

# High blood pressure? A heart app prescribes musical therapy

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Researchers are learning how music can help improve heart health. Credit: Vinzent Weinbeer from Pixabay

Europe has gone from thinking music could stop plagues 400 years ago to realizing it can help prevent cardiovascular disease today.

The opening of a Beethoven symphony thrills the heart—but not just figuratively. While [music](#) touches us emotionally, it stimulates the heart physically and can lower blood pressure.

[More than one in five people aged 15 years and over in the EU have reported having high blood pressure](#), which can lead to failure in the heart, kidneys or brain. Lowering blood pressure even slightly can reduce the risks of cardiovascular disease.

## Heartfelt tunes

From the Science and Technology of Music and Sound Laboratory in Paris to King's College London, Professor Elaine Chew is developing an app for smartphones to boost heart health as part of a project called HEART.FM.

"We're creating an app that will monitor people's response as they listen to music and then tailor that music to benefit them," said Chew, a professor of engineering at King's who collaborates with St Bartholomew's Hospital in London.

The app uses measurements of the person's heart and artificial intelligence algorithms to create a listening regimen that regulates blood pressure.

While [HEART.FM](#) stands to help people today, another project called [GOING VIRAL](#) looks back at how [public perceptions](#) and uses of music in Europe have evolved through the course of disease outbreaks over the past four centuries.

In the 17th century, music was believed by many people in Europe to have the power to stop or even prevent an outbreak of the plague, according to Professor Marie Louise Herzfeld-Schild, who leads GOING

VIRAL and is a musicologist at the University of Music and Performing Arts Vienna.

The two projects show how popular views of music have changed since the days of Handel, and the heightened power of music when combined with modern technology.

## **Personal perspective**

Chew has a personal connection to the project. She had suffered from an irregular heartbeat, which was successfully treated. The experience made Chew conscious of her own and others' heart health.

"Medicine made it possible for me to have a much better quality of life and it led me to rethink the purpose of what it is I do," she said.

A professional-level piano player herself, Chew has since 2018 studied how people's hearts respond to music, starting with patients who have pacemakers.

A pacemaker is used to treat some abnormal rhythms—called arrhythmias—that can cause the heart to beat too slowly, too fast or irregularly. The pacemaker enables a patient's heart to beat regularly by sending electrical pulses to it.

Chew and colleagues at St Bartholomew's Hospital discovered some good news: the [recovery time](#) between beats of the hearts of people with pacemakers could be modulated by music. In general, quicker recovery times signal stress, while longer ones indicate relaxation or calm.

Chew is drawing on the findings of her work involving pacemaker patients to develop the HEART.FM app for a much broader group of people.

"People enjoy music as a pleasurable pastime—the difference here is that we are monitoring how the body responds," she said.

HEART.FM's goal is to fingerprint the cardiovascular responses of people listening to music. Chew often hooks up students to the testing device and then sends them data from the app so they can see their own physiological response to music.

The app in development would be downloaded onto a smartphone by users to track their [heart](#)'s rhythmical responses to music and to guide them on a therapeutic path to [lower blood pressure](#). The plan is to make the app globally available for download from app stores.

## Shifting views

Under GOING VIRAL, Herzfeld-Schild is interested in how Europeans of bygone eras felt about music.

Her project is investigating and comparing the emotional experiences that people had from music during three epochs of disease outbreaks in Vienna: plague in 1679 and 1713, cholera in 1831 and flu in 1918–19.

Herzfeld-Schild believes that emotional experiences differ through the periods of history.

"The way we navigate the world emotionally is bound to our upbringing and what we learned about the world," she said. "That changes how we feel about music."

During the plague outbreaks, people in western Europe often blamed the planets and believed music could influence them and, as a result, end or ward off the pestilence.

At the same time, there was also a belief that contaminated items could make you sick. Records exist of people burning instruments or sheet music.

"Music in that context was dangerous," said Herzfeld-Schild. "Religion was quite important, so people understand the plague to be a punishment from God."

Alternatively, they would blame Jews or foreigners from the East, she said.

## **Musical escapes**

During the 1700s, perceptions in Europe evolved again to embrace the idea of music as a source of listening bliss.

"The idea of a universal kind of 'true' music and that music is good for everyone begins in the 18th century," said Herzfeld-Schild. "Also, in the late 18th century, there arises this idea of music as a kind of religious experience, like a revelation, or escape from this bleak life."

By the time of the cholera outbreak in the 19th century, medical practices and popular attitudes to music had shifted. Once people realized that this disease had its origins in dirty water, charity balls were run in Vienna for cholera victims and even featured new music from the composer Johann Strauss.

The final outbreak that Herzfeld-Schild will investigate is the so-called Spanish flu, which started in 1918. It came when some people could buy early versions of gramophones and listen to music in their own homes.

This was a tumultuous time for Austria because the first flu outbreak coincided with the end of the First World War, collapse of the monarchy

and disappearance of the Habsburg Empire.

"There's really a lack of knowledge about how music was perceived emotionally during these times of diseases," said Herzfeld-Schild.

During the COVID-19 pandemic that started in 2020, she noticed that people seemed to assume a shared experience with those who faced disease outbreaks in earlier eras. But this supposition seemed wrong to Herzfeld-Schild based on her study of the history of music, medicine and emotions for more than a decade.

"From everything I know, right now, the emotional experiences of music during pandemics have been different throughout times and throughout places," she said. "I'm sure it was very different for people in the past."

### **More information:**

- [HEART.FM](#)
- [GOING VIRAL](#)
- [EU research on cardiovascular diseases](#)

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