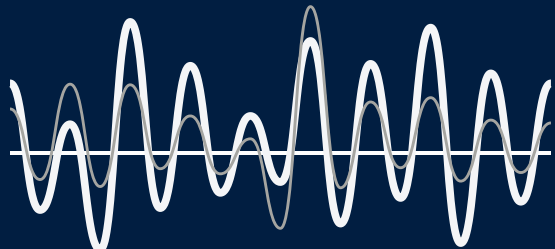


The Science Behind Sound: MEASUREMENTS

Despite their size, our ears are one of the most complex organs in our body. The 3 parts of our ears: the outer, middle, and inner ear, are responsible for taking sound waves and turning them into vibrations that can be translated into nerve signals. **But how do we measure the sound waves our ears are exposed to?**



FREQUENCY

Frequency (also referred to as pitch) refers to the number of times a sound wave is present in one second. Shorter wavelengths are typically higher-pitched, while longer wavelengths tend to be lower pitched.



LOUDNESS

Loudness, or "amplification" refers to how audible a sound is. Though commonly referred to as volume, loudness is actually an interpretation of sound pressure levels.

Hz

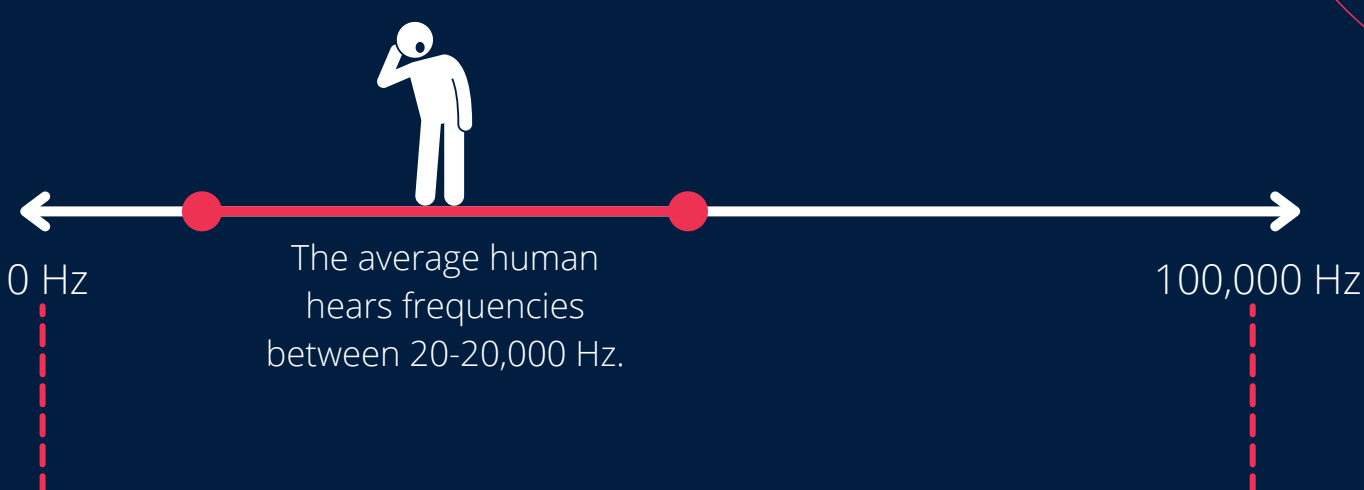


Frequency is measured in units called Hertz (Hz)

dB

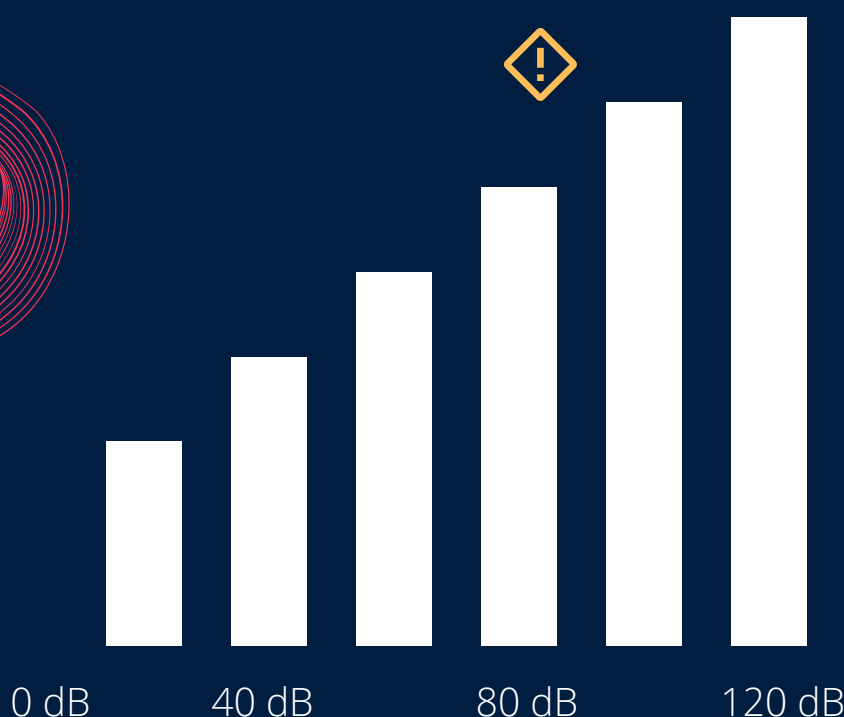


Loudness is measured in units called Decibels (dB)



Sounds lower than 20 Hz are known as **INFRASOUND**

Sounds higher than 20,000 Hz are known as **ULTRASOUND**



The average person's comfortable listening levels are usually between 0-85 dB. However, regular exposure to sounds at or over 85 dB can be harmful. Sounds at levels higher than this can cause injury or hearing loss.