Unreliability of the Horizontal Gaze Nystagmus Test


Unreliability of the Horizontal Gaze Nystagmus Test

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Categorical List of Articles

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Topic of Article:

Proof of whether the horizontal gaze nystagmus test should be admitted in a legal proceeding as evidence of an individual's intoxication or sobriety.

This issue may arise in a criminal prosecution involving operation of a motor vehicle while intoxicated.

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... perform was considered to corroborate their conclusion of intoxication based on objective signs. Perhaps the oldest and best-known test for intoxication was the request to walk a straight line.  

In the mid-1970s, the National Highway Traffic Safety Administration, under the auspices of the Department of Transportation, began conducting research into the development of a standardized battery of psychophysical tests which could be administered in the field, to aid police officers in evaluating persons suspected of driving under the influence. This research resulted in the formulation of a recommended battery of field sobriety tests. The three tests which are recommended by the National Highway Traffic Safety Administration are the horizontal gaze nystagmus (HGN) test, the walk and turn test, and the one leg stand test.  

Some states, such as Illinois, recommend that the finger-to-nose test be used in conjunction with the battery developed by the National Highway Traffic Safety Administration.  

The horizontal gaze nystagmus test was developed in Southern California by Professors Tharp, Burns and Moskowitz under a contract with the National Highway Traffic Safety Administration. The researchers developed a battery of field sobriety tests in conjunction with police officers from the Los Angeles Police Department. In 1981 the Los Angeles Police Department and the California Highway Patrol began experimental use of the horizontal gaze nystagmus test. Due to the claim by the National Highway Traffic Safety Administration that the horizontal gaze nystagmus test is "the most effective procedure used for testing drivers at roadside to determine whether or not they are intoxicated," the use of the test has spread through virtually every state in the nation. At present many police departments and some courts are accepting the test without examining its questionable scientific basis and inherent limitations.

CUMULATIVE SUPPLEMENT

Cases:

Results of horizontal gaze nystagmus (HGN) field sobriety test was not novel scientific evidence, making Daubert test for admissibility of such evidence inapplicable when determining whether HGN test results were admissible in proceeding to reinstate motorist's driver's license. Rules of Evid., Rule 702. Hulse v. State, Dept. of Justice, Motor Vehicle Div., 1998 MT 108, 961 P.2d 75 (Mont. 1998).

Trial court in prosecution for driving under influence of alcohol erred in admitting police officer's testimony as to scientific import of HGN test in forming probable cause to arrest defendant driver, since, test, being based on scientific theories as to involuntary jerking of eyeball indicating intoxication, requires expert scientific foundation to be laid before test results may be admitted to prove intoxication. People v Leahy (1994) 8 Cal 4th 587, 34 Cal Rptr 2d 663, 882 P2d 321, 94 CDOS 8196, 94 Daily Journal DAR 15165.

In a prosecution for driving under the influence of alcohol, the trial court erred by concluding that a police officer's opinion on the state of defendant's intoxication was lay, rather than expert, testimony, where the opinion was based in part on the officer's administration of a horizontal gaze nystagmus (HGN) test. Although lay witnesses may give an opinion of another's state of intoxication based on personal observations of commonly recognizable signs, the officer drew a conclusion from the HGN testing only because of his knowledge, training, and experience, which was beyond common experience. Matters beyond common experience are not proper subjects of lay testimony, and the HGN test rests almost entirely upon an assertion of scientific legitimacy rather than a basis of common knowledge. People v Williams (1992, 5th Dist) 3 Cal App 4th 1326, 5 Cal Rptr 2d 130, 92 CDOS 1629, 92 Daily Journal DAR 2524.
A challenge to the reliability of a horizontal gaze nystagmus test as indicative of intoxication pertains to the weight of the evidence rather than to its admissibility. State v. Balbi, 89 Conn. App. 567, 874 A.2d 288 (2005), certification denied, 275 Conn. 919, 883 A.2d 1246 (2005); West's Key Number Digest, Automobiles 411.

Horizontal gaze nystagmus (HGN) test was admissible scientific evidence at trial for driving under the influence of intoxicating liquor (DUI), since it was generally accepted in relevant scientific communities as reliable indicator of alcohol impairment, it had been subject of extensive field and laboratory testing and scholarly review, national standards existed to guide police officers in executing the test, and it was sufficiently straightforward that a fact finder could reasonably and realistically draw its own conclusions therefrom. State v. Carlson, 45 Conn. Supp. 461, 720 A.2d 886 (Super. Ct. 1998).

