



WIDEX **ZEN THERAPY**

Counseling



INTRODUCTION

Use this tool when counseling people within the Widex Zen Therapy protocol. It is comprised of two parts:

- Part one guides you in counseling about tinnitus
- Part two guides you in counseling about Cognitive Behavioral Intervention

Depending on the severity of the effects of tinnitus, you can choose to use the first part only or both parts.

This is a two sided counseling tool. Patient information on one side and professional talking points and additional information on the opposite side.

BASIC COUNSELING

PREVALENCE



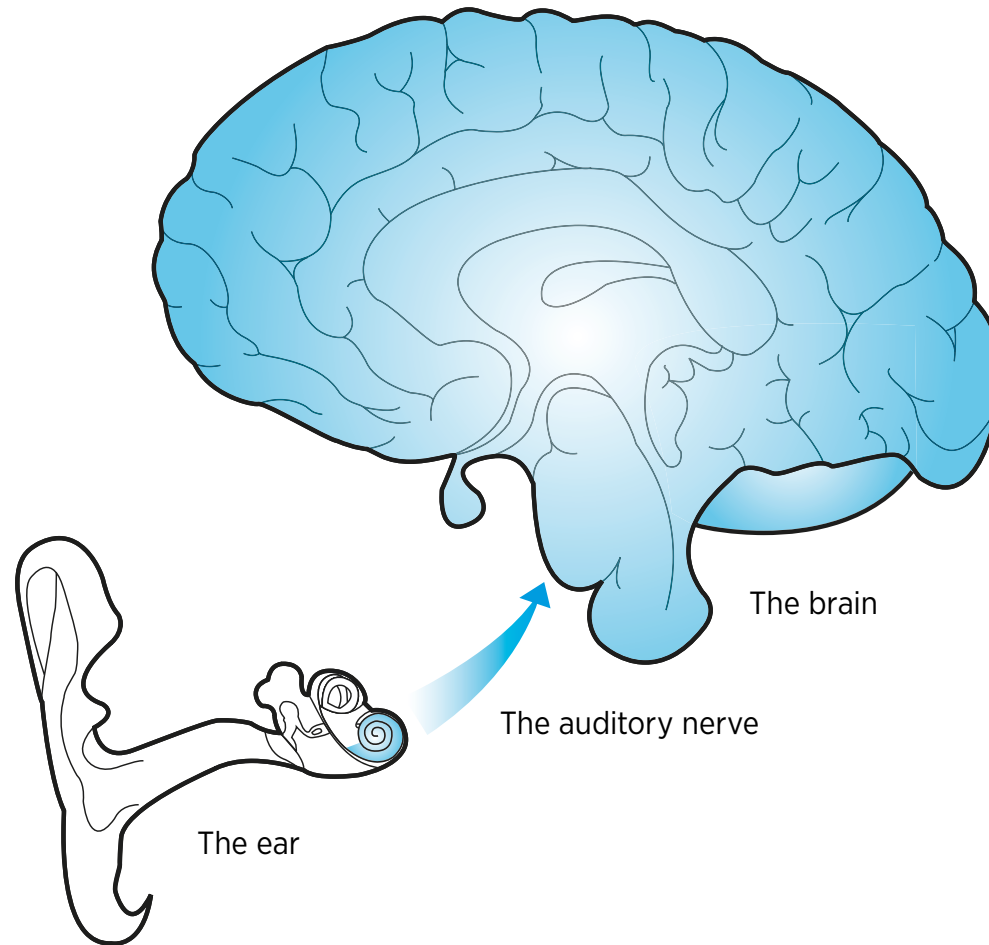
PREVALENCE

- Up to 10-15% of people report having had tinnitus.
- Only 10% of these seek medical attention.
- The majority of people with tinnitus also have some degree of hearing loss.
- Tinnitus is not a disease, but rather a symptom typically related to the auditory system.
- For about 90% of people with tinnitus habituation will occur naturally.

A medical consultation is always recommended to rule out any significant medical condition.



THE AUDITORY SYSTEM - AN OVERVIEW



THE AUDITORY SYSTEM

An overview of the Auditory System:

- Peripheral structures
- Outer ear (the visible portion of the ear and the ear canal)
- Middle ear (the tympanic membrane and the ossicles)
- Inner ear (the fluid-filled spaces, including the cochlea)

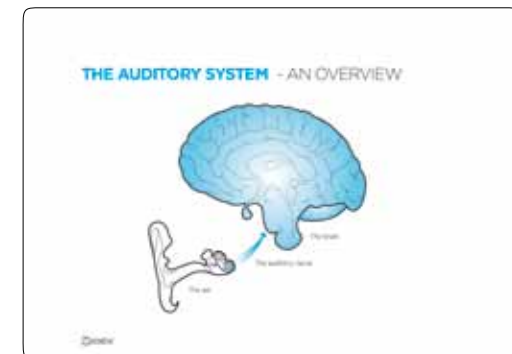
The auditory nerve:

- The VIIIth cranial nerve sends information from the ear to the brain

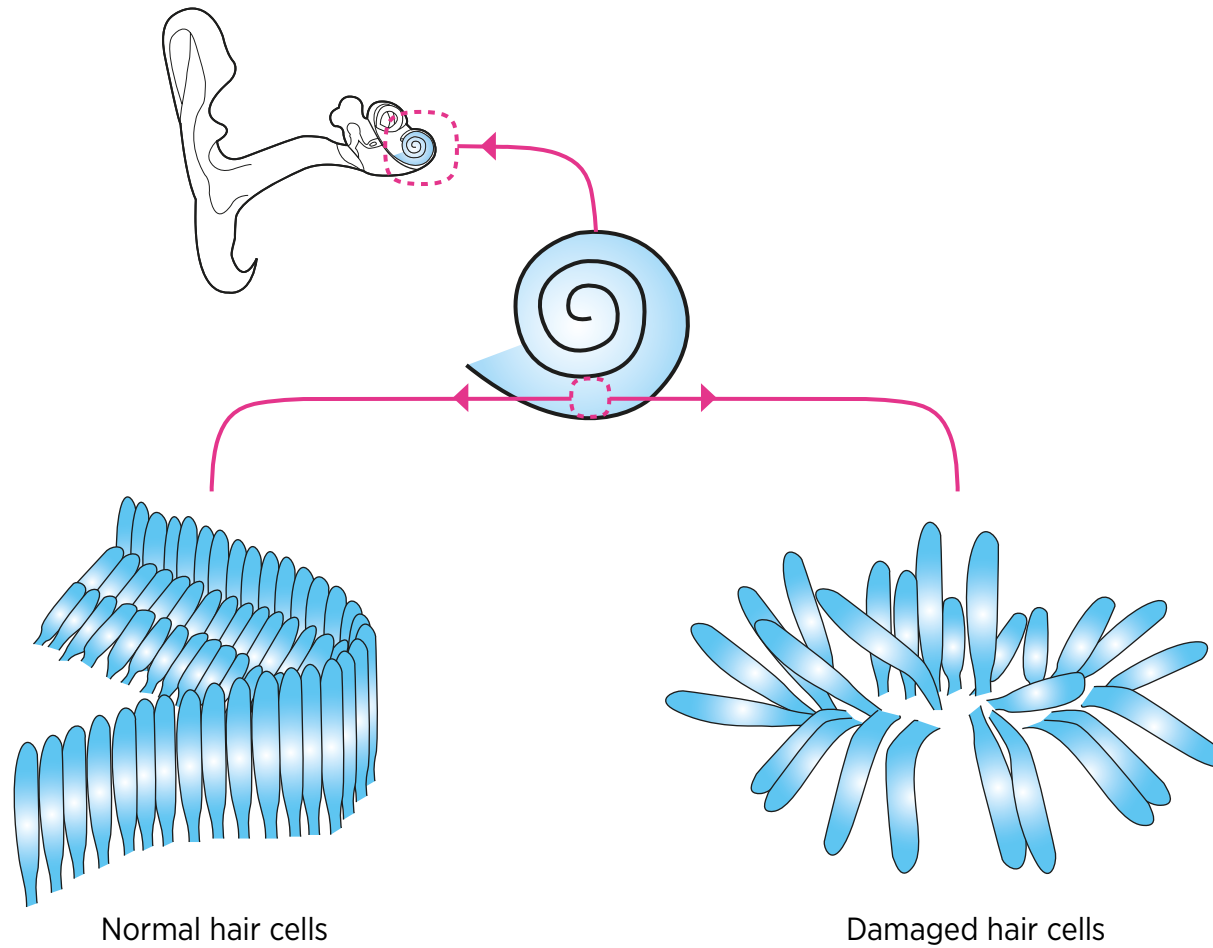
The brain:

- Sound is received by the auditory cortex

All parts of the auditory system play a significant role in the ability to hear. We hear in our brain – not just in our ears.

