

# Your hand betrays your sense of fairness, and it does so before you even realize it

April 30 2026, by Sayan Tribedi

---



Credit: Image generated by the editorial team using AI for illustrative purposes.

It turns out that your body is much more truthful about what is and isn't fair than you might imagine. The rate at which we make physical movements is able to reveal whether our motives are self-interested or

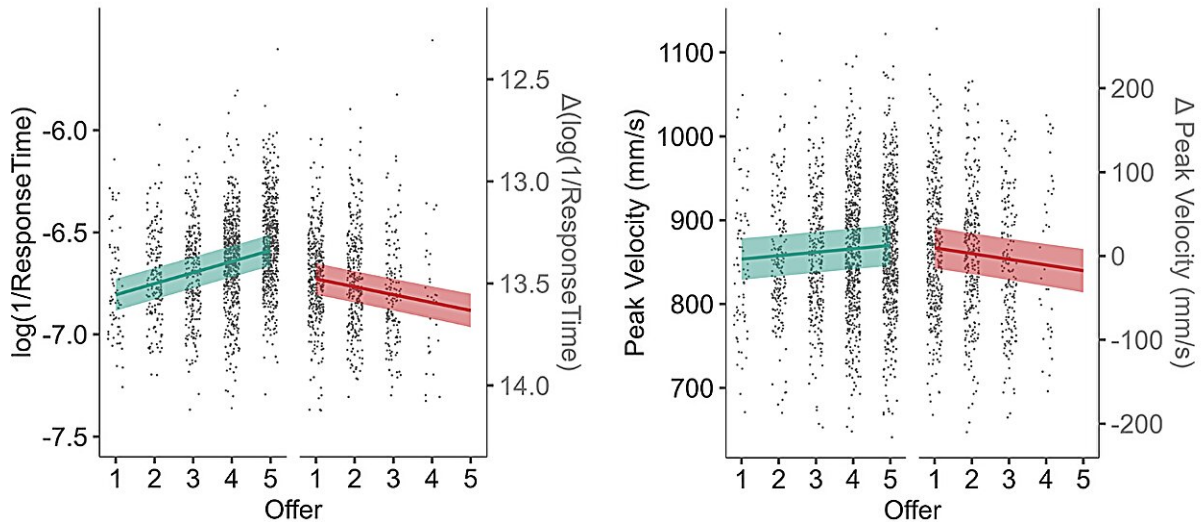
retaliatory.

Imagine you're offered a split of money in an Ultimatum Game: accept a generous share or reject an insultingly low one. Your facial expression might show disgust—but what about your hand?

In new research [published](#) in *The Royal Society Open Science*, scientists report that the speed and vigor of our gestures reveal what we truly care about. In typical choices, people move faster toward bigger rewards; movement vigor usually tracks subjective value. But life's deals aren't all about personal gain— notions of fairness and punishment often enter play. Can the way we physically reach for a choice uncover these hidden social motives?

## **The unseen language of fairness**

In two experimental studies, economic games were adapted into movement tasks. Participants reached to accept or reject offers (by grabbing one of two levers) on a computer display, and their reach velocity and reaction time were measured. This novel experimental design made it possible to associate the vigor of movements with situational variables.



Movement Speed in the Ultimatum Game: This chart illustrates how movement speed (vigor) changes for accepted versus rejected offers in the Ultimatum Game. Notice the contrasting patterns: vigor increases with offer amount for accepted offers, but decreases for rejected offers, highlighting the unique impact of altruistic punishment. Credit: Oriana Pansardi et al, Altruistic punishment in action: movement vigor in neuroeconomic choice, *Royal Society Open Science* (2026). DOI: 10.1098/rsos.252403

As predicted, participants accepted offers more vigorously the larger the offered split. Large monetary rewards corresponded with faster reaching behavior—similar to previous research, which showed that our body acts faster in anticipation of larger gains.

But here comes the twist: when people decided to reject the offer (thus punishing the proposer), this relationship was completely reversed.

