**Chronic Restraint Stress Alters Neuronal Morphology in Limbic Brain Regions,
As Well As Emotionality: The Effect of Estrogen.**

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Chronic immobilization stress alters dendritic length and branch point number on neurons in the rat hippocampus and amygdala. Chronic restraint stress is also reported to alter neurons in the hippocampus (Magarinos & McEwen, 1995), and more recently to increase the incidence of aggressive responses among stressed male rats (Wood, et al. 2003). Thus, we tested if chronic restraint stress would similarly alter aggressive behavior or neuronal morphology in the hippocampus and the amygdala in males versus ovariectomized (OVX) females with or without estrogen. All female rats were OVX, implanted with an empty capsule or one containing estrogen. All rats were weighed, marked for identification, and handled regularly. Chronically stressed rats were restrained 6 h each day in the homecage for 21 days. Behavioral observations were recorded after release from restrainers on day 1, 7, 14, and 21 in both stressed and unstressed rats. There is a gradual decrease in aggressive conflicts over the 21 day period among control rats, whereas chronically stressed rats exhibited a significant increase in aggression. We report a significant effect of stress, group, and days of the study. There was a significant interaction between stress and group, such that stress significantly increased the frequency of aggressive conflicts in OVX females and males, but this effect did not reach significance in females implanted with estrogen capsules. These data emphasize the significance of the chronic stress effect in limbic brain regions, and the potentially protective effect of estrogen. T32 MH15125-22A1 (GEW), MH 41256 (BSM), Welcome Trust, UK (SC).

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