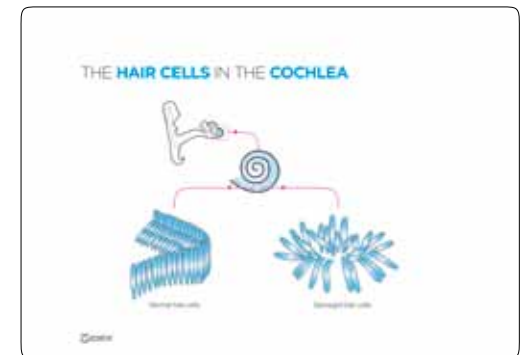


THE **HAIR CELLS** IN THE **COCHLEA**

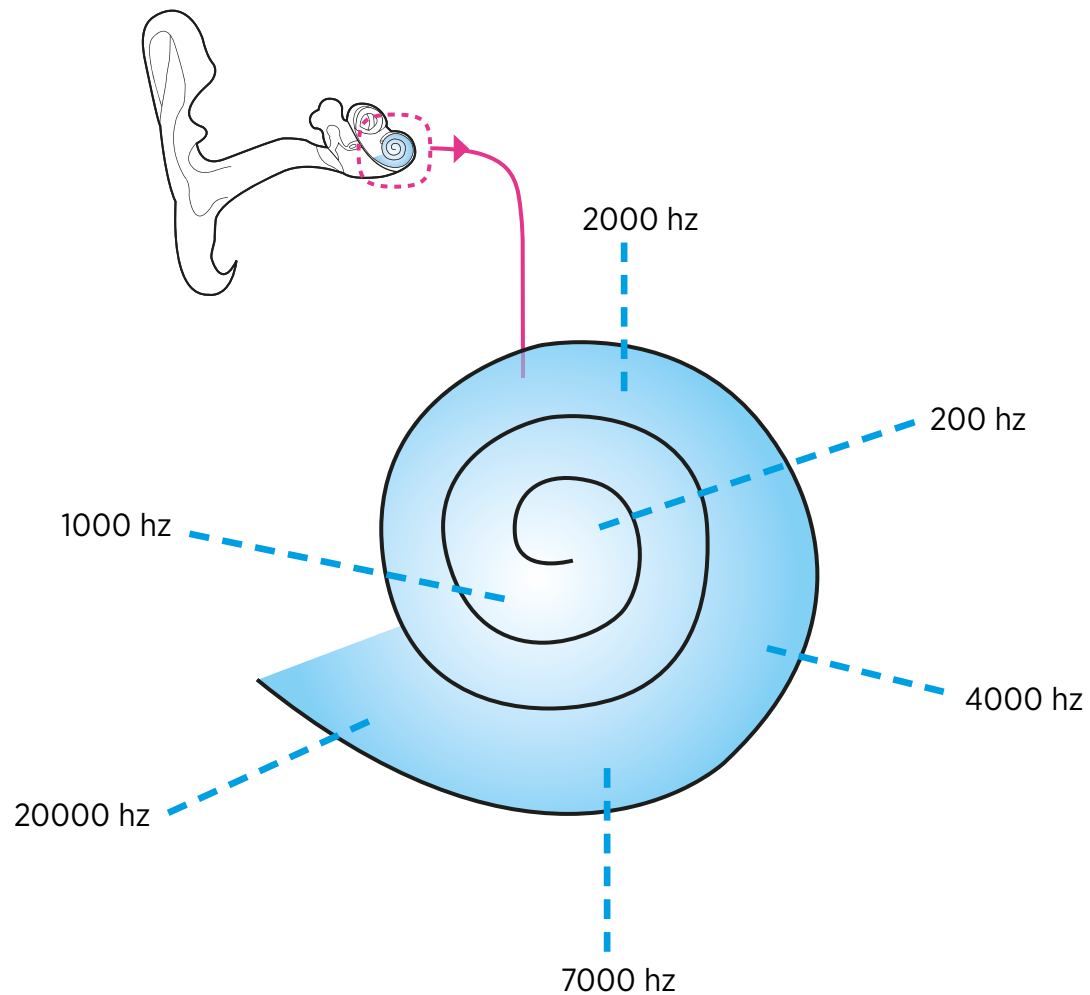


THE **HAIR CELLS** IN THE COCHLEA

- There are thousands of tiny hair cells in the cochlea that convert sounds to electrical signals that are then sent to the brain by the auditory nerve.
- There are many reasons that hair cells can become damaged. Unfortunately once they are damaged, they cannot be restored.
- Tinnitus usually originates from damage to the hair cells and is interpreted in the auditory cortex in the brain.
- We know this because even if the auditory nerve is severed, most people will still perceive their tinnitus.

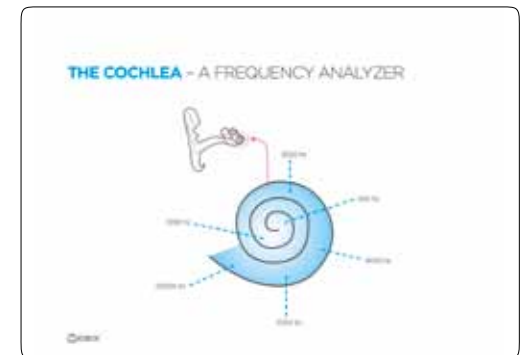


THE COCHLEA - A FREQUENCY ANALYZER

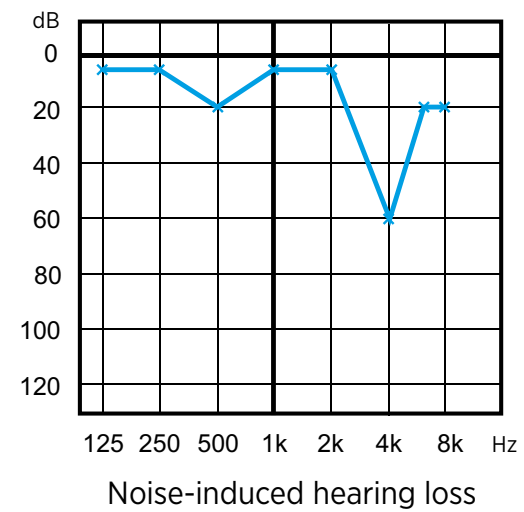
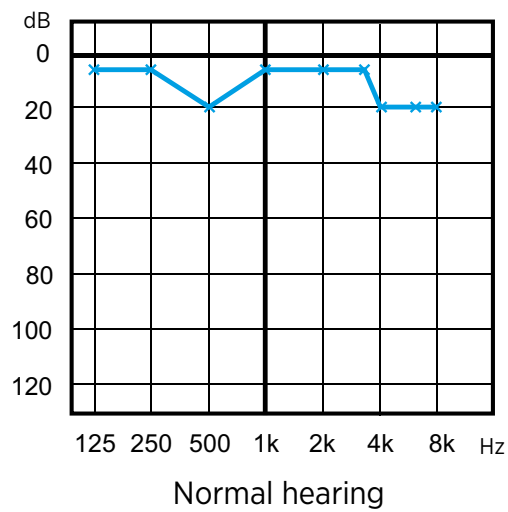


THE COCHLEA – A FREQUENCY ANALYZER

- Sound waves enter the cochlea and travel up the spiral passage.
- Different locations in the cochlea correspond to specific frequencies or pitches.
- Hair cell damage at a specific location in the cochlea corresponds to a hearing loss in a specific frequency area; similar to a piano.
- Exposure to loud noise is a common cause of hair cell damage and hearing loss.



HAIR CELL DAMAGE AND HEARING LOSS



HAIR CELL DAMAGE AND HEARING LOSS

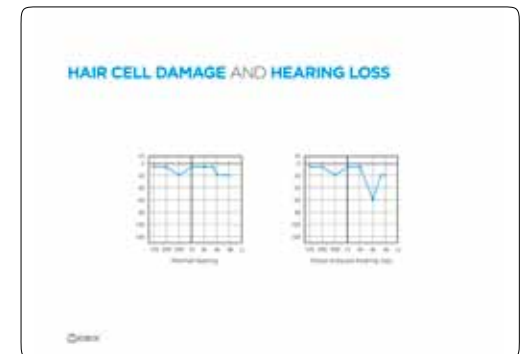
This is a graphic representation of a hearing loss, called an audiogram. It shows the person's ability to hear at different frequencies.

