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CONSISTENCY AND TIMING OF THE HORIZONTAL GAZE NYSTAGMUS TEST

The Horizontal Gaze Nystagmus (HGN) test is a Standardized Field Sobriety Test (SFST) that routinely is conducted by law enforcement officers on drivers who are suspected of being impaired. In addition, many employers and school administrators and nurses are using this non-invasive test as part of the screening process of impaired employees and students, respectively. Physical and/or cognitive *impairment* can arise from any number of medical conditions, such as heart attack, stroke, trauma, or insulin shock in diabetics; *intoxication* specifically is defined as impairment caused by use of alcohol and/or drugs. In rare cases, a benign but obvious medical condition, such as congenital nystagmus, can seem to mimic the appearance of intoxication to an untrained observer.

Numerous studies over the past 30 years have repeatedly proven that the HGN test is the most accurate psychophysical test that can be used to establish the presence or absence of impairment resulting from intoxication. The American Optometric Association, as the relevant scientific community associated with functional vision testing, recognized the reliability and validity of the HGN test and its use by law enforcement officers in

1993; the resolution was reviewed and re-adopted in 2006. In recent years, the Vertical Gaze Nystagmus (VGN) test, originally part of the Drug Recognition Evaluation (DRE) protocol, has been added to the basic SFST training. A positive finding on the VGN test, along with the observation of at least four HGN clues, virtually is proof of intoxication. Nonetheless, countless legal challenges arise as to both whether an officer can properly identify impairment at roadside and whether he/she can correctly distinguish intoxication versus impairment due to a medical condition or environmental influence.

The most important principle of conducting the HGN and VGN tests, as well as any other test for impairment, is *consistency*:

If the officer identifies physical evidence consistent with intoxication, such as poor driving, odor of an alcoholic beverage, or presence of drug paraphernalia, and

If the officer conducts the tests consistent with the standardized procedures, and

If the officer observes signs and indicators that are consistent with those previously exhibited by other individuals whom the officer knew to be intoxicated (as during an alcohol workshop, DRE certification training, or other traffic stop),

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HOW DRUGS HARM THE FAMILY TREE

By DANA DiFILIPPO
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ALEJANDRO A. ALVAREZ/Daily News

The funeral of Apollonia Tucker unfolds on May 4 after the 16-year-old was slain over an argument with a suspect who remains at large. Her cousin, Mary Tucker, offered an explanation: "It's drugs."

IN A CITY clogged with angry thugs quick to quell disagreements with a fist or a bullet, the roots of James Footman's rage run deeper than most, his lawyer has said.

They sprouted in his mother's womb.

Footman, the 15-year-old Germantown High student who pleaded guilty to punching teacher Frank Burd in a February attack that broke his neck, was a "crack baby" whose parents were chronic drug addicts, attorney William Bachmann said at a court hearing in April.

Raised in a home infected by addiction, Footman became a troublemaker with a mean temper and a slippery grasp on his impulses, said Bachmann, who pleaded for mercy during Footman's sentencing hearing.

That defense strategy is likely to grow familiar to many judges' and jurors' ears as city officials scramble to pinpoint reasons for Philadelphia's skyrocketing rates of murder and violence.

Read the complete article at http://www.philly.com/dailynews/local/20070611_HOW_DRUGS_HARM_THE_FAMILY_TREE.html.

Alcohol and Youth Facts

- Alcohol is a leading cause of death among youth, particularly teenagers. It contributes substantially to adolescent motor vehicle crashes, other traumatic injuries, suicide, date rape, and family and school problems.¹



- Every day, on average, 11,318 American youth (12 to 20 years of age) try alcohol for the first time, compared with 6,488 for marijuana; 2,786 for cocaine; and 386 for heroin.²

- Alcohol is by far the most used and abused drug among America's teenagers. According to a national survey, nearly one third (31.5%) of all high school students reported hazardous drinking (5+ drinks in one setting) during the 30 days preceding the survey.³

Read the complete article at http://www.marininstitute.org/Youth/alcohol_youth.htm

ANHEUSER-BUSCH STOPS SELLING SPYKES

Anheuser-Busch recently announced that it will stop selling the malt beverage Spykes. Spykes were packaged in colorful 2-ounce bottles, came in mango, lime, melon and chocolate flavors, and were infused with caffeine and ginseng. They were designed to be mixed with the other alcoholic beverages or used as a shot. The announcement came after criticism that Anheuser-Busch was marketing the product to underage drinkers.



