

## MECHANISMS OF MUSIC THERAPY

Music therapy has been successful in treating a variety of diseases and disorders, but to date, little is known about the mechanisms underlying its effects. Looking to the literature on neuroplasticity—the ability of neurons to change their connections and networks—could provide some answers.

### REWARD

Enjoyable music activates the reward network of the brain, including the ventral tegmental area (VTA) and nucleus accumbens (NA). By pairing such rewarding music with desired, nonmusic behaviors, music therapists may be tapping into the brain's reward pathway.

### THE HEBBIAN THEORY

Neurons that fire simultaneously make stronger connections. The rhythm of music played during a therapy session may be eliciting such neuronal synchronization at the same time that it helps patients regulate their movement, vocalization, breathing, or heart rate.

### NOISE

Exposure to noise can be stressful and can impair cognition and memory. But music is essentially the opposite of noise, with high levels of consonance. Thus, music therapy may provide a clear acoustic signal to help patients learn desired non-music-related behaviors.