The audiogram to the left

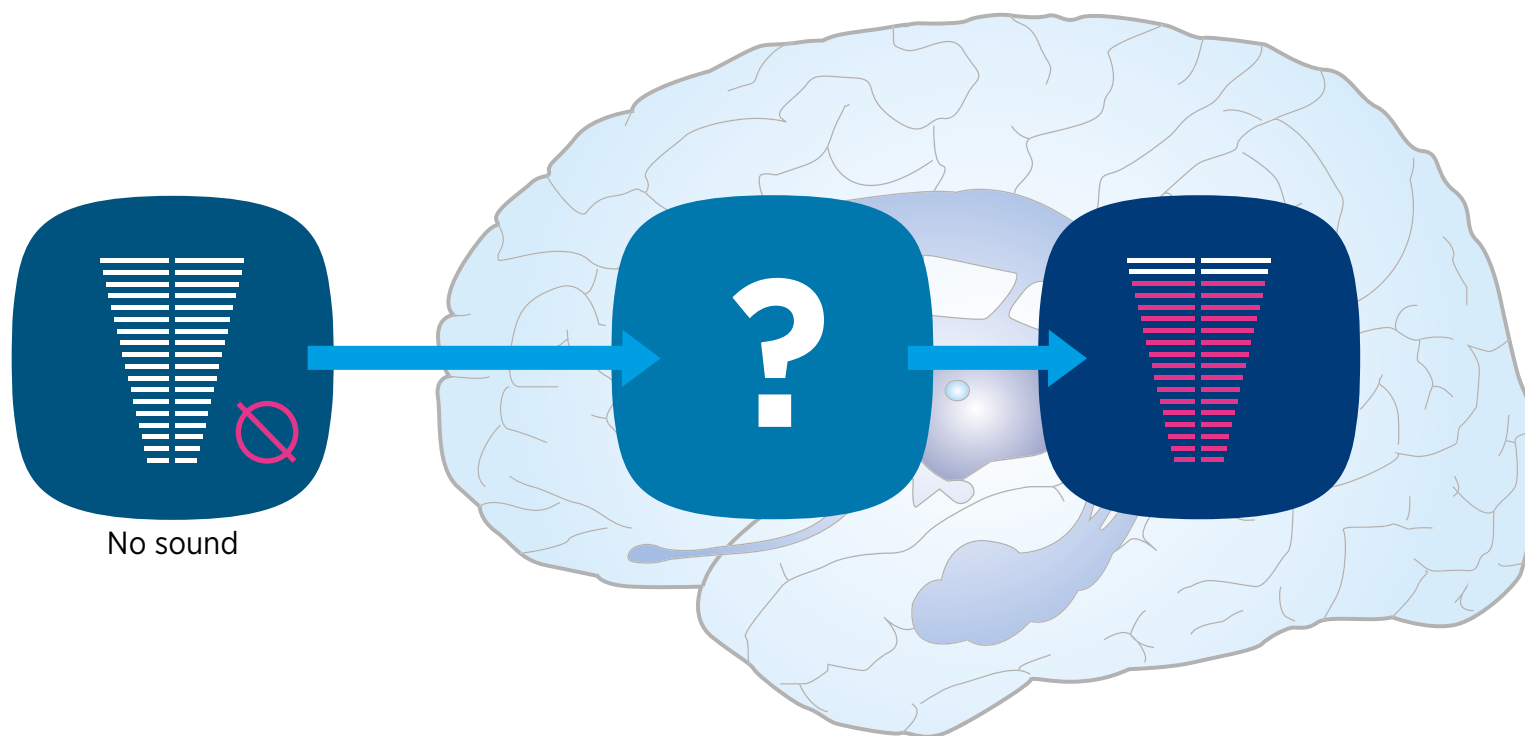
- shows normal hearing.
- The hearing is equally good at all the frequencies measured.

The audiogram to the right

- shows a noise-induced hearing loss.
- The hearing is equally good at most frequencies, but has a notch at 4 kHz.
- This will mean that the person cannot hear as well at this specific frequency.



THE **BRAIN** HAS A DRIVE TO **OVERCOMPENSATE**



THE **BRAIN** HAS A DRIVE TO **OVERCOMPENSATE**

The brain has a drive to overcompensate for what it is not getting from the ears because of hearing loss, often caused by hair cell damage. This can result in the perception of tinnitus.

- Tinnitus is the sensation of hearing sound that is inaudible to others and often accompanies hearing impairment.
- Tinnitus can be compared with phantom limb syndrome, which occurs when the brain makes the person feel pain in a limb that is no longer there.

- Treating hearing loss with hearing aids will make it easier to hear soft environmental sounds, can counteract this overcompensation and can make tinnitus less annoying.



TYPICAL CAUSES OF TINNITUS

- Induced by noise
- Diseases of the ear, e.g. Ménière's disease
- Presbycusis
- Excessive use of certain drugs



TYPICAL CAUSES OF TINNITUS

Tinnitus can be perceived as many different sounds: ringing, roaring, buzzing, hissing, to name a few.

Typical causes of tinnitus are:

- Noise damage
- Age related hearing loss
- Conditions of the ear, such as Ménière's syndrome
- Certain medications

There are many more auditory and non-auditory reasons for tinnitus, but it is well-accepted that tinnitus somehow is the result of the brain's reaction to the impaired hearing.



COMMON DIFFICULTIES ASSOCIATED WITH TINNITUS

- Sleeping problems
- Annoyance, irritation, inability to relax
- Despair and frustration
- Problems focusing on speech
- Concentration difficulties



COMMON DIFFICULTIES ASSOCIATED WITH TINNITUS

Tinnitus is often accompanied by a series of common difficulties:

- Sleeping problems
- Annoyance, irritation,
- Difficulty relaxing
- Despair and frustration
- Problems focusing on speech
- Concentration difficulties



EXACERBATING FACTORS

- Caffeine
- Alcohol
- Nicotine
- Sodium
- High cholesterol, hyperlipidemia, hyper and hypothyroidism
- Noise exposure
- Stress



TINNITUS **EXACERBATING** FACTORS

Many lifestyle choices can aggravate tinnitus.

These include but are not limited to:

- Caffeinated foods and beverages
- Excessive use of salt
- Alcohol
- Nicotine

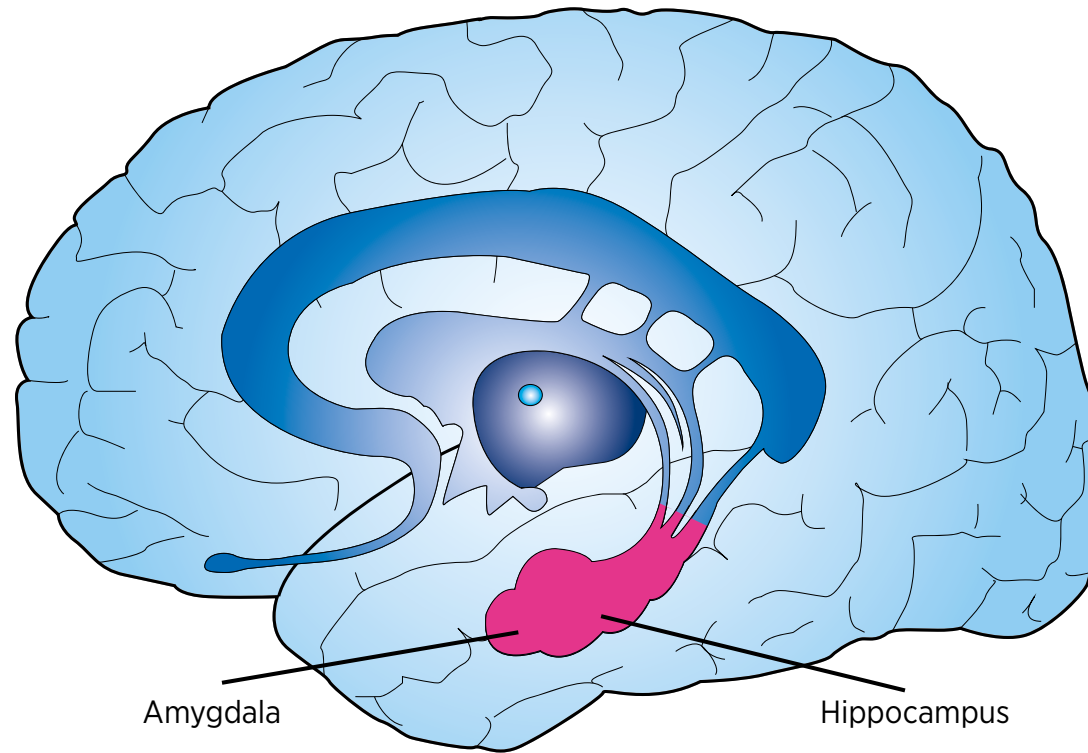
Studies also show that noise exposure and stress are two of the most common causes for the increase in tinnitus disturbance.

Non-auditory conditions can also aggravate tinnitus:

- Grinding your teeth
- Neck or cervical problems



THE **LIMBIC SYSTEM** IN THE BRAIN



THE LIMBIC SYSTEM

Activation of the limbic system greatly contributes to increased stress and tinnitus-related anxiety.

