



ADHD

Attention deficit hyperactivity disorder

- 4.1% American adults age 18 years and older in a given year.
- 9.0% of American children age 13 to 18 years.
- Boys are four times at risk than girls



Drug Treatments

Stimulant based

- methylphenidate (Concerta, Metadate, Ritalin, others)
- dextroamphetamine (Dexedrine)
- dextroamphetamine-amphetamine (Adderall XR)
- lisdexamfetamine (Vyvanse)

Non-stimulant

- atomoxetine (Strattera)
- bupropion (Wellbutrin, others)
- desipramine (Norpramin).
- clonidine (Catapres)
- guanfacine (Intuniv, Tenex)

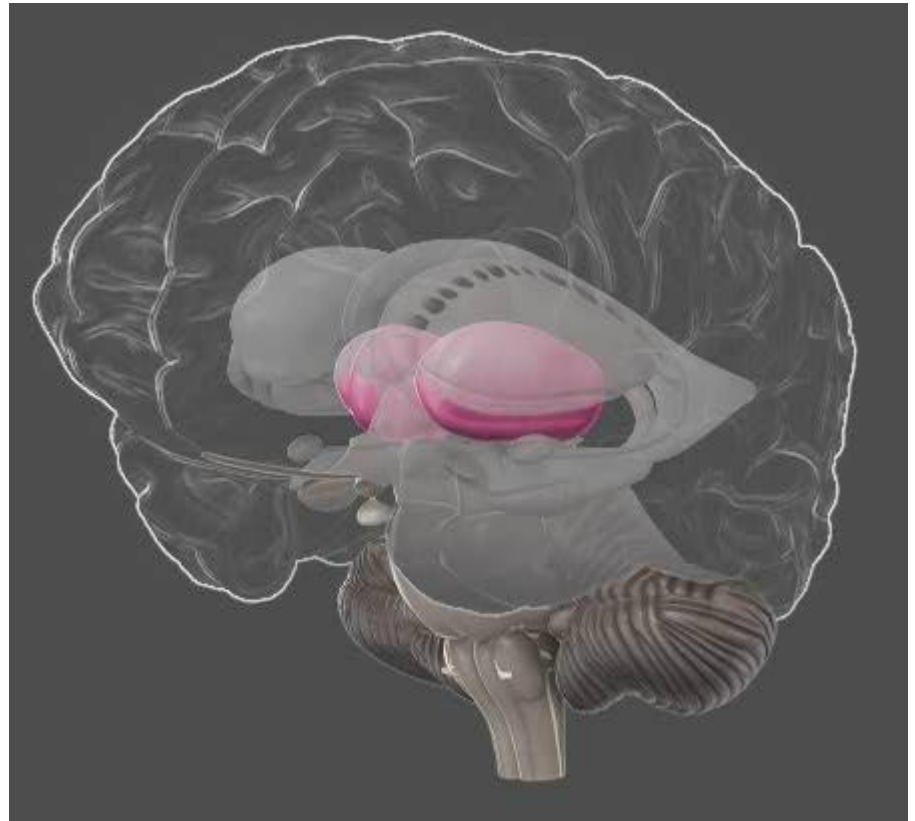


Non-stimulant ADHD drugs do not have the same side effects as stimulant drugs because

- A. They are given at lower doses
- B. They act on a different pathway
- C. They have the same side effects but side effects are not detectable
- D. They have not been studied as long

