Stress and the Immune system



The Big Picture

* Stress is a biological and psychological response to a threatening event
* Also known as the flight-or-flight response
* Stress hormones are released due to a communication between the brain and adrenal glands
* Adrenaline increases heart rate and cortisol releases sugar stores – both hormones act to prepare the body for fight-or-flight
* The immune system is a collection of billions of cells that travel through the bloodstream
* The main types of immune cells are white blood cells
* Stress hormones can suppress the immune system by lowering the number of white blood cells



Stress and the Digestive System

* Stress responses have an effect on digestion
* During stress digestion is inhibited
* After stress digestive activity increases
* Increased digestive activity can cause diarrhea or ulcers
* Release of stress hormones may also cause ulcers by increasing stomach acid production
* Cats are more susceptible to ulcers
* Most mammals are susceptible to stress-related diarrhea



Stress and the Cardiovascular System

* Stress hormones increase heart rate and blood pressure through the HPA Axis
* HPA stands for the hypothalamus, pituitary gland and adrenal glands.
* Chronic stress shuts down the negative feedback loop of the HPA Axis
* The kidneys in cats are very sensitive to high blood pressure and can become damaged
* Stress hormones worsen symptoms of animals with heart disease



Addressing Animal Stress

* All living creatures experience stress…even plants!
* The flight-or-flight response is necessary for survival
* Long-term stress is the real problem
* Veterinarians must address animal stress every day
* There are several ways to keep animals calm

- Keep room quiet with low lighting

- Spray calming pheromones

- Cover animal in a towel or apply mask

- Speak softly and approach slowly

- Do not make eye contact