HGN testing for sobriety has reached a state of verifiable certainty in the scientific community, and a trial court may judicially notice, without receiving evidence, that the standardized HGN test has been established with verifiable certainty. State v. Tousley, 271 Ga. App. 874, 611 S.E.2d 139 (2005); West's Key Number Digest, Criminal Law 304(1).

Verifiable certainty of HGN testing: Instruction that horizontal gaze nystagmus evaluation had reached a state of verifiable certainty did not give the test undue weight and was a correct statement of law. Baker v. State, 252 Ga. App. 695, 556 S.E.2d 892 (2001), cert. denied, (May 13, 2002); West's Key Number Digest, Automobiles 357.

Horizontal gaze nystagmus or HGN test is based on well known and medically accepted principles that nystagmus can be caused by ingestion of alcohol; it is an accepted common procedure that has reached a state of verifiable certainty in the scientific community and is admissible as a basis upon which an officer can determine whether a driver was impaired by alcohol. Polizzotto v. State, 248 Ga. App. 814, 547 S.E.2d 390 (2001), cert. dismissed, (Sept. 10, 2001); West's Key Number Digest, Automobiles 411.

Horizontal gaze nystagmus (HGN) testing is generally accepted in the relevant scientific fields and evidence of HGN test results is admissible for the purpose of proving that a defendant may have consumed alcohol and may, as a result, be impaired. People v. McKown, 236 Ill. 2d 278, 924 N.E.2d 941 (2010).

Admissible but not conclusive: Results of horizontal gaze nystagmus (HGN) field sobriety tests are admissible but not conclusive of intoxication in driving under the influence of alcohol prosecution; results can only be considered along with other evidence of intoxication. People v. Robinson, 349 Ill. App. 3d 622, 285 Ill. Dec. 628, 812 N.E.2d 448 (1st Dist. 2004), appeal allowed (Ill. Oct. 6, 2004); West's Key Number Digest, Automobiles 355(6).

In prosecution for driving under influence (DUI) and driving while intoxicated (DWI), erroneous admission of horizontal gaze nystagmus (HGN) test results to establish specific blood alcohol level was not harmless, even though defendant was convicted only of lesser charge of DUI, where no chemical test was administered to defendant, defendant denied he had been drinking, passenger corroborated that statement, defendant claimed that he was taking prescription medicines and had injured his leg, which made it difficult for him to balance, and prosecutor relied on HGN testimony concerning blood alcohol level in closing argument. Wilson v. State, 124 Md. App. 543, 723 A.2d 494 (1999); West's Key Number Digest, Criminal Law 1169.1(7).

Probable cause determinations: While it is true that the State cannot use the results of the horizontal gaze nystagmus test merely as an indicator to show that the defendant was under the influence of intoxicating liquor to prove the requisite elements of driving under the influence, the horizontal gaze nystagmus test can still be used to prove probable cause to arrest and administer the breath test or blood test. West's A.M.C. § 63-11-30. Deloach v. City of Starkville, 911 So. 2d 1014 (Miss. Ct. App. 2005); West's Key Number Digest, Automobiles 411.
Although indicative of intoxication, a driver's particular score on the horizontal gaze nystagmus (HGN) test does not create a presumption of intoxication; that ultimate conclusion in a prosecution for driving while intoxicated (DWI) rests with the trier of fact, who is free to believe or disbelieve the officer's testimony and to ascribe the weight given to it. State v. Rose, 86 S.W.3d 90 (Mo. Ct. App. W.D. 2002); West's Key Number Digest, Automobiles 356.


The horizontal gaze nystagmus (HGN) test is the single most accurate field test in determining whether a driver is impaired by alcohol. State v. Walker, 149 Ohio App. 3d 296, 2002 -Ohio- 4362, 777 N.E.2d 279 (11th Dist. Ashtabula County 2002); West's Key Number Digest, Automobiles 411.


Horizontal gaze nystagmus (HGN) and walk-and-turn field sobriety tests were not testimonial, and thus results of such tests were admissible in their entirety in prosecution for boating under influence of intoxicants. State v. Anderson, 148 Or. App. 325, 940 P.2d 246 (1997), review denied, 326 Or. 43, 943 P.2d 633 (1997).


