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COURSE

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Effects of Amphetamines on
Human Performance and Behavior

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The effects of alcohol and other depressant drugs on driving are well known and there is an obvious nexus between CNS depression and the psychomotor and cognitive effects critical to safe driving. CNS stimulants on the other hand produce a range of effects that depend markedly on dose, and duration of use. At low doses they include benign and potentially positive effects such as improved alertness, offset of fatigue and improved reaction time at low doses. At higher doses however, they produce a range of powerful and distracting side effects, such as agitation, restlessness, motor excitation, and intense euphoria. Furthermore, stimulants display a positive hysteresis effect, producing a constellation of withdrawal effects following both acute and chronic use, including fatigue, exhaustion, extreme sleepiness and depression. During this phase the effects are more similar to those normally associated with CNS depressants and users have delayed and slowed reflexes, impaired balance and coordination. A further manifestation of toxicity becomes apparent after periods of extended high dose use, during which psychotic behavior can manifest. Methamphetamine psychosis characterized by paranoia, delusions, pseudohallucinations, and irrational and often violent behavior. This presentation will consider the chemistry, pharmacokinetics and pharmacodynamics of methamphetamine, the appearance of subjects operating under the influence of amphetamines, diagnosis of stimulant impairment, driving behaviors associated with stimulant impairment, and physiological and psychomotor effects documented in methamphetamine users. Stimulant impaired drivers engage in dangerous, inattentive and high risk driving, and are making an increasing contribution to fatal and serious injury traffic crashes.