The limbic system is the part of the brain that controls our emotions – for example:

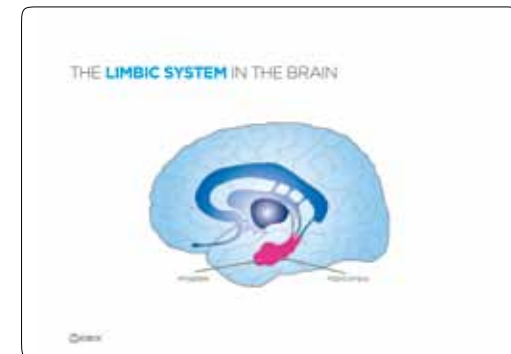
- fear
- anger
- happiness

The parts of the limbic system that are most related to tinnitus are:

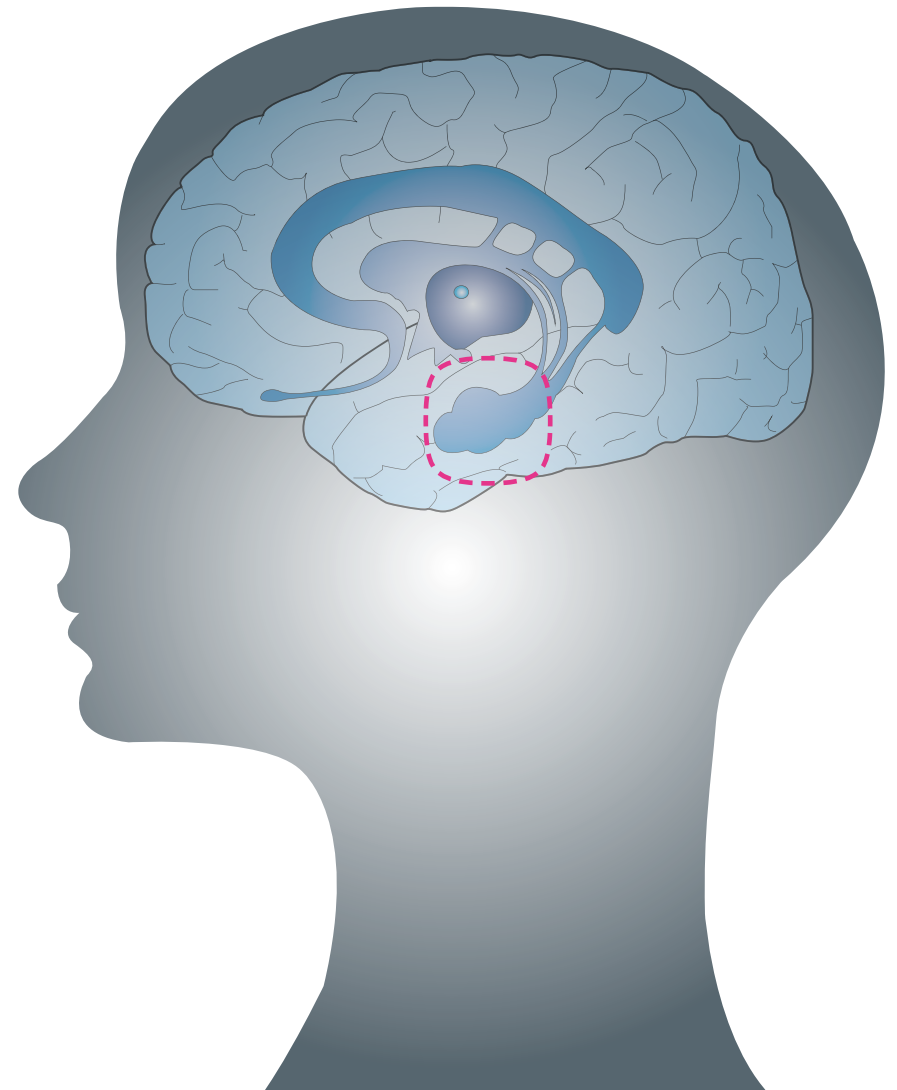
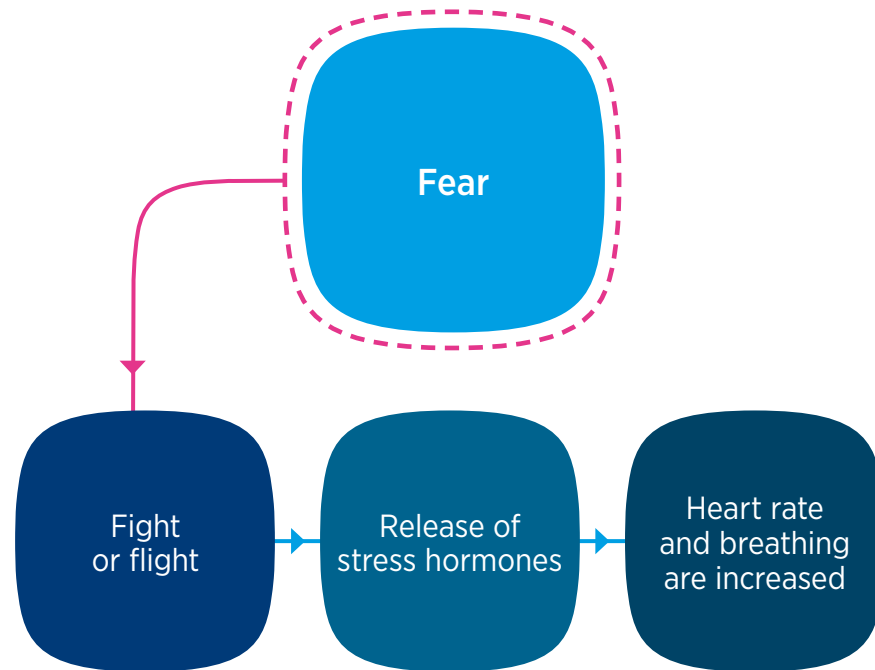
- The hippocampus which stores and retrieves memories

- The amygdala which determines the emotional significance of the event and the need for a release of neurotransmitters (for example, fight or flight response)

The limbic system can also react to sound, whether it's a sudden sound or a constant sound, like tinnitus. Activation of the limbic system greatly contributes to the increase in stress and anxiety related to tinnitus.



THE GENERAL **STRESS RESPONSE**

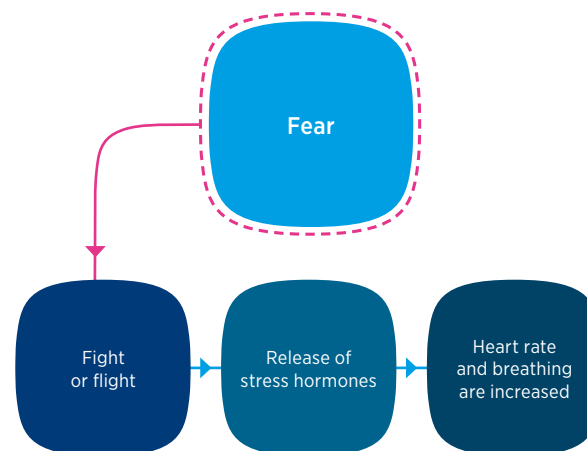


THE GENERAL **STRESS RESPONSE**

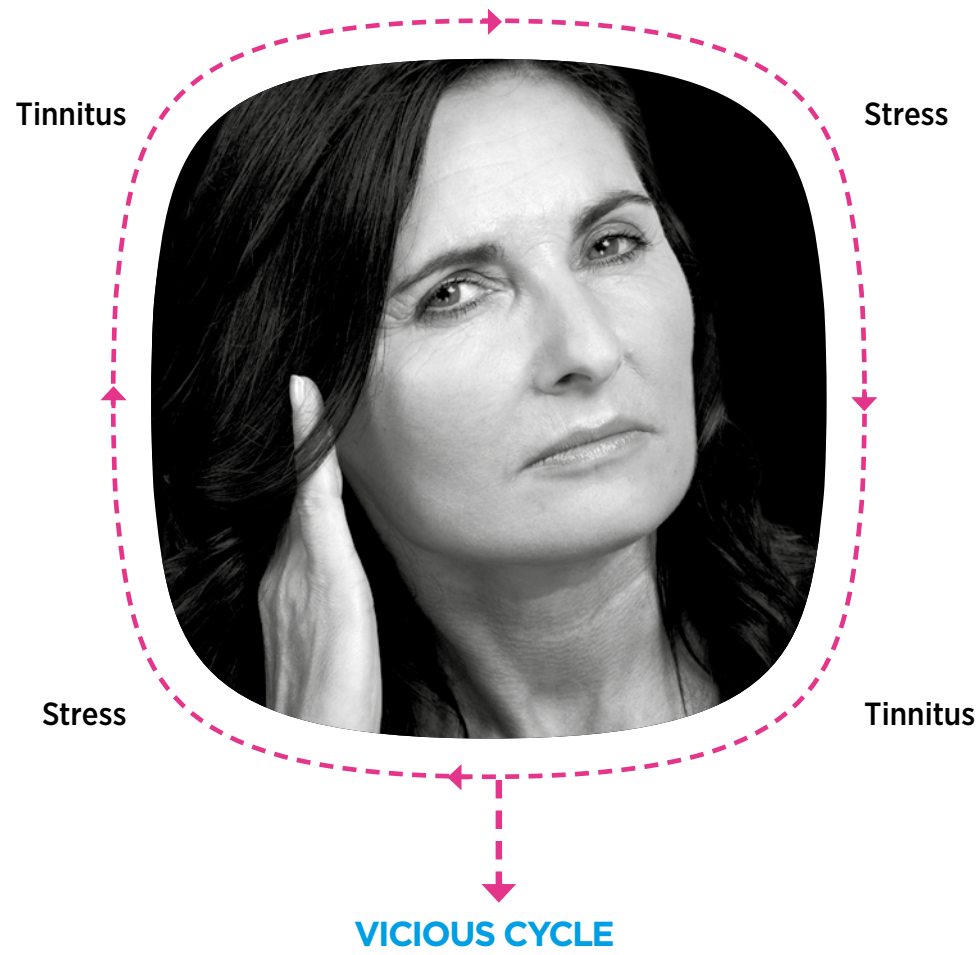
Stress is a reaction to a real or perceived threat. Consider this example:

- You see a very fast moving car heading in your direction.
- Your body and brain release the stress hormones adrenaline, noradrenaline and cortisol.
- These hormones make it possible for you to react quickly, escaping a dangerous situation.
- When the danger is over, your hormone levels are reduced, and your body returns to normal.

