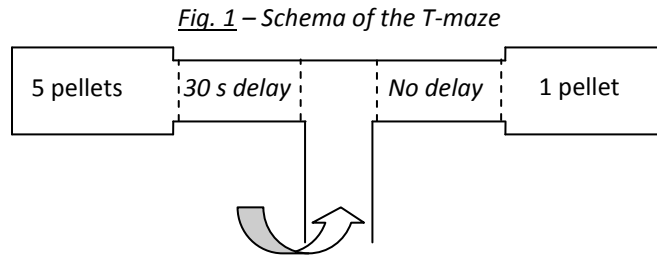


TEST OF IMPULSIVITY IN JUVENILE RATS: THE T-MAZE PROCEDURE

Rationale Impulsivity is a core symptom of attention deficit/hyperactivity disorder (ADHD), a neurobehavioral disorder affecting 3-5% of school age children ⁽¹⁾.

The test of waiting ability in a T-maze measures impulsivity in rats ^(2,3).

Method Juvenile male Wistar rats are trained in a T-maze (Fig. 1) to choose between a small-and-immediate reward (1 food pellet) vs. a large-but-30-s delayed reward (5 food pellets).

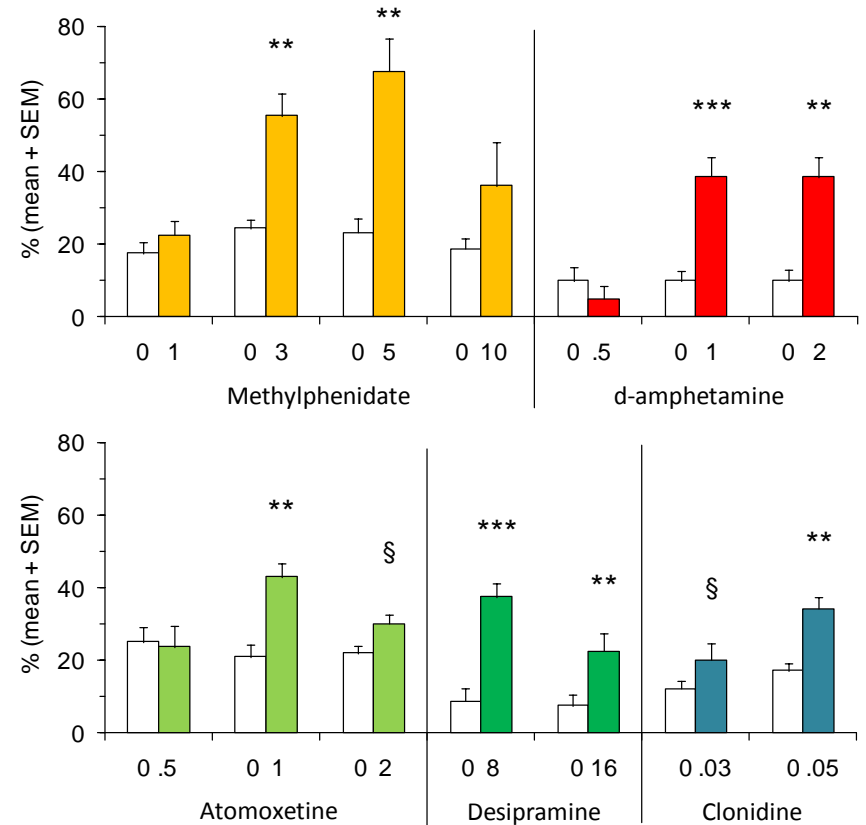


The percentage of choices of the large-but-delayed reward is an index of impulsivity.

Results Fig. 2 shows that two psychostimulants, methylphenidate and d-amphetamine, two noradrenaline uptake inhibitors, atomoxetine and desipramine and an alpha 2 agonist, clonidine, increase the percentage of choices of the large-but-delayed reward, **indicating a decrease in impulsivity**.

Conclusion Methylphenidate, d-amphetamine, atomoxetine, desipramine and clonidine improve ADHD clinical symptoms. The beneficial effects of these drugs in the T-maze procedure in juvenile rats indicate that **this test allows to evaluate new treatments for ADHD**.

*Fig.2 – Effects of methylphenidate, d-amphetamine, atomoxetine, desipramine and clonidine (doses in mg/kg) on the percentage of choices of the large-but-30-s delayed reward. Differences vs. Control (open bars): § 0.05 < p ≤ 0.10 (ns); * p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001.*



References

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2. Bizot JC et al, J. Pharmacol Exp. Ther 246:1144-1151, 1988
3. Bizot JC et al, Psychopharmacology 193:215-223, 2007