Safety in the Use of Kava Kava as a Treatment for Anxiety and Depression

Kava Kava extract is made from the rhizome of the *Piper methysticum* plant and is widely used in the Pacific Island region as a mild tranquilizer and anxiety reliever. Kava is traditionally prepared as a beverage and the drinking of kava often takes place in a very sociable setting, much in the way people in other countries drink alcohol. Similar to alcohol, Kava Kava root extract is shown to help calm nerves, elevate mood and reduce inhibitions. This herbal relaxant is also used to combat panic attacks, reduce hyperactivity in children and to help people sleep. While the sedative effects associated with the consumption of kava kava can sometimes be considered therapeutic to those who suffer from anxiety and depression, there is a risk involved with its intake. Liver damage as a result of kava consumption has been reported in multiple cases.

Because of the potential for liver damage and the possibility of a range of other side effects (including shortness of breath, dry scaly skin, and alterations in blood cell counts and platelets), ingestion of kava kava root extract is somewhat controversial. The initial threat of liver damage is likely to scare away most of those who have considered using kava as a more natural remedy for anxiety and depression, but if they were to research the subject further they may find that their fears were superfluous. After reading multiple articles on the subject, it has become apparent that while there is definite risk involved in the consumption of kava, the risk is directly related to improper preparation of the roots, and any instances of liver damage in patients were found to be reversible when kava ingestion was halted. These conclusions infer that while those who ingest kava extract may potentially suffer adverse health effects, the possible benefits they may experience are well worth the gamble.

The first study I read was entitled: *Traditional kava beverage consumption and liver function tests in a predominantly Tongan population in Hawaii.* The objective of this study was to determine whether consuming kava regularly resulted in abnormal liver functioning in the study group. This was a cohort study, so a sample of 31 kava drinkers, and 31 non-kava drinkers ranging in age from 18-65 years were recruited from the Hawaiian Island of Oahu and tests were done to compare their liver functioning. Each participant gave 20 ml of blood to be tested, and was required to answer a questionnaire detailing their kava intake, other potential risk factors for liver damage, and their demographic information.

The participants' blood was tested and their liver functioning capabilities were assessed based on their levels of aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase, gamma-glutamyl transpeptidase (GGT), bilirubin and albumin. The liver enzyme levels that were recorded were statistically analyzed using Fisher exact tests and t-tests to compare the kava consumer to the non-kava consumer. In addition to the tests done on the subjects, samples of kava beverages to be ingested by the participants were taken from the kava bar and tested to determine the concentrations of kavalactones (the anxiolytic compounds in kava) in each of the concoctions.

The results of all the blood tests performed showed that two of the hepatic enzymes tested (GGT and alkaline phosphatase) were present in abnormal amounts in the kava drinkers, suggesting the possibility of impending liver disease and damage.
The conclusions drawn by the authors suggest that while it cannot be determined if kava consumption is a direct cause of liver damage, there is a correlation between kava ingestion and elevated GGT and alkaline phosphatase levels which can demonstrate early signs of liver disease and damage. The authors indicate that more studies should be done on the safety of kava, and that anyone choosing to ingest kava kava extract should closely monitor their hepatic enzyme levels.

This study supports the belief that excessive intake of kava kava can result in abnormal enzyme levels in the liver, which could possibly lead to liver disease and damage. This is a cohort study, and The Hawaii Pacific Health Institutional Review Board, and The Institutional Review Board of the University of Hawaii approved the protocol. Both of these aspects demonstrate the strength of the study. Cohort studies are considered much more accurate than many types of studies because collecting data once and comparing it to other data leaves very little room for error. The fact that two different review boards approved the methodology of this study also speaks to its strengths. If there had been too many weaknesses in the study, it would have been revised upon review by these institutions.

Although this study is considered strong in some ways, it also has quite a few points that weaken the viability of the conclusions. The first point suggesting weakness is the sample size. Only 31 participants were included in each side of the comparison, and while this is enough to draw conclusions, a larger sample size would have been greatly beneficial. The most significant point that weakens the study is the unequal distribution of ethnicity, height, weight and gender between the two groups. The test group was primarily composed of Tongan males, and the control group was composed of a mixture of male and female, Tongan and non-Tongan participants. Culturally in the South Pacific region, men are the ones who

consume kava, and yet the control group is composed mostly of women. There are biological differences between men and women (including height and weight differences, metabolic differences etc.) and in order to have two realistically comparable groups, there should be either an even distribution of gender in each group or the study should be restricted to one gender. Another weakness in the study is apparent in the fact that regular kava kava consumption is generally only practiced in the Tongan population of this region, and yet a few people of other ethnicities were included in the study. These non-Tongan participants were included mostly in the control sample and could therefore lessen the validity of the findings due to possible biological differences between ethnicities. These significant details were either overlooked or ignored in this study and weaken the conclusions drawn by the authors.

