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## **Liver Detoxification: Interview with Dr. David Seaman, Part II**

By G. Douglas Andersen, DC, DACBSP, CCN

In part two of my interview with David Seaman, DC, MS, DACBN, author of *Clinical Nutrition for Pain, Inflammation and Tissue Healing*, the doctor is bound to rattle some cages with his thought-provoking and politically incorrect views on hepatic detoxification.

**Dr. Andersen:** In our last interview we discussed the anti-inflammatory diet. During the past decade there has been increasing interest in liver detoxification and its relationship to reducing inflammation and related conditions such as pain; arthritis; fatigue; neurodegenerative diseases; and many other chronic inflammatory conditions. What is your take on this approach?

**Dr. Seaman:** I take issue with the concept of toxicity in general, and the way many promote detoxification, particularly as it relates to the liver. First, let me say that several nutritional companies have successfully marketed the concept of liver toxicity, and the related nutritional approach to detoxification. Naturally, this does not mean that the liver detoxification approach is valid. It just illustrates that an effective marketing plan has been implemented, demonstrated by the fact that many chiropractic colleges now teach this approach to nutritional care, which really surprises me.

**Dr. Andersen:** Why do you find it surprising? Are you saying that it is an invalid method of assessment and treatment?

**Dr. Seaman:** I am surprised because I thought our colleges would be more judicious in their efforts to review methods of care that they teach to students. The mindset of a student is, "My college is teaching me the truth." Students are naturally receptive to what they are taught. We certainly cannot expect students to have sufficient training to second-guess instructors when it comes to diagnostic and treatment methods that are part of the curriculum and the clinical interventions utilized in the clinic.

In my view, doctors in practice have also been duped. Lets face it: Chiropractors have not had the best training in nutrition and biochemistry, so our ability to detect inconsistencies when it comes to things biochemical is quite weak. So, when the marketing program is flashy and convincing, doctors will buy into it. MDs are just as susceptible, and there are numerous holistic MDs who have bought into the liver detox concepts.

I guess this basically answers the second part of your question. I do not think that liver toxicity and detoxification methods are at all valid. These methods are taught by nutrition companies and laboratories that have related products to sell. Right from the start, the conflict of interest is obvious.

**Dr. Andersen:** Please give me some specifics, as many doctors might be surprised and concerned.

**Dr. Seaman:** Let's consider the general processes involved in liver detoxification, typically described as two phases. Phase one involves the extensive family of cytochrome P-450 enzymes that act on xenobiotics, drugs, chemicals and hormones. The P-450 system oxygenates a compound making it reactive and dangerous to tissues. Phase two involves conjugation enzymes that make the substance water soluble and easy to eliminate. This is the basic scenario. Nutritional companies and laboratories have entered the scene and claim that the two phases can be tested, and that appropriate supplementation can then detoxify the system. This is where the duping begins.

First, it should be understood that very little research exists on these pathways in the types of patients referred into a chiropractic or medical office complaining of aches, pains, malaise and fatigue. Studies have been done mostly on chronically ill patients. Here it seems that only phase one testing is valid and reliable, and has application in the general practice when patients show signs of toxin exposure. With that being said, the problem that arises is quite easy to explain.

Practitioners have been trained to generally believe that phase one and two pathways are inhibited due to nutritional deficiencies. So the treatment goal generally involves increasing the activity of these enzymes. With phase one pathways, in particular, some serious problems develop when this conceptual approach is applied clinically.

There are probably about 50 or more different P-450 enzymes working in the human liver. Each works on various drugs and chemicals and prepares them for conjugation and elimination. Sounds simple enough, but what needs to be understood is that certain phase one enzymes are known to make various substances more

toxic and dangerous to the human system. Accordingly, researchers try to develop drugs that avoid the expression of certain P-450 enzymes, because they are known to cause cancer. For example, the CYP1A family of P-450 enzymes is known to promote cancer. I mention this because the catechins in green tea are known to inhibit CYP1A2, and thereby prevent cancer. So, one good reason for drinking green tea is that you can inhibit the activation of a P-450 enzyme that would otherwise help to promote cancer.

The CYP1A2 enzyme is also the same enzyme that acts on caffeine, which is used as the challenge substance to assess phase one function in the clinical test available to practitioners. By assessing CYP1A2 activity, you can get a window in the function of the liver and its potential involvement in promoting diseases like cancer.

