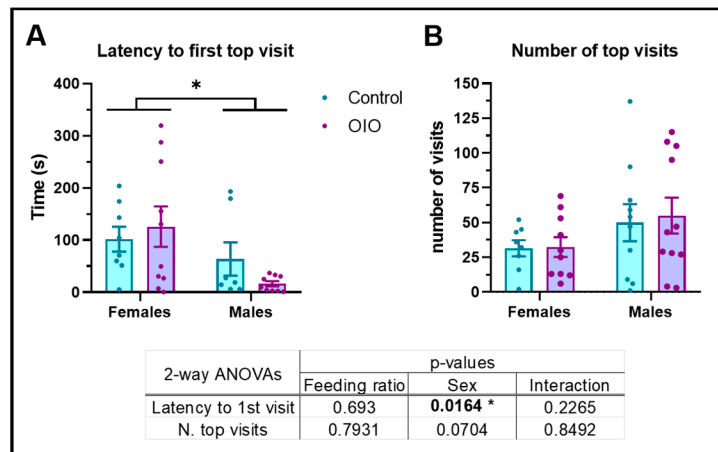
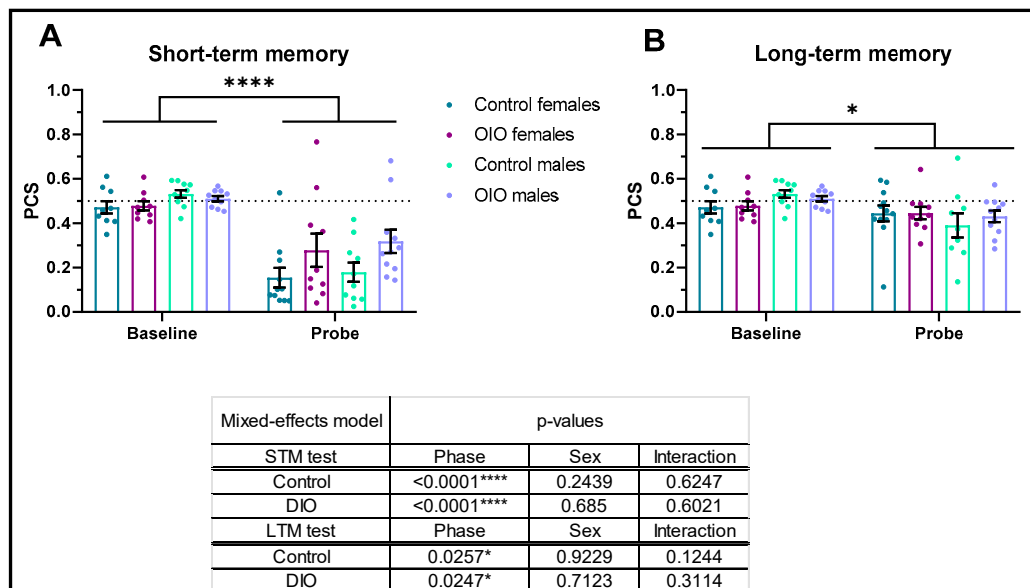


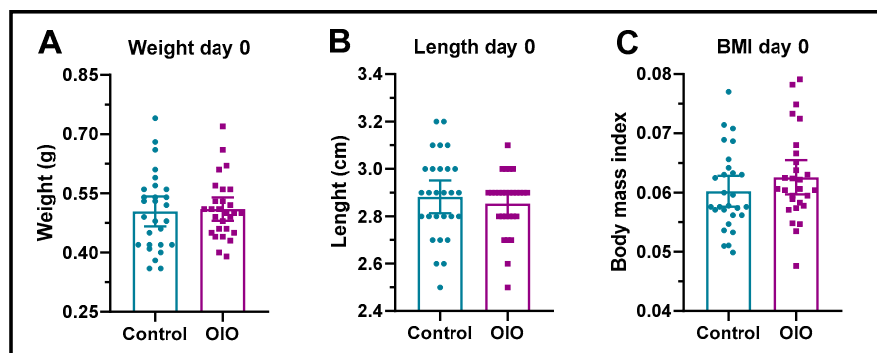
**Figure S1.** Mean turn angle in the bottom, middle and top area during NDT. Significant differences induced by OIO are found in the middle and top zones, but no influence of sex. Data are represented by mean  $\pm$ SEM and analysed by two-way ANOVA. Asterisks indicate significant differences (\*\*  $p \leq 0.01$ ), and hashtag indicates an apparent significant difference (#  $p = 0.051-0.06$ ).



**Figure S2.** Anxiety-like parameters in the top area after NDT. (A) Latency to the zone. (B) Number of visits to the top area. Data are represented by mean  $\pm$ SEM and analysed by two-way ANOVA, asterisks indicate significant differences (\* $p \leq 0.05$ ).



**Figure S3.** Effects of gender on STM and LTM in control and OIO fish. (A) Short-term memory test and (B) long-term memory test. Data are represented by mean  $\pm$  SEM. The dotted line indicates no stimulus preference (PCS = 0.5), low and high PCS mean less or more time spent in conditioned stimulus (CS), respectively. Results were analysed by Repeated Measures Mixed-effect model; asterisks indicate significant differences between phases, baselines and probes (\* $p \leq 0.05$ , \*\*\*\*  $p \leq 0.0001$ ).



**Figure S4.** Morphological parameters of control and OIO groups at the beginning of the experiment. (A) Weight (B) Length and (C) Body mass index (BMI). Data are expressed by mean  $\pm$  SEM analysed by unpaired t-test.