More information at:
<http://www.cbsnews.com/stories/2007/05/18/national/main2824509.shtml>

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THEN the officer's only correct opinion is that the suspect is intoxicated. This will result in the suspect's arrest and a proper request for a chemical test (breath, blood, and/or urine) to corroborate the officer's conclusion. If the suspect truly is not intoxicated, then he/she should have medical records that demonstrate that the observed indicators of impairment are present when sober. Of course, in such rare cases, physical evidence of alcohol and/or drug use would not be present, which begs the question as to why the officer conducted the tests in the first place.

Several recent publications describe some of the popular challenges and myths regarding the HGN and VGN tests and why they are irrelevant, implausible, or incompatible with proper testing. For example, *Admissibility of Horizontal Gaze Nystagmus Evidence*, originally published by the National Traffic Law Center in 2003, is available on-line as a free download at http://www.ndaa-apri.org/publications/apri/traffic_law.html.

A recent legal challenge involves the total time that testing should take, suggesting that it be exactly 90 seconds. The training manuals contain no such requirement nor restriction. Certainly, the HGN test should not be performed as characterized in the 1988 movie, *Colors*: two quick passes in front of the eyes of the suspect high on PCP that lead to the evaluating officer's immediate conclusion, "He's dusted."

While the individual sub-tests of the HGN test require some precision, several factors will affect the overall length of the test. Chief among these is the suspect's ability to maintain attention and focus when performing the requested eye movements. At increasing levels of intoxication, this becomes more and more difficult for the suspect, and the officer must slow down the test, or, in some situations, even re-check one or more of the component sub-tests.

The HGN and VGN tests start with the officer asking several questions about the suspect's health and vision. These include, but are not limited to, questions about any injuries to the head and/or eyes, any problems with the eyes (such as blindness), and the suspect's ability to see the stimulus (often a finger or penlight) that the officer will ask the suspect to follow with his/her eyes. It is unreasonable to predict or require how long this will take, as it depends on any follow-up questions the officer needs to ask, as well as the suspect's ability and speed in providing answers.

Two pre-tests are then conducted. During the *check for equal tracking*, the officer moves the stimulus back and forth twice as fast or as slow as the suspect can follow. The officer simply observes whether the suspect's eyes move together

and whether they have full range of motion. Lack of either of these conditions will result in immediate termination of the test. During the *check for equal pupil sizes*, the officer looks at the suspect's eyes while the suspect is looking straight ahead. If nystagmus already is present during this check, it is most likely due to a medical condition. The officer terminates the test, as it would not be possible in this isolated situation to distinguish nystagmus caused by intoxication from that due to the medical condition. If there is no nystagmus, but the pupils are markedly different in size, the officer should ask additional questions to determine whether the condition is long-standing (and, therefore, benign) or of recent onset, possibly resulting from a head injury or stroke. In the latter cases, the test is terminated and the suspect is referred immediately for medical care. Under normal circumstances, each pre-test will take a few seconds. But, again, there is no way to predict or require precisely how long these will take, as the suspect initially may not be able to pay attention to the officer's instructions or follow the stimulus.

The first sub-test of the HGN test is the check for *lack of smooth pursuit*. The officer moves the stimulus at an angular speed of approximately 30 degrees per second. Since most individuals can turn their eyes to either side by about 60 degrees, it should take the officer about 2 seconds to move the stimulus from straight ahead to one side and about 4 seconds from side to side.

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side to side. Conducting two checks for each eye in each direction suggests that this test should be completed in about 16 seconds. However, the tolerance for a half-pass is plus or minus 0.5 second and for a full pass, plus or minus 1 second. This results in angular speeds of approximately 24 to 40 degrees per second, respectively, which will not significantly impact the test. Subsequently, this sub-test could take as long as 20 seconds or as little as 12 seconds. However, there is no requirement that the officer must conduct the test in one continuous motion, especially if the suspect loses attention or cannot maintain focus on the moving stimulus. Under such circumstances, the test will necessarily take more time to complete.

The second sub-test of the HGN test is the check for *distinct and sustained nystagmus at maximum deviation*. The suspect's eyes are directed as quickly as they can follow to the maximum lateral position. The speed of movement can be at or greater than 60 degrees per second, thus taking 1 second or less to move from straight ahead. If the suspect cannot follow at that speed, then the officer must slow down the movement of the stimulus. The suspect's eyes are held at maximum deviation for at least 4 seconds. Assessing each eye twice suggests that the test will take at least 16 seconds **plus** the amount of time to move the eyes from side to side; at the fastest speed, this will add about 4 seconds to the test time.

