

Prenatal Exposure to Prescription Medications Alters
Recovery Following Early Brain injury in Rats
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A significant number of women are prescribed psychoactive drugs during pregnancy. Prozac[®] (fluoxetine) is commonly prescribed for the alleviation of depression during pregnancy and lactation. Many women suffering from anxiety are likewise prescribed the anxiolytic, diazepam (Valium[®]). Previous research has shown that fluoxetine and diazepam cross the placenta and therefore have the potential to influence the development of the fetus and in particular the developing brain.

Nulliparous female rats were exposed to either diazepam (1 mg/ml from gestational day 8) or fluoxetine (1 mg/ml for one week prior to conception) and throughout the pregnancy. Dams were maintained on their respective drugs until the pups were weaned. Approximately ½ of the animals of each sex from each litter received postnatal day 7 (P7) lesion (either bilateral suction ablation of frontal cortex (Fr) or Hypoxic-Ischemic (HI) lesion). The remaining animals received a sham surgery. Beginning at postnatal day 60 the animals were tested in the Morris water task, Whishaw tray reaching, Elevated Plus maze, and in activity boxes. Prenatal exposure to Diazepam improved the performance of Fr lesion animals in the Morris Water task. Sham operated animals were unaffected by exposure to diazepam. Conversely, exposure to fluoxetine further impaired the performance of Fr lesion animals on both the Morris Water task and reaching. HI lesion animals were less severely affected by exposure to fluoxetine. These findings suggest that exposure to fluoxetine or diazepam during the perinatal period alters brain development and interacts with early brain injury.