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National Drug Law Enforcement Research Fund

AN EVALUATION OF THE STANDARDISED FIELD SOBRIETY TESTS FOR THE DETECTION OF IMPAIRMENT ASSOCAITED WITH CANNABIS WITH AND WITHOUT ALCOHOL.

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Stough, Boorman, Odgen & Papafotiou (2006).

Plain English summary and implications for police prepared by Roger Nicholas.

Methodology

The project involved 80 participants aged 21 to 35 years. Participants underwent six experimental conditions that involved the consumption of cigarettes containing either no THC (placebo), 1.8% THC[1], and 3% THC together with the consumption of alcohol to reach blood alcohol concentrations of either 0% (placebo) 0.03% or 0.05%. Neither the participants nor the researchers knew the levels of alcohol or cannabis that were present. After the administration of alcohol and THC, participants performed a driving simulation task and undertook the Standardised Field Sobriety Tests (SFSTs).

Key findings:

- The level of THC detected in blood was higher when cannabis was consumed with alcohol than when cannabis was consumed alone. Regular cannabis users had higher levels of THC in their blood plasma than did non-regular users.
- Following consumption of THC (with or without alcohol), drivers were more likely to drive with two or more wheels of the vehicle over the lines marked out for traffic moving in the same direction, or the lines marked out for traffic moving in the opposite direction. In addition, individuals who had smoked cannabis were more likely to leave insufficient space between their own vehicle and the vehicle in front. The cannabis-affected drivers were also more likely to drive at a lower speed when entering a freeway, however this was not necessarily indicative of safer driving. Rather, this and all of the other findings pointed to cannabis use leading to deficiencies in the cognitive processes that are necessary to drive a vehicle.
- Among those subjects who had used cannabis, errors related to leaving insufficient stopping space and straddling the barrier line, occurred significantly more often when the subjects had also been administered alcohol. In this case, straddling the barrier line occurred significantly more often when the subject's BAC was 0.05% compared with the 0.03% condition.
- Following the consumption of alcohol (irrespective of THC consumption), dangerous skidding, leaving an unsafe stopping distance between vehicles, violation of the speed limit, collisions, straddling the barrier line, wandering and having insufficient clear space, all occurred more commonly, compared with the placebo alcohol condition.
- THC, when consumed with alcohol, was significantly more impairing than consuming either drug alone.

[1] THC (delta-9-tetrahydrocannabinol) is the component of cannabis that is responsible for most of its mood altering effects.

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- Generally, regular cannabis users drove faster, displayed more dangerous skidding, were more likely to stop unnecessarily, and be involved in collisions compared with non-regular users.
- Driving simulator performance was significantly impaired even at legal BACs, but this was particularly so when cannabis was also consumed.
- Performance in the SFSTs was significantly related to the administration of THC only, and THC with alcohol. When THC was administered with alcohol the proportion of individuals classified as being impaired using the SFSTs more than doubled, compared with when no alcohol was administered.
- At best, the use of SFSTs resulted in the correct classification of up to 73.9% of participants as either impaired or not.
- The *one leg stand* test component of the SFST was found to be the best predictor of impairment caused by cannabis and alcohol.
- The study re-examined a new sign to be scored in the Horizontal Gaze Nystagmus (HGN) component of the SFSTs. The use of this sign, the Head Movement/Jerks test increased the number of participants correctly classified as impaired. The researchers suggested that this should be incorporated into the HGN component of the SFSTs.
- There was a high level of agreement between the ratings of impairment that were given by the researchers and those given by Victoria Police Officers. This indicates that the SFSTs have reliable scoring procedures and that the test results are accurate and reliable.
- The SFSTs are a moderately good predictor of driving impairment, as well as the consumption of THC only, and of THC together with alcohol. In the absence of reliable and accurate physical tests of THC blood levels and driving ability, the SFSTs can provide relevant information concerning drug intoxication and driver fitness, in particular associated with the consumption of alcohol.
- When blood levels of THC are in the range 3.1 ng/ml to 11.2ng/ml, driving was found to be impaired. As a result, in cases where only blood samples are available from drivers, low THC levels may not give rise to concern about driver impairment. However, when blood THC levels are considered in conjunction with results of SFSTs, this can provide a more comprehensive picture of the level of impairment present.

Implications for police

This research confirms that the consumption of cannabis, with or without alcohol, significantly impairs driving behaviour. In addition, the SFSTs are appropriate measures for the detection of cannabis and alcohol consumption and the driving impairment associated with the use of these drugs. In cases where a simple road-side drug test is unavailable, the SFST tests provide essential information on a person's ability to perform tasks such as driving. Equally, when a specimen from the driver is available, and drugs are detected in the specimen, performance on the SFSTs can provide information to support the proposition that the drug was causing impairment, and therefore likely to increase crash risk.

The report also provides valuable information on the precise profile of tests that are most reliable at detecting drug impairment. This warrants close consideration by policing jurisdictions considering implementing SFSTs.

Combining information from the SFSTs with that obtained from blood tests, could also provide support for decisions concerning the prosecution of drivers for the offence of driving while impaired. This is particularly relevant when the level of THC in the blood is relatively low.

The finding that THC consumed with alcohol is significantly more impairing than consuming either drug alone is an important one for police. This means that a driver can have a blood alcohol concentration that is below the legal driving limit but be impaired by the concurrent use of cannabis. This highlights the importance of testing for alcohol and for other drugs at the same time. Indeed, these researchers found that significant impairment occurs even at legal blood alcohol concentrations and even in the absence of cannabis use.

A full copy of this report is available on the NDLERF website at www.ndlerf.gov.au