

## Dance fever

# O Why do certain songs make us want to move to the beat? Scientists may have the answer

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WHETHER at a party or a nightclub, you have probably noticed that some songs make you want to dance more than others. A study published in the journal *Science Advances* claims that this is no coincidence. In fact, our bodies naturally want to get moving when our brains are able to anticipate the rhythm of the music.



A research team from France's National Institute of Health & Medical Research, Inserm, and AixMarseille University came to this conclusion after studying the neural dynamics – the interactions between neurons resulting from the brain's electrical activity – of 30 volunteers while they listened to a dozen melodies.

These melodies had been designed by the researchers to have a rhythm of 120 beats per minute. Each melody was then modified to make its rhythm more or less complex, but without altering either the speed of the rhythm or the melody's other musical characteristics.

The scientists then asked the participants to listen to these melodies while they recorded their brain activity in real time using a magnetoencephalography machine.

At the end of each listening session, the volunteers were asked to rate the level of “groove” they felt – in other words, their desire to dance.

At the same time, the study authors created a so-called “neurodynamic” mathematical model of the neural network to better understand the calculations our brains make to determine whether a piece of music is “groovy” or not.

### How our brains drive our desire to dance

The researchers found that participants were particularly keen to dance when they listened to music with a rhythm that was “not too simple or too complex,” as they report in a press release.

“These findings show that the motor engagement linked to the groove is materialised by a temporal anticipation of the tempo. At brain level, this is based on a dynamic balance between the temporal predictability of the rhythm (the less complex the rhythm, the better it is) and the listener’s temporal prediction errors (the more complex the rhythm, the more errors they make),” explains Arnaud Zalta, first author of the study and post-doctoral fellow at ENS-PSL.

We may therefore find ourselves gripped by an overwhelming desire to dance when our brain is capable of anticipating the rhythm of the music we hear. Zalta and colleagues hypothesise that the left sensorimotor cortex – a region of the brain involved in processing sensory information and coordinating movements – plays an important role in the “groove” experience. However, this possibility would need to be explored further in the future to confirm its veracity.

While our brains may drive our desire to dance, research suggests that we should not deny ourselves the pleasure. Dancing is a physical activity that benefits both body and mind, stimulating a whole host of cognitive processes simultaneously, from coordinating movements to the rhythm of the music to remembering steps. So when the beat gets your brain, do not hold back! – ETX Studio