**Dr. Andersen:** It sounds like liver detoxification pathways can get really technical. Let me summarize what you are saying. Phase one pathways can be harmful and dangerous when activated and therefore, we need to be careful when we try to manipulate their activation with nutritional means. Is that right?

**Dr. Seaman:** That is precisely correct. It can actually get a lot more complicated than what I have described. Accordingly, if this information has been a bit confusing, it probably does not make any sense for a doctor to make claims about how he plans to treat a patient's liver with various so-called methods of detoxification. The last thing I would recommend is for doctors to try and manipulate these enzymes.

In particular, the classic recommendation that has been promoted is to augment P-450 activity. The above example illustrates why this approach can be quite dangerous. Curiously, whether the patient's P-450 test shows up as either underactive or overactive, the same nutritional supplement is typically recommended: a powder containing rice protein, rice syrup solids, and vitamins and minerals that gives you what any basic multiple vitamin provides. The logic of this approach seems dubious at best, and the validity of this nutritional intervention has yet to be tested properly, or even questioned by most colleges or practitioners.

**Dr. Andersen:** What about phase two enzymes? Labs claim to be able to assess their function as well.

**Dr. Seaman:** This aspect of lab assessment for liver function is highly questionable. Benzoate was originally used as a challenge substance for testing phase two enzymes. The ironic thing is that it was already known to be an unreliable testing method long before well-known clinical labs began using it. Now, labs like to use aspirin and acetaminophen challenges, because these substances supposedly provide for accurate phase two assessment. I read through all the articles provided by the main laboratory using this

approach, and found that not one article supported their testing claims. And not one article even remotely suggested the utility of testing phase two enzymes in the general patient population. I recommend that doctors should read these articles for themselves before they begin using these laboratory methods.

Once again, it is curious to note that the treatment recommendation to regulate (increase) the conjugation enzymes is powder containing rice protein, rice syrup solids, and some vitamins and minerals. Where is the evidence for this approach? There is none.

**Dr. Andersen:** Many practitioners will claim that they get good results when they use these powdered supplements. What do you have to say about that?

**Dr. Seaman:** There is not really much to say. At least 70 percent of patients with pain and related symptoms will get better no matter what you do, because of placebo mechanisms. So, basically, doctors can claim anything they want, but it does not mean that the intervention with this particular powdered supplement improved symptoms because the powder had unique "detoxifying powers." Furthermore, the great majority of people who take this powder will also change their diet, i.e., get rid of the junk and basically consume the anti-inflammatory diet as discussed in our first interview.

More than likely if the positive response was not a placebo, it was probably due to improving the diet. Studies with rheumatoid arthritic patients have demonstrated that eating more fruits and vegetables can dramatically reduce the pain, dysfunction, and immunological markers associated with the disease. Dramatic improvements occurred in rheumatoid patients within a month, and this happened without an expensive powdered mixture of rice protein, rice syrup, and some vitamins and minerals.

**Dr. Andersen:** Can you think of an example of toxicity that a low-tech approach will help?

**Dr. Seaman:** One common situation that I would view as toxic overload to the body is constipation. I think that most people would do well to take fiber supplements such as psyllium husks and drink more water - both are known to improve bowel elimination. I also think that reduced digestive activity probably occurs as many people age, leading to poor absorption. For example, hypochlorhydria is known to occur and can be helped by supplementation. In my experience, the application of fiber, water, and digestive enzymes improves GI function without all of the dreaded detox reactions. People start to feel better within a couple of days, once their bowels start to move better and food digestion improves. It's not nearly as glamorous, flashy, and seemingly sophisticated as the liver detox approach, but quite effective, inexpensive and helpful

for patients.

**Dr. Andersen:** Any final thoughts on this issue?

**Dr Seaman:** On the subject of liver detoxification, if a doctor can provide us with some concrete, nonanecdotal examples of liver detoxification and nutritional therapy, it would be very helpful. I would be extremely surprised if anyone could provide data on this subject, as little, if any, data is available on the nutritional modulation of phase one and two liver pathways. I should mention that supplement companies and their doctor representatives have written about this subject for many years now. No new data is ever presented, and the same so-called principle articles are always misquoted. I know this for a fact, because I have called some of the authors whose papers are commonly cited.

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