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## H. R. Fevold's research at Montana State University

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Photo by Cyrile Van Duser

Research is under way at Montana State University that could some day make the treatment of human disease easier and contribute to the agricultural economy. These potential benefits, however, are not the immediate concern of the researcher, Dr. H. R. Fevold, assistant professor of chemistry. He is mainly interested in pushing back frontiers of knowledge and is willing to leave the application of his findings to medical practitioners and agricultural economists.

With the support of a \$57,000 grant from the U. S. Public Health Service National Institute of Arthritis and Metabolic Diseases, Dr. Fevold is conducting a three-year study of the regulation of the adrenal steroid secretory pattern.

The adrenals of man, dog, cat and most stock animals normally secrete primarily cortisol, Dr. Fevold says. The adrenals of many rodents normally secrete primarily corticosterone. Evidence exists that animals under some conditions can regulate which hormone is secreted in larger quantity. Since cortisol is much more active than corticosterone, this regulation may be significant for survival of the animal during times of stress.

What controls the relative amounts of the hormones secreted? ACTH (adrenocorticotrophic hormone), which is secreted by the pituitary gland, normally increases adrenal secretions. If ACTH is administered regularly over a period of time, does it also change the ratio of secretions, as some evidence suggests? If it does change the pattern of secretions, how does it do it?

(more)



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These are some of the questions the MSU biochemist is trying to answer in his laboratory. Better understanding of the mechanism of the adrenal secretory pattern could help explain certain aspects of animal population cycles, and better understanding of the cycles could be of economic importance to agriculture.

According to Dr. Fevold, scientists know quite a bit about the immediate effect of ACTH and how the effect is exerted; but they know very little about the long-term action of ACTH. The more that is learned about how ACTH and other pituitary hormones work, the better the use that can be made of them in the treatment of disease.

The researcher, a member of the faculty since 1963, earned a B. S. degree in wildlife technology from MSU in 1956 and a Ph. D. in biochemistry from the University of Utah in 1961. From 1961 to 1963 he was a National Institutes of Health postdoctoral fellow, under the sponsorship of Prof. A. Tiselius and Prof. J. O. Porath, at the Biochemistry Institute of Uppsala University, Sweden.

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