This type of stress is called acute stress and it's a necessary survival mechanism for our body and our brain.



TINNITUS AND STRESS



TINNITUS AND STRESS

Unlike short term acute stress, tinnitus may create chronic stress. Chronic stress can lead to many health problems:

- Sleeping difficulties
- Increased cholesterol levels
- High blood pressure
- Other problems

Not only does tinnitus increase stress, but stress increases tinnitus.

Therefore a vicious cycle is created: Stress increases the perception of tinnitus, which increases stress, which increases the perception of tinnitus, which leads to additional stress.



MINIMIZING THE NEGATIVE REACTION TO TINNITUS



TINNITUS

- What is this sound?
- Am I going deaf?
- Will I ever be able to sleep?
- HELP



TINNITUS

- I can hear my tinnitus.
- I know it's harmless.
- When I'm busy,
I don't think about it.

MINIMIZING THE NEGATIVE REACTION TO TINNITUS

There are a range of different factors that can contribute to a negative reaction to tinnitus. Those include:

- fear of the unknown such as “what is the cause of my tinnitus?”
- fear about whether the tinnitus will result in deafness
- fear that the tinnitus will interfere with sleep, work ability, or quality of life
- a feeling that your concerns are not being taken seriously, for example by professionals who have stated “there is no cure - you just have to learn to live with it”

Consciously or subconsciously knowing that tinnitus is not a threat to your well-being can help you break the vicious cycle and learn to ignore it most of the time.



STRESS AND MUSIC



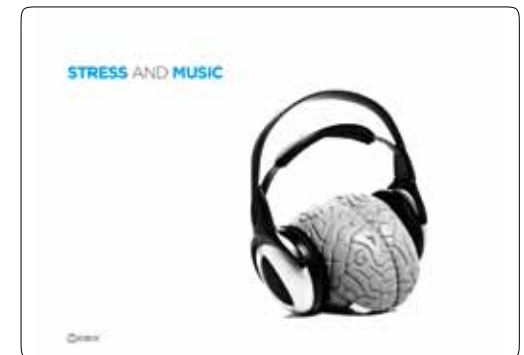
STRESS AND MUSIC

The longer you have tinnitus the more areas of your brain are activated. Remember the vicious cycle of tinnitus and stress?

Music is believed to help reduce stress because of the wide range of neural structures that it activates.

Music used for relaxation shares some common characteristics

- Slow tempo
- Fluid melodic movement
- Harmonic relationship
- Absence of lyrics



WHAT IS **HABITUATION?**

- Not noticing the watch on your wrist
- Not noticing the clothes that you are wearing
- Forgetting about the glasses on your face



HABITUATION

Most people who experience tinnitus go through a natural process of habituation.

Habituation can be thought of as the process of “ignoring” (or becoming accustomed to) a stimulus without exerting any conscious effort, for example:

- The watch on our wrist
- The clothes on your body
- The glasses on your face

We all experience habituation thousands of times each day to stimuli that are not relevant to our well-being. In contrast, novel stimuli and those that pose a threat to our well-being will tend to attract, and often maintain, our attention.

Most people who experience tinnitus go through a natural process of habituation.



PEOPLE TYPICALLY **DO NOT PAY ATTENTION** TO TINNITUS **WHEN:**

- Talking about interesting things with friends and relatives
- Listening to music
- Going to sports events or in the theater
- Watching TV



HABITUATING TO TINNITUS

There are times when people do not pay attention to their tinnitus.

It is important to remember that even if your tinnitus is very annoying, there are times when you may not think about it such as:

- when talking about things of interest with family and friends
- when listening to music
- when at a sports event or the theater
- when watching a favorite TV show

Ask the person with tinnitus to identify other instances when they were not aware of their own tinnitus.



HABITUATING TO SOUNDS

The brain is capable of ignoring sounds, which means that you can get used to your tinnitus.



HABITUATING TO SOUNDS

We habituate, or get used to, many sounds.


For example: People who live near a busy street, airport or next to railroad tracks frequently become so accustomed to the noise that they are not aware of it.

When the limbic system has decided that the noises do not pose a threat to the person's well-being, it then directs the rest of the brain to ignore this non-relevant stimulus.



THE **GOAL** OF TINNITUS THERAPY IS **HABITUATION**

- To address all components that produce tinnitus distress
- To reduce the negative effects of tinnitus

- 
- ✓ *Sleeping problems*
 - ✓ *To concentrate when people are talking*
 - ✓ *Stress*
 - ✓ *Fear of the future*

THE **OVERALL GOAL** OF WIDEX ZEN THERAPY

The overall goal of Widex Zen Therapy is:

- to prevent tinnitus from negatively affecting quality of life
- to promote the natural occurrence of habituation

But also:

- to reverse overcompensation by the brain because of hearing deficits
- to prevent fatigue resulting from extra listening effort related to hearing loss
- to reduce stress
- to overcome sleep difficulties
- to identify and change unhelpful negative thinking and behaviors.



AMPLIFICATION HELPS BECAUSE...

- It amplifies the background sounds so that the tinnitus does not seem as disturbing.
- More sounds are being passed on to the brain and this:
 - **increases the neuronal activity**
 - **minimizes the sensitivity of the brain**



HEARING AIDS AND TINNITUS

When there is hearing loss, hearing aids have been shown to be among the most effective means of reducing the perception of tinnitus.

Hearing aids do not eliminate tinnitus, however most patients report a decrease in the loudness or disturbing quality of the tinnitus perception.

Widex hearing aids are especially helpful for tinnitus patients because they:

- provide maximum amplification for very quiet environments thus reducing the contrast between tinnitus and silence
- limit the overall loudness of sound delivered to the ear in noisier environments, which may be critical for people with hearing loss



REDUCING THE CONTRAST



REDUCING THE CONTRAST

A good illustration of why amplification or sound in general makes tinnitus less disturbing is seen by comparing a candle in a dark room to the sound of tinnitus.

- If the room is dark and there are no other visual inputs, you will automatically focus on that candle and it will shine very clearly, much like the increased loudness of tinnitus in a quiet room.
- If, on the other hand, there are several candles and plenty of light in the room, you are less likely to focus on that single candle. This helps explain why tinnitus is less prominent when the room is filled with other sounds.

Just like with the single candle in a brightly lit room, it is easier to habituate to a sound that is less dominating.



ZEN FRACTAL TONES

- A choice of soothing tones and chimes
- Predictable without exact repetition
- Can be individualized to meet individual needs and preferences



ZEN FRACTAL TONES

An alternative approach to standard music is the use of Zen fractal tones precisely customized for each patient.

Zen is a series of music-like programs found exclusively in Widex hearing aids. It is built upon what is called fractal technology. Based on your individual hearing profile, the hearing aids generate these tones in a discreet, soft manner designed to both relax you and provide your brain with the exact amount of acoustic stimulation it needs.

The Zen programs provide

- a choice of soothing tones and chimes
- sounds that are predictable without exact repetition, which will induce passive listening instead of active listening
- sounds that can be individualized to meet your needs and preferences



INFO

A description of the different Zen programs is available for hearing aid users in the Widex Zen Therapy flyer.

RELAXATION

A decrease in stress level helps many people with tinnitus

- Zen tones
- Relaxation exercises



RELAXATION

Since there is such a strong link between tinnitus and stress, relaxation is an important part of your tinnitus therapy program.

- Many people with tinnitus are helped with relaxation exercises that include deep breathing, progressive muscle relaxation and guided imagery.
- A decrease in stress level can be achieved by listening to Zen tones – especially in quiet settings.

Difficulty sleeping is also a common complaint. In those cases sleep strategies can be provided.



INFO

A series of relaxation exercises and sleep suggestions will be available for hearing aid users in the Widex Zen Therapy flyer.

CBI COUNSELING

Introduction to Cognitive Behavioral Intervention

For some patients with severely negative reactions to tinnitus, basic instructional counseling is not sufficient. For these patients, cognitive behavioral intervention (CBI) may be extremely useful. CBI is designed to identify unwanted thoughts and behaviors hindering natural habituation, challenge their validity, and replace them with alternative and logical thoughts and behaviors.

It is very common to think that it is the event that causes an emotional reaction. It is not the event itself that creates our emotional response but the content of the thoughts concerning the event that creates the emotional response.