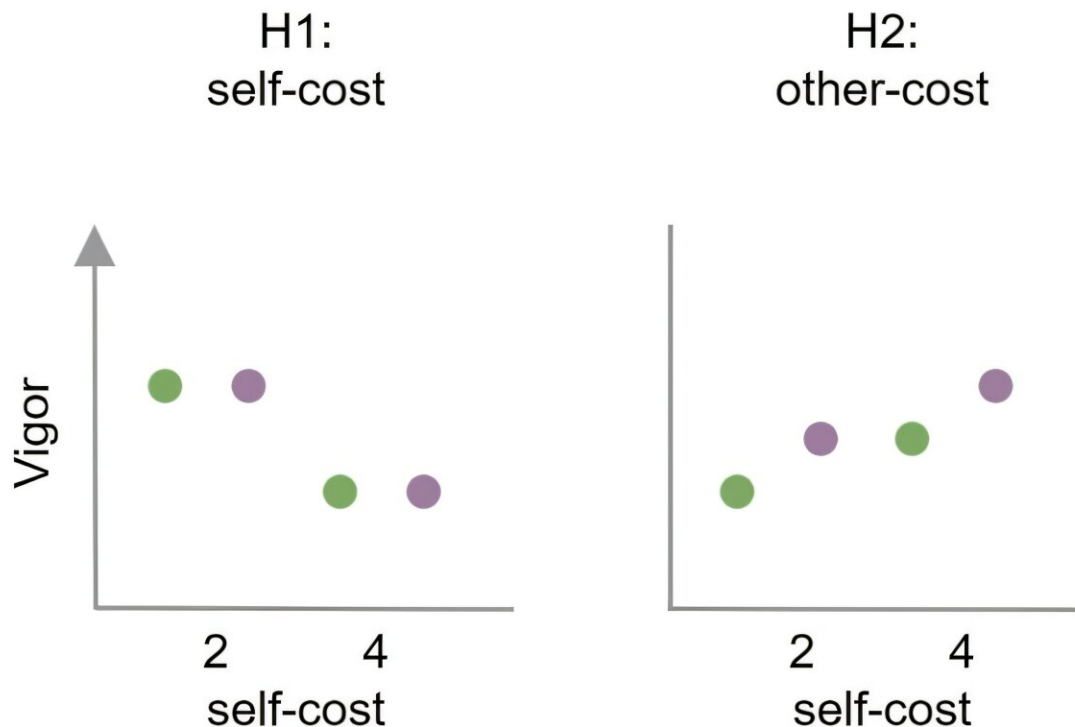
According to the results obtained from the Ultimatum Game, rejecting a high offer occurred with a slower reach velocity compared to rejecting a low offer. That is, a more difficult decision was required for rejecting

the higher amount of money than for rejecting the smaller reward. Thus, there was no linear correlation between value and vigor for altruistic punishment decisions.

## Why punishment slows us down

In order to investigate the mechanism behind this phenomenon, the authors carried out a second game, a variant of the famous Trust Game where the punishments would vary according to their cost-efficiency.

Participants could buy punishment tokens in order to reduce the gains of their partner who had defected. Importantly, the effectiveness of the punishment varied as well. That is, participants would have to pay 2 tokens to reduce the opponent's gain by either 10 or 20 tokens.



Punishment Condition Design: This diagram illustrates the experimental design for Study 2, specifically detailing the different punishment conditions. It shows how self-cost, other-cost, and the resulting efficiency of punishment (ratio of other-cost to self-cost) were systematically varied to disentangle their individual effects on behavior. Credit: *Royal Society Open Science* (2026). DOI: 10.1098/rsos.252403

