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File: ■ Kava (*Piper methysticum*)
■ Driving Performance
■ Motor Skills

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RE: Medicinal Dose of Kava Does Not Impair Driving Ability

Sarris J, Laporte E, Scholey A, et al. Does a medicinal dose of kava impair driving? A randomized, placebo-controlled, double-blind study. *Traffic Inj Prev*. 2013;14(1):13-17.

It is well known that alcohol and certain drugs can impair driving and increase the risk for accidents. Kava (*Piper methysticum*) can cause inebriation similar to alcohol and benzodiazepines. Therefore, there is the possibility that kava may impair motor skills and cognitive abilities required for safe driving. The purpose of this 3-arm, randomized, placebo-controlled, double-blind, crossover trial was to evaluate the acute effects of kava on driving performance.

This study is part of the Kava Anxiety-Lowering Medication (KALM) Project. Men and women (n = 22; aged 16-65 years) with mild-to-moderate anxiety were recruited via advertising media in Hawthorn, Victoria, Australia. Patients were excluded for the following: current use of antidepressants, mood stabilizers, antipsychotics, opioids, analgesics, or cannabis; substance abuse or dependency disorder in the previous 6 months, including alcohol; previous adverse reaction to kava or benzodiazepines; regular use of kava or benzodiazepines in the previous 12 months; more than 1 occasion of benzodiazepine or kava use each week over the past month; pregnancy, trying to conceive, or those who could be pregnant; regular smokers (more than 1 cigarette a week); and abnormal liver function.

Participants were subjected to a 10-minute practice session on a driving simulator. They then received either 180 mg of kava, 30 mg of oxazepam, or placebo. All treatments looked identical. The kava (Integria Healthcare Pty Ltd; Warwick, Australia) was formulated from dried aqueous extract and standardized to contain 60 mg of kavalactones per tablet. The kava preparation was from a water-soluble extract of the peeled rootstock from a Vanuatu noble cultivar. An independent assay using high-performance liquid chromatographic analysis revealed higher concentrations of the kavalactones dihydrokawain, kawain, and dihydromethysticin; moderate levels of methysticin and yangonin; and lower levels of desmethoxyyangonin. The alkaloid pipermethystine was not present. Following treatment administration, the patients relaxed for 90 minutes until their drug-blood serum levels reached the appropriate levels.

They then began a 15-minute computerized driving simulator program, followed by a visual analog assessment. One week later, patients were crossed over to another treatment. This routine was repeated a total of 3 times, once for each treatment.

Oxazepam produced a significantly slower reaction time (breaking reaction) than placebo (P = 0.002) and kava (P = 0.003). Concentration lapses were significantly fewer with kava than with oxazepam (P = 0.033). An equal number of participants in each treatment group crashed. Results were not modified by the covariates of driving experience, driving status, or treatment order. Oxazepam-treated patients reported that they were significantly less alert than when exposed to the other treatments. All patients were more fatigued after driving, irrespective of the treatment.

According to the authors, this is the first study to evaluate the acute effects of a medicinal dose of kava on driving performance and safety compared to a benzodiazepine. The authors conclude that at medicinal doses, kava does not alter driving in the same way as benzodiazepines. Apart from its small sample size, this study has several limitations. Blood levels of oxazepam peak at 2-3 hours, and the driving analysis occurred after 90 minutes; therefore, oxazepam may have produced a more profound effect if evaluated later. The patients were not screened for medical conditions that could have altered driving vigilance. The simulator does not exactly mimic real driving conditions. Also, the participants had mild-to-moderate anxiety so the data may not be extrapolated to the general population.

This data gives important insight into the effects of a medicinal dose of kava on a population that would use it (i.e., patients with anxiety). However, when people use kava for recreational purposes they consume much higher doses. As with alcohol, as the dose increases the ability to safely operate a vehicle may diminish. This study should be replicated with a recreational dose of kava.

—Heather S. Oliff, PhD