The Eardrum Conundrum: Creating Tinnitus Tranquility

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The purpose of this study is to create white noises that mask tinnitus tones more effectively than normal white noise. I was inspired to research this because my mother experiences tinnitus. Many people with the condition listen to white noise to mask tinnitus. The purpose of my project was to create white noises that more effectively mask various tinnitus tones. Normal white noise consists of all audible frequencies of sound. I questioned whether white noise could be improved to mask specific tinnitus tones more effectively. After some research, I learned that white noise masks other sounds well because it includes the frequency of that sound. My plan was to create white noises that have increased amplitude within a certain range of a specific tinnitus tone frequency. I hypothesized that white noise with increased amplitude in a specific range of a tinnitus tone would more effectively mask that tone. I created special white noises for 8 common tinnitus tones. For each noise, I increased the amplitude of a 1000Hz range around the specific tone, making the noise stronger in that area. Using a spectrograph to measure the masking, I found that the enhanced white noise masked more powerfully than normal white noise for each of the 8 tinnitus tones I experimented with. In conclusion, I was able to create various white noises that mask tinnitus tones better than normal white noise, and provide tranquility to people suffering from tinnitus.

Awards Won: