

Supplementary Materials for
Dynamic overrepresentation of accumbal cues in food- and opioid-seeking rats after prenatal THC exposure

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This PDF file includes:

Figs. S1 to S5

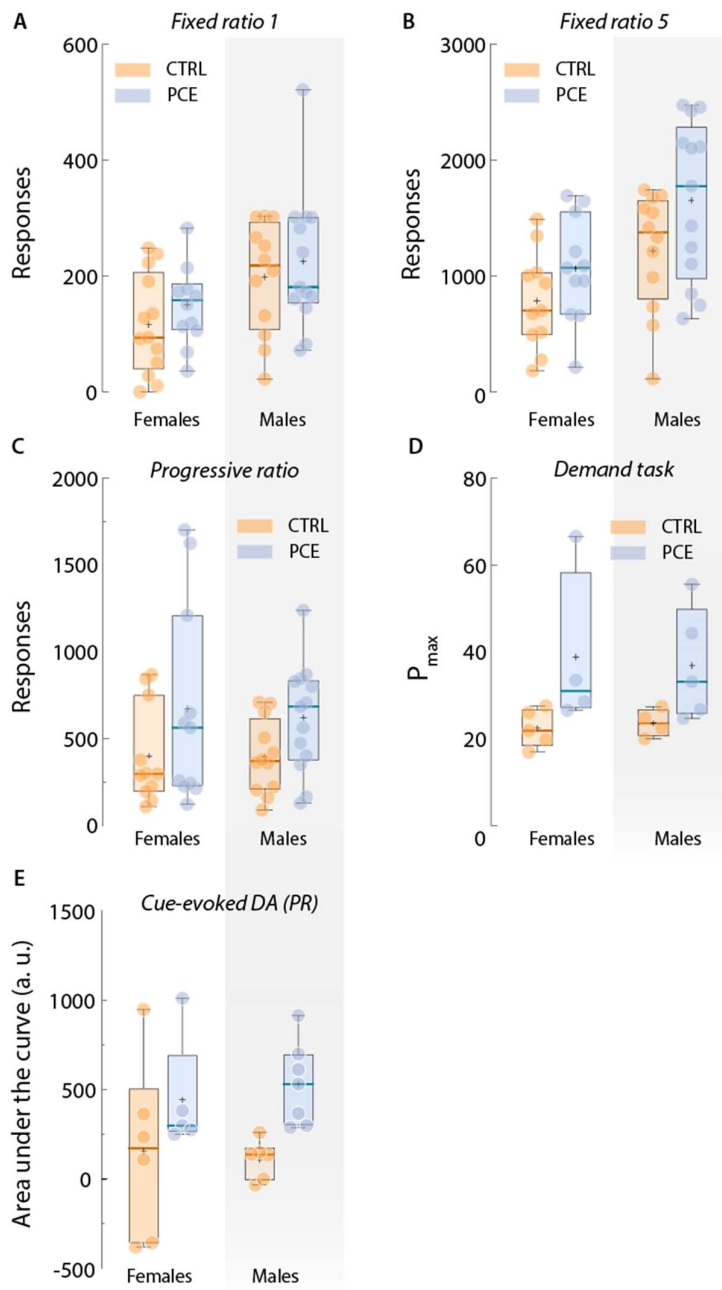


Fig. S1. Lack of sex-dependent effects of PCE on motivation for food rewards. **A)** Total lever presses under a FR1 schedule of reinforcement (females; $t_{22} = 0.99$, Bonferroni-Dunn-corrected $p = 0.66$) (males; $t_{23} = 0.54$, Bonferroni-Dunn-corrected $p > 0.99$). nCTRL = 25 (13F, 12M); nPCE = 24 (11F, 13M). **B)** Total lever presses on FR5 (females; $t_{20} = 1.49$, Bonferroni-Dunn-corrected $p = 0.30$) (males; $t_{23} = 1.78$, Bonferroni-Dunn-corrected $p = 0.17$). nCTRL = 23 (11F, 12M); nPCE = 24 (11F, 13M). **C)** Total responses on PR testing (females; $t_{20} = 1.40$, Bonferroni-Dunn-corrected $p = 0.17$) (males; $t_{22} = 2.07$, Bonferroni-Dunn-corrected $p = 0.050$). nCTRL = 23 (11F, 12M); nPCE = 24 (11F, 13M). **D)** P_{\max} values derived from the food demand task (females; $t_7 = 1.91$, Bonferroni-Dunn-corrected $p = 0.19$) (males; $t_7 = 1.98$, Bonferroni-Dunn-corrected $p = 0.17$). nCTRL = 9 (5F, 4M); nPCE = 9 (4F, 5M). **E)** PCE increases cue-evoked NAc dopamine release in a sex-independent manner (2-way ANOVA; $sex \times treatment$ $F_{1,20} = 0.24$, $p = 0.62$; $treatment$ $F_{1,20} = 7.41$, $*p = 0.013$). Center line represents the median; the cross illustrates the average; the bounds of the box depict the 25th to 75th percentile interval; and the whiskers represent minima and maxima.

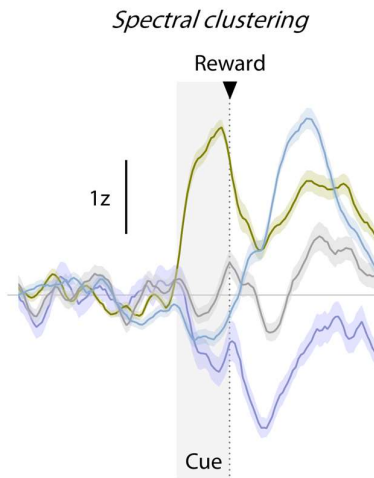


Fig. S2. NAc patterns of encoding identified by spectral clustering. Trial-averaged, cue-aligned PSTH of the four neuronal clusters uncovered by spectral decomposition. Lines represent average values and shaded areas \pm SEM values.

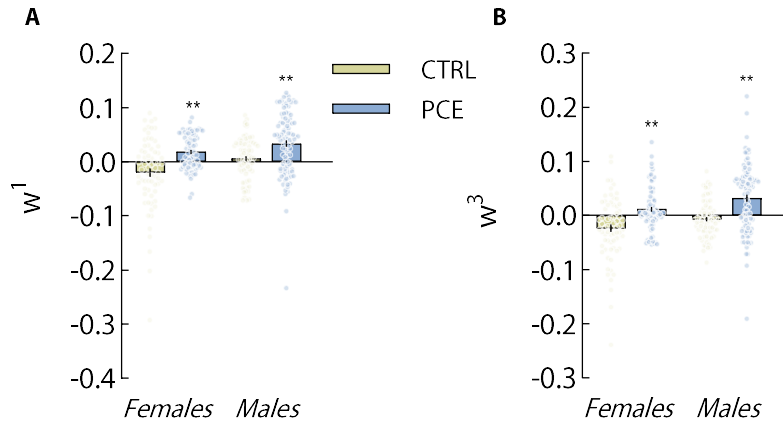


Fig. S3. PCE effects on cue-encoding tensorial assemblies are not sex-dependent. **A)** Individual unit factor loadings (w^1) of the cue-activated tensorial cell assembly ($a^1_p b^1_i w^1_b$) identified by TCA (females; $t_{143} = 4.43$, Bonferroni-Dunn-corrected $**p < 0.001$) (males; $t_{172} = 3.50$, Bonferroni-Dunn-corrected $**p = 0.001$). **B)** Individual unit factor loadings (w^3) of the cue-inhibited tensorial cell assembly ($a^3_p b^3_i w^3_b$) (females; $t_{143} = 4.21$, Bonferroni-Dunn-corrected $**p < 0.001$) (males; $t_{172} = 4.78$, Bonferroni-Dunn-corrected $**p < 0.001$). $n_{CTRL} = 143$ (68F, 75M); $n_{PCE} = 176$ (77F, 99M). For all bar and point plots, bars denote mean \pm SEM.

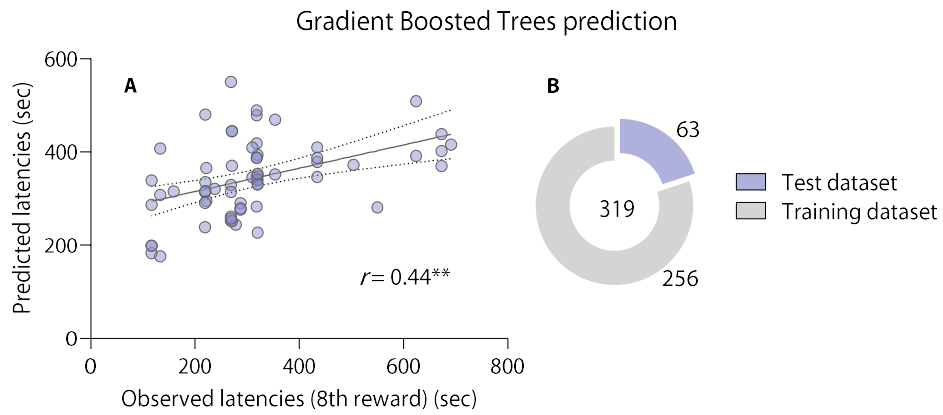


Fig. S4. Tensorial unit loadings predict latency to reward during PR responding. **A)** Correlation between observed and predicted latency to complete 8 trials during PR (*ground truth* vs. *predicted value*; Pearson's $^{**}r = 0.44$, $p = 0.003$). **B)** A gradient boosted decision tree machine learning algorithm was trained on 80 % of the unit loadings and tested on the remaining 20 % cases.

