

CBT and Neurotherapy to Relieve Tinnitus Distress

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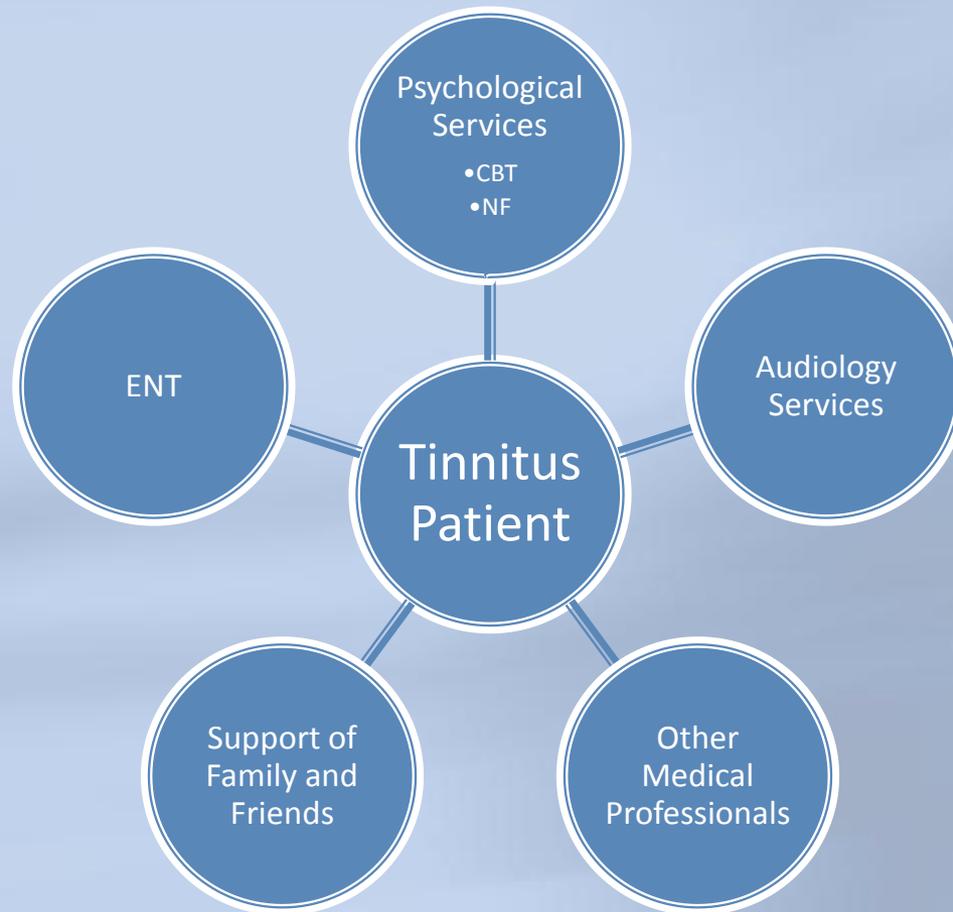
Goals

- Important Points about Tinnitus
- What happens in Cognitive Behavioral Therapy (CBT) and Neurotherapy
- How these complimentary approaches can relieve tinnitus distress

Important Points About Tinnitus

- It is a symptom, not a disease.
- It is a perception sensitivity to internal sounds.
- It is similar to chronic pain syndrome, in which pain continues even after wound has healed.

Best Results Take An Individualized Multidisciplinary Approach



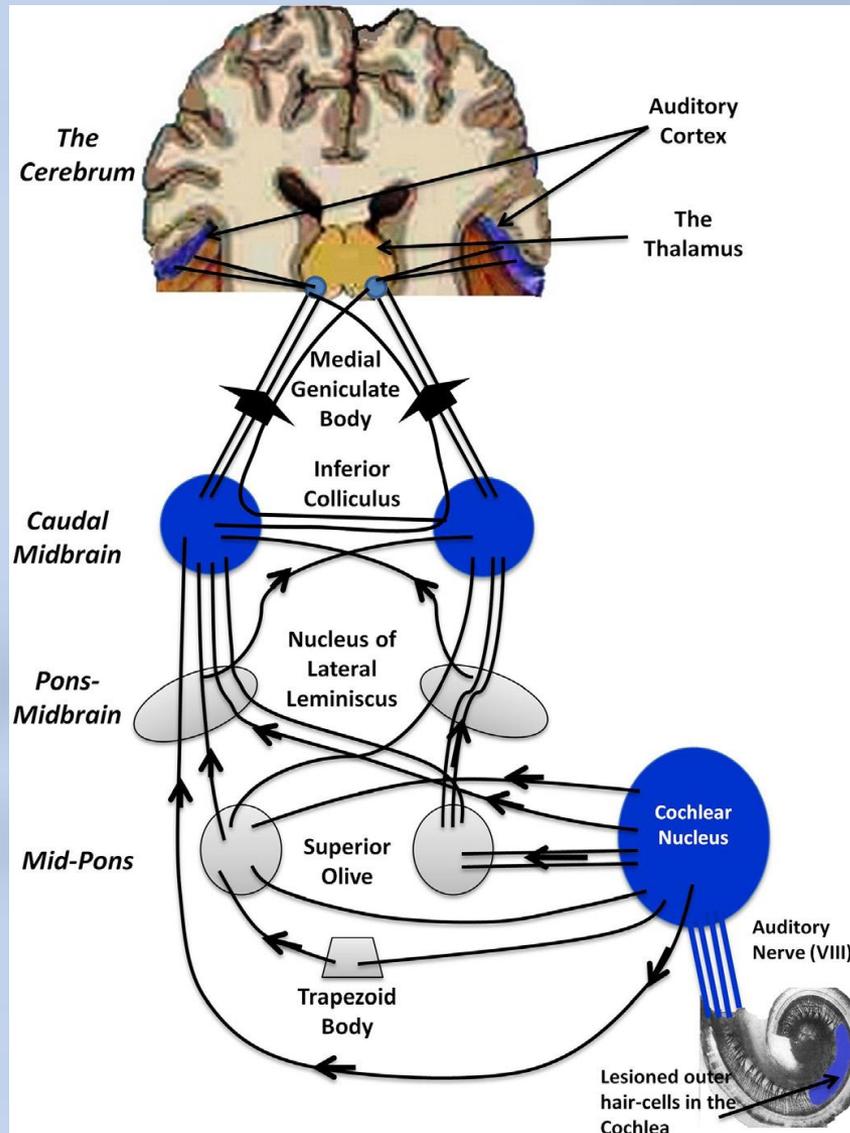
Why Cognitive Behavioral Therapy?

