

## **[HEALTH] HEART SIZE**

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### **Loryn Whitman writes:**

I was wondering if it would be “normal” for a young Coton’s heart to appear larger than that of other small dogs on an X-Ray? A month or so ago my vet did an X-Ray series around my baby’s throat when he had a cough, and commented on the large size of his heart. The vet said he thought it was nothing to be concerned about since my dog had never shown any sign of abnormalities. He also said that he was always taken aback by the size of little dog’s hearts, but he thought that little Zivi’s heart (8.5 lb male dog) looked particularly large. He knows I am a very overreactive puppy parent, and almost didn’t want to tell me because then I would have to have a cardiac consultation! At any rate, I thought perhaps you could shed some light on this. Thanks again for all you do, Loryn Whitman & Our Little Zivi

### **Dr. Russell replies:**

A Coton’s heart should be approximately the same size as the heart of any dog its size and age. Compared to a typical dog—say a 35 pound Coyote—a 14 pound Coton will have a larger heart compared to its body weight, although the heart’s actual size (and actual mass) will be smaller than that of the Coyote’s. This is called “scaling.” Hence all things being equal, a small mammal will have a larger heart relative to its body size than will a larger

mammal. If you are trained in human anatomy, or if you work with large dog hearts, then a small dog's heart would appear “large.”

This makes anatomical sense when you consider how fast that heart must pump: a small mammal has a much faster heart rate than a larger mammal. On top of that, carnivores have a higher metabolic rate as a group than do mammals that are herbivores or omnivores (like us). Domestic dogs typically have a heart rate of 65-175 beats per minute. Athletic wolves have heart rates that range from 56 bpm while resting to more than 250 bpm when chased. A really small mammal, such as the pictured White-footed Deer Mouse here, can have a heart rate—and this is no misprint



—that exceeds 858 beats per minute when it is running! Imagine the relative size of its heart.

Back to Zivi and his relatively large heart... without a careful (measured) series of radiographs or ultrasounds, it would be quite difficult to assert that a particular heart is “too large.” Cotons, at least those in the mCTCA population, have few heart problems

when young or middle aged. Older Cotons, like older people, can suffer valvular problems which may lead to an enlarged heart. As the heart enlarges and puts pressure upon the trachea, symptoms include excessive tiring upon exercise, coughing a dry, unproductive cough when awakening and even seizures. It would therefore seem that little Zivi is fine. But do have him checked again at a year old with the veterinarian paying particular attention to heart sounds. If Zivi attains normal size for a mCTCA Coton he'll weigh perhaps 40% more as an adult and his heart should be relatively smaller than it is now.

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ABOUT THIS PHOTOGRAPH: This is a White Footed Deer Mouse, *Peromyscus maniculatus*, adult male. He weighs less than an ounce, is intelligent, highly social, monogamous, and even exhibits paternal behavior. He was photographed using a Casio Exlim EX-55 digital camera, macro mode with flash.

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