INFO

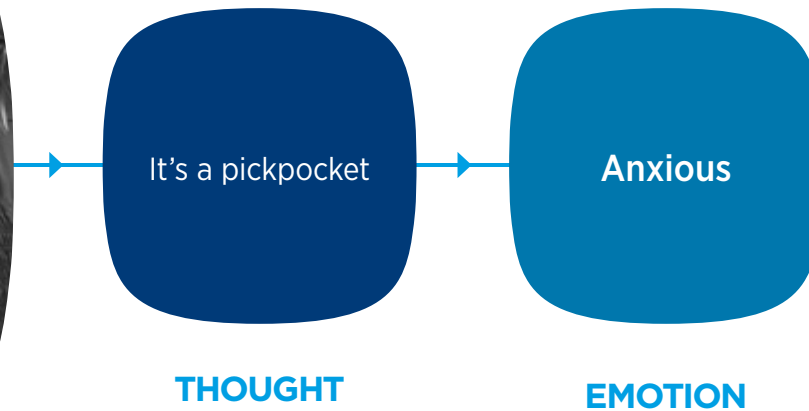
Cognitive behavioral intervention (CBI) can help people who are severely bothered by their tinnitus. CBI, like CBT, is based on cognitive theory that states that the thoughts we have regarding situations or events influence how we feel emotionally (Henry and Wilson (2001).

EVENT-THOUGHT-EMOTION EXAMPLE



A person grabs
your arm from behind

EVENT



THOUGHT

EMOTION

EVENT-THOUGHT-EMOTION EXAMPLE

- An event causes a thought.
- A thought leads to an emotion.
- Events by themselves do not create emotions.

Here's an example:

- Imagine you're walking down the street when a person grabs your arm from behind (Event).
- You might think "It's a pickpocket!" (Thought) and your brain and body react.
- You feel anxious and afraid (Emotions).

This example explains the Event-Thought-Emotion model and shows that it is the thought that is the reason you react like you do.



**EVENT?
THOUGHT?
EMOTION?**

Sad

How nice
of them
to invite me

This noise
is too much

Reading a book

Grateful

I cannot
concentrate

Getting invited
to a party

Annoyance

Meeting friends
at the cafe

IDENTIFYING **EVENTS, THOUGHTS,** AND **EMOTIONS**

It can be difficult to tell which are emotions, which are thoughts, and which are events. On this page you can do a little exercise pinpointing which is which.

Examples of Events:

Reading a book, getting invited to a party, meeting friends at a café

Examples of Thoughts:

How nice of them to invite me, this noise is too much, I cannot concentrate

Examples of Emotions:

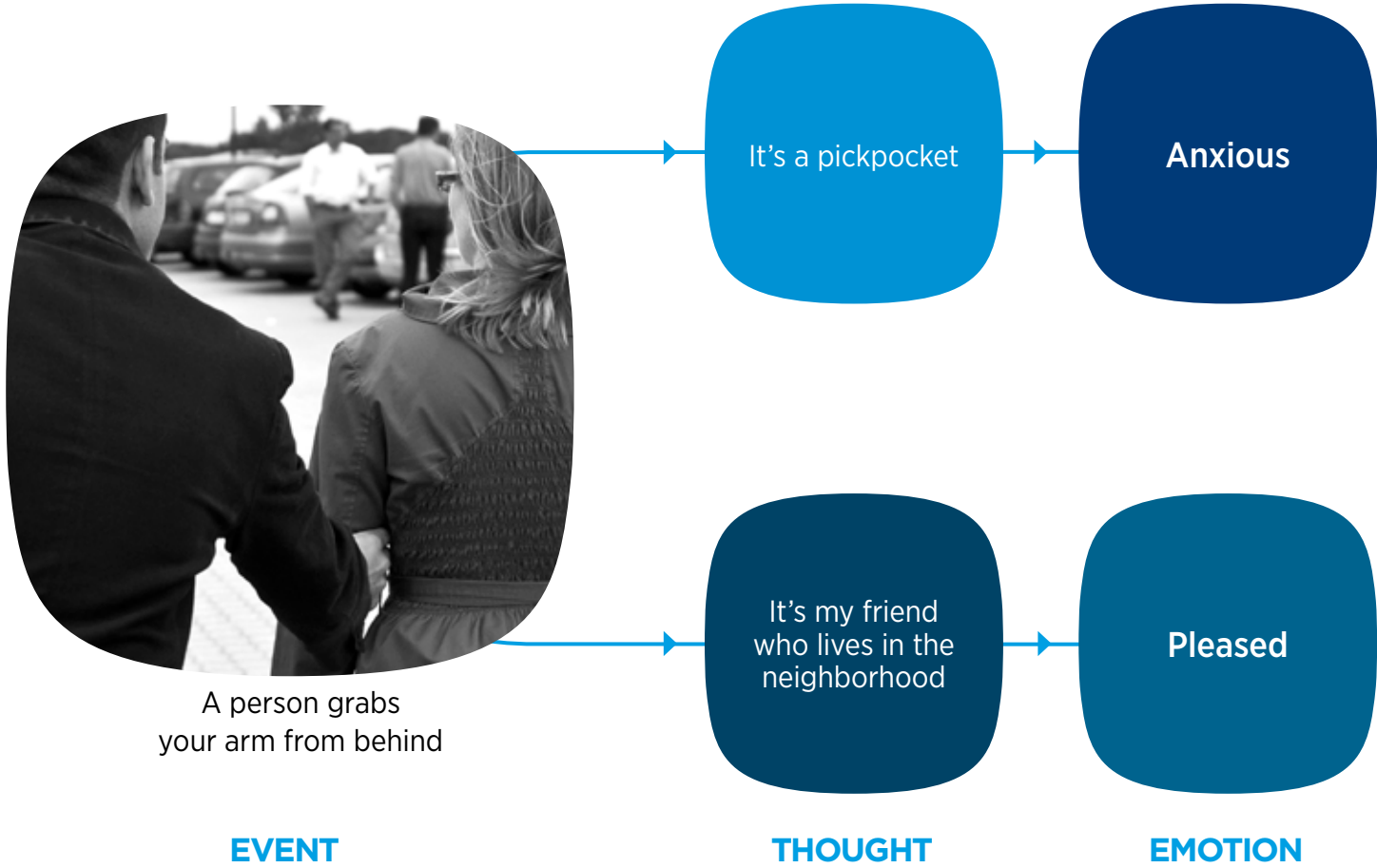
Grateful, annoyance, sad



INFO

The hearing aid user can identify events, thoughts and emotions, but can also try to combine them and see whether he can match different emotions to the same event just by choosing another thought. Start with an event, for example Meeting friends at a café. The thought could be there is too much noise and the emotional reaction consequently Annoyance.

EMOTIONAL REACTIONS



ALTERNATIVE THOUGHTS CAN CHANGE EMOTIONAL REACTIONS

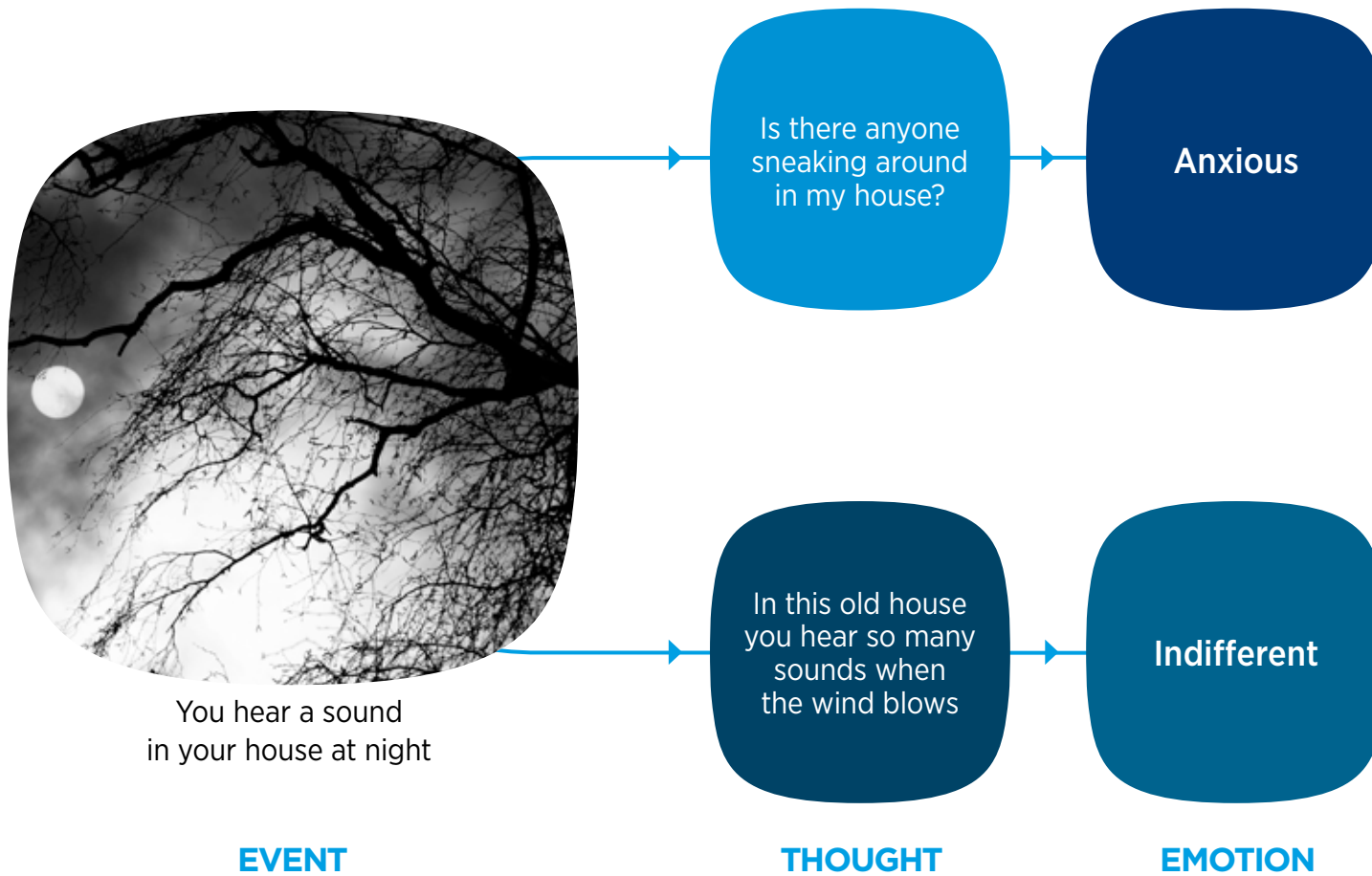
Let's have one more look at the example:

