

Comparative Study on the Effect of Photoperiod on Gonad of Mice Male

1. Body, Testis Weight and Sperm Parameters

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Abstract. The present study was focusing on the effect of different photoperiods systems (0.0L:24D "dark" - 24L:0.0D "light" - 12L:12D "light:dark ") on body weight, testis size as well as evaluation of sperms parameters (number of spermatozoa ($\times 10^7/\text{ml}$), movement and viability percentage) of mail mice.

The animals were obtained from King Fahd Research Center, King Abdulaziz University, Jeddah. The animals were divided into three groups, (dark, light and control; 12 dark: 12light) composed of 36 each. The quantity of consumed food (g), changes in body weight, testis weight and dimensions as well as recording some side features appears on animal as results of different photoperiod duration.

Although the food consumed was almost for all groups, the results indicate a significant increase ($P < 0.05$) in mice weight (47.24g) in dark group compared with that of control (35.2g); however, a decrease in body weight (32.16g) was noticed in the light group. There was a reduction in the testis relative weight (TRW) (0.00486g) in dark group when compared with that of the control group (0.00694g), while the TRW of light group increase (0.00705g). The different TRW value between individual is noticeable but it diminish between groups.

In order to evaluate the Sperms parameters, the electroejaculation probe was used to obtained fresh sperms. The Sperms number of dark group was $0.002 \times 10^7/\text{ml}$ ($P < 0.001$) when compared with that control group $1.29 \times 10^7/\text{ml}$, while the number of sperms of the light group increased $1.54 \times 10^7/\text{ml}$ ($P < 0.05$). There were no significant in viability percentages between the three groups. The sperms movement of mice during the duration of this study (6 months) was 46% Slow, 40% medium and 52% Rapid progressive for dark, light and control groups, respectively. However, a significant reduction in sperms movement was observed in all groups.

The results of this study indicated that the duration of photoperiod pose a sever effect on body, testis weight and some characteristics such number, movement as well as viability. On the bases of the present one can suggest that duration of photoperiods affect reproduction activity as well as reproductive capability. This study pave the way for future research and are going to be discussed compared with the already reported studies.