency shaping, intensity and modulation) on the Tinnitus screen in Inspire
- **Target Match Tinnitus** will reset any of the stimulus options back to baseline

Use in Other Memories

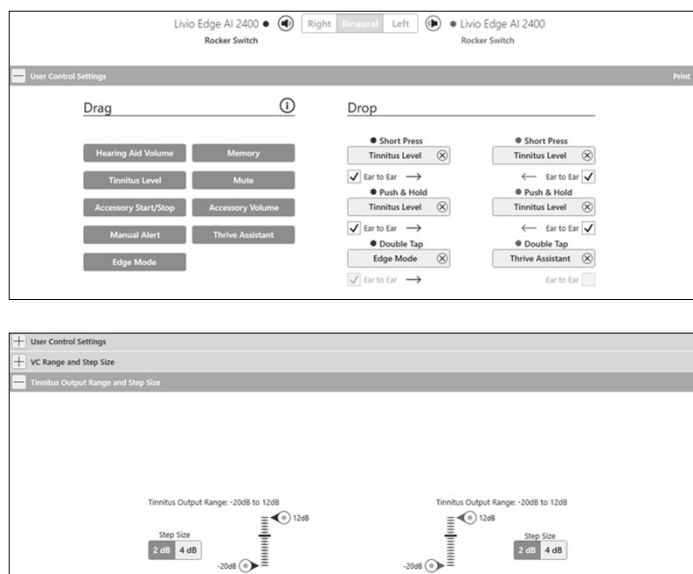
- Different tinnitus stimuli may be used in different memory environments
- Only 1 Custom stimulus may be created for each patient
- **Use the 'Copy Tinnitus' button** to copy any of the Multiflex Tinnitus stimulus options to another memory environment

Presented in Partnership with

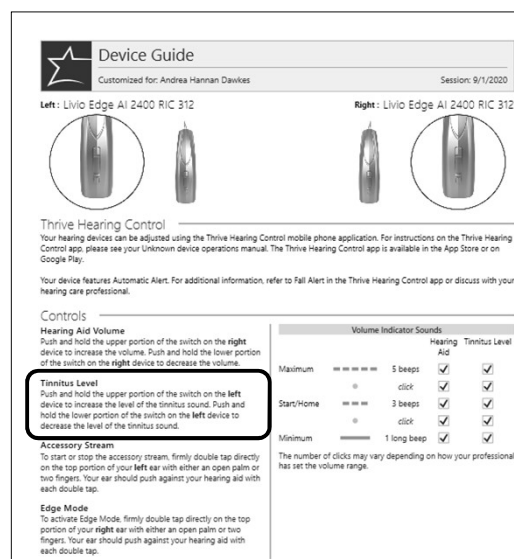
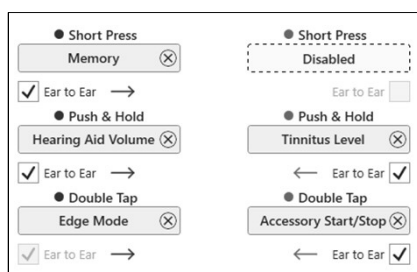
Tinnitus Stimulus

