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## LIVER ENZYMES 101

There are several enzyme markers that come with the routine blood chemistry test that we request on our patients. One of them is called Alkaline Phosphatase (AP). It is very specific for liver disease and if it is elevated at all, it indicates a problem that needs further evaluation. Another enzyme is called Alanine Transferase (ALT). It can be elevated because of a variety of reasons and we want you to understand its' significance so you can make treatment choices wisely.

ALT is released from the liver cell when the cell swells from being tweaked by anything that causes it to be inflamed. Any time the body is dealing with inflammation anywhere, the ALT can go up. One common example of this is an elevated ALT associated with gingivitis and dental disease. Sometimes if there is a lot of muscle damage, the ALT will go up too. If there is a problem in the liver, it can, of course, go up too. Now here's the rub. All we can tell you is that the enzymes are elevated and that it can mean several things. In order to know exactly what is wrong with a liver for sure, we have to get a biopsy. Obviously, we're not going to suggest that unless we have looked for footprints of the problem in less invasive ways and looked at response to trials with certain medications. We realize that it is frustrating to have to reach a conclusion only after doing more stuff, but that's just the way it is. Hopefully, the following discussion will help you make sense of our recommendations.

Inflammation of the liver and gall bladder system is called cholangiohepatitis (CH). It most commonly comes from an inappropriate immune response that makes a lot of inflammatory cells come and live in the liver, or from a bacterial infection that does the same. CH is a very common reason for an increase in ALT. These cats rarely act sick until the disease is well advanced, so the chemical markers are important red flags. We usually will advise doing a trial treatment with antibiotics to see if we luck out and make the ALT go down. If the problem goes away with antibiotics alone, we presume that the problem was bacterial in nature. If it doesn't change or it continues to rise, we look at other places of likely inflammation. Sometimes after you clean the teeth and gums the ALT will resolve so we'll make that recommendation next. If the ALT is still not coming down, we will talk about pursuing further testing in an attempt to determine exactly what the problem is or discuss the pros and cons of trial medication going on our "best guess". Inflammatory CH that is NOT associated with a bacteria infection is very common. We think it may also be part of a multi-organ syndrome called Inflammatory Bowel Disease. Sometimes if we use medicines that change the character of the bile and decrease inflammation, we can control the liver enzymes and the cats don't progress in their disease. We will ask you go come in regularly so we can monitor progress. We may check liver values every few weeks to begin with, then decrease to 3 times per year. If the test is normal for 18 months, we'll drop testing down to twice a year. This generally involves a recheck office visit and a single or partial chemistry to stay on top of the liver values.