It is apparent after reading this first study, that liver damage is a very real possibility in those who regularly consume large amounts of kava kava extract. I think that the conclusions drawn by the authors in this study are valid, but a revised study with more consistent distribution between the test and control groups is likely needed in order to improve upon it's strength and validity.

The second study I examined was a meta-analysis study entitled *Kava and St. John's Wort: Current Evidence for Use in Mood and Anxiety Disorders.* While this study examines both kava extract and St. John's Wort as possible treatments for anxiety and depression, the findings are broken up into two different sections, so I was able to use only the information on kava as part of my research. The objective of this study was to examine the efficacy, safety, mode of action and pharmacokinetics of kava and St. John's Wort in the treatment of patients suffering from anxiety, depression and similar disorders. The study was conducted in 2008 using data from a variety of prestigious sources. Data was collected and systematically reviewed using the electronic databases MEDLINE, CINAHL, and the Cochrane Library.

The information in this study suggests that while ingestion of kava may lead to elevated hepatic enzyme levels, it is generally regarded as a substance, which is (like alcohol) safe to use in moderation. The results of many studies show that the efficacy of kava extract on the effects of anxiety were similar to synthetic compounds such as diazepam and work in the same ways as some benzodiazepines, but with fewer instances of dependency, withdrawal symptoms and cognitive impairment. There are also no known pharmaceuticals that interact adversely with kava (possibly due to the lack of Pgp induction by kava), so individuals who are unable to take conventional depression and anxiety medications due to the risk of unfavorable drug interactions may benefit from taking kava extract to relieve their symptoms.

Kava has been used as an anxiolytic and inebriant in the South Pacific for hundreds of

years. Although kava use is prohibited in the United Kingdom, Canada and the European Union, because of possible risk of hepatotoxicity, this study found that liver damage is traditionally not associated with kava use. These conclusions are evidenced by years of documented kava consumption in Pacific Islanders (particularly Fijians) with few instances of liver abnormalities. When liver abnormalities were present in the test subjects, they were concluded to be mild and completely reversible upon halting consumption of kava.

This study is strong because the authors gathered information from countless prestigious studies that had been previously conducted and used this information to come up with a comprehensive pool of data. By using this method, they were able to pick and choose the best, strongest pieces of each study and compile the vast amount of information into one article. Each article that the authors referenced contains different studies or presents the information in a different way, so they were able to get a bigger picture of the subject and thus draw more accurate conclusions.

I think one of the weaknesses this study displays is that the subject as a whole *(Kava and St. John's Wort: Current Evidence for Use in Mood and Anxiety Disorders)* is too broad. Since the body of the article separates the information on kava and the information on St. John's wort anyway, the paper as a whole would possibly be more effective if it were broken up and presented as two related but different studies.

After reading a great magnitude of articles and assembling results from numerous studies, the authors of this article concluded that while there is the possibility of liver damage associated with kava consumption, the potential medicinal benefits greatly outweigh the risk involved. I believe that the conclusions that the authors have drawn in this study are valid and credible. The concern regarding potential for liver damage is addressed early on in the article and the authors make it clear that damage to one's liver after taking kava kava extract is possible, but far from imminent. The consensus in the article is that the potential kava has in the treatment of depression and anxiety greatly outshines any possible drawbacks, and I wholeheartedly agree.

After studying both of these articles and through further personal research, I have come to the conclusion that kava presents no more hazard to the user than any other herbal or prescription medication. Any person choosing to consume kava should tell their doctor, and should be monitored to ensure that they react well to the treatments and no harm is being done, but this procedure is no different than it would be for other medications used to treat the same symptoms. When taking medication used to treat depression, anxiety or <u>any</u> disease or disorder, there is always the possibility that the medication could adversely affect your

health, and it often does. The inveterate underlying question when it comes to taking any medication is: are the potential benefits of taking the medication worth the risk of side effects? I believe that in people suffering from anxiety and depression, the possible alleviation of their symptoms due to their use of kava would be well worth the minute risk they would be taking.

References

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