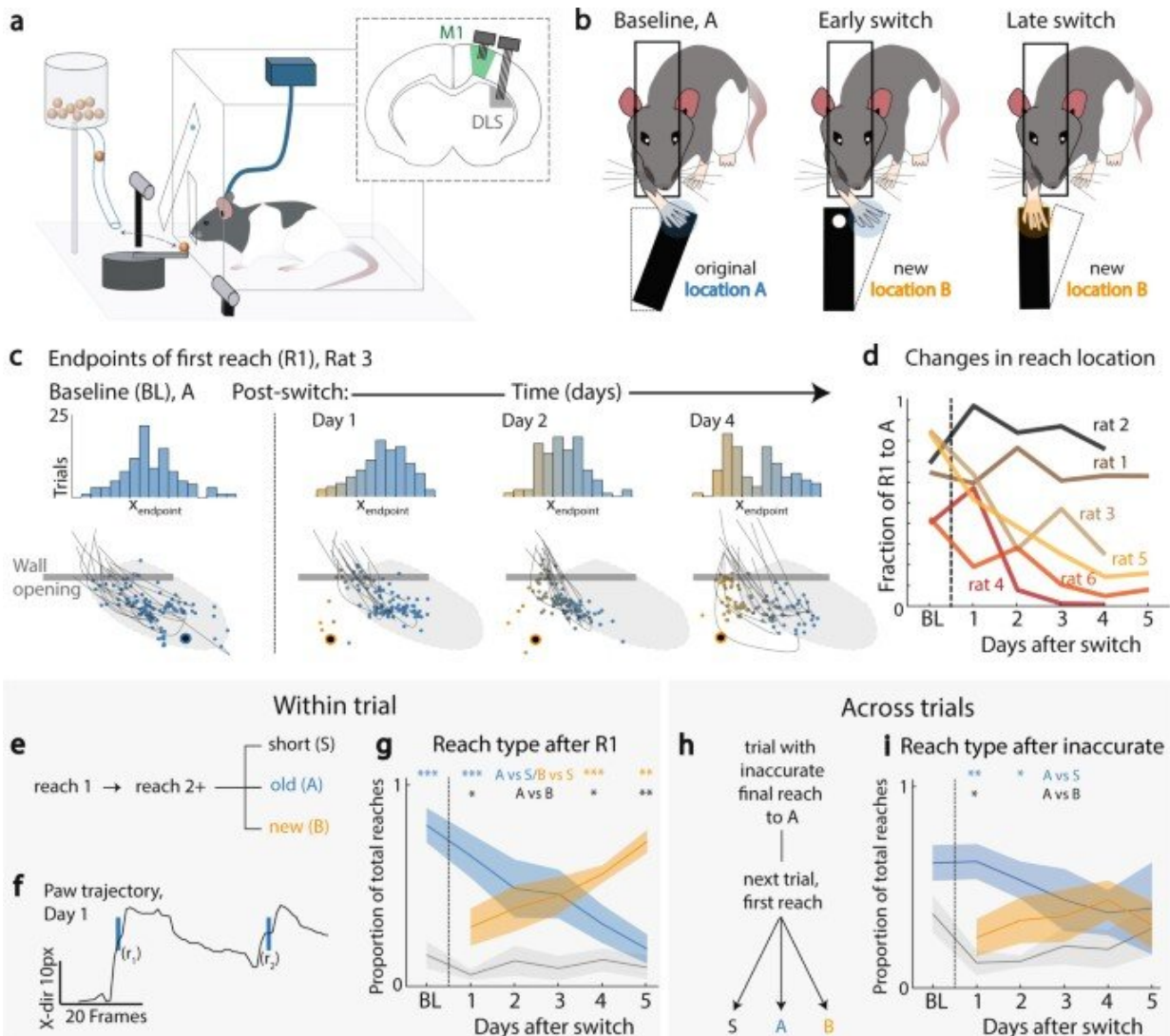


# The underlying neural basis of automatic action versus flexible movement exploration

May 16 2022, by Thamarasee Jeewandara



Multiday relearning of an automatic skill. (a) Automated reach-to-grasp setup. After the door opens (signaled by a tone), the rat reaches through a slit to

retrieve the pellet. M1 (green) and DLS (gray) locations in inset. (b) Relearning paradigm. Rats are overtrained to reach to location A (left). Then pellet moved to location B with continued training (middle, right). (c) Endpoint of first reaches. Top: example animal, histogram of endpoint x-position, across trials. Bottom: example reach trajectories and endpoint locations relative to pellet location (large black circle) for same sessions as (top). (d) Decay in reaches to A. Percentage of trials in a session with first reach (R1) to location A, as compared to low-amplitude (short, S) reaches and/or reaches to location B. (e) For those trials with multiple reaches, within-trial updating for reaches after the first were classified into short (S), old (A), or new (B) reaches. (f) Example x-trajectory of paw during a trial, with reach onset marked; r1 and r2 are the first and second reach onsets, respectively. g Reach type after first reach, for trials with multiple reaches. For all reaches after the first reach in a trial, proportion of A, B, or S reaches. Data are presented as mean values  $\pm$  SEM. h Following an inaccurate trial, we classified the first reach type of the subsequent trial. i Reach type after inaccurate reach to A on previous trial. Data are presented as mean values  $\pm$  SEM. \*

Citation: The underlying neural basis of automatic action versus flexible movement exploration (2022, May 16) retrieved 11 May 2024 from

<https://medicalxpress.com/news/2022-05-underlying-neural-basis-automatic-action.html>

|  |
|--|
| <p>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.</p> |
|--|