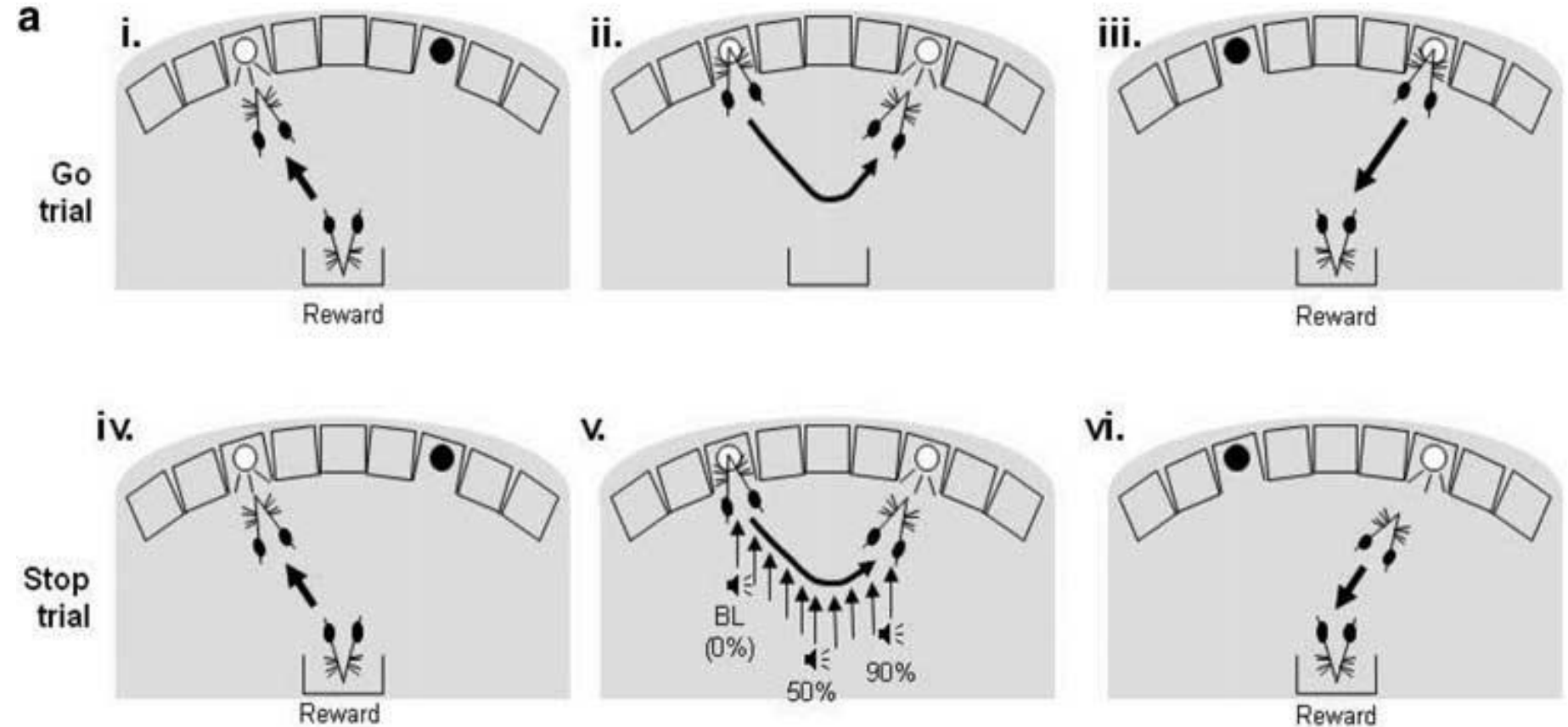
Impulse control brain regions in ADHD

- frontal cortex
- basal ganglia
- thalamus

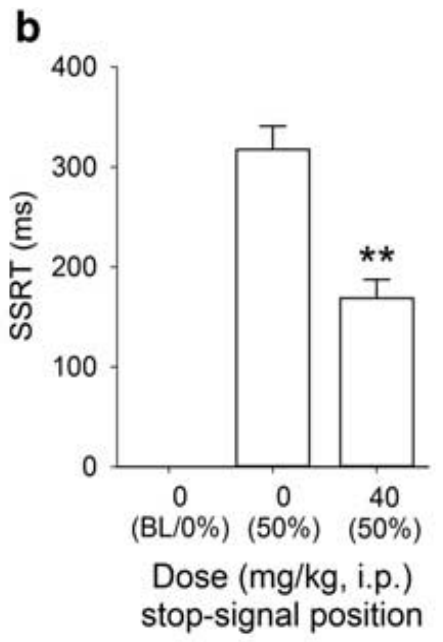