User Controls

Output Range and Step Size

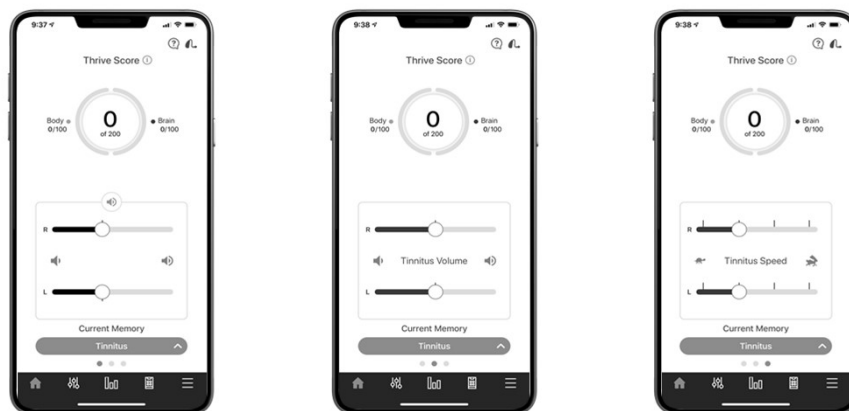


Device Guide



Presented in Partnership with

Thrive App

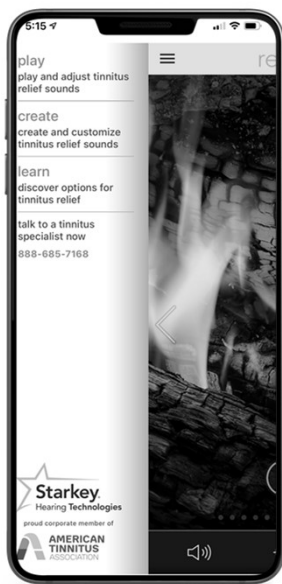


Relief sounds and
education for patients
who have tinnitus



Presented in Partnership with

continued



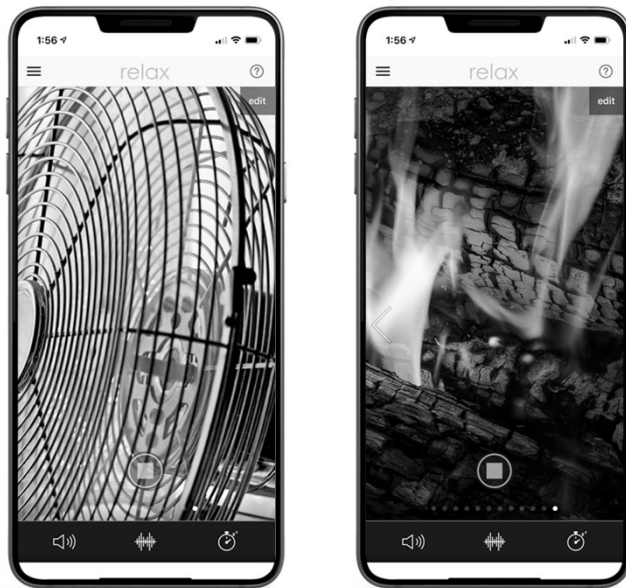
Easy to use app with a variety of sound stimuli and links to information from Starkey and American Tinnitus Association



Presented in Partnership with



12 different
stimuli options



“ The quickest way to ruin a customer experience in healthcare is to treat everyone the same. Patients don’t want to feel like just another number. They crave personalized service that helps them find the right solutions. ”

Hyken, S. Personalized Customer Experience Increases Revenue And Loyalty.

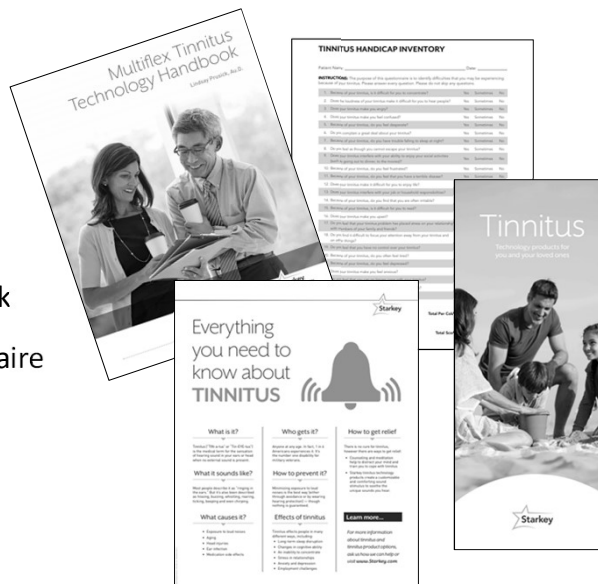
Presented in Partnership with

continued™

Resources

StarkeyPro.com

- Multiflex Tinnitus Pro QuickTIP
- Multiflex Tinnitus Technology Handbook
- Tinnitus Handicap Inventory Questionnaire
- Tinnitus Consumer In Office Poster
- Patient Education Brochure: Tinnitus
- Tinnitus Technology Options Brochure



CONFIDENTIAL

Tinnitus Handicap Inventory (THI)

Newman, C. Jacobson, G. Spitzer, J.

