

Poster presentation

## Maternal separation alters the open field behavior of diazepam-treated rats

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from International Society on Brain and Behaviour: 3rd International Congress on Brain and Behaviour Thessaloniki, Greece. 28 November – 2 December 2007

Published: 17 April 2008

*Annals of General Psychiatry* 2008, **7**(Suppl 1):S236 doi:10.1186/1744-859X-7-S1-S236

This abstract is available from: <http://www.annals-general-psychiatry.com/content/7/S1/S236>

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### Background

There is evidence that maternal separation of neonatal rats may influence the adult rat behaviors and the responsibility to psychotropic drugs [1-4]. The purpose of this study was to investigate the effect of maternal separation on the open field behavior of diazepam-treated rats.

### Materials and methods

Male Wistar rat pups were reared under 2 conditions: 1) 360 min daily maternal separation (MS) or 2) left undisturbed with their mothers (non maternal separation (NMS)). At 21 days of age, these rats were housed in each group for four weeks. Subsequently, they were tested individually for their sensitivity to diazepam for 5 min in a circular open field arena.

### Results

Drug free MS rats, significantly showed hyperlocomotion (increased total zone transition) and more exploration activity (increased number of rears) when compared with the NMS rats ( $P < 0.05$ ). Pretreatment with diazepam (1 and 2 mg/kg, i.p.) 30 min before a 5 min open field test produced a dose related decrease locomotion and exploration activity in the MS rats compared with the saline treated MS rats, but these effects of diazepam were not observed in the NMS rats. Moreover, diazepam (2 mg/kg, i.p.) caused the anxiolytic effect (decreased the inner zone entries) only in the MS rats.

### Conclusions

These results suggested that maternal separation of neonatal rats increased locomotion and exploration behaviors of male adult rats, and enhances the anxiolytic effect of diazepam.

### References

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