Transgenic rat model of Huntington's disease with selective neuron loss in striatum

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Huntington's disease (HD) is a progressive neurodegenerative disease caused by a mutation of the IT15 gene and is characterized by motor, cognitive and affective symptoms. The patients suffer from severe neuron loss in the caudate nucleus, with less severe involvement of the cerebral cortex. Recently, a transgenic (tg) rat model of HD has been reported carrying a huntingtin cDNA fragment with 51 CAG repeats. The animals have a progressive phenotype with emotional, motor and cognitive symptoms. Histological examination of the brains of tgHD rats revealed enlarged lateral ventricles and a slight striatal shrinkage both suggesting striatal neuron loss as underlying cause. In layer 5 of the frontal cortex of tgHD rats pycnotic pyramidal cells were observed. In the present study we asked whether tgHD rats display striatal and cortical neuron loss. Total numbers of striatal and frontal cortical layer 5 neurons were evaluated with high-precision design-based stereology in 12-month-old rats. Compared to wild-type controls, tgHD rats exhibit a statistically significant decrease in the total number of striatal neurons. In contrast, in transgenics only a tendency towards decrease in cortical neurons was found. This is the first report of a selective reduction in the total number of striatal neurons in a rat model tg of HD with additional morphological signs of cortical neurodegeneration. Due to the long life span of these animals this model seems to be ideally suitable for the evaluation of novel therapeutic approaches.

Theoretical and applied aspects of the study of skin follicles in experiments of sheeps

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One of complicated questions in the fleece-formation theory is process of a bookmark of fleece follicles in a sheep skin. It has not only theoretical, but also the big practical value in business of increase fleece efficiency of sheep bred in the Central Black-Soil Zone of Russia. On the basis of study of histological structure leather sheep skin of different constitutive- productive types at creation of some set parameters of breeding and the management in experiment dynamics of change of the common thickness of a skin and its separate layers, a number of follicles in hair group, change of density of hair follicles, depth of follicles situation and their bulbs are revealed. It has established, that skin samples in process of biopsy, fixings and making of histology preparations are subjected to shrink, that in appropriate way influences on objectivity of parameters of density of hair follicles per units of the skin area. Density of follicles without taking into account shrink is always higher, than in view of those, that causes necessity of use of a technique of calculation of density in view of this factor. Presence of high positive correlations between parameters of skin structure and quality of fleece cover at the same age and during the various age periods takes place. It allows to conduct selection of sheep on parameters fleece