As a physician who also plays guitar and piano, one of my favourite topics is the intersection of medicine and music.

Recently, I discovered just how common my fascination is. I was in New York City attending a conference at Memorial Sloan Kettering Cancer Center when one of my colleagues, Dr. Alan Engelberg, mentioned he plays trombone in a jazz band. Soon I was conversing with various docs — one a medical director for Johnson & Johnson, another in the same position for IBM — all of us talking excitedly about the fast-growing field of music therapy.

We’d all seen the remarkable *Journal of the American Medical Association* article published in May about intensive care patients on ventilators. Provided the opportunity to listen to whatever music they liked, the patients required significantly less sedation and experienced a lot less anxiety than patients who didn’t listen to any music. Engelberg went on to describe Memorial Sloan Kettering’s team of music therapists, who tote acoustic guitars like travelling minstrels through the centre’s oncology wards, visiting patients who could use a boost, and working in ways analogous to the *JAMA* study. Holly Mentzer is a Juilliard-trained musician who is one of those minstrels.

“People respond most strongly to music that’s personal to them,” Mentzer said during a subsequent interview. So for one patient she might play Van Morrison’s *Brown-Eyed Girl*, and for another patient, she might bust out *Dayenu*, the Jewish folk song.
“It can bring up tears very quickly,” Mentzer said, describing encounters that formed antidotes to the antiseptic hospital setting. “It’s incredibly fulfilling when I hear from our patients that music has helped them through a difficult time.”

According to a series of studies, music can decrease the perception of pain for patients suffering from neuropathic disorders

All sorts of studies verify the power of music to boost the well-being of medical patients. Endoscopy clinics find that playing music can help decrease client stress due to colonoscopy. Researchers have seen the stress hormone, cortisol, drop in brains that have been exposed to relaxing songs. According to a series of studies published in 2013, music can decrease the perception of pain for patients suffering from neuropathic disorders. Separate studies established that music therapy decreased anxiety before radiotherapy cancer treatment and hemodialysis. It’s also been shown to decrease chemotherapy-induced nausea, vomiting and anxiety.

How does music do this? One of the world’s foremost centres analyzing music’s effects on the brain is located at McGill University in the lab run by psychology professor Daniel Levitin, the author of *This Is Your Brain On Music*. He and a colleague, Mona Lisa Chanda, published in April a research review titled “The Neurochemistry of Music.” It portrayed the appeal of music as “one of a small set of human universals” that was able to do everything from regulate one’s mood to enhance concentration, stamina and motivation.

In the review, Levitin and Chanda described a study where subjects received PET scans as they listened to music that induced “chills” down their spines, then listened to “neutral” music. The scans revealed the chill-inducing music increased blood flow in the brain’s mesocorticolimbic system, which is critical to reward and reinforcement.

There’s so much we don’t know about how we interact with music

Elsewhere, Levitin and Chanda described the way the brainstem seems crucial to music’s effect on the body, because brainstem neurons tend to fire in sync with a song’s tempo, alternately raising or lowering body responses like heartbeat. The benefits of music may also be linked to effects on the immune system or neurochemistry from social affiliation — and music, as many of us would expect, can actually be a tool to communicate emotion directly to the brain.

Still, there’s so much we don’t know about how we interact with music. In their conclusion, Levitin and Chanda identified further research in the neurochemistry of music as the “next great frontier” for research. And in newspaper reports, Levitin described the way he visualized a day when physicians might prescribe music rather than pharmacological drugs. And why not? Music is universal,
and may be the most affordable therapy in a doctor’s toolkit — it’s non-invasive, safe and natural.

At the Memorial Sloan Kettering Center conference, various medical directors wondered whether we’ll ever approach a day when, as physicians, we can tell someone to listen to the latest Bruno Mars album twice and then call us in the morning. Will we ever prescribe as future treatments the playing or learning of a musical instrument or joining a band? Does the type of music matter? Bach vs. Metallica? Who knows?

One thing’s for certain: We may not fully understand why music has a complementary effect on human health. Nevertheless, we can be certain now that it most does.

—Dr. James Aw is the medical director of the Medcan Clinic, a leading private health clinic in Toronto. For more information, visit medcan.com.

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