Clinical Signs

Ferrets can present with multiple different signs and symptoms depending on the organ(s) affected. When multiple organ systems are affected, ferrets may show a wide variety of symptoms including, but not limited to:

- Progressive hair loss (sometimes seasonal) over the back, flanks, tail and abdomen
- Itching
- Comedones (black specks in the skin)
- Enlargement of the vulva in females (sometimes with mucoid discharge)
- Difficulty urinating in males
- Lethargy
- Appetite may be increased or decreased
- Weight loss and wasting
- In-coordination
- “Glazed” eyes
- Hypersalivation
- Trembling
- Seizures
- Acute collapse (sometimes recurrent)
- Coma
- Enlarged lymph nodes, spleen or liver
- Shortness of breath and exercise intolerance
- Gastrointestinal symptoms (including vomiting, diarrhea, straining to defecate or rectal prolapse)
- Skin tumors

Thanks to Dr. Sharon Hollars for writing this!

Ferret Endocrine Disease And Multi-Neoplastic Syndrome

How you can help veterinarians try to reach a solution to this problem.
Ferret Endocrine Diseases and Related Neoplastic Diseases

Endocrine disease is defined as a malfunction of any of a number of glands in the body that secrete hormones. These glands include the adrenal glands producing androgens, estrogens or testosterones, certain cells of the pancreas that secrete insulin, and glands in the brain such as the pituitary and the hypothalamus.

Many ferrets develop neoplastic disease or tumors of different varieties related to the endocrine disease. Some examples would be lymphoma, insulinomas (the insulin secreting cells of the pancreas), adrenal gland tumors, and others.

Ferrets are highly susceptible to a variety of endocrine diseases. They have a much higher incidence of certain types of tumors than any other species of animal. Ferrets often get more than one type of endocrine or neoplastic disease at the same time. Because they have such a high incidence of multiple endocrine and neoplastic disease, ferrets are currently being used as a study animal for comparison to people of certain family lines that have above average risk of multiple endocrine and neoplastic disease in ferrets.

Because ferrets can serve as an animal model for the human syndrome, this has presented a unique opportunity for Dr. Johnson-Delaney. She has teamed up with Dr. Michelle Hawkins at the UC Davis College of Veterinary Medicine and others, to search for the defective genes that let these tumors proliferate. This research has potential to help both ferrets and people in a substantial way. Additional work on medical therapies is also underway utilizing different anti-hormonal medications.

One theory as to why ferrets develop multiple tumors and multi-endocrine disorders is that these tumors are triggered by an overproduction of the hormones that normally switch on in the brain of a young ferret as he/she develops. Normally, the young ferret’s ovaries or testicles (gonads) would mature, the ferret would go into puberty, be bred, and the hormonal feedback from the gonads would shut down the stimulation from the brain.

The majority of young ferrets that come from most pet stores have almost all been altered at a very young age, often between 3-4 weeks old. With no gonads present, the gonadal hormone signals are not produced in response to the brain’s stimulus. Therefore, the brain does not get the normal feedback of hormones from the gonads. When the feedback loop is not completed, the other glands in the body are over-stimulated by the “controller” glands in the brain.

The working hypothesis is that these excess hormones, working in combination with one or more defective tumor suppressor genes, are thought to start many of these endocrine related tumors.

What Can You Do To Help?

Dr. Cathy Johnson-Delaney is considered one of the world’s leading authorities on ferrets and particularly on this syndrome in ferrets. She is conducting and coordinating extensive research trying to discover the cause(s) of the very high rate of endocrine and neoplastic disease in ferrets.

Dr. Johnson-Delaney needs financial help to fund these research projects. Dr. Johnson-Delaney has been partially supported by donations from ferret clubs, but has been paying for a substantial amount of the testing and animal care from her own pocket. She needs and deserves your help now.

We are just starting to understand all the mechanisms that drive this syndrome. We must have more funding for research to establish the causes of these tumors and endocrine diseases and how to prevent them from continuing in our pet ferrets. Even a single dollar from every ferret owner in the country would cover the costs of Dr. Johnson-Delaney’s research and the care and upkeep of the ferrets in the study colonies. Please help in any way you can.

Please help find an answer for our pet ferrets. Your dollar can make a difference.

I would like to help. I have enclosed $_______
You can also make donations as large as you like $__________

To: Dr. Cathy Johnson-Delaney
Or: WFRS - “Adrenal Research”

Checks may be sent to either Dr. Cathy Johnson-Delaney or to the University of Tennessee Clinical Endocrinology Service. Please see www.washingtonferret.org for more information.