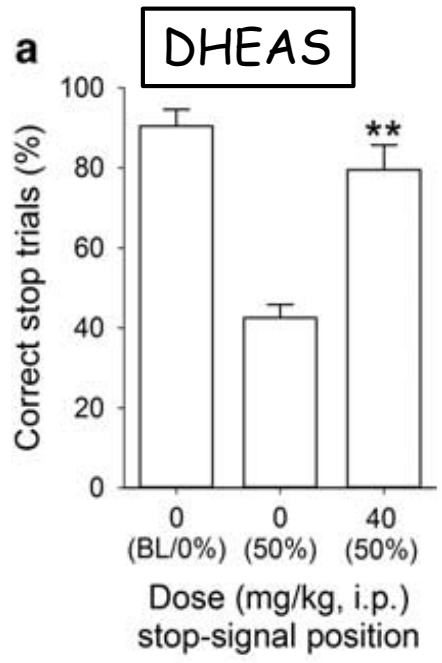
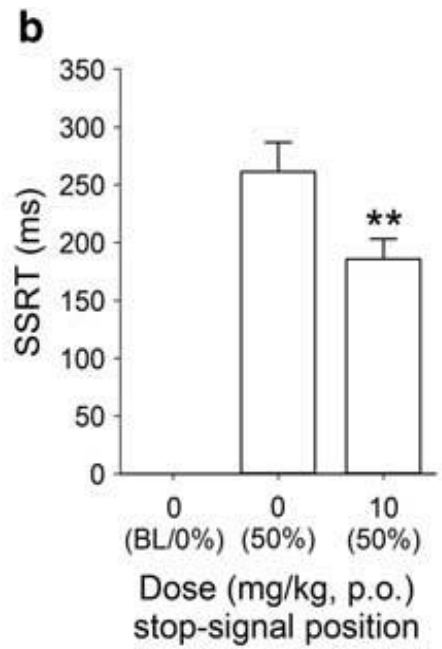
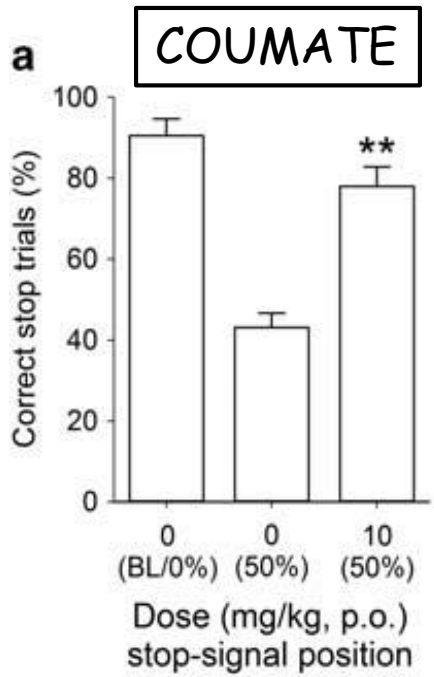
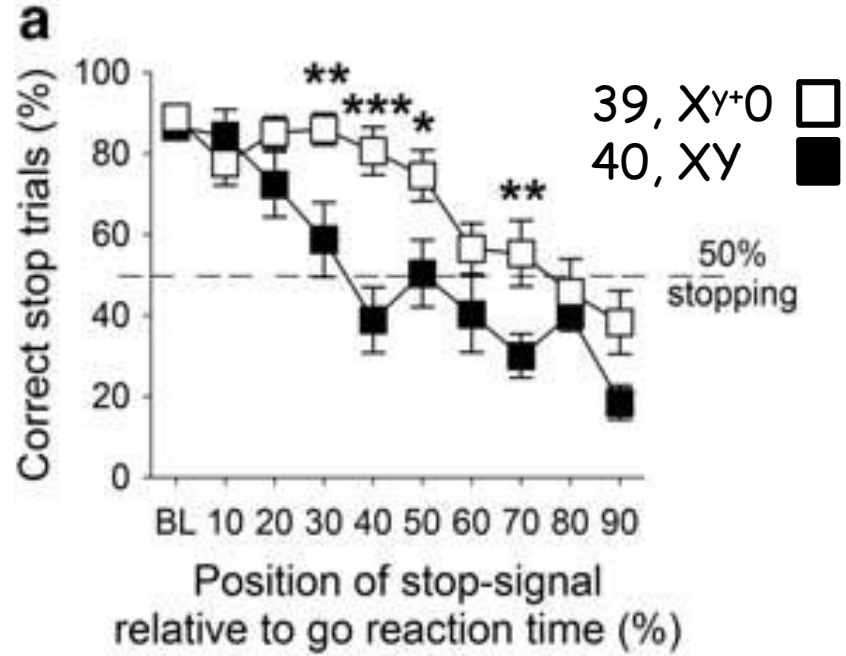