- Research supports it works. For example:
 - Random comparison study* found those receiving audiological interventions and CBT had significantly less tinnitus distress and better health related quality of life.
 - Meta-analysis** of tinnitus outcome studies concluded that best treatment strategies were CBT-based and multidisciplinary.

*Cima RFF et al. Specialised treatment based on cognitive behaviour therapy versus usual care for tinnitus: A randomised controlled trial. Lancet 2012 May 26; 379:1951. ([http://dx.doi.org/10.1016/S0140-6736\(12\)60469-3](http://dx.doi.org/10.1016/S0140-6736(12)60469-3))

**Cima et al., [J Am Acad Audiol](#). 2014 Jan;25(1):29-61. doi: 10.3766/jaaa.25.1.4.

Source: Auditory System Of Brain

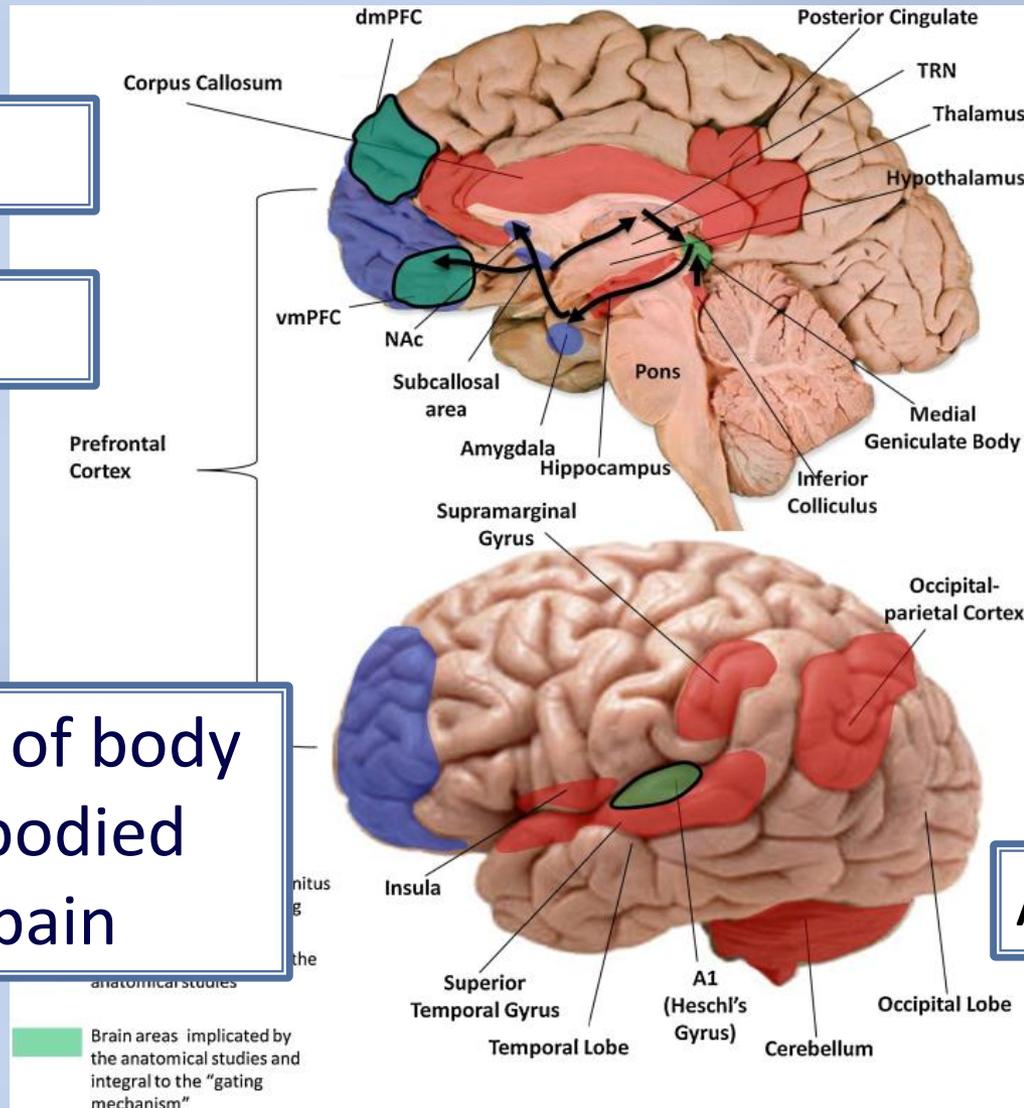


Source: Other Brain Systems

Meaning

Emotions

Awareness of body states, embodied emotions, pain

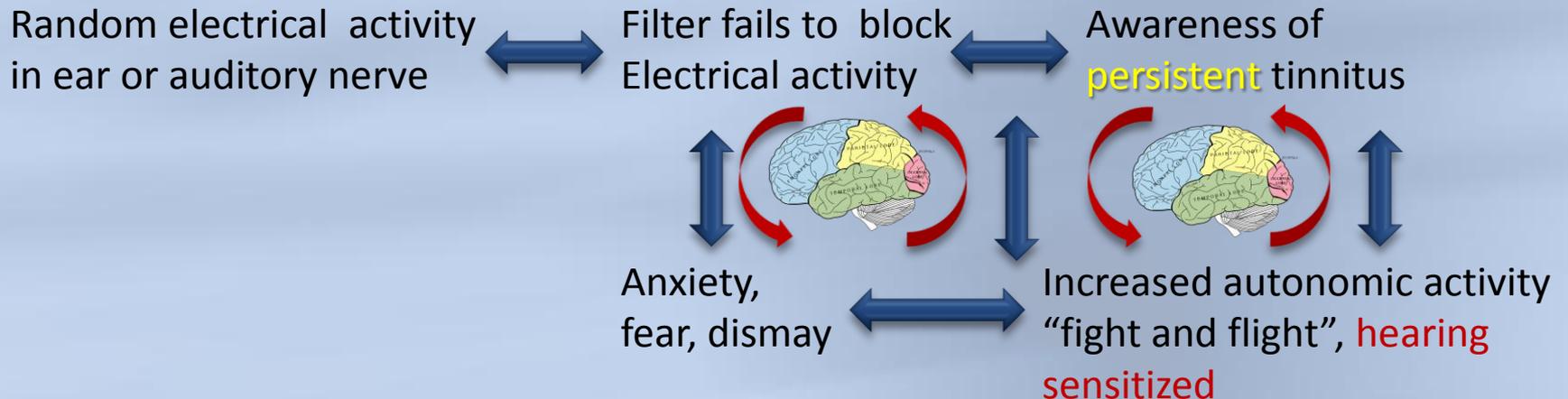
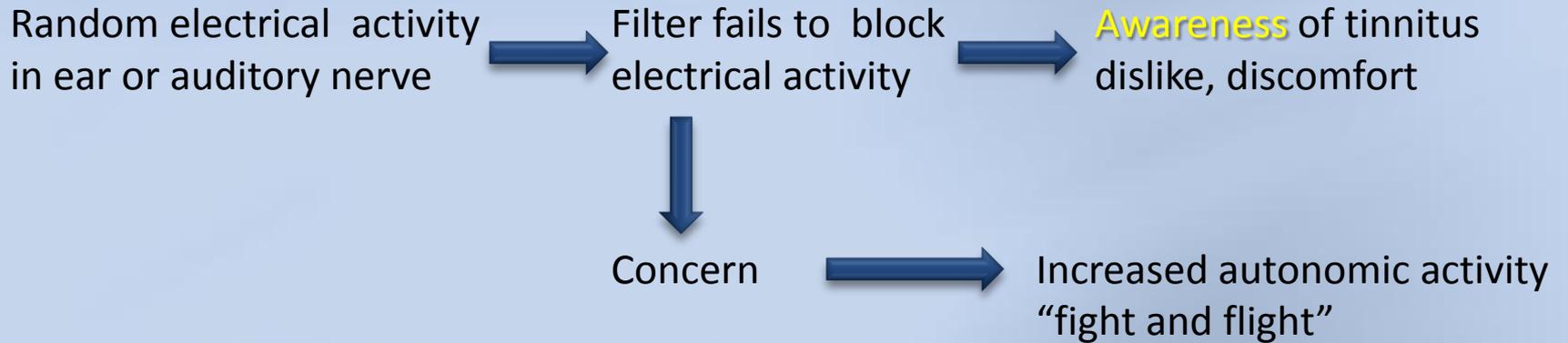