**Judicial notice of reliability:** The reliability of the horizontal gaze nystagmus (HGN) test is a legislative fact, not an adjudicative fact, for purpose of judicial notice rule. Rules of Evid., Rule 201(a). O'Connell v. State, 17 S.W.3d 746 (Tex. App. Austin 2000); West's Key Number Digest, Criminal Law 304(1).

Police officer properly administered walk and turn field sobriety test, and therefore evidence regarding licensee's performance on test was admissible in administrative proceeding regarding revocation of driver's license due to driving under the influence (DUI) arrest, where officer asked licensee about any medication or medical condition that would have prevented her from performing the test. Dale v. McCormick, 749 S.E.2d 227 (W. Va. 2013).

The following authority considered the application of the unreliability of the horizontal gaze nystagmus test to due process rights.
CUMULATIVE SUPPLEMENT

Cases:

Trial court did not violate defendant's due process rights in driving while intoxicated (DWI) case by denying request to appoint an expert who would testify that horizontal gaze nystagmus (HGN) test should not be performed on suspects with a concussion, as defendant had at time of the test; defendant did not offer affidavits or other evidence to support request, as necessary to make threshold showing that an expert's assistance was necessary, and jury could reasonably conclude that defendant was intoxicated even without results of HGN test. U.S.C.A. Const.Amend. 14. Pointe v. State, 371 S.W.3d 527 (Tex. App. Beaumont 2012).

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[END OF SUPPLEMENT]

§ 1.1. Vertical gaze nystagmus

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CUMULATIVE SUPPLEMENT

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Vertical Gaze Nystagmus Test: Use in Impaired Driving Prosecution, 117 A.L.R. 5th 491

Cases:

Trial court's admission of testimony regarding vertical gaze nystagmus (VGN) test without conducting Daubert/Kelly hearing to establish reliability of test was an abuse of discretion in prosecution in which defendant was convicted of felony driving while intoxicated (DWI) as an habitual offender; court denied defendant's request for hearing to determine reliability of VGN test, state did not satisfy criteria for establishing admissibility of officer's testimony about VGN test, and no state court had assessed reliability of VGN tests. Rules of Evid., Rule 702. Stovall v. State, 140 S.W.3d 712 (Tex. App. Tyler 2004), reh'g overruled, (July 14, 2004); West's Key Number Digest, Automobiles 411.

Trial court erred in admitting vertical gaze nystagmus (VGN) and resting nystagmus evidence in prosecution for driving while intoxicated; there was no scientific proof behind police officer's theory that VGN and resting nystagmus tests were extensions of horizontal gaze nystagmus (HGN) test, which did have scientific proof, but that VGN and resting nystagmus indicated a suspect was under influence of narcotics as opposed to alcohol. Rules of Evid., Rule 702. Quinney v. State, 99 S.W.3d 853 (Tex. App. Houston 14th Dist. 2003); West's Key Number Digest, Automobiles 411.

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§ 1.2. HGN Opinions—NHTSA standards

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CUMULATIVE SUPPLEMENT

Cases:

Assuming that horizontal gaze nystagmus (HGN) test results are admissible as substantive evidence of intoxication at a trial for driving under the influence of intoxicating liquor (DUI), State failed to establish proper foundation that arresting officer was duly qualified to conduct HGN test and grade test results, where State failed to elicit testimony from officer that the training he received met requirements of National Highway Traffic Safety Administration (NHTSA), and although officer testified that he went through the "complete training program," he was unsure whether he received periodic retraining to refresh himself on HGN test administration skills. Hawaii Revised Statutes § 291-4(a). State v. Ferrer, 95 Haw. 409, 23 P.3d 744 (Ct. App. 2001); West's Key Number Digest, Automobiles 423.

Evidence of horizontal gaze nystagmus (HGN) field-sobriety testing, when performed according to the National Highway Transportation Safety Administration (NHTSA) protocol by a properly trained officer, is admissible under the Frye test for the purpose of showing whether the subject has likely consumed alcohol and may be impaired. People v. McKown, 236 Ill. 2d 278, 924 N.E.2d 941 (2010).