- Imagine you're walking down the street when a person grabs your arm from behind (Event).
- You might think "It's a pickpocket!" (Thought) and your brain and body react.
- You feel anxious and afraid (Emotions).

If, on the other hand, this same event produces a thought that the person grabbing your arm is a loved one who was supposed to meet you that day, your emotion will be one of joy.



EMOTIONAL REACTIONS TO A SOUND



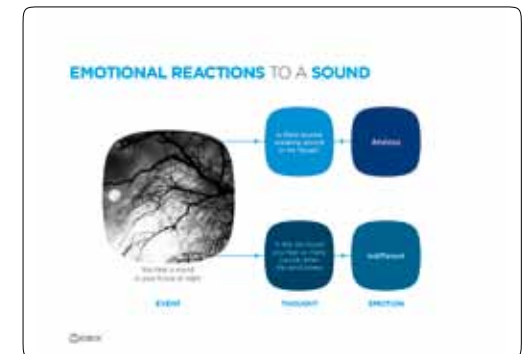
EMOTIONAL REACTIONS TO A SOUND

If it is a sound you react to, you can change your emotional reaction by using alternative thoughts.

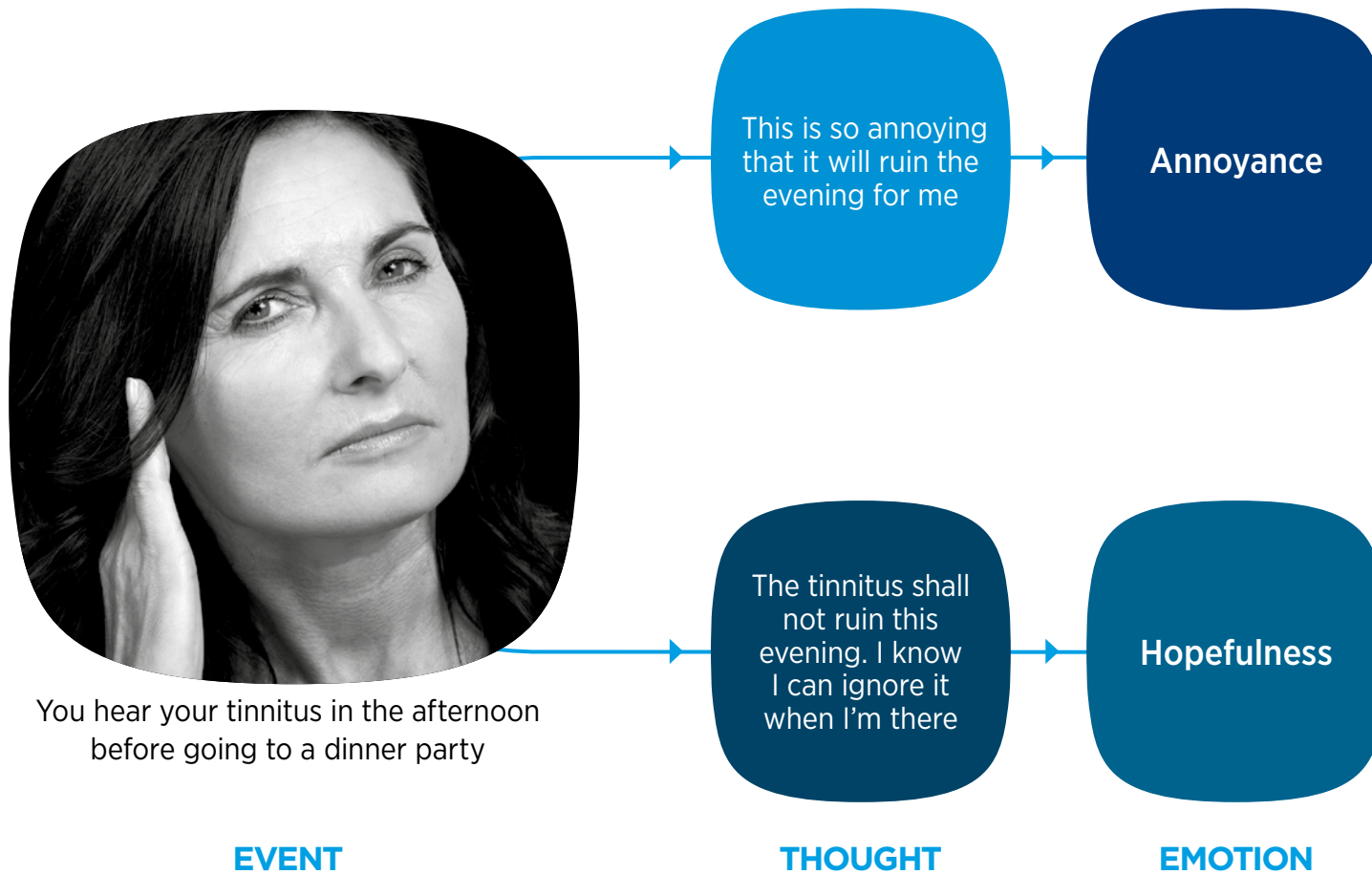
For example:

- You are in bed and you hear a soft sound originating from somewhere in your house, but you know you're alone in your house (Event).
- This sound can lead you to the thought that you are in danger.
- Your emotion will be fear.

On the other hand, if you just think the sound you are hearing is a normal sound produced by the typical creaking of the house, or by the wind outside, your emotion will be neutral.



EMOTIONAL REACTIONS TO TINNITUS



FIRST EXAMPLE

EMOTIONAL REACTIONS TO TINNITUS

In the case of tinnitus, the perception of the tinnitus is the event. You may then have a thought about the tinnitus, which leads to your emotion (and subsequent behavior).

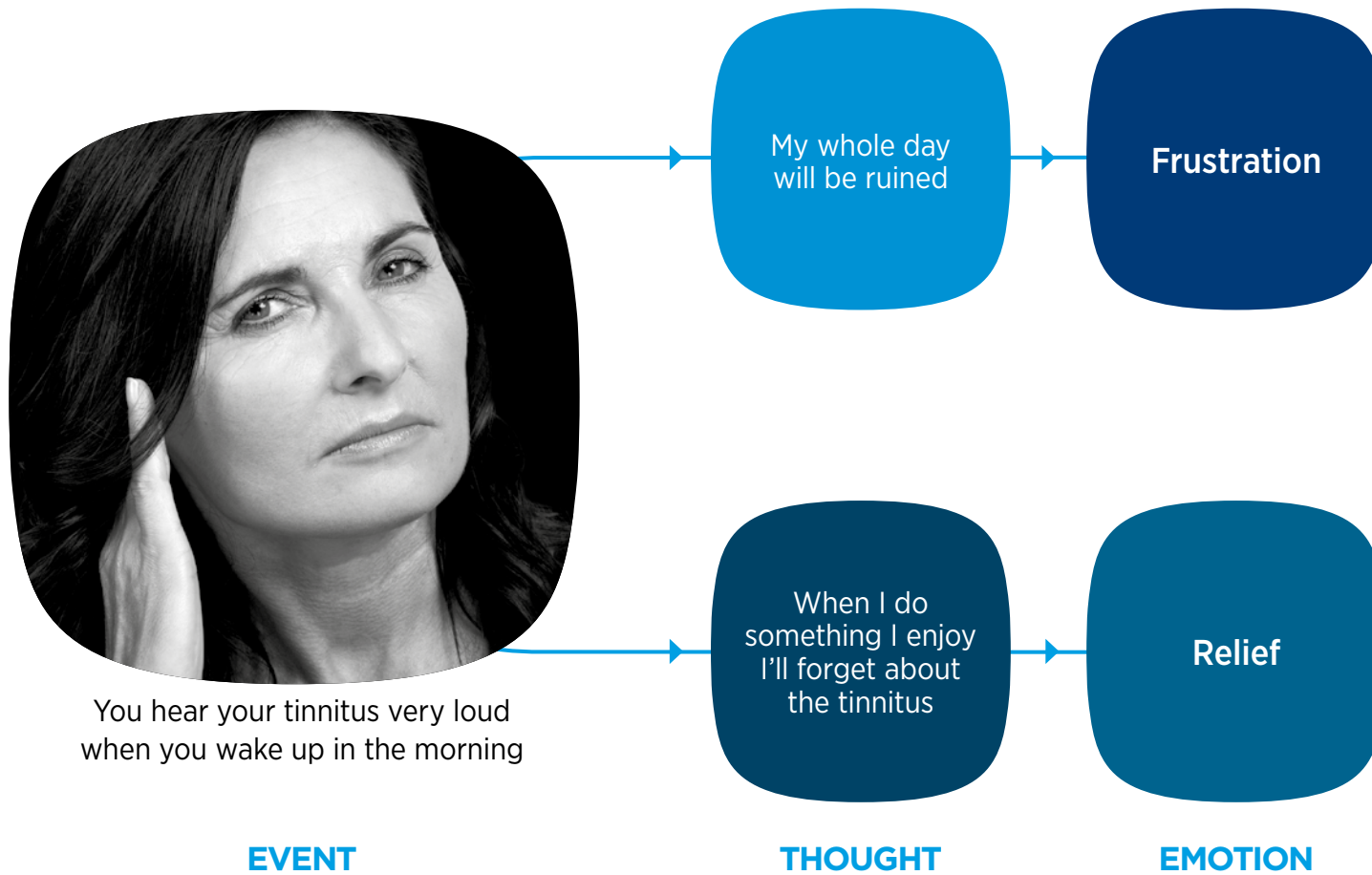
You hear your tinnitus in the afternoon, just before leaving for a dinner party. Your thoughts might result in two very different emotions which may determine your behavior (whether or not you will attend).