ANS reactions

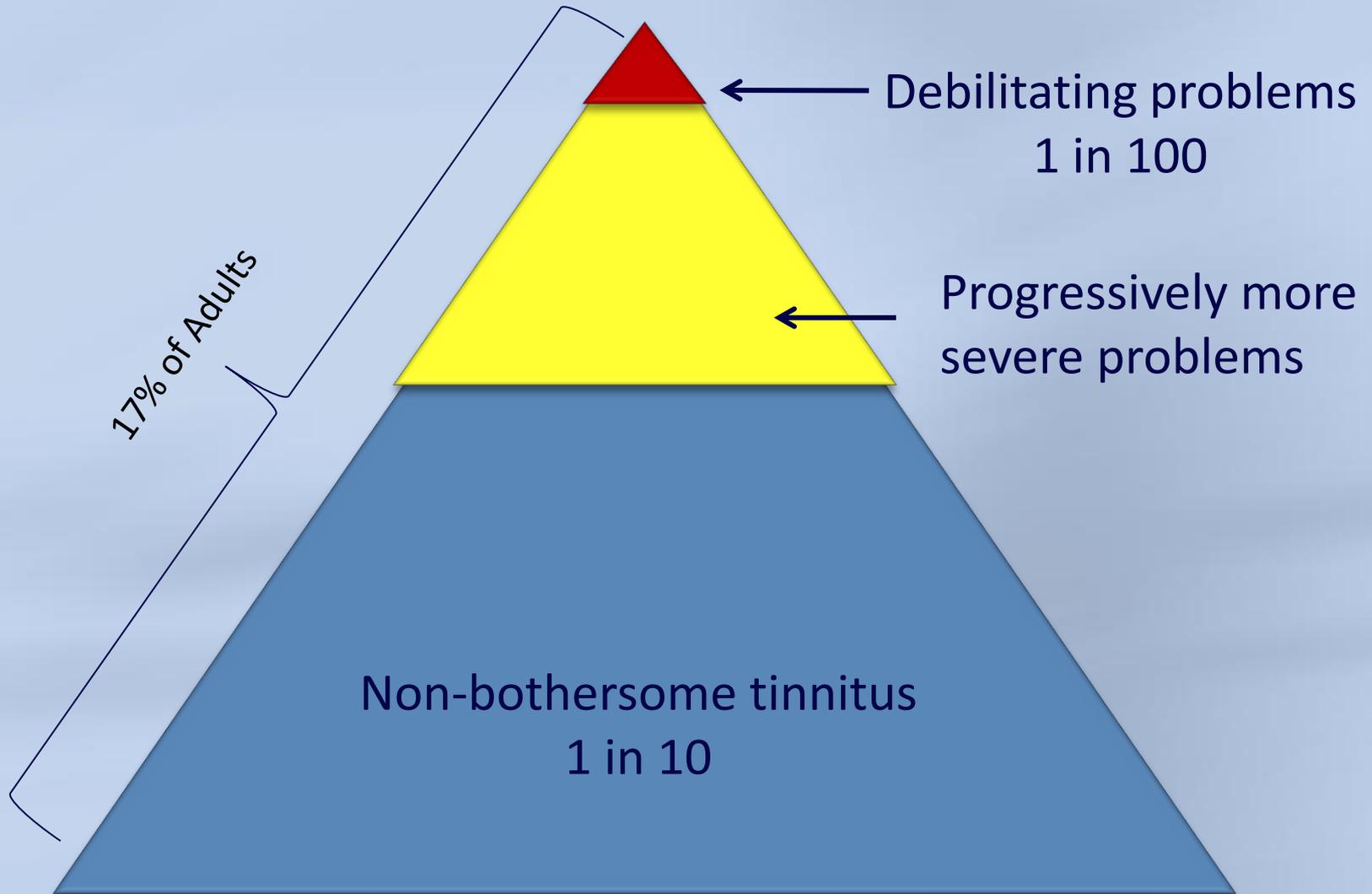
Neurosci Biobehav Rev. 2014 Sep; 45(100): 119–133.

doi: [10.1016/j.neubiorev.2014.05.013](https://doi.org/10.1016/j.neubiorev.2014.05.013)

How Chronic Tinnitus Develops



Tinnitus Symptom Pyramid



One in ten people have
persistent tinnitus.

So why aren't they bothered
by it?