Team Workshop 1. Go to <http://www.g2conline.org/2022> and display the 3 brain regions. Link on course website

Stop-signal reaction time task (SSRTT)



Loss of STS or inhibition improves impulse response

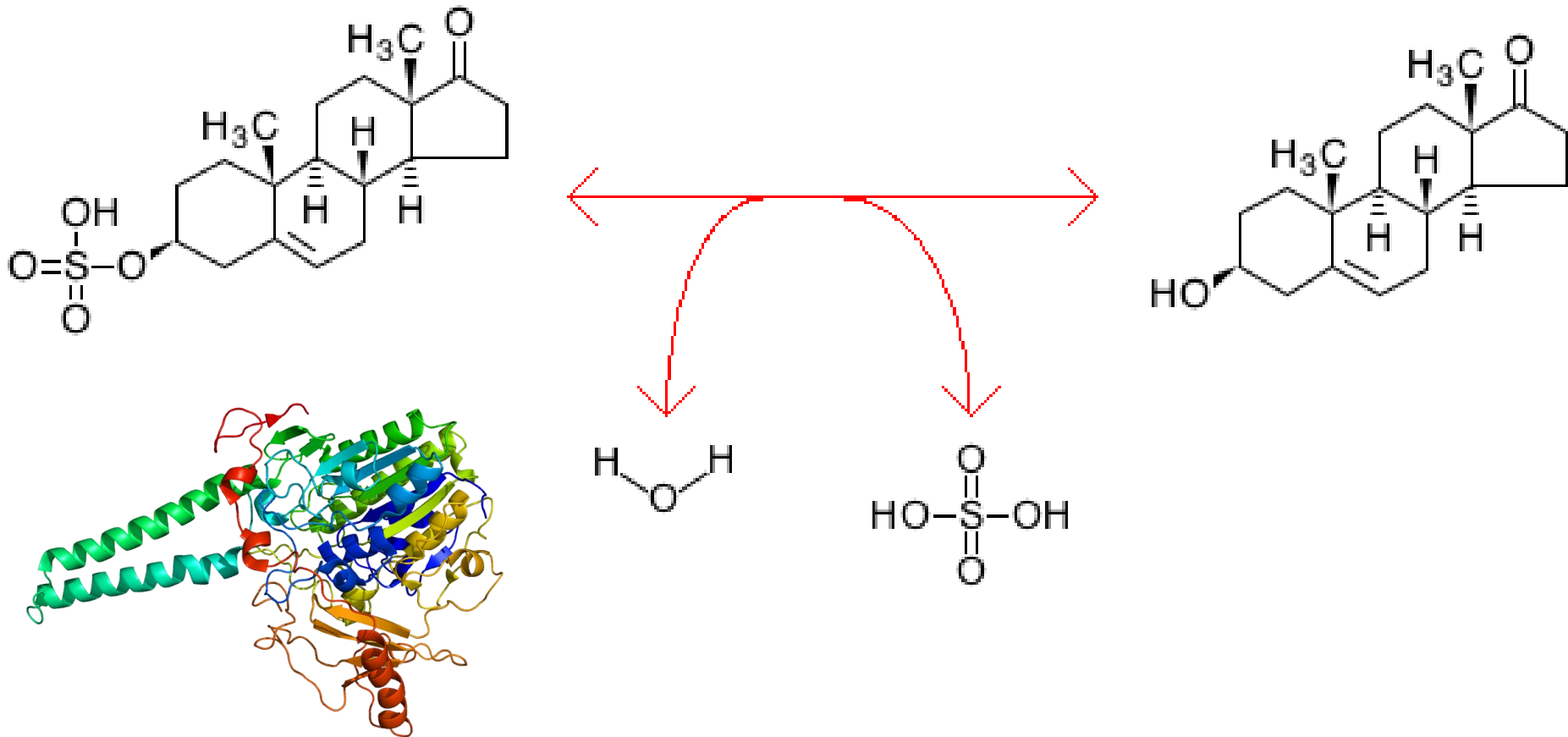




Why were 40, XY MIF mice used as the control for the SSRTT?

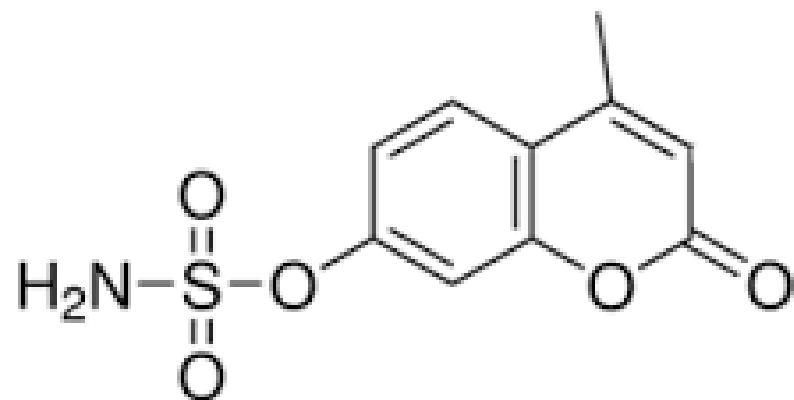
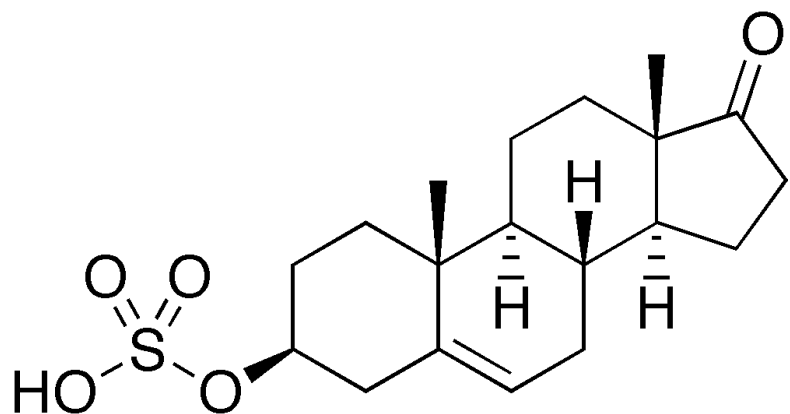
- C57BL/6 mice were not available
- C57BL/6 mice cant be used to perform SSRTT
- To ensure that the mice had 40 chromosomes
- They have the same genetic background as the 39, Xy⁰ mice.
- They have a mutant STS gene

Workshop 2: Discuss the reaction steroid sulfatase (STS) catalyzes and how this might be important in ADHD?





Workshop 3: Provide a molecular explanation of why coumate is an inhibitor of STS?





Workshop 4: Discuss the following aspects of mouse models and neurological disease.

- Why are they useful?
- Why are they problematic?



Remember

- Before 12 PM of the next class day:
 - go to b.socrative.com/student/login and complete the quiz