

# BOOKS

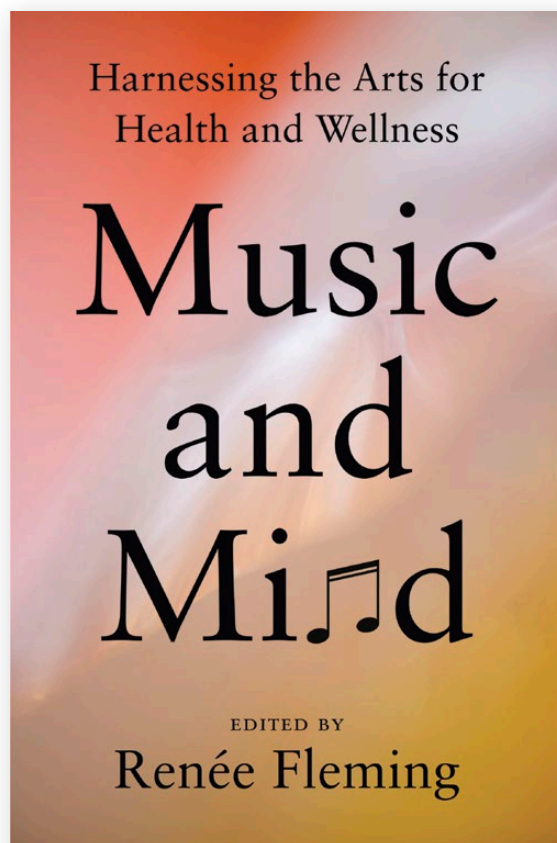
## Sound Therapy

SUSAN FITZPATRICK

If given the choice, I will always choose the quiet of nature over the jangle of artificial sounds. Imagine my shock, then, when I developed tinnitus. The onset of this constant sound—a relentless mechanical buzzing in my own head—was close to unbearable.

My angst at experiencing tinnitus was exacerbated because I am a neuroscientist and know that successful interventions are scant. My consultations with family practice and specialist physicians reinforced this dismal reality. In talking with fellow tinnitus sufferers, I quickly concluded that the medical community shrugs its collective shoulders when faced with this condition—despite it negatively impacting the quality of life for more than 740 million people worldwide. This isn't completely unexpected, however; treating complex, poorly understood neurological conditions characterized by powerful subjective experiences is one of our modern medical system's shortfalls.

Luckily for me, the Missouri spring brought the hatching of the Brood XIX cicadas. Yes, the cicadas. Their singing perfectly masked my tinnitus and provided relief, allowing me to spend parts of each day tinnitus-free. With time, these periods of relief lessened my overall anxiety about the condition and allowed me to develop adaptations. Searching for information via online communities, I discovered that there is research supporting my anecdotal



### **Music and Mind: Harnessing the Arts for Health and Wellness**

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experience. The frequency of summer insect sounds (e.g., cicadas, crickets, locusts) can provide tinnitus relief. In the music of these insects, I found solace.

If the singing cicadas could give me back my peace of mind, what healing powers can be found in the transcendent sounds comprising the music created by gifted artists? This question was the impetus for a collaboration between the National Institutes of Health (NIH) and the John F. Kennedy Center for the

Performing Arts, which involved noted musicians, writers, scientists, and clinicians. One product of the collaboration is a volume of essays, *Music and Mind: Harnessing the Arts for Health and Wellness*, edited by the internationally renowned vocalist Renée Fleming.

*Music and Mind* is composed of 41 essays arranged into seven thematic sections that explore, among other topics, the evolutionary roots of humanity's musical abilities, the use of music in therapeutic and educational settings, and the many ways music enriches our lives. As is often the case with multi-authored volumes, there is an unevenness in prose quality and readability. Such unevenness is particularly evident in *Music and Mind* because contributions from professional writers such as Ann Patchett and Richard Powers are juxtaposed with essays by researchers and clinicians. While the humanists' essays are brief, pithy, personal, and powerful, the scientists' essays tend to be overlong,

detailed, and wide-ranging. I kept imagining how the material might have been more compelling if a single talented writer—say, Oliver Sacks, were he still alive—had been commissioned to pull the disparate pieces together.

The foreword by Francis Collins, the now-retired NIH director who is both an accomplished scientist and musician, describes the research on the relationship humans have with music as a “still young field.” Perhaps. But this claim is hard to square with a history documenting such connections dating back to antiquity. In a paper published in 2009, the psychiatrist and neurologist Assad Meymandi wrote,

“Since ancient times, music has been recognized for its therapeutic value. Greek physicians used flutes, lyres, and zithers to heal their patients. They used vibration to aid in digestion, treat mental disturbance, and induce sleep. Aristotle (323–373 BCE), in his famous book *De Anima*, wrote that flute music could arouse strong emotions and purify the soul. Ancient Egyptians describe musical incantations for healing the sick.”