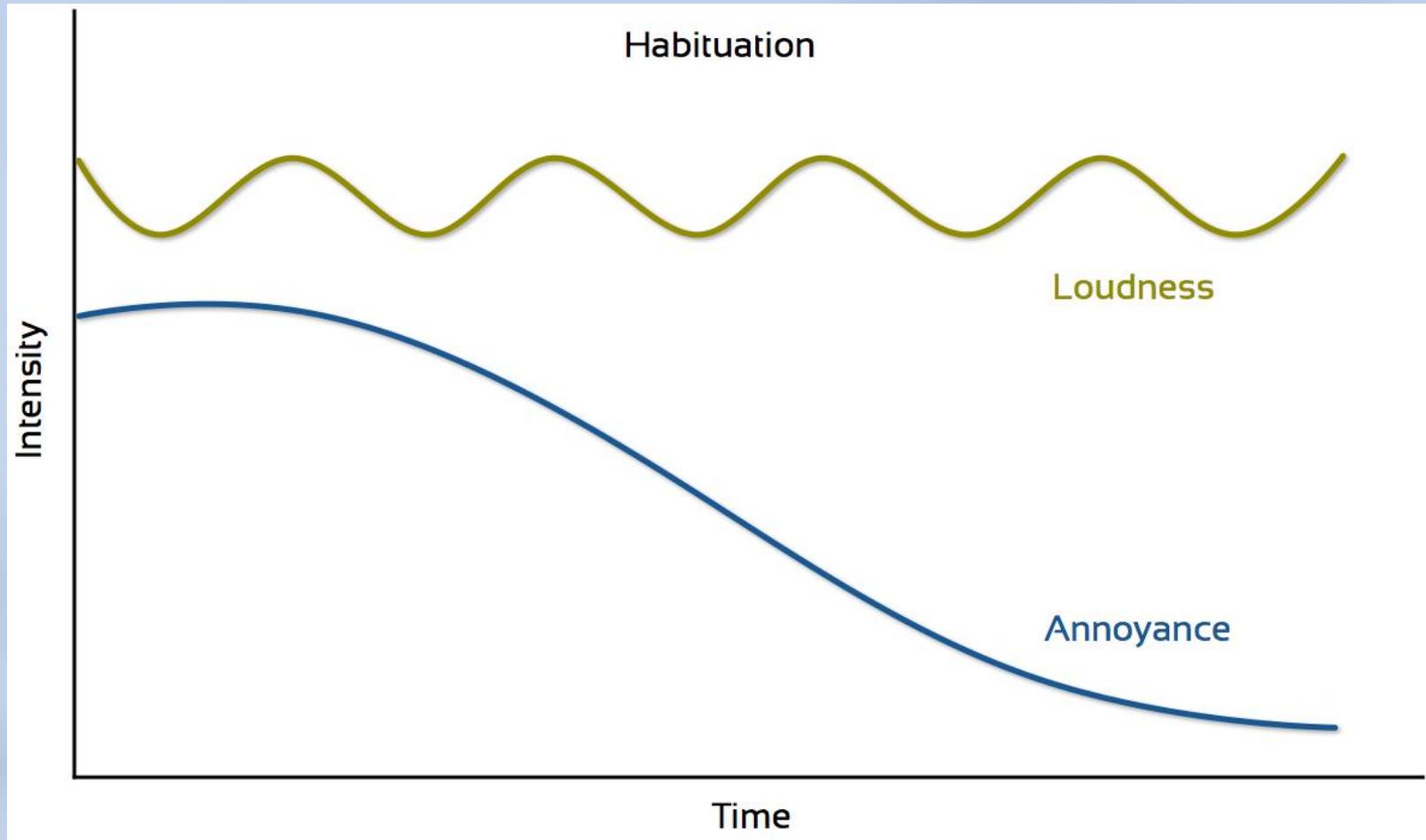
Habituation

- Natural unconscious learning process for decreasing response to stimulus after repeated exposure to it.
- Ignore a stimulus we've been exposed to many times.



- Habituation is how you can learn to silence tinnitus!

Tinnitus Habituatation



Hallam et al. (1984) *Habituatation Model-*

It's Difficult To Habituate When...

- The stimulus is intense, adverse, unpredictable, and changing.
- We experience high levels of stress and arousal when exposed to the stimulus.
- We attach importance and meaning to the stimulus.
- We avoid the stimulus.
- We focus on the stimulus too much.
- Life happens.

Five Steps to Enhance Habituation

1. Reduce stress arousal (ANS): Relaxation skills and anxiety management
2. Reconsider meaning and importance of tinnitus: Cognitive appraisal approach
3. Reduce avoidance behaviors: Exposure and behavioral experiments
4. Reduce focus on tinnitus: Masking, distraction, mindfulness
5. Reduce life stress: Problem-solving, social support

Cognitive Behavioral Model

Filter fails. Persistent awareness of tinnitus



Thoughts (“This is too much”, How will I work”, “I’ll have a breakdown”. “I can’t _____”)



Emotional (arousal, anxiety, sadness...)



Physiological (Increased autonomic activity “fight and flight”, poor sleep, pain, **sensitized hearing**)



Behavioral (staying home, avoiding noise, avoiding quiet)



