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### Binaural Beats- As Good as it Sounds?

I've had troubles with writing essays ever since I was told to pick up a pencil and turn something in. It feels almost debilitating. So when I was recently missing out on valuable family time out of country because of how badly I handle school work, my sister introduced me to a strategy she relies on and swears by. What I was shown seemed too good to be true. There were certain tracks, certain buzzing tones you can listen to in order to hone in and gain the focus you need, help you fall asleep, amp up your creativity and ability to brainstorm, and even aid in digestion? I had to find out more. These sounds my sister introduced me to are called binaural beats. It seemed like a silly concept, like just another thing people on the internet made up. I say all this in past tense as if I believe in them now, or like I'll end by saying I listen to binaural beats regularly. I'm still not convinced, but I do understand that music and sound has a long-held belief of being healing. Binaural beats are just another take on this idea, one that developed out of technological advancements and better understanding of how our brains work.

A quick search led me to an article on *Psychology Today* explaining just what the heck binaural beats are. In this case, beat doesn't mean music, but a rapid pulsing note sound. A binaural beat is an auditory illusion produced in the brain by listening to two different frequencies, one in each ear. This illusory beat is created from the difference between the two

frequencies. For example, hearing 400hz in one ear, and 410hz in the other, the brain produces a third beat at 10hz. It is believed that this difference in frequencies can mimic frequencies that occur naturally in the brain. Different brain states produce various frequencies, so in theory, if you were to listen to a pair of frequencies that produce a specific wave, the traits that come with the desired brain state may come to be through a process called entrainment.

Entrainment is binaural beat's main claim to fame. Defined as when brain waves align with an outside beat or frequency, entrainment is a method based on the different brain wave patterns that are associated with certain states of mind, from relaxed to anxious to productive. Binaural beats have been theorized to impact mood, focus, and sleep by altering brain waves through entrainment, and as a result, the phenomenon has gained popularity in recent years as a potential therapy for anxiety, insomnia, concentration difficulties, and more.

But why now? Is it really a new thing? Relatively speaking, yes. Although the exact year seems to be disputed, binaural beats were originally discovered between 1839 and 1841, by physicist Heinrich Wilhelm Dove. With the inception of the internet, the spread of anecdotal evidence seemed to quickly overpower any legitimate research. My theory is that binaural beats have gained popularity in recent years as a new response to old problems, old traumas, and old ways of dealing with problems. Being more easily accessible with current tech is a big reason, but this idea of instant, free relief is widely appealing.

My sister later sent me a link to a man who composes isochronic tones (Lewis, Jason). He defines them as a sound similar to binaural beats, but they're claimed to be different and better because they're "newer," with the first study being published by Arturo Manns in 1981, "stronger," and "more distinct." One glance at this website's main page tells me that these

isochronic tones are being produced primarily as a product. Sure, everybody needs to make a living, everyone wants to be paid for their labors. But the presentation of this product leaves a bad taste in my mouth. It gives me the feeling that what this man is selling is just snake oil cloaked in bogus science, or taking what was once legitimate science and running with it. A person in the site's comment section actually calls Lewis a charlatan. It just sounds too good to be true, and oftentimes that's the case. Listen to a sound someone composed and gain a boost to your immune system? There may have been some science that implied that, but at this point that science sounds far removed. An article on *Mindisthemaster.com* claims that sound frequencies can alter human consciousness and promote healing, while citing "lots of sound scientific evidence" in the form of a single article that actually sounds very unscientific (Muehsam, David, and Carlo Ventura).

I don't mean to dog on the guy, but the existence of his business demonstrates a need, a demand, for easy, drug-free fixes to what ails you. A *Medium.com* article on binaural beats proclaims they can help you to "effortlessly achieve powerful states of focused concentration, deep relaxation and more, all while stimulating parts of your brain to work together in synchronization." Effortless being the key word here. I think this highlights a want in modern society. This is that demand for free and easy short-term fixes to long-term problems. People these days are busy- binaural beats are something you can listen to while you work away at something else. I personally have caught myself thinking that taking time away from schoolwork would be a waste of time, even if I've been working at it all week. Binaural beats by nature don't consume time, they just require you to put on some headphones and listen to this track while you do something else. It appeals to the human drive to get the most profit out of

the least effort. This idea reminds me of self-help videos on YouTube. A lot of people just watch them and expect things to fix themselves. Binaural beats have this same sort of idea about how you could fix something about yourself with no effort needed.

But could it not be bogus? I shouldn't let the practices of one person taint the image of this form of therapy. The site contains many infographics, but are they reliable? Lots of studies, but what are they concluding? Ultimately, medical professionals claim that there is no proper clinical research on the efficacy of binaural beats. Like the comparison with online self-help videos, binaural beats can't magically fix your problems. But they can give you ideas on how to fix things yourself, they can set you in the right direction. If everyone agreed binaural beats were bogus, we would not be here now.

There is no entertaining the idea that binaural beats can have an effect on the brain as advertised without acknowledging placebo. Placebo is a funny thing. If placebo means that a certain stimulus can trigger certain responses, like the brain's innate ability to bolster your immune system, or get you "in the zone" and enhance your performance in a sport, then in a sense, it does mean that this stimulus is a valid method of achieving certain goals. To some people, sources don't need to be reliable, the numbers don't have to add up. This takes away the science aspect, if it inexplicably only works for certain people. But to some people, the science aspect doesn't matter. The idea that something like sound and music could potentially lessen the need for medication, that's all they need.

And yet in all this seriousness and talk about skeptical studies, I can't help but feel close-minded about the topic of binaural beats. With Gen Z's high levels of anxiety and less sleep, an alternative to turning to medication is welcome. Online school feels like it bestowed upon me

an ADD symptom or two, (or maybe just made it bubble up to the top), and if it came to the choice of taking medication or going with binaural beat therapy, I would gladly go with the latter. Though the actual efficacy of binaural beats has not yet been proven, little to nothing can be said about any sort of side effects. As far as we know, the main effects are also little to none, so we get what we put effort into. Plus, it can be free and it's widely available. It's worth a try if the situation arises. Just another reason why keeping an open mind can be incredibly beneficial.

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