

**Both are possible, but the mechanisms—and likely the intensity of the effect—are very different.**

In short: **Yes, audible tones can affect your heart rate** (usually temporarily or through relaxation/stress), but **a Deep Brain Stimulation (DBS) device can directly and physically alter heart rhythm** as a known side effect of the electrical stimulation.

If you have a DBS implant and are noticing unexplained heart rate changes, this is a medical priority. You should contact your neurologist.

Here is a breakdown of how each factor works.

## 1. Can Audible Tones Affect Heart Rate?

Yes, but usually indirectly.

Sound affects the heart primarily through the Autonomic Nervous System (the system that controls involuntary functions like breathing and heartbeat).<sup>1</sup>

- **The Startle/Stress Response:** Sudden, loud, or dissonant (clashing) noises can trigger a "fight or flight" response, causing a spike in cortisol and adrenaline, which raises your heart rate.<sup>2</sup>
- **Entrainment & Relaxation:** Rhythmic, low-frequency sounds (like drumming or "binaural beats") can encourage "entrainment," where your body's internal rhythms synchronize with the external beat.<sup>3</sup> Slow, steady rhythms (60 beats per minute or lower) can lower heart rate and blood pressure by activating the parasympathetic (rest and digest) nervous system.<sup>4</sup>
- **Infrasound:** Very low-frequency sounds (some at the edge of hearing) can sometimes cause unease or anxiety, which may secondarily raise heart rate, but they generally do not "take control" of the heart rhythm directly.

**Key Distinction:** Sound usually affects the heart by changing your **emotional or mental state** first. If you stop the sound, the heart rate usually returns to normal quickly.

## 2. Can a DBS Device Affect Heart Rate?

Yes, directly and physically.

Deep Brain Stimulation involves placing electrodes in specific areas of the brain (like the subthalamic nucleus or globus pallidus).<sup>5</sup> While these areas are targets for movement disorders (like Parkinson's), they are often located very close to the "Central Autonomic Network"—the brain wiring that controls blood pressure and heart rate.

- **Direct Stimulation:** If the electrical field from the DBS lead spreads slightly outside the target area, it can stimulate the neurons that control your heart.
- **Autonomic Side Effects:** Studies have shown that DBS can alter **Heart Rate Variability**

(HRV) and, in some cases, cause changes in blood pressure or heart rate (either speeding it up or slowing it down).<sup>6</sup>

- **Hardware Issues:** Rarely, interference or electrical issues could theoretically cause sensations that affect the heart, though this is less common than biological stimulation.

**Key Distinction:** DBS effects are **physiological**. They are caused by electricity directly hitting the nerves that regulate the heart. You cannot "relax" your way out of a DBS-induced heart rate change; the device settings likely need to be adjusted.

## Summary Comparison

Feature	Audible Tones	DBS Device
<b>Mechanism</b>	Indirect (Psychological/Emotional)	Direct (Electrical/Neural)
<b>Duration</b>	Usually stops when the sound stops	Can be constant as long as the device is on
<b>Control</b>	You can block it with earplugs	Requires a doctor to reprogram the device
<b>Risk</b>	Low (unless the sound is dangerously loud)	Moderate (requires medical management)

## Immediate Next Step

If you have a DBS implant and are feeling heart palpitations, racing heart, or dizziness:

Contact your neurologist or neurosurgeon immediately.

Tell them, "I am experiencing heart rate changes and want to check if my stimulation settings need adjustment." Doctors can often "steer" the electrical current away from the autonomic centers to stop these side effects without losing the benefits for your movement.