

Reproductive success demands both the male and female getting a particular physiological status, which is usually provided in rodents by certain olfactory signals. The hormonal response of Eversmann hamster (*Allocricetulus eversmanni*) males to the natural excreted (urine, midventral gland secretion (MVGS)) of conspecific females was studied during several seasons of the year, the animals kept in the conditions of natural lighting and temperature regimes. In the autumn, no reliable changes of the testosterone level in males in response to any presented signal were noted. In the winter and spring, a reliable ( $P < 0.05$ ) increase in the testosterone level was caused by the female MVGS odor. In the summer, a similar reaction to conspecific female urine ( $P < 0.05$ ) was noted only. Moreover, in the summer and autumn, males showed a reliable decrease of the cortisol level in response to the female urine odor ( $P < 0.05$ ). In the winter and spring, a similar result was caused by exposition to both odors. The progesterone level in males reliably ( $P < 0.05$ ) increased at exposure to both female urine and MVGS in all the seasons of the year, except for the female MVGS in the summer. Therefore, the decreased cortisol level in combination with the simultaneously increased testosterone and progesterone ones allow the males of the species under study to achieve their maximum reproductive success, despite the high degree of their intraspecific aggression.