

# Effects of early and late adverse experiences on morphological characteristics of Sprague-Dawley rat liver subjected to stress during adulthood

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The literature indicates that early rupture of the maternal bond and social isolation are variables involved in social and emotional behaviors and in increase in anxiety, particularly in stressful situations. The liver plays a role in the adaptation to stress, yet the possible morphologic changes that its structure can suffer have been studied very little. Therefore, the aim here was to ascertain, through the model of altering the early mother-infant bond and the late social bond through isolation, the effect on the stereologic characteristics of the liver in adult Sprague-Dawley rats subjected to intermittent chronic stress. Twenty-five newborn female rats were used, distributed into 5 groups, under standardized lactation and feeding conditions. The experimental groups were exposed to early (E1), late (E2), and early-late (E3) adverse experiences and then subjected to intermittent chronic stress in adulthood. The liver of each animal was isolated, and the stereologic characteristics of Nv, Vv, and Sv of the hepatocytes were determined. The results from the experimental groups were significantly higher than those obtained in the control groups. The highest values were found in group E3 ( $Nv = 4.43 \pm 0.89 \times 10^5/\text{mm}^3$ ,  $Vv = 68.74 \pm 2.01\%$ ,  $Sv = 68.78 \pm 3.77 \text{ mm}^2/\text{mm}^3$ ). Considering these results, the hepatic morphology can be affected by exposure to chronic stress; however, when the individuals have been subjected to previous adverse experiences, the changes are more evident.

Adverse experience

Liver

Morphology

Rat

Stress

animal

complication

female

liver

mental stress

newborn

pathology

rat

social isolation

Sprague Dawley rat

Animals

Animals, Newborn

Female

Liver

Rats

Rats, Sprague-Dawley

Social Isolation

Stress, Psychological