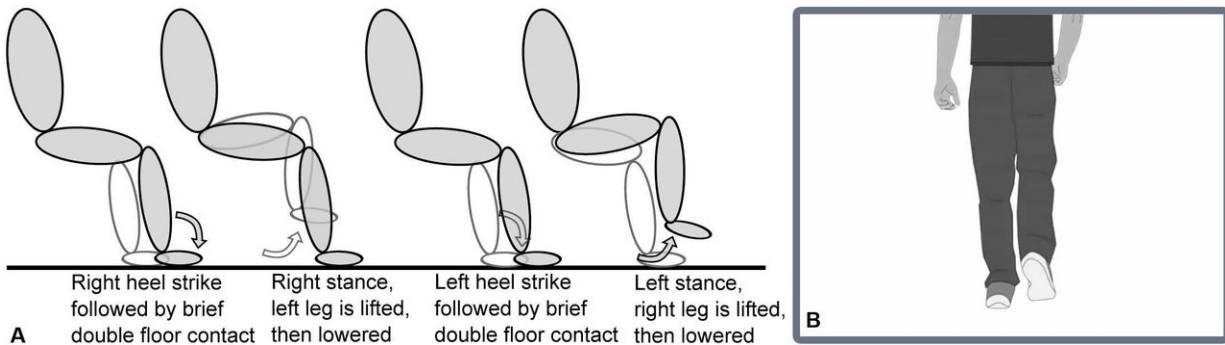


# Brain activity alternates while stepping

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Schematic sequence of stepping in place and visual stimulus. (A) After each heel strike, the contralateral leg was lifted. The shaded limb depicts the right leg and the unshaded one the left leg. (B) One example picture from the video that dictated the stepping rhythm. Credit: Fischer et al., *JNeurosci* (2018)

Human steps are associated with neural activity that alternates between the left and right sides of the brain, finds a study of Parkinson's disease patients published in *JNeurosci*. The research recommends future investigations address whether alternating deep brain stimulation accordingly may improve gait in movement disorders.

Walking problems reduce quality of life for people with Parkinson's disease. Medication or continuous [deep brain stimulation](#) are used to alleviate these symptoms, but some [patients](#) do not respond to these treatments.

To better understand how brain activity changes throughout the stepping cycle, Petra Fischer, Huiling Tan and colleagues studied Parkinson's patients who have received deep brain stimulation surgery. This enabled the researchers to record [brain](#) activity from electrodes implanted in the subthalamic nucleus (STN) while participants stepped in place along with a cartoon man in a video.

The researchers found that activity in the 20-30 Hz (beta) range alternated between the left and right STN when the opposite foot touched the ground and the other foot was to be raised.

The introduction of a metronome synchronized to the cartoon steps improved participants' accuracy and enhanced their STN beta activity accordingly.

**More information:** Alternating modulation of subthalamic nucleus beta oscillations during stepping, *JNeurosci* (2018). [DOI: 10.1523/JNEUROSCI.3596-17.2018](#)

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