How CBT Enhances Habituation

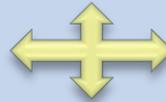
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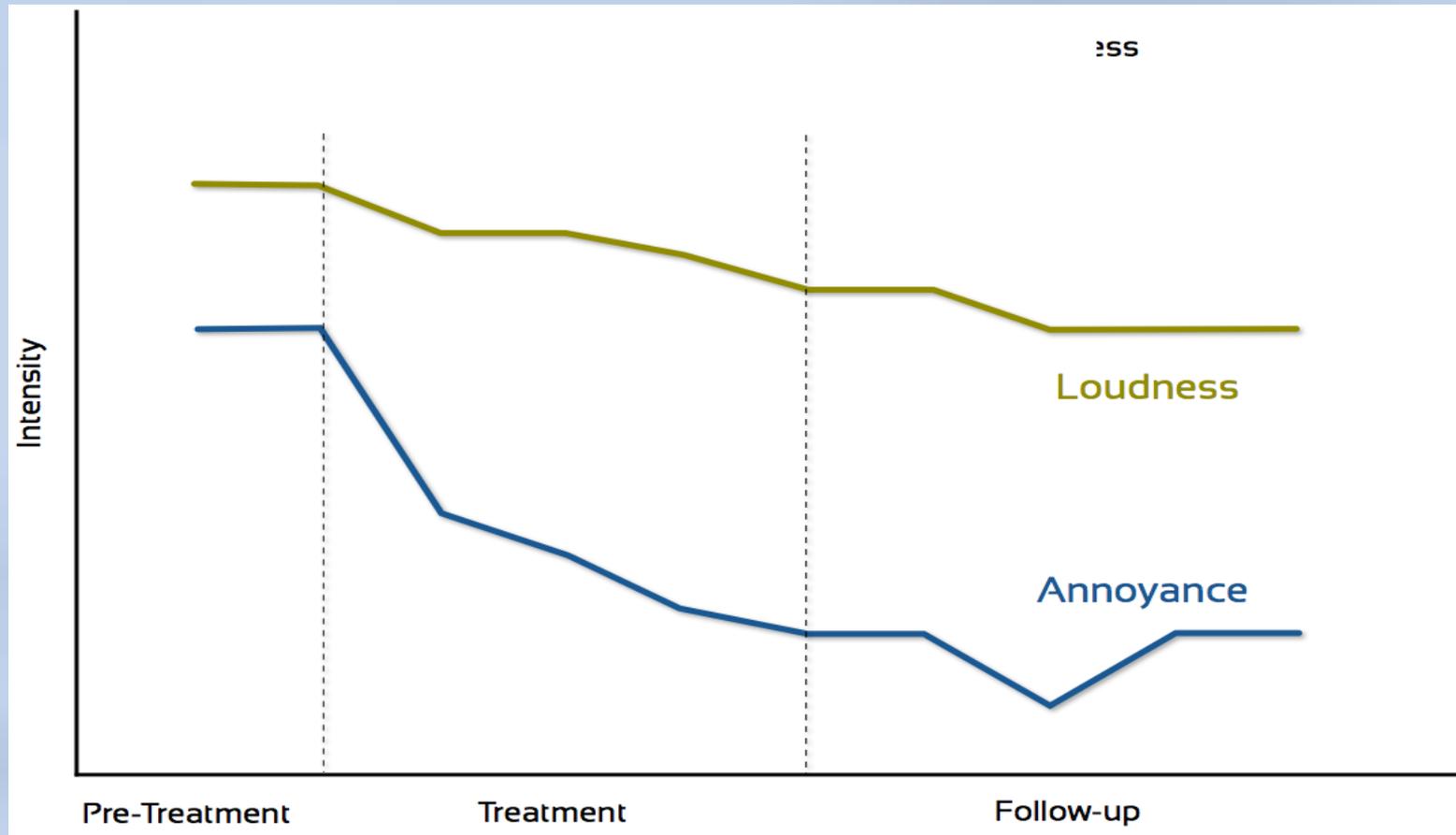
Behavioral (staying home, avoiding noise, avoiding quiet)

Physiological (Increased autonomic activity “fight and flight”, poor sleep, pain, **sensitized hearing**)

Reduce arousal

- Relaxation training
- Progressive relaxation
- Abdominal breathing
- Biofeedback training

Effects of Relaxation Therapy



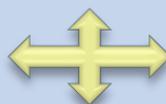
Jakes, et al. (1986). The effects of reassurance, relaxation training and distraction on chronic tinnitus sufferers. *Behavior Research Therapy*, 26(5), 497-407.

How CBT Enhances Habituation

Filter fails. Persistent awareness of tinnitus



Emotional (arousal, anxiety, sadness...)



Behavioral (staying home, avoiding noise, avoiding quiet)



Thoughts (“This is too much”, “How will I work”, “I’ll have a breakdown”. “I can’t _____”)

Change the meaning

- Education
- Questioning beliefs
- Balanced thinking
- Positive psychology
- Problem-solving

Physiological (Increased autonomic activity “fight and flight”, poor sleep, pain, sensitized hearing)

Reduce arousal

- Relaxation training
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How Changing Meaning Habituates

	<u>THOUGHTS</u>	<u>REACTIONS</u>
Tinnitus	There is something wrong with my hearing	Fearful, worried,
Tinnitus	I had my hearing checked. I'm okay.	Anxious, annoyed
Tinnitus	This is just one of many random noises.	Less anxious, bugged
Tinnitus	Like all sensations, it comes and goes.	Curious, neutral
Tinnitus	My brain can learn to filter it out.	Neutral
Tinnitus		

How CBT Enhances Habituation

Filter fails. Persistent awareness of tinnitus



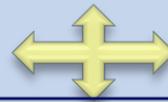
Emotional (arousal, anxiety, sadness...)



