

Methamphetamine DUI/D Cases in Alabama: A 10-Year Retrospective Study

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Background/Introduction: The classic stimulant, methamphetamine, remains popular as a recreational, illicit drug. In Alabama, methamphetamine ranks as the fourth most prevalent drug found in driving cases when ethanol is not present. As a Schedule II drug, it is rarely prescribed and has limited medical usage due to its high potential for abuse. In 2012, only 16,000 prescriptions were filled for Desoxyn, the only remaining therapeutic form of methamphetamine, used to treat ADHD, obesity, and narcolepsy. The effect of low doses of methamphetamine on attention and wakefulness has been studied, but the idea of implementing routine use within society or for military purposes has not gained acceptance due to the known negative side effects (e.g. increased risk-taking) and addiction potential. Furthermore, the pharmacodynamics of methamphetamine abuse results in two distinct phases, the “rush” and “crash” phase. The side effects of these two phases have been shown to be inconsistent with safely operating a motor vehicle.

Objective: To investigate the prevalence of methamphetamine in DUI and traffic crash cases analyzed by the Alabama Department of Forensic Sciences and to evaluate methamphetamine blood concentrations, the demographics of these subjects, and common signs of impairment.

Method: DUI and traffic crash cases were evaluated over a 10-year period (2008-2017). All cases were screened by enzyme immunoassay using either a Tecan Freedom Evo 75 with Immunalysis reagents or a Randox Evidence Analyzer. Confirmation and quantification were performed by SPE followed by GC/MS analysis. Cases involving Drug Recognition Expert (DRE) evaluations or cases where “cognitive performance enhancement” was used as a DUI defense were isolated as case studies. Prevalence data overlaid onto a map of the State of Alabama was created to determine areas within the state that have the highest prevalence.

Results: Between 2008 and 2017, 1404 blood samples from DUI and traffic crashes in Alabama were positive for methamphetamine. Methamphetamine users were predominately Caucasian (96%) and male (64%). Median (average) methamphetamine concentrations in samples collected after a DUI stop, traffic crash, and traffic death were 190 (306) ng/mL, 200 (367) ng/mL, and 295 (809) ng/mL, respectively. The highest methamphetamine blood concentrations after a DUI stop was 3,300 ng/mL. Common signs and symptoms noted during DRE evaluations included: increased physiological parameters such as heart rate, blood pressure, and temperature, dilated pupils, restlessness, and rapid movement and speech.

Conclusion/Discussion: The concentration of methamphetamine found in drivers was ≥ 50 ng/mL, ≥ 100 ng/mL, and ≥ 200 ng/mL in approximately 83%, 68%, and 48% of the cases, respectively. The vast majority of methamphetamine driving cases were not consistent with low dose administration. However, users with methamphetamine at low blood concentrations routinely displayed poor driving and impairment highlighting the ability of methamphetamine to cause impairment in both the rush or crash phase. Interestingly, we have observed an increase in “cognitive performance enhancement” legal defenses in DUI cases over recent years. The opinion that methamphetamine improves driving has been offered by hired defense experts, often irrespective of driving behavior or blood concentration. The data from this study and highlighted case studies will help address such claims. In conclusion, methamphetamine, is capable of producing severe driving impairment, and efforts to educate law enforcement, attorneys, and the public are encouraged.

Keywords: Methamphetamine, DUID, Human Performance