

## LIVER ENZYME ELEVATIONS

### *Overview:*

The liver cleans our blood of poisonous substances. Thus, damage to the liver, as often first evidenced by elevated liver enzymes, is of keen interest to insurers. Most carriers routinely test for levels of the following liver enzymes: (1) GGTP; (2) AST (sometimes called SGOT); (3) ALT (sometimes called SGPT); and (4) alkaline phosphatase.

Elevated liver enzymes indicate liver irritation. Alcohol, over the counter or prescription medications, and infections can lead to elevated liver enzymes. Hepatitis, obesity, diabetes, and hemochromatosis, are other common causes.

GGTP is the most frequently elevated enzyme. It is a very sensitive enzyme and thus has limited use as a clinical indicator if elevated by itself. Small elevations of GGTP are often of little concern to life underwriting; however, elevations to levels twice normal and up definitely increase underwriter curiosity.

Elevations of AST/SGOT and/or ALT/SGPT, especially if the elevations are concurrent, are often caused by damage to liver cells. The degree of elevation roughly parallels the degree of liver damage. The higher the enzyme levels, the greater the cause for concern and the higher the rating. Severe elevations of liver enzymes lead to declines.

Elevations of alkaline phosphatase are much rarer than elevations of the other enzymes. They are found in a variety of conditions. Elevations of up to 30% above normal levels are of little relevance. Higher amounts may point to a more serious condition, such as obstruction of the flow of bile, or even a recent heart attack, and thus warrants further investigation.

Alcohol use is the leading cause of elevated liver enzyme levels and liver disorders. There is no specific amount of alcohol that must be consumed for liver enzymes to become elevated. Different individuals have varying degrees of tolerance to alcohol. For most individuals, three drinks or more per day over a period of time are required to raise the level of liver enzymes. Isolated episodes of binge drinking do not normally lead to higher enzyme levels.

### *Life Underwriting Issues:*

Key to successful underwriting of elevated liver functions is to identify the cause for the elevations. Thus, most insurance companies, immediately upon detecting elevated liver enzymes, ask the lab to test for hepatitis or alcohol use. If this testing is not done right away, the specimen will be too old and new lab work will be required. An alcohol use questionnaire and a motor vehicle report are also routine underwriting requirements for labs showing elevated liver functions. A positive alcohol marker will normally lead to declines. Findings of hepatitis are rated for the type of hepatitis and any liver damage.

Severe liver function elevations lead to postponements of insurance offers. A cause must be determined, the extent of liver damage, if any, must be established (typically via liver biopsy) and the condition must be brought under control before offers of insurance can be expected.

Some people have a consistent history of mildly elevated liver functions without known cause. It may be possible to obtain standard rates, or possibly even preferred for them, provided their attending physician indicates there should not be concern.

If a cause for the abnormal liver function tests can be established, underwriters will underwrite based on guide lines for that condition. Absent a known cause for the elevated liver functions, the following table provides an outline of likely underwriting scenarios. SB 03/27/2001

	AST/SGOT or ALT/SGPT normal	AST/SGOT or ALT/ SGPT < 1.5 times nor- mal	AST/SGOT or ALT/SGPT 1.6 - 2.5 times normal	AST/SGOT or ALT/SGPT > 2.6 times normal
<b>GGTP Normal</b>	Preferred	Standard to Table 2	Table 4 to Table 8	Postpone
<b>GGTP &lt; 1.5 times normal</b>	Preferred to Standard	Table 2	Table 6 +	Postpone
<b>GGTP 1.6 - 3 times normal</b>	Preferred to Table 2	Table 4 to Table 8	Postpone	Postpone
<b>GGTP &gt; 3.1 times normal</b>	Rated for cause/ Postponed	Postpone	Postpone	Postpone