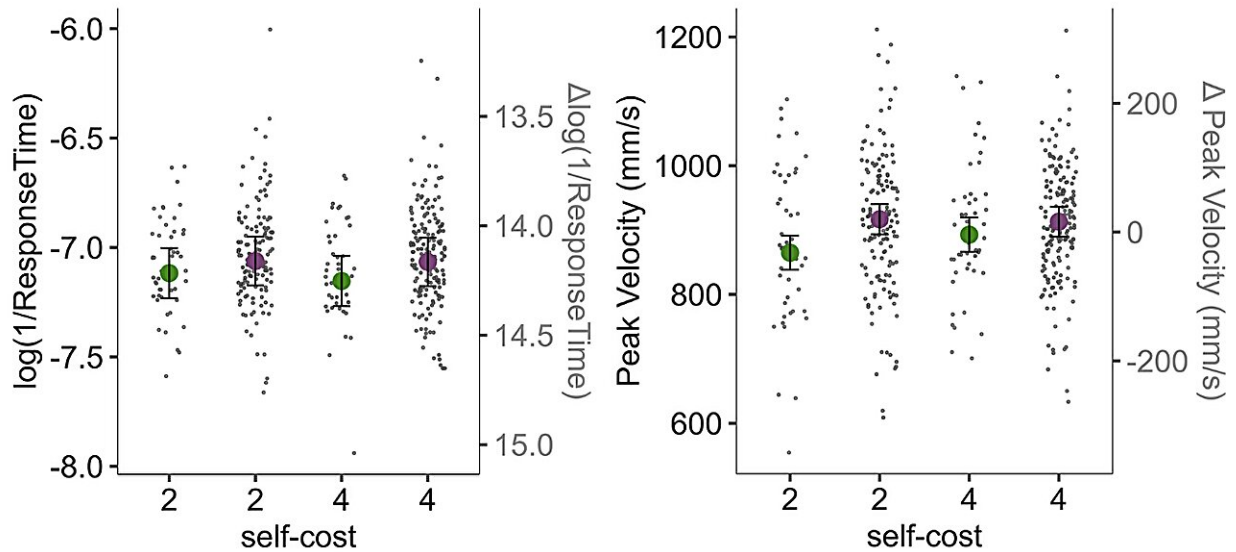
The outcome was clear; the movement speed depended upon the efficiency of the punishment rather than its own cost or the opponent's losses. The authors suggest that when the sacrifice yields greater costs for the defector, punishment is faster.

That implies that our body evaluates "social utility" in real time. As stated by the authors, "Movement vigor captures how individuals implicitly balance self-costs against the consequences for others."

Watching an individual's speed would reveal which option wins over the other, selfishness or revenge. Overall, according to the researchers, movement vigor provides a continuous measure of an individual's social preferences.

## **The future of fairness: Reading social cues in motion**

However, there are some limitations associated with these results. First of all, the current study is based on just two experiments that included several participants of a similar age. (Interestingly, it turned out that most of the participants actually believed that they were dealing with a human opponent.) Therefore, the obtained patterns need further verification among different samples of various ages and cultures.



Impact of Punishment Efficiency on Movement Vigor: This graph illustrates the relationship between movement vigor (represented by inverse response time and peak velocity) and the efficiency of punishment. It clearly shows that participants exhibited faster and more vigorous movements when the punishment they administered was more efficient (i.e., inflicted greater cost on the other player per unit of self-cost). Credit: *Royal Society Open Science* (2026). DOI: 10.1098/rsos.252403

Currently, we do not know how the movement vigor would behave among children, elderly individuals, or members of different communities. Nonetheless, the results are quite promising: Gestures might reflect fundamental attitudes towards different values.

Further, scientists predict several possible applications for the current findings. If the speed of movement can indicate social utility, then it could be applied to negotiations and therapy sessions.

In other words, researchers could identify biases or intentions behind the

movements of participants by monitoring the speed of gestures. In turn, coaches and therapists could monitor clients' gestures to determine when an agreement should be reached or punished.

Above all, this study underscores that our body language includes speed as a form of communication. As the researchers summarize, "These findings establish movement vigor as a dynamic read-out of social utility and demonstrate that social preferences can fundamentally reshape vigor–value mappings."

In everyday terms, it means that even our quick gestures can speak volumes: A swift reach can signal generosity, whereas a slowed-down pullback might just mean "enough of your unfairness."

**More information:** Oriana Pansardi et al, Altruistic punishment in action: movement vigour in neuroeconomic choice, *Royal Society Open Science* (2026). [DOI: 10.1098/rsos.252403](https://doi.org/10.1098/rsos.252403)

© 2026 Science X Network

Citation: Your hand betrays your sense of fairness, and it does so before you even realize it (2026, April 30) retrieved 30 April 2026 from <https://sciencex.com/news/2026-04-betrays-fairness.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.