Sex-Specific Differences in Grooming Parameters of rats

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According to published reports, the total number of grooming movements (washing, scratching, licking, shaking off, nibbling) is higher in females than in males [4]. We thought it interesting to clarify when these sex-specific differences appear in the course of ontogenesis. In the present study graphic recording [1] was used to detect the differences in the development of rhythm generators of grooming movements and to measure the duration of

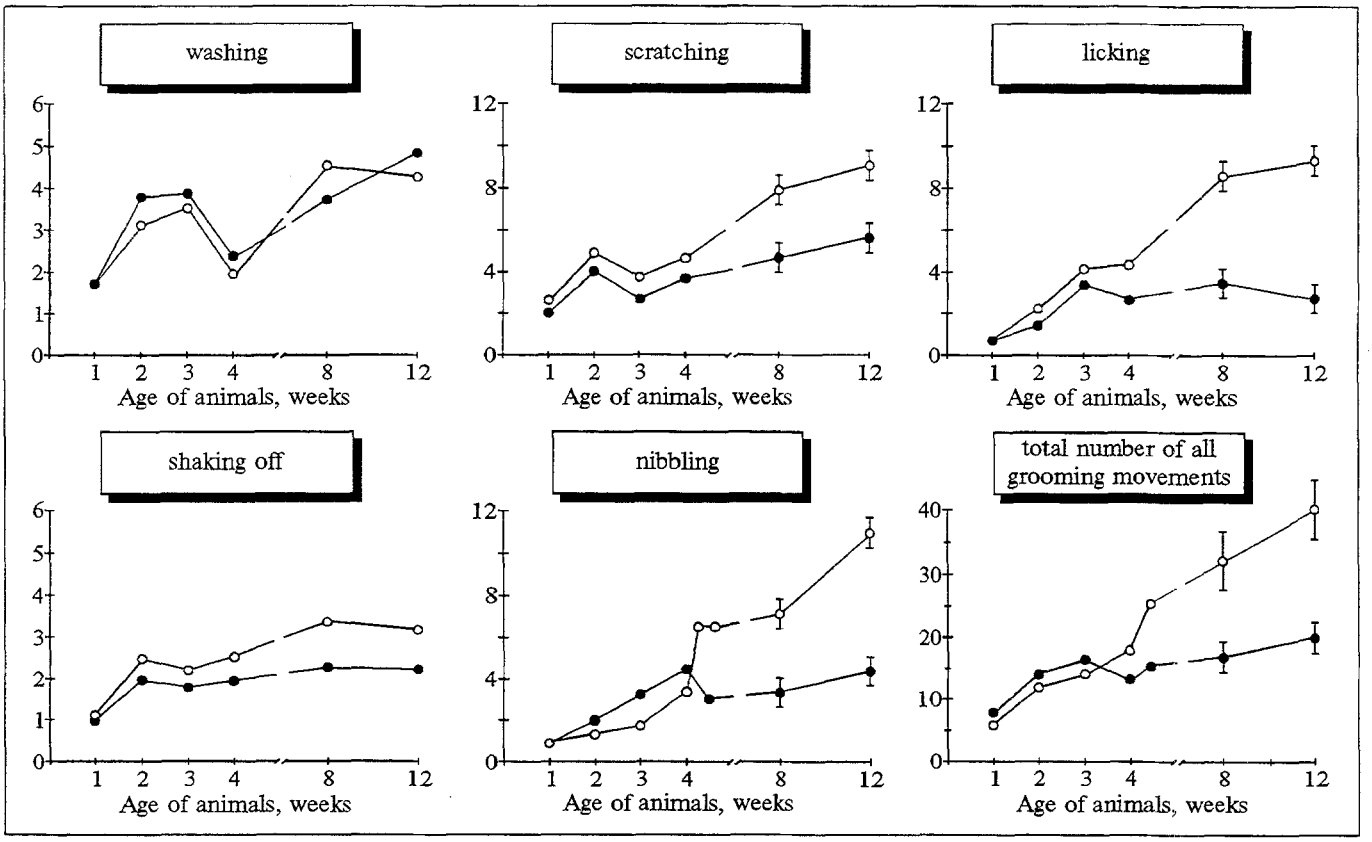

Fig. 1. Sex-specific differences in the number of grooming movements in the course of rat ontogenesis. Black circle represents males, open circle females. Ordinate: number of movements per h.

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these movements in animals of both sexes in the course of ontogenesis.

MATERIALS AND METHODS

The motor activity of a male and a female placed in different plastic actographs with piezoprobes installed in the bottom was recorded for an hour simultaneously by an ink-writing electroencephalograph [1]. The motor activity of young rats was recorded over the course of the first month of life and at 2 and 3 months. At least ten animals were examined in each period. The data were statistically processed.

RESULTS

Sex-specific differences in the total number of grooming movements in the course of rat ontogenesis can be first detected during the second month of life and become more pronounced with age, judging by the increasing number of scratchings, lickings, and nibbling in females (Fig. 1). The data showed no sex-specific differences in the number of washing and shaking off movements (Fig. 1). Adult rats displayed no sex-specific differences in grooming movement rhythms or in the duration of various movements.

In rats aged up to one month sex-specific differences were revealed in the rate of increase of the scratching movement rhythm. In male rats this rhythm attains the adult level by the 15th day of life, increasing from 2.3±0.3 to 11.0±0.8 movements/sec, whereas females attain this rhythm only on the 22nd day.

During the third week of life, when catecholaminergic effects on rat motor activity are intensified [3], the rhythm of some grooming movements may surpass that of adults, with the rhythm of scratching and licking movements increasing by 29 and 35%, respectively, in males and the rhythm of nibbling movements increasing by 37% in females.

The duration of all grooming movements in rats of both sexes attains the maximal values in the fourth week of life. By this time the duration of washing, licking, and nibbling is much longer in females than in males: by 61, 63, and 115%, respectively.

Sex-specific differences in grooming parameters of immature rats may be a manifestation of the morphogenetic effect of sex hormones, as described in the literature [2], or be genetically determined.

REFERENCES

1. L. M. Lepekhina and V. O. Voskresenskii, *Byull. Eksp. Biol. Med.*, **114**, № 10, 340-341 (1992).
2. O. N. Savchenko, *Physiology of the Endocrine System. Manual of Physiology* [in Russian], Leningrad (1979), pp. 341-354.
3. B. A. Campbell, L. D. Lytle, and H. C. Fibiger, *Science*, **166**, 635-637 (1969).
4. J. A. Grey, *Acta Psychol. (Amst.)*, **35**, 24-26 (1971).