Thoughts (“This is too much”, “How will I work”, “I’ll have a breakdown”, “I can’t _____”)

Change the meaning

- Education
- Questioning beliefs
- Balanced thinking
- Positive psychology
- Problem-solving



Behavioral (staying home, avoiding noise, avoiding quiet)



Change your approach

- Test negative predictions
- Exposure
- Balance attention
- Increase positive activities

Physiological (Increased autonomic activity “fight and flight”, poor sleep, pain, **sensitized hearing**)

Reduce arousal

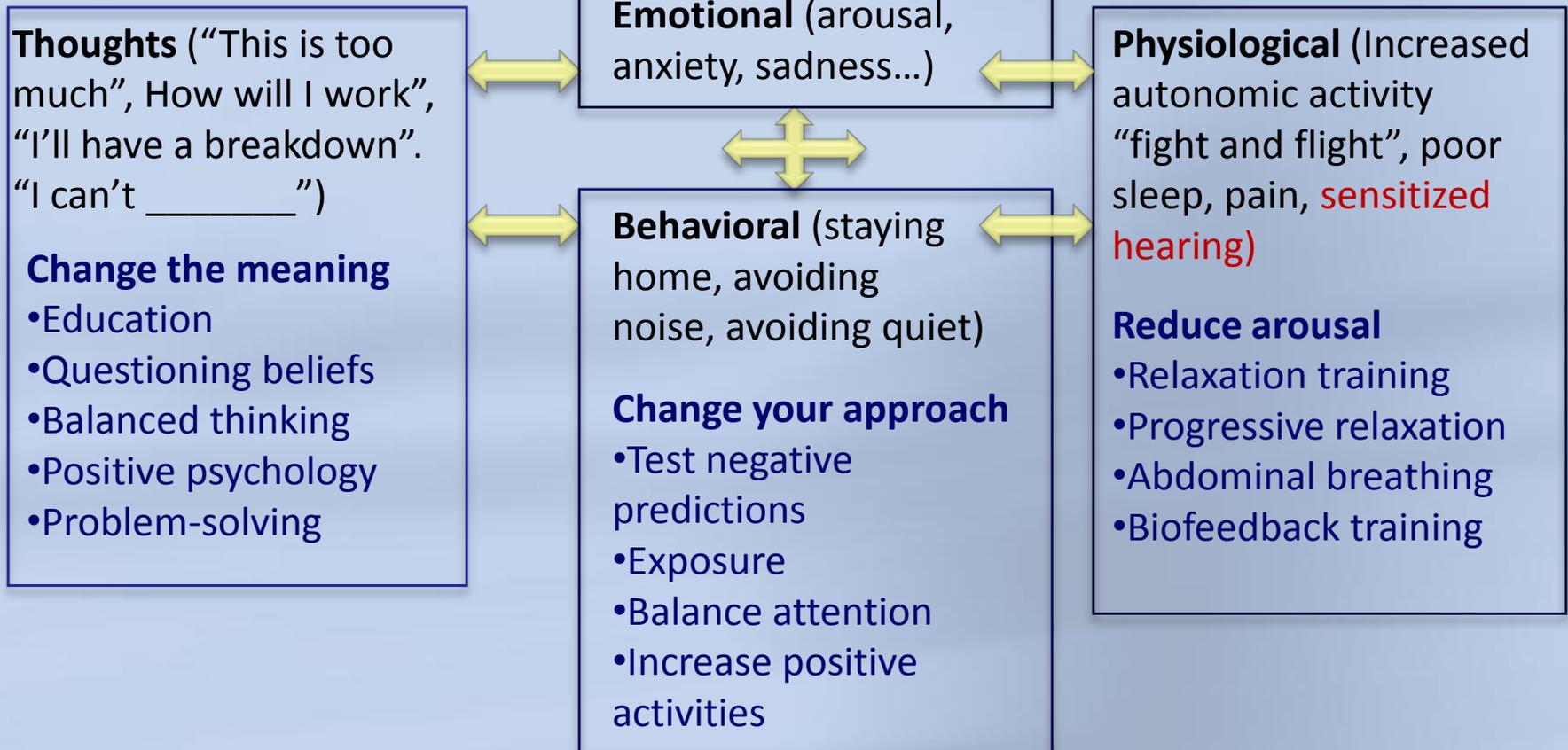
- Relaxation training
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CBT Exercise: Behavioral System