In my own experience as a neuroscientist, the connections between music, cognition, and health have long been an active area of research in the sciences. This has been driven by the preponderance of scientists who are also musicians or are discerning and knowledgeable consumers of music, which is a phenomenon Collins also mentions in his foreword. I suspect Collins’s reference to the “young field” emerges from an enthusiasm in the neurosciences for the use of brain-scanning technologies developed over the past few decades that allow scientists to gain information on how human minds interact with music. The “neuroarts” can now take its place among the other neuro-hybrids—neuroaesthetics, neurolaw, neuroeconomics—spawned by the use of functional imaging technologies to map the processing of complex and subjective human experiences.

With imaging technologies, researchers can point to areas of the brain that “light up” when listening to, creating, and moving our bodies to musical sounds. But it’s questionable what this will add to our understanding of the importance of music to human life that is not already evident from behavioral and social sciences. The essays in this volume did not convince me of a need for the neuroarts. The value of the neuroscientific turn in the humanities has been debated for some time and I remain staunchly neuroskeptical. My preference is to see effort and resources spent on studies focusing on richly characterizing how we interact with music in all its complexity and as it unfolds in real time in real-world contexts.

Although the length, technical detail, and unevenness of the prose in the scientific essays is unlikely to make them attractive to nonscientists, there are exceptions. Oddly, it is not until page 434 that the reader is introduced to the fascinating biology of the auditory system and its ability to convert pressure variations in a medium such as air into the wide array of sound perceptions we experience. It might have been helpful if this essay, by the eminent cognitive neuroscientist Robert Zatorre, who has long been interested in how brains process sounds, including music, came a bit earlier in the volume.

The clinician-authored essays raise interesting questions that seem answerable with careful observational studies—no brain scans required! For example, when incorporating music—and “music” in this context includes singing and dancing—as part of treatment programs, there is good evidence of its effectiveness in facilitating movement in Parkinson’s patients, improving memory and mood in people suffering from Alzheimer’s disease, alleviating anxiety during depressive episodes, or building capacity in patients with respiratory conditions. How can clinicians shape these interventions to increase effectiveness or better match patients with interventions? Is it better to use carefully curated playlists that can select for particular attributes (say, rhythm) or allow patients to choose their own music for salience or motivation? Is it more effective to sing alone or in groups? To experience prerecorded or live music? I suspect there are hundreds of observational trials being carried out in nursing homes and senior centers every day—so how might we make better use of such data?

What comes across clearly in the writings by the therapists and clinicians who work with patients are the limits of scientific understanding of music in therapeutic settings, despite its widespread use. The traditional tools of biomedical research, such

as biomarker measurements and randomized controlled trials, are not the best tools for investigating multifactor interventions that have widespread physiological and psychological effects.

Among the thoroughly enjoyable humanists’ essays, I was thankful for the contribution by Richard Powers, the award-winning novelist, who writes a brief, lyrical meditation on the classic Irish song of loss, “The Parting Glass.” Powers’s essay gently reminds readers that our brains and bodies are inseparable and exist each moment in a particular context of time and place. It is the wholeness of our experiences that matter.

One concern about the general applicability of the scholarship represented in these essays is that the music at the heart of the scientific research studies, particularly brain imaging studies, tends to be primarily Western classical music. In therapeutic studies, I suspect the music may be more represented by pop music, although this would also likely be drawn from WEIRD cultures (that is, Western, educated, industrialized, rich, and democratic). Notable exceptions are the inclusive musical traditions examined in the essay by the Grammy Award-winning percussionist Zakir Hussain, and in the essay by Marisol Norris and Esperanza Spalding, which offers a rich discussion of Indigenous traditions. A luminous cross-cultural exploration of musical traditions is found in the inspirational prose piece by acclaimed cellist Yo-Yo Ma, reflecting his own efforts to bring diverse musical traditions to global audiences.

If you do happen to come into possession of the book, I strongly recommend prioritizing a reading of Renée Fleming’s introductory contribution, “Overture: Music and Mind.” It’s beautifully written, providing a lyrical and comprehensive summary of the main ideas in the book, together with a plausible rationale for furthering scientific study of music and mind. Ironically, I found it also provided

a cogent argument for my view that attempts to reduce an understanding of the powerful effects of music on our bodies, minds, and souls to merely neuroscientific explanations are certain to disappoint.

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