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Binaural Beats



Image credit: Freepik

Summary: Sound has powerful effects on human beings. It turns out that a specific type of sound, known as binaural beats, may be helpful for a variety of issues including sleep, anxiety, pain and stress.

Introduction

Do you have problems from anxiety, depression or sleep problems?

Would you be open to listening to a special type of sound or music? It turns out that a special type of sound known as binaural beats may be able to help your brain.

What are Binaural Beats?

Binaural beats is when your brain hears two different tones in each ear, that are a different frequency. For example, if you are hearing a sound that is at a frequency of 132 Hz in the left ear, and a tone that is 121 Hz in the right ear, then your brain will fall into synchrony with the difference, which is 132 Hz minus 121 Hz = 11 Hz. Your brain will hear a tone at 11 Hz (in addition to the two tones in each ear). It is an “auditory illusion”.
Binaural beats require that:

- The two tones have frequencies less than 1000 Hz
- The difference between the tones can’t be more than 30 Hz
- The tones must be listened to separately through each ear.

What Might It Help With?

Some studies suggest that binaural beats might be helpful for:

- Sleep (Abeln, 2014)
- Anxiety (Le Scouarnec, 2001)
- Chronic pain (Zampi, 2016)
- Tinnitus (David, 2010)
- Stress
- Relaxation
- Creativity

How Do I Get Started?

To try binaural beats, you will need:

- Stereo headphones
- Computer, mp3 player or cellphone to play the music

Where Can I Find Binaural Beats?

Youtube	• Search Youtube for "binaural beats" • Examples include ◦ “Healing deep sleep isochronic binaural beat” by Eric Bartel https://www.youtube.com/watch?v=AlztFeveCZo&t=2834s
Android store	8 recommended binaural apps on the Android store https://www.makeuseof.com/tag/5-android-apps-tune-brain-binaural-beats/
iTunes store	Examples include: • Brainwave - 35 https://apps.apple.com/ca/app/... • Binaural (free) https://itunes.apple.com/ca/app/binaural-β/id838752522?mt=8
CDs and Mp3s	Search online for binaural CDs and mp3s

What Frequency to Use?

Cerebral activity as recorded by EEG is typically divided into four categories:

Name of pattern	Frequency	Description
1. Beta	14 Hz to >100 Hz.	Normal waking consciousness Associated with concentration, alertness, arousal and cognition. At higher levels, associated with anxiety. Listening to beta waves is felt to help with improving creativity, concentration
2. Delta	0.1–4 Hz	Associated with dreamless sleep Listening to delta waves is felt to help with sleep
3. Theta	4–8 Hz	Random eye movement (REM) sleep, meditation and creativity Listening to theta waves is felt to help with sleep
4. Alpha	8-13 Hz	Relaxation Listening to alpha waves is felt to help with relaxation

Through brain entrainment, different frequency binaural beats can thus theoretically encourage different brain patterns.
For example, a 10 Hz binaural beat would encourage the brain to produce a 10 Hz beat corresponding to a relaxed (alpha) state of consciousness.

Advantages and Disadvantages of Binaural Beats

Advantages of Binaural Beats

- Compared to psychotherapy and medications, binaural beats is much less expensive and does not have any significant side effects.

Disadvantages

- The main drawback to binaural beats is that there is less evidence.

In summary, however, given how inexpensive it is to try binaural beats (i.e. all you need are headphones and a cellphone or internet), it is reasonable to try if it might be helpful for one's problems with sleep, anxiety and stress.

Scientific References

David J et al. Tinntrain: A multifactorial treatment for tinnitus using binaural beats. The Hearing Journal: November 2010 - Volume 63 - Issue 11 - p 25-26,28
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Le Scouarnec et al.: Use of binaural beat tapes for treatment of anxiety: a pilot study of tape preference and outcomes. Altern Ther Health Med. 2001 Jan;7(1):58-63. Results: Significant improvement in anxiety ratings.
https://www.ncbi.nlm.nih.gov/pubmed/11191043
Abeln V et al.: Brainwave entrainment for better sleep and post-sleep state of young elite soccer players - a pilot study. Eur J Sport Sci. 2014;14(5):393-402. European study of 15 young elite soccer players were asked to listen to binaural beats during their sleep for 8 weeks. Results: Improved sleep for majority.
https://www.ncbi.nlm.nih.gov/pubmed/23862643
Zampi DD. Efficacy of Theta Binaural Beats for the Treatment of Chronic Pain. Altern Ther Health Med. 2016 Jan-Feb;22(1):32-8. Researchers in Richmond, Virginia had 36 adults with chronic pain to listen to two recordings of binaural beats for 20 minutes each day for 2 weeks. Results: Improvement in pain with 77%.
https://www.ncbi.nlm.nih.gov/pubmed/26773319

For more information

Do Binaural Beats Have Health Benefits?
https://www.healthline.com/health/binaural-beats
https://www.binauralbeatsmeditation.com/the-science/

About this Document

Written by the eMentalHealth Team and Partners.

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