The present study investigated the effect of chlorpyrifos on NMDA receptor subunits NR2A and NR2B in juvenile and adult rats. Chlorpyrifos was administered with the dose of 40 and 70 mg/kg to juvenile and adult rats, respectively. Chlorpyrifos significantly inhibited the AChE activity in juvenile and adult rats (p < .05). NR2A and NR2B levels significantly increased in juvenile and adult rats by chlorpyrifos application (p < .05). Increased NR2A and NR2B levels may reflect increased glutaminergic activity, consequently neuronal damage. In the case of neuronal damage, teaming and memory could be affected negatively even though NR2A and NR2B increased.