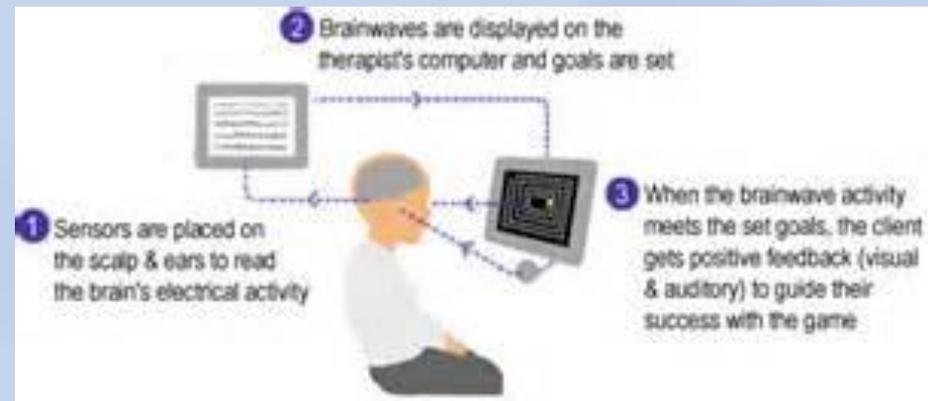
- Plan pleasant activities
 - Helps you have more positive feelings
 - Distracts you from tinnitus
 - Helps you feel better overall
- Homework: Plan at least one pleasant activity a day for the next week. Ask yourself...
 - Did I schedule a pleasant activity each day?
 - What prevented me from doing my activity?
 - Might more activities help me?

How CBT Enhances Habituation

Filter fails. Persistent awareness of tinnitus

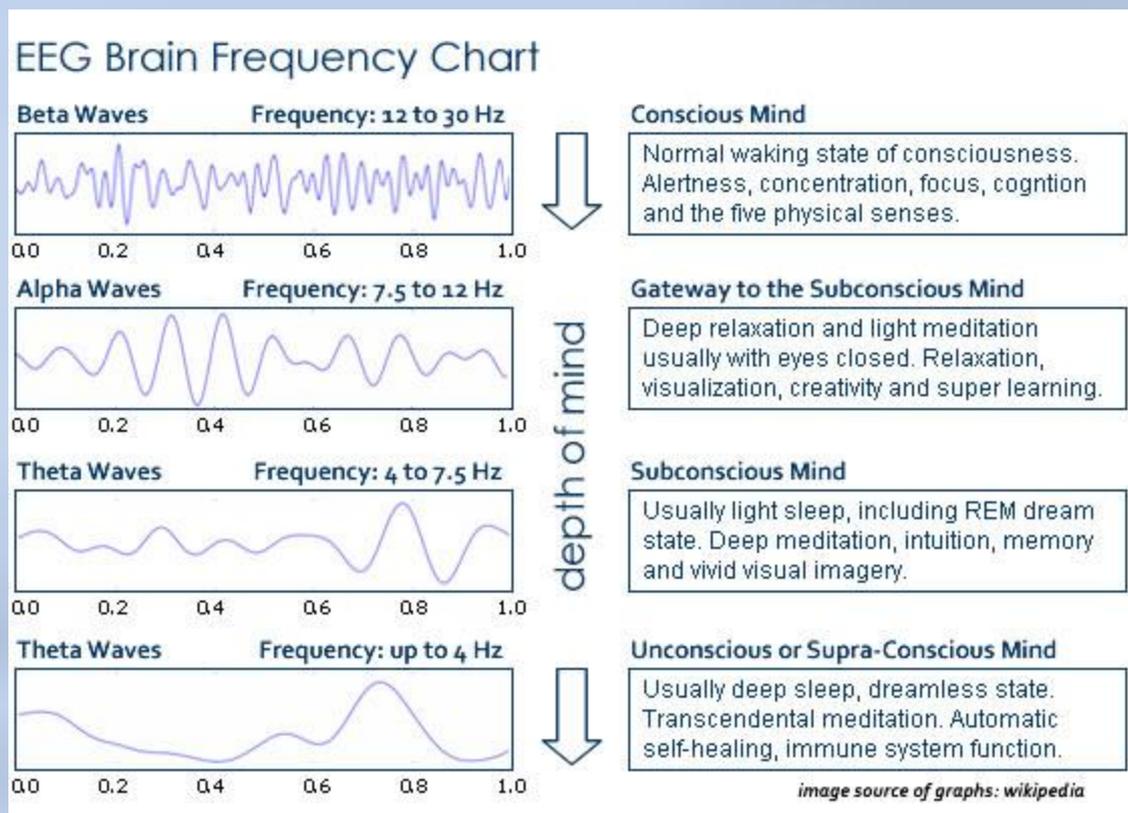


Biofeedback



- Sensors pick up your physiological signals – EEG, EMG, HRV, GSR, HEG.
- These signals are fed to a computer which displays information about heart rate variability, muscle tension, or brainwave activity.
- The computer feeds back results of physiological changes.
- You use the feedback to learn control of physiological processes.

Neurotherapy Uses EEG Brainwaves



How Neurotherapy Helps You Habituate

- Better physiological control of autonomic nervous system
- Better able to sleep
- Better ability to re-focus attention
- Reduces stress
- Deal more constructively with a variety of emotions
- Learn skills faster
- No medications – no chemicals in the body

Summary

- Education so you understand what goes on in the brain to cause tinnitus.
- Learn to change the way you think about and react to your tinnitus.
- Find strategies to do on your own to make the noise less noticeable, to help you relax during the day, or to fall asleep at night.
- Help you decide what works best for you.

Resources

- American Tinnitus Association
- National Center for Rehabilitative Auditory Research