Police officer's administration of horizontal gaze nystagmus (HGN) test on defendant complied with protocols required in National Highway Traffic Safety Administration (NHTSA) manual, as a foundational requirement for admission of test results at trial of defendant on charge of driving under the influence of alcohol (DUI); manual did not require officer to inquire whether defendant wore glasses or suffered from any medical impairment that would affect test results. People v. Korzenewski, 2012 IL App (4th) 101026, 2012 WL 2061440 (Ill. App. Ct. 4th Dist. 2012).

Arresting officer's testimony concerning results of horizontal gaze nystagmus (HGN) test was admissible in driving while intoxicated (DWI) prosecution, even though another officer testified that arresting officer performed the HGN test in a non-standardized manner; arresting officer testified that he administered the HGN test in accordance with his training and the procedures set forth in National Highway Traffic Safety Administration (NHTSA) manual, and any deviations made by arresting officer were slight and did not render test results inadmissible. Rules of Evid., Rule 702. Plouff v. State, 192 S.W.3d 213 (Tex. App. Houston 14th Dist. 2006); West's Key Number Digest, Automobiles 422.1.

§ 1.3. HGN Opinions—Lay and expert opinions

CUMULATIVE SUPPLEMENT

Cases:

The administration of a horizontal gaze nystagmus (HGN) test for determining whether defendant was sober and the interpretation of the results were subjects beyond the ken of a lay juror, and thus, expert testimony was required, in prosecution for driving a motor vehicle while under the influence (DUI). Karamychev v. District of Columbia, 772 A.2d 806 (D.C. 2001); West's Key Number Digest, Criminal Law 474.2.
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No expert testimony is required to establish the scientific validity and reliability of the horizontal gaze nystagmus (HGN) field sobriety test, so as to make the results of the test admissible in a prosecution for driving under the influence of alcohol (DUI). Stewart v. State, 280 Ga. App. 366, 634 S.E.2d 141 (2006), cert. denied, (Oct. 30, 2006); West's Key Number Digest, Automobiles 411.

Resolution by American Optometric Association declaring the horizontal gaze nystagmus (HGN) test to be a scientifically valid and reliable tool for trained police officers to use in field sobriety testing did not support a finding that HGN test satisfied the Frye standard for admissibility of scientific evidence; the Association was a professional organization rather than a scientific body and its resolutions could not be considered evidence of consensus among members of the profession. People v. McKown, 236 Ill. 2d 278, 924 N.E.2d 941 (2010).

Police officer who administered field sobriety tests and horizontal gaze nystagmus test (HGN) did not have to be rendered expert to give opinion testimony regarding administration of tests, since tests relied upon common experiences to develop opinion whether person was intoxicated or not, and were based upon coordination and ability to concentrate, with simple exercises such as reciting alphabet, walking, or standing on one leg, and only required officer to observe actions of person or whether he was slurring, stumbling or staggering, and to testify to them in court. Rules of Evid., Rules 701, 702. Graves v. State, 761 So. 2d 950 (Miss. Ct. App. 2000); West's Key Number Digest, Criminal Law 488.

State trooper was qualified to testify as expert about correlation between alcohol consumption and horizontal gaze nystagmus test, in trial for driving under... *** Start Section

... influence (DUI), fifth offense; he had associate degree in criminal justice with courses in anatomy and biology, he had received basis training on standard field sobriety testing and was recertified on same every year, he had completed advanced roadside impaired driving enforcement course, he had completed eight classroom hours dedicated specifically to horizontal gaze nystagmus testing, he had 3.5 years experience as state trooper with over 100 DUI arrests, and he had been previously qualified as expert. Rules of Evid., Rule 702. State v. Bollman, 2012 MT 49, 272 P.3d 650 (Mont. 2012).

A police officer's testimony in prosecution for driving while intoxicated (DWI) regarding his or her training and experience in administering and scoring horizontal gaze nystagmus (HGN) tests, administration of a particular HGN test, and interpretation of the resulting HGN test score, constitutes lay testimony provided that the testimony is based upon the officer's observations, made in accordance with established National Highway Traffic Safety Administration (NHTSA) standards and guidelines, and does not encompass highly technical or specialized scientific information pertaining to mechanisms behind the nystagmus phenomenon itself. Rules of Evid., Rule 701. State v. Cochrane, 897 A.2d 952 (N.H. 2006); West's Key Number Digest, Automobiles 422.1.

It is generally impermissible for a witness in a case for driving while intoxicated (DWI) to correlate a defendant