- If you think: “This tinnitus is so annoying that it will ruin the evening for me,” you feel anxious, and decide to stay home.

- But, if you think: “The party will be good and I probably will ignore the tinnitus when I’m talking and laughing,” you’ll feel that there is hope, and you’ll go to the party and plan to have a good time.



EMOTIONAL REACTIONS TO TINNITUS



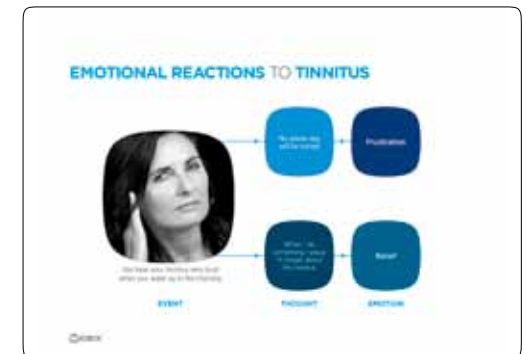
SECOND EXAMPLE

EMOTIONAL REACTIONS TO TINNITUS

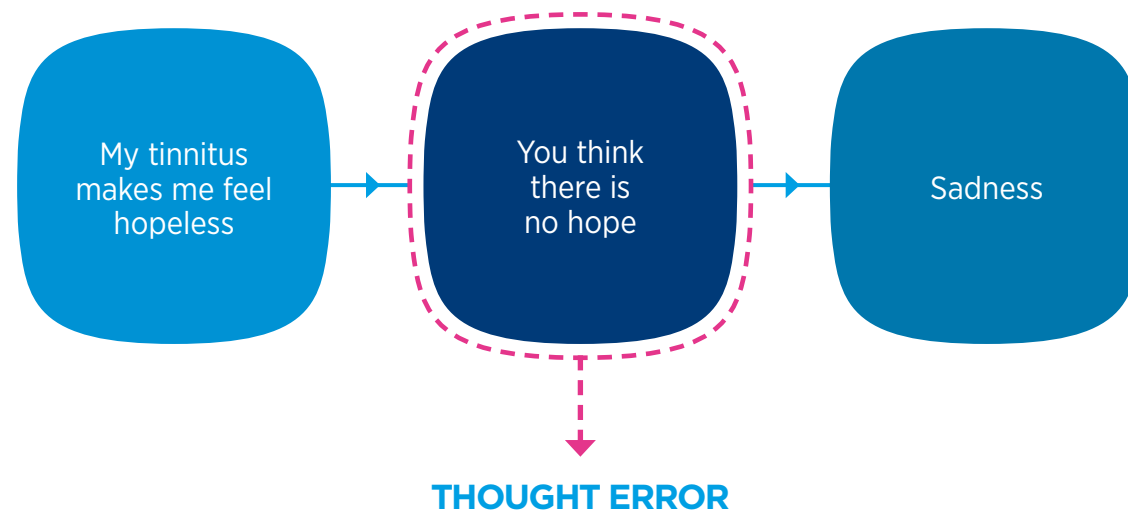
Here's another example showing how alternative thoughts can lead to different reactions and behaviors:

You hear your tinnitus when you first wake up in the morning.

- You think: "My whole day will be ruined!" You feel frustrated
- Alternatively, you think: "If I get up and do something I enjoy, like going to a shopping mall where I'll be around other sounds and activities, I may not be thinking about my tinnitus." You feel relieved.



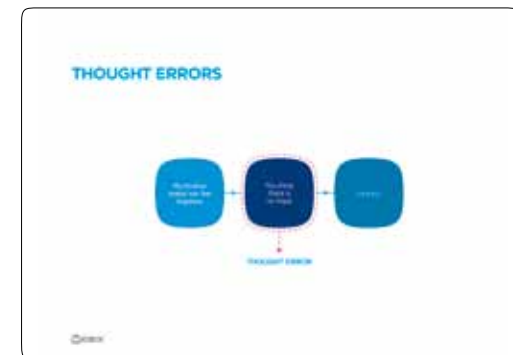
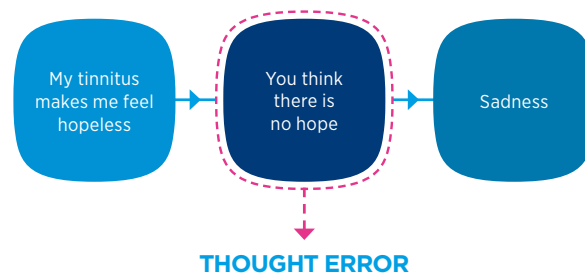
THOUGHT ERRORS



THOUGHT ERRORS

Sometimes people either consciously or subconsciously produce errors in judgement that can lead to negative thoughts and behaviors.

“Thought errors” make you feel upset or sad about an event that you could otherwise think about more positively.



INFO

The academic term for thought errors is “cognitive distortions”. The CBI worksheets can be handed out to the hearing aid wearer, who can use them at home to identify thought errors and produce alternative thoughts. This can be done at the clinic, or as a “homework assignment” for later discussion.

EXAMPLE OF **THOUGHT ERRORS** AND **CORRECTED THOUGHTS**



Thought error

My tinnitus makes me feel hopeless,
there is no hope.

Alternative thought

Other people have survived tinnitus.
I can too.



FIRST EXAMPLE

THOUGHT ERRORS AND CORRECTED THOUGHTS

Here you can see an example of a thought error and an alternative thought.

The text above the red dotted line is the thought error:

- My tinnitus makes me feel hopeless, there is no hope.

Below the line is an alternative thought:

- Other people have survived tinnitus, I can too.



INFO

This type of thought error is called “all or nothing thinking”. A list of all the different types of thought errors is available in a handout that can be given to hearing aid users. This can be ordered via your local Widex representative.

EXAMPLE OF **THOUGHT ERRORS** AND **CORRECTED THOUGHTS**

Thought error

My life used to be perfect
before I had tinnitus,
now it is horrible

Alternative thought

Life is never perfect,
I had some problems before,
and I still have some good
things about my life now
(like my grandchildren)



SECOND EXAMPLE

THOUGHT ERRORS AND CORRECTED THOUGHTS

Another example of a thought error and an alternative thought.

The text above the red dotted line is the thought error:

- My life used to be perfect before I had tinnitus, now it is horrible.

Below the line is an alternative thought:

- Life is never perfect, I had some problems before, and I still have some good things about my life now (like my grandchildren).



INFO

This type of thought error is called “emotional reasoning” A list of all the different types of thought errors is available in a scheme that can be handed out to hearing aid users. This can be ordered via your local Widex representative.

CHANGING OLD HABITS
TAKES
TIME AND EFFORT

CHANGING OLD HABITS TAKES TIME AND EFFORT

If you find that the hearing aid user needs cognitive behavioral intervention, there is a range of elements for you to choose from:

- “Analyzing Perceived Problems”
- “Thinking Alternative Thoughts”
- “Identification of Maladaptive Behavior”
- “Identification of Negative Thoughts”

Each of the elements listed above includes descriptions of exercises that can be handed out to hearing aid users.





Widex A/S, Nymoellevj 6, DK-3540 Lyngø

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