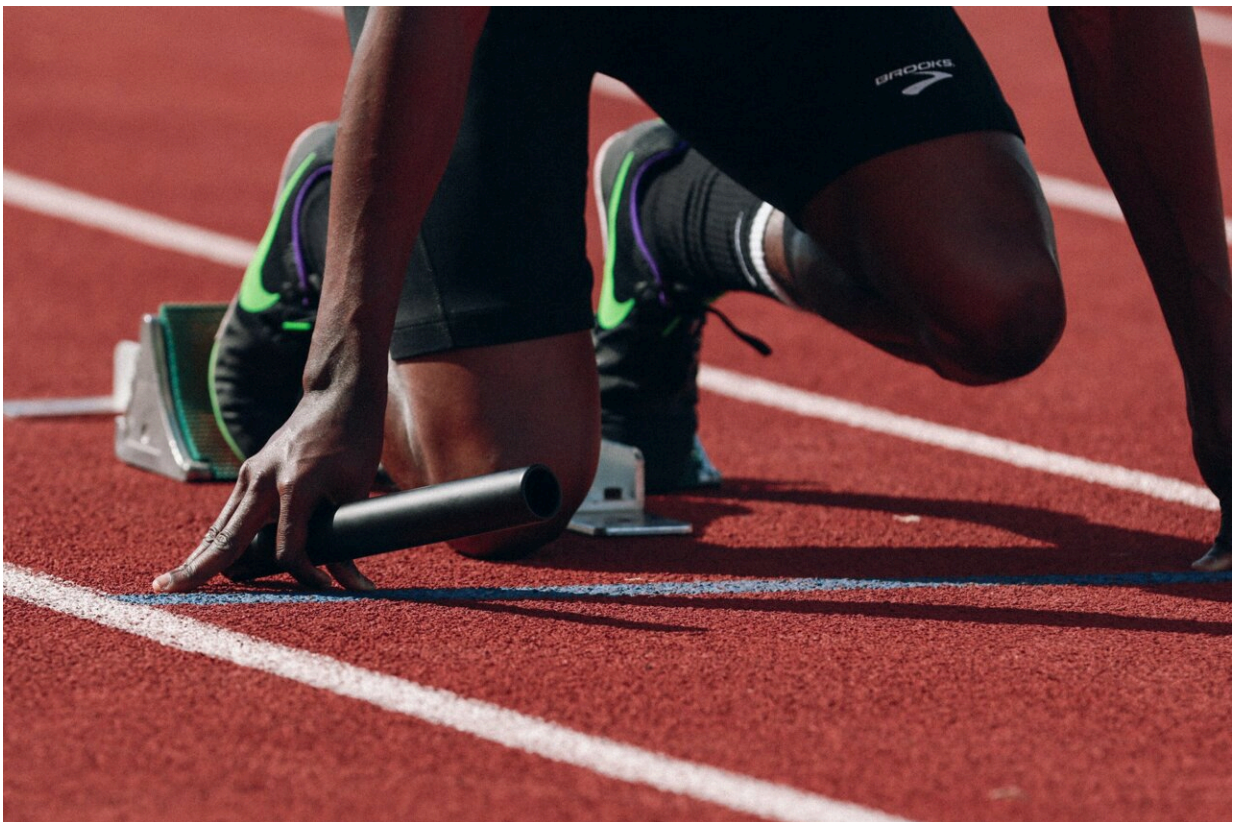


The anterior lateral motor cortex plays a major role in premature actions, or 'jumping the gun'

November 15 2022



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In a study published in *Nature Neuroscience*, a team led by The Florey's Associate Professor Lucy Palmer found that the anterior lateral motor

cortex—a part of the brain that plans physical movement—plays a major role in premature actions, or "jumping the gun."

When cell activity in this part of the brain was suppressed in the [animal model](#), the success rate of the anticipated behavior drastically increased.

Associate Professor Palmer says this is an early milestone for research into addictive behaviors and conditions such as schizophrenia and [obsessive compulsive disorder](#).

"The anterior lateral motor cortex, the 'ALM,' is well-known for its role in planning actions, but until now we have never understood its role in premature actions—when we anticipate an action but get it wrong," said Associate Professor Palmer.

"We have all seen athletes have false starts—this is a great example of anticipating a cue and acting impulsively. Our study shows that too much brain [cell activity](#) in the ALM increases the chance of these 'false starts.'

"This is interesting information for everyone—we all control impulses every day. But it gives important insights into conditions where we see impulsive behavior that we struggle to control—such as gambling, use of drugs and alcohol and a plethora of mental health conditions.

"This study gives us important knowledge to build future research on. This part of the brain could be a key target for treatment of a wide range of neurophysiological diseases in the future."

More information: Robertas Guzulaitis et al, Neural basis of anticipation and premature impulsive action in the frontal cortex, *Nature Neuroscience* (2022). [DOI: 10.1038/s41593-022-01198-z](https://doi.org/10.1038/s41593-022-01198-z)

Provided by Florey Institute of Neuroscience and Mental Health

Citation: The anterior lateral motor cortex plays a major role in premature actions, or 'jumping the gun' (2022, November 15) retrieved 24 April 2024 from

<https://medicalxpress.com/news/2022-11-anterior-lateral-motor-cortex-plays.html>

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