

On Liver Health

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As

some readers may be familiar, most oral steroids are c-17-alpha alkylated compounds. This is a chemical alteration that allows a steroid to survive its first pass through the liver and into the bloodstream. Unfortunately, however, c-17 alkylation can place a good amount of strain on the liver in the process. While oral steroids are generally regarded as fairly safe in a medical sense, the abuse of these drugs can lead to serious liver damage (even cancer or death) in rare cases. If you are using a lot of oral anabolic steroids, or plan on using them, then it is important to understand a bit about monitoring and maintaining liver health. In this article, I'd like to review some of the basics of lab testing (blood work) and discuss the potential for liver support supplements to help maintain liver health. An obligatory rundown of the more serious consequences of oral steroid abuse is also in order. It is important to stress that while life-threatening injury from oral steroid use is admittedly very rare, these issues do legitimately occur in otherwise healthy bodybuilders and should be taken seriously during your regular health screenings.

The

four most common serious manifestations of steroid-induced liver toxicity are intrahepatic cholestasis, peliosis hepatis, hepatocellular adenoma and hepatocellular carcinoma. Intrahepatic cholestasis refers to a condition where the liver can no longer properly transport and metabolize bile (bile duct obstruction). This may coincide with jaundice, or a yellowing of the skin and eyes as bilirubin builds in body tissues. Cholestasis is usually resolved with the immediate cessation of steroid use. Peliosis hepatis is a rare and very serious condition characterized by blood-filled cysts on the liver. Hepatocellular adenoma is a rare non-malignant (non-cancerous) liver tumor. While in some cases it may require no further intervention other than abstinence from steroid use, hepatocellular adenoma can lead to life-threatening bleeding or liver failure. Hepatocellular carcinoma refers to malignant liver cancer. This last and perhaps most serious consequence of steroid use has only been documented in one previously healthy recreational steroid user.

Doing

Your Bloodwork

A full liver panel is important to assessing hepatic strain. It is always a good idea before the intake of any c-17 alpha-alkylated oral steroids or injectable forms of these predominantly oral compounds that baseline readings be obtained on standard markers of liver health. While the exact forms of testing may vary depending on the physical and lab, a detailed screening of liver health usually involves examining a number of liver proteins, transaminase enzymes, cholestatic enzymes and bilirubin. The markers most commonly examined when looking to determine liver strain caused by steroid use include the following five variables. Note that what values are regarded as falling in the reference (normal) range may vary slightly between labs.

ALT And AST

Alanine aminotransferase (ALT) and aspartate aminotransferase (AST) are the two enzymes most commonly discussed when it comes to steroid-induced liver toxicity. ALT and AST are necessary to the metabolism of amino acids and protein in the liver. While some may be present in other tissues, these enzymes are largely identified as liver enzymes. They are the subjects of regular testing because they can and commonly will leak out into the bloodstream as the liver becomes inflamed or damaged. As such, these two enzymes are generally regarded as important potential indicators of early steroid-induced liver toxicity. A substantial elevation in ALT and AST is usually looked at as immediate cause to suspend the intake of hepatotoxic steroids. It is of note, however, that there have been cases in which liver damage (such as hepatocellular adenoma) has occurred without substantial elevations in AST and ALT. While these enzymes are important to any examination of liver health, they should not remain the sole focus of blood testing.

ALP, GGT And Bilirubin

Alkaline phosphatase (ALP) and gamma-glutamyltranspeptidase (GGT) are known as cholestatic liver enzymes and are also very important to examining liver health during steroid use. Elevations in ALP and GGT can indicate bile duct obstruction (intrahepatic cholestasis). Intrahepatic cholestasis is a potentially very serious manifestation of steroid-induced liver toxicity, so elevations in ALP and GGT should never be disregarded. Bilirubin should also be measured, which is a yellow fluid that is found in bile. Bilirubin is responsible for the yellowing of the skin and eyes (jaundice) that can be associated with bile duct obstruction. These three markers should be specifically requested before your testing in addition to ALT and AST, as it is not common that all five variables are measured in the same standard blood test.