The third sub-test of the HGN test is the check for *onset of nystagmus prior to 45 degrees*. The officer moves the stimulus at about half the speed of the lack of smooth pursuit sub-test, or about 10-15 degrees per second. Thus, it would take about 4 seconds to bring the stimulus to the 45-degree position. If the officer observes nystagmus at any angle less than 45 degrees, he/she stops the stimulus and holds it for about 1 second to determine if the nystagmus sustains. If so, that segment of testing is concluded and the officer continues to the next segment, until both eyes are checked twice; if the nystagmus is not sustained, the officer resumes the movement until the next angle at which nystagmus is observed or until 45 degrees is reached, whichever comes first. With a suspect who has a high level of intoxication with an "immediate" angle of onset, which corresponds to about 15-20 degrees from straight ahead, each complete check of each eye might take only about 2 seconds, or about 8 seconds total. With a suspect who shows an angle of onset just before 45 degrees, each complete check will take almost 5 seconds, or about 20 seconds total.

The VGN test checks for the presence of sustained vertical nystagmus while the suspect looks

up. If the suspect's nystagmus in up-gaze is horizontal, it is congenital in nature, and not caused by intoxication. Nonetheless, the officer moves the stimulus upward from straight ahead as fast or slow as the suspect can follow and holds it at that position for at least 4 seconds. Including the time to move the stimulus upward, back to straight ahead, and repeat, the total test will take about 10 seconds, as long as the suspect does not lose attention or focus.

In theory, based on the above approximations and not including the initial questions or pre-tests, total testing time for HGN and VGN could be as little as about 50 seconds or as long as about 70 seconds, but only if the officer conducts the sub-tests in one continuous series of motions. Of course, this is an ideal (and somewhat impractical) situation. In reality, the officer often will wait a few seconds between sub-tests to allow the suspect to blink and to ensure that the suspect attends to the stimulus at the start of each sub-test. Further, with a suspect who truly is intoxicated, the officer often must redirect the suspect's focus and attention to the stimulus, and even retest one or more segments of one or more sub-tests. It would not be unusual for testing to take over 2 minutes in such a situation, as long as the suspect is making a reasonable effort to perform the tests. At the other extreme, the officer can terminate the test at any point if the suspect is uncooperative or unable to comply with the instructions.

In conclusion, to suggest that properly educated individuals, whether they be law enforcement officers, employers, or school administrators or nurses, cannot correctly identify the abnormal eye movements caused by intoxication demonstrates a lack of understanding of the uniqueness of these eye movements and the reliability of the HGN and VGN tests. Likewise, to require that the complete HGN and VGN tests must take a specific amount of time demonstrates a lack of knowledge of how the tests are conducted as well as a lack of appreciation for the potential variability of the suspect's responses.

Internet Resources

Utah Prosecution Council
www.upc.state.ut.us

Utah Highway Safety Office
www.highwaysafety.utah.gov

National Highway Traffic Safety Admin.
www.nhtsa.gov

Utah Highway Patrol
www.highwaypatrol.utah.gov



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The news media is full of disturbing stories of habitual drinkers who continue to drink and drive despite fines, jail time, and license suspension. When punishment fails, what is left to do?

Researchers at Douglas Hospital Research Centre in Montreal are attacking the problem head-on. They have put out a call for “hard-core” drunk drivers to participate in a study of recidivism. The study will also evaluate treatment and prevention techniques.

The professor running the study has already done work on this topic. He has written a short article detailing some of his conclusions as well as some research efforts of others.

One of the techniques for treating repeat impaired driving offenders is Motivational Interviewing. Although it has its detractors, several studies have reported encouraging results. You may wish to evaluate those reports for yourself by following the links to the results of the studies in Illinois and New Mexico.

At www.SobrietyTesting.org look on the bulletin board under the General Discussion topic for the article called “Hard-Core Drunk Drivers” (or click here for a locally saved version).

While Strolling through the Code one day....

Prosecutors and officers enforcing youth alcohol statutes should review Iowa Code Section 123.120, which provides:

“The destruction of or attempt to destroy any liquid by any person while in the presence of peace officers or while a property is being searched by a peace officer, shall be competent evidence that such liquid is intoxicating liquor and intended for unlawful purposes.”

(Thanks to Craig Porter of the Johnston Police Department, who has been around long enough to have stumbled over — and successfully employed — this Code section, and who graciously brought it to the attention of the editor of this newsletter, who is pleased to be younger than *someone* else.)

Have Training, Will Travel

The Prosecuting Attorneys Training Coordinator has short training programs available at no charge for law enforcement officers and local prosecutors. Topics include vehicle stops and other search and seizure issues, OWI enforcement (including drugged driving), vehicular homicide, and youth alcohol issues (.02/zero tolerance, possession under the legal age, and supplying alcohol to persons under legal age).

Departments or prosecutors interested in such a training program in their area should contact Pete Grady at PATC at 515-281-5428 or at pgrady@ag.state.ia.us