



Figure 1 – figure supplement 2 | Air-puffs induce reflexive whisker movements

A. Schematic drawing of the experimental layout. Air-puffs lasting 30 ms were delivered from three different locations. In addition, some air-puffs delivered ipsilaterally from the front were preceded by a brief air-puff (2 ms) 100 ms before the 30 ms air-puff to test for pre-pulse inhibition (PPI). The four stimulus conditions were applied in a random order. **B.** For each of the 9 mice tested, we calculated the average whisker response (always on the side with the two puffers) and represented these as summed line plots. The stacked line plots are scaled such that the brightest line (on top) depicts the average of all mice. The insets show the duration of the retraction (until the whiskers reached the baseline position again) comparing the 2 ms and the 30 ms pulses (left) and the maximal protraction amplitudes upon the pre-pulse compared to the pulse (right). The retraction upon the short pre-pulse was less intense, but the consecutive protractions were of similar amplitude, indicating the absence of pre-pulse inhibition ($p = 0.0078$ and $p = 0.4961$, respectively; Wilcoxon matched-pairs tests; significance level = 0.025 after Bonferroni correction for multiple comparisons). **C.** Overlay of averaged ipsilateral whisker responses with shaded

areas indicating \pm SEM. The three ipsilateral conditions resulted in similar amounts of protraction. Note that the puff from the back did not cause a retraction preceding the protraction and that the pre-pulse did not affect the size of the protraction following the second air-puff. The brief pre-pulse induced a shorter retraction, but this had no effect on the protraction. Air-puffs to the contralateral whisker pad caused stronger protractions than the ipsilateral stimuli. **D.** The maximum retraction was largest when the air-puffer was in front of the ipsilateral whiskers. The shorter pre-pulse did cause a briefer retraction (see inset in **B**), but the amplitude was not significantly different from the retraction caused by the longer pulse ($p = 0.268$; Dunn's pair-wise post-hoc test after Friedman's two-way ANOVA; see Table S1). Puffing from the contralateral whiskers or the ipsilateral whiskers from the back caused the least retraction, indicating that the initial retraction is largely passive and caused by the air flow of the stimulator. **E.** The maximum protraction reached was similar for all conditions, except in case the contralateral whiskers were stimulated, which led to a stronger protraction on the ipsilateral side. n.s. $p > 0.05$; * $p < 0.05$; *** $p < 0.001$; **** $p < 0.0001$. See also Source Data file.