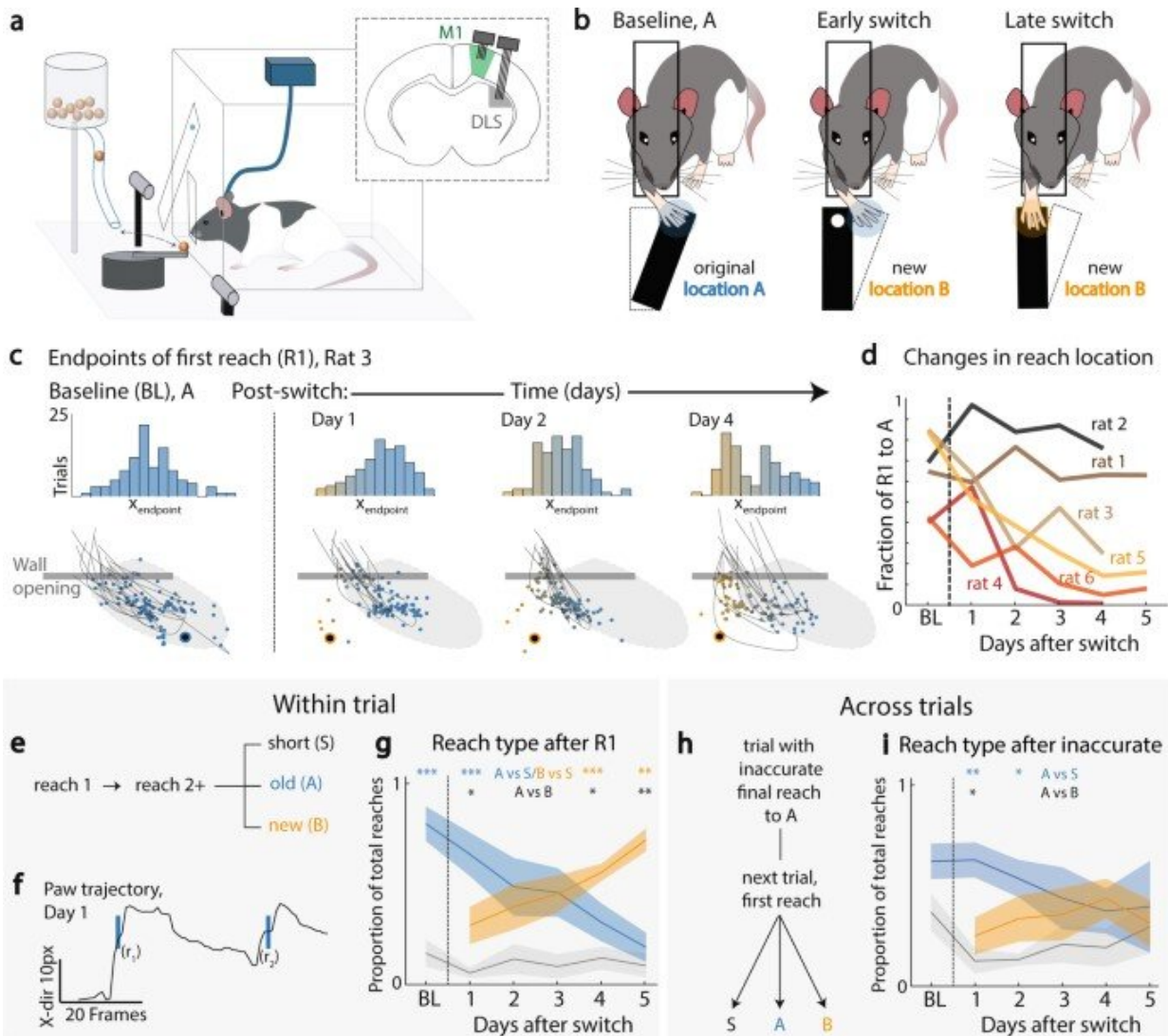


The underlying neural basis of automatic action versus flexible movement exploration

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. *

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