

Enjoying light exercise in rhythm can promote the effects of exercise on the brain's prefrontal cortex function

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Credit: Human Brain Project

Listening to rhythmic music, particularly music with a pronounced groove, elicits a heightened sense of excitement, prompting individuals to move their bodies in sync with the rhythm instinctively. This natural

inclination to move in harmony with music is called groove.

Notably, [aerobic exercise](#), even at low-intensity levels, stimulates the [dorsolateral prefrontal cortex](#) (DLPFC) of the brain, thereby improving [executive functions](#) such as attention, concentration, and judgment.

Building upon previous research, it was discovered that individuals with a high affinity for groove rhythm (GR) experienced increased executive function in the prefrontal cortex simply by listening to GR.

Consequently, the research team explored the potential synergy of combining GR with exercise to amplify the enjoyment and cognitive benefits of physical activity.

In this study, 48 healthy participants aged 18-26 engaged in 3 min of very-light intensity aerobic exercise set to GR. The results revealed that participants who reported their bodies "resonating with the rhythm" during exercise and a subjective sense of "increased excitement" demonstrated enhanced executive function in the [prefrontal cortex](#) and increased activation in the left DLPFC compared to standard very light-intensity exercise. These results were reasonable, considering that music preferences vary among individuals.

In Japan, where less than 30% of the population maintains a regular exercise routine, developing inclusive exercise programs is crucial. Based on the findings of this research, investigating the impact of groove rhythm-based exercise is expected to introduce "enriched exercise" as an enjoyable, motivating, and efficient approach for enhancing brain function.

The study is [published](#) in the journal *Neuroscience*.

More information: Takemune Fukuie et al, Groove Rhythm Enhances Exercise Impact on Prefrontal Cortex Function in Groove Enjoyers,

Neuroscience (2023). [DOI: 10.1016/j.neuroscience.2023.08.039](https://doi.org/10.1016/j.neuroscience.2023.08.039)

Provided by University of Tsukuba

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