- Brief, easy to administer and reliable measure of the impact of tinnitus on daily living
- Self-report measure consisting of 25 questions
- 3 subgroups: functional, emotional and catastrophic
- Pre-fitting to assess the impact of tinnitus on daily living
- Post-fitting outcome measure to monitor progress

1. Because of your tinnitus, is it difficult for you to concentrate?	Yes	Sometimes	No
2. Does the loudness of your tinnitus make it difficult for you to hear people?	Yes	Sometimes	No
3. Does your tinnitus make you angry?	Yes	Sometimes	No
4. Does your tinnitus make you feel confused?	Yes	Sometimes	No
5. Because of your tinnitus, do you feel desperate?	Yes	Sometimes	No
6. Do you complain a great deal about your tinnitus?	Yes	Sometimes	No
7. Because of your tinnitus, do you avoid social activities?	Yes	Sometimes	No
8. Do you avoid going to work or school because of your tinnitus?	Yes	Sometimes	No
9. Does your tinnitus interfere with your ability to do your job or school work?	Yes	Sometimes	No
10. Because of your tinnitus, do you avoid going out at night?	Yes	Sometimes	No
11. Because of your tinnitus, do you avoid going to parties or social gatherings?	Yes	Sometimes	No
12. Does your tinnitus interfere with your ability to do your job or school work?	Yes	Sometimes	No
13. Does your tinnitus interfere with your ability to do your job or school work?	Yes	Sometimes	No
14. Because of your tinnitus, do you avoid going out at night?	Yes	Sometimes	No

TINNITUS HANDICAP INVENTORY SEVERITY SCALE

GRADE	SCORE	DESCRIPTION
1	0-16	Slight: Only heard in quiet environment, very easily masked. No interference with sleep or daily activities.
2	18-36	Mild: Easily masked by environmental sounds and easily forgotten with activities. May occasionally interfere with sleep but not daily activities.
3	38-56	Moderate: May be noticed, even in the presence of background or environmental noise, although daily activities may still be performed.
4	58-76	Severe: Almost always heard, rarely, if ever, masked. Leads to disturbed sleep pattern and can interfere with ability to carry out normal daily activities. Quiet activities affected adversely.
5	78-100	Catastrophic: Always heard, disturbed sleep patterns, difficulty with any activity.

Presented in Partnership with

INDUSTRY LEADING TECHNOLOGY



NEW – smallest, most powerful 2.4GHz rechargeable BTE on the market today



First custom rechargeable on the market (ITE, HS, ITC)



Industry-leading charger design



Most lithium-ion rechargeable styles in the industry

Like nothing else. From no one else.

**Starkey
Delivers**



Industry-leading **innovative** technology and features



Exceptional customer service and experience with **customer-driven features**

Presented in Partnership with

continued

Learn More.... Available on Audiology Online

1 Hour CEU Courses

- **Livio Edge AI:** The Best Just Got Better
- **Advancing the Leading Edge of Hearing Aid Fittings with Real Ear Measures**
- **Thrive Mobile:** The Best Mobile App Just Got Better
- **Rechargeable Technology** Like Nothing Else, From No One Else
- **Inspire and Hearing Care Anywhere:** The Best Programming Software Just Got Better
- **Tinnitus Management:** Like Nothing Else From No One Else

Starkey At A Glance

Need a **quick, focused** education on a specific feature/product?

Starkey At A Glance recordings provide brief, yet in-depth focus on specific products or features (CEU's not provided)



Thank You

Presented in Partnership with

continued™