

# MEASURE OF MOTIVATIONAL DRIVE FOR HOARDING IN LABORATORY RATS

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**Summary :** The drive for hoarding food pellets was studied in adult female rats kept on restricted food schedule, by using varying current strength applied through the metal grid. It was observed that the rats maintained higher hoarding score at proestrus and lowest at diestrus at all strengths of currents used in the experiment indicating stronger drive at proestrus.

**Key words :** estrus cycle  
cyclical hoarding pattern

measure for drive  
electric grid

## INTRODUCTION

The laboratory rats hoard large quantity of food pellets especially when kept on restricted food intake. The female rats in particular exhibit a strong association between hoarding and phases of estrus cycle, the hoarding score being highest at proestrus and lowest at diestrus. The present study is aimed initially at measuring the strength of motivational drive for hoarding during different phases of estrus cycles in food deprived females.

## MATERIAL AND METHODS

Eleven adult female Albino rats grown in the laboratory were selected for the study. The animals exhibited regular vaginal cyclic changes during the 4-5 days of oestrus cycle. They were later kept on two hours restricted food regime so as to reduce their body weights approximately upto 80% and kept for hoarding schedule as described earlier (1). After observing the hoarding pattern in 2 to 3 cycles the animals were made to cross the electric grid to which graded voltages were applied and the current strengths measured as the animals crossed the barrier to reach the food pellets. The voltage strength was kept constant for the given estrus cycle and increased in the subsequent ones until no hoarding was observed.



At the end of the last cycle the animals were allowed to cross the barrier without the current being passed through the grid.

### RESULTS AND DISCUSSION

The mean hoarding score was computed for all animals during various phases of estrus cycle before the current was passed through grid and is depicted in Fig. 1. It was confirmed that there was a cyclic variation in hoarding score, being highest at proestrus and declining in other phases (Ref. hoarding pattern in Fig. 1 before current was passed). Graded current strength in a given cycle reduced the hoarding score but the hoarding patterns remained identical in all cycles. The score was the least with strongest current and did not reach zero in diestrus (Ref. hoarding pattern histogram with 175  $\mu$ A under diestrus in Fig. 1), the animals collecting 2-3 pellets weighing 5 gms each enough for

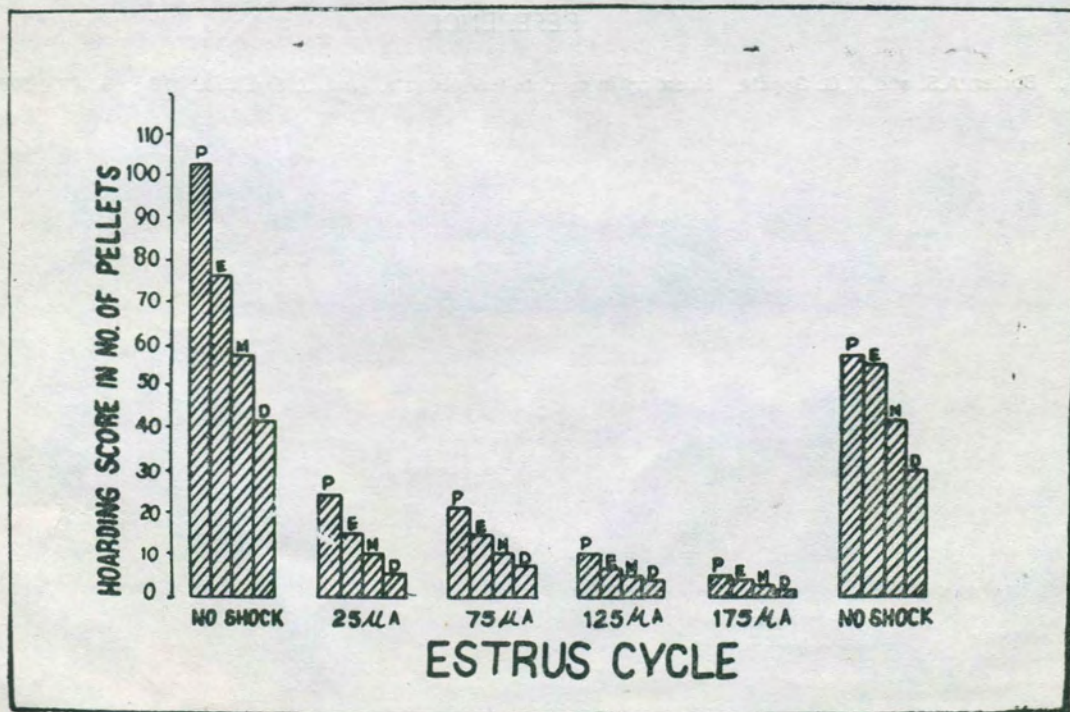


Fig. 1 : Histograms displaying cyclic pattern of Hoarding in female rats. The Mean Hoarding Score is highest at proestrus (P), and exhibits descending order at estrus(E), Metestrus (M) and diestrus (D). The general pattern was maintained when the average grid currents measured 25  $\mu$ A, 75  $\mu$ A, 125  $\mu$ A and 175  $\mu$ A. The hoarding score improved considerably in the last cycle when grid shock was omitted.



feeding itself during the subsequent period of 90 minutes. It was further observed that the animals could not cross the grid with currents higher than 175  $\mu$ A. The hoarding score improved considerably when no current was passed through the grid during all the phases of estrus cycle (Ref. last histogram in Fig. 1) and the pattern was maintained.

The results of the experiments suggest that the females kept on restricted food schedule develop a measurable drive for hoarding and that the drive is strongest at proestrus. It is planned to use this method as a measure for hoarding under different physiological states in female and male rats.

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#### REFERENCE

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