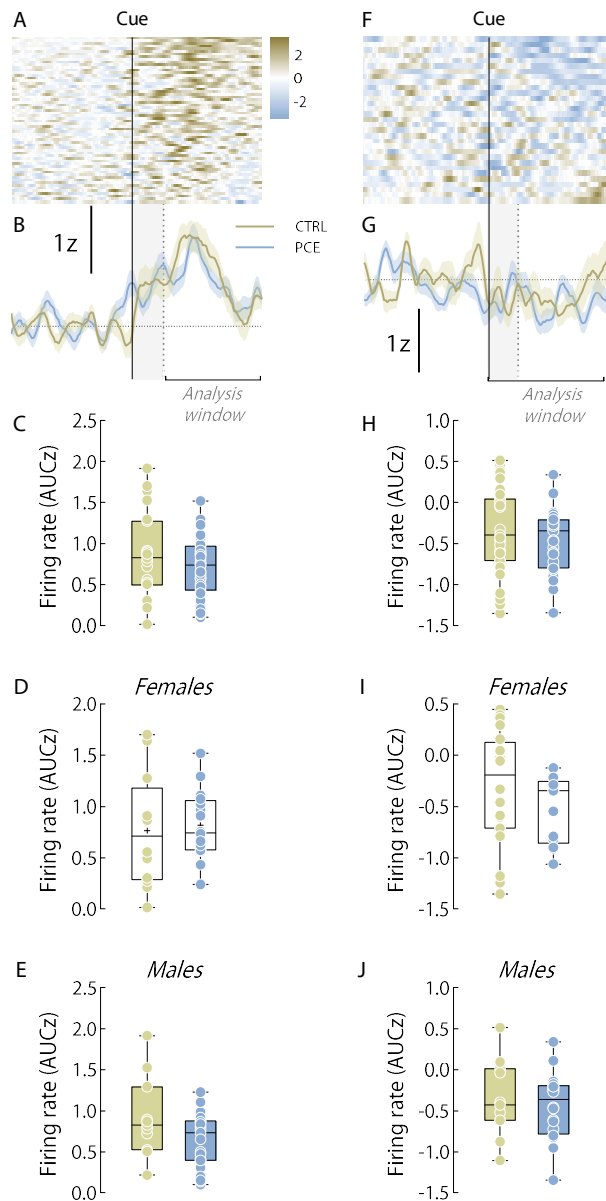


Fig. S5. Reward-responding and lever press-inhibited NAC neuronal clusters identified during remifen-tanil operant seeking. **A)** Trial-averaged heatmap depicting activity from all reward-responding units, centered around cue onset (vertical black line). **B)** Reward-responding neurons firing rate (Z-score). Shaded grey areas represent cue presentation and horizontal brackets indicate the time window used for parametric analyses. Lines represent average firing rates and colored shaded areas depict \pm SEM. **C-E)** Trial-averaged firing rates (AUC) from the reward-activated cluster following remifen-tanil infusion (Welch's $t_{33.4} = 1.03$, $p = 0.31$) (females; $t_{26} = 0.31$, Bonferroni-Dunn-corrected $p > 0.99$) (males; $t_{32} = 1.94$, Bonferroni-Dunn-corrected $p = 0.12$). nCTRL = 23 (12F, 11M); nPCE = 34 (11F, 23M). **F-G)** Heatmap and line plots depicting averaged encoding pattern of the lever press-inhibited cluster. **H-J)** Trial-averaged firing rates (AUC) from the lever press-inhibition cluster preceding cue presentation ($t_{62} = 1.27$, $p = 0.21$) (females; $t_{62} = 1.26$, Bonferroni-Dunn-corrected $p = 0.41$) (males; $t_{29} = 0.51$, Bonferroni-Dunn-corrected $p > 0.99$). nCTRL = 42 (31F, 11M); nPCE = 53 (33F, 20M).