Content of Corticosteroids in The Feces as an Indicator of Well-being of Mammalian Populations

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Stress-reactions underlay in general many adaptive reactions of organisms and populations. Their endocrinal mechanisms can be used as a criterion for evaluating of the well-being of mammals in their natural habitats. Estimations of the stress level is most frequently based on a direct measurement of the concentration of corticosteroids in the blood or their excretion with the saliva, urine or feces.

To evaluate adequacy of estimations of the corticosteroid level in feces as a criterion of the stress level two tests were made, biological and immunochemical ones. Injection of AKTG to the water vole (*Arvicola terrestris*) have demonstrated that the content of corticosteroids in the feces increased after 3 hours. After injection of AKTG to the bank vole (*Clethrionomys glareolus*) the maximum content of corticosteroids in the feces was observed after 4 hours and corresponded well to the concentrations of the hormone in the blood plasma recorded 1 hour after injection. Thus, biological testing have shown that activation of the neuroendocrinal mechanisms of the stress-reaction, as modeled by AKTG injections, can be controlled by the corticosteroid content in the feces. The immunochemical test was carried out in test on parallelism feces samples of bank vole and musk deer (*Moschus Moschiferus*). Comparison of the coefficients of regression slope connect marked gormon at added to reaction mixture of standard or feces samples with Student t-criterion showed no differences ($P>0.05$). These results imply that the commercial antibodies used have specificity allowing determination of the corticosterone in the feces of the water vole, bank vole and musk deer.

Hence, this approach allows estimation of well-being of animals without disturbing their life. However, further chromatographical study of immunoreactive substantion contained in the feces is necessary for an eventual verification of the method used.