It is of note that mild elevations in ALT and AST (slightly above the reference range) may be caused by muscle damage (exercise) instead of liver toxicity. A comparison to baseline levels will be important in determining the cause of

elevated ALT and AST. Elevations that come only after the addition of anabolic steroids (training is otherwise constant) point to the drug as the likely cause. Creatine kinase (CK) is a marker of muscle damage and can also be useful in making this determination. Mild ALT and AST elevations caused by muscle damage will usually coincide with similar elevations in CK, but normal levels of ALP and GGT. It is important to remember, however, that the substantial elevation of any hepatic markers above the reference range (even if the only markers elevated are ALT and AST) may indicate substantial liver toxicity and should be cause to discontinue the offending steroids and reassess risk.

Test Name Range	Reference	
Bilirubin	0.1-1.2	mg/dL
GGT (Gamma GT)	<50	μmol/L
ALP (Alkaline Phosphatase)	25-150	IU/L
AST (SGOT)	0-40	IU/L
ALT (SGPT)	0-55	IU/L

Liver Support Supplements

Aside

from testing, the hepatic strain of oral steroid use may be reduced with the use of certain liver support supplements. While it may seem counterintuitive to use a dietary supplement to offset the side effects of a hepatotoxic drug, there is an increasingly large body of evidence supporting the use of certain natural compounds for this purpose. Nutritional products like silymarin and Liv-52 (a blended liver support supplement) have become increasingly common in the steroid-using community as of late, largely based on a growing number of medical studies demonstrating their ability to protect the liver from toxins like drugs, alcohol and certain chemicals. The ability for these products to help reduce actual steroid toxicity seems to be supported by anecdotal observations as well, although not proven. The European product Essentiale forte N from Aventis is also commonly used for liver protection and unlike silymarin and Liv-52, has been directly studied in steroid-using bodybuilders.

“Compound
N”

Essentiale

forte N actually has the distinction of being the only natural supplement that has been shown in clinical studies to offset the hepatotoxic properties of oral anabolic/androgenic steroids. During this investigation, 320 healthy weight-training individuals were recruited and divided into three groups. The first group (A) consisted of 44 steroid users who were given Essentiale forte N (identified in the study as Compound N) to use with their next cycle. The second group (B) consisted of 116 subjects using anabolic steroids only. The last group (C) was 160 non-steroid using controls. All steroid users abstained from drug use for five weeks prior to the study and resumed their normal regimens, usually of multidrug programs in doses in excess of therapeutic amounts. The investigators did note the perceived risk differences between therapeutic doses and above therapeutic levels, as well as the increased hepatotoxicity of c-17 alpha-alkylated steroids and divided their groups so as to minimize these influencing factors.

The

level of relative liver strain noted during the course of the study was assessed every 10 days by analyzing the blood for a full panel of liver enzymes. This specifically included aspartate aminotransferase (AST/SGOT), alanine aminotransferase (ALT/SGPT), lactate dehydrogenase (LDH), alkaline phosphatase (ALP), gamma-glutamyltransferase (GGT) and creatine kinase (CK). Baseline levels for all enzymes were similar between groups except creatine kinase, which is heavily influenced by training intensity. During the study, the steroid-only users (group B) noticed a significant elevation in liver enzymes, resulting in levels that exceeded the normal range. Liver enzymes were elevated in the remaining two groups, however, the elevations were similar and remained within the normal range at all times. The researchers were left to conclude: “The positive association of the abuse severity with the increased hepatic enzymes’ levels suggest a relationship between abused AAS and hepatic cell damage. However, when AAS were taken with …[Essentiale forte N], … the hepatotoxic effect appears to be attenuated.”

Discussion

The

main focus of this article was to discuss some of the basics of examining and maintaining liver health when taking hepatotoxic oral (or injectable) anabolic/androgenic steroids. For those reading who have not taken a keen interest in having their liver enzymes examined, it is my hope that this article may change your perception of this issue just a bit, perhaps enough to begin regular testing.

Additionally,

in the process, we have found a natural supplement that appears to offer great benefits to those taking oral steroids. While one study cannot serve as proof that steroid-induced liver toxicity can be completely eliminated with a dietary supplement, it does lend strong support for the use of a natural product like Essential forte N (or Liv-52 and silymarin by extension) when using hepatotoxic anabolic steroids. I hope this article was able to help keep you better informed of the issue of liver toxicity and even to give you some better tools for keeping on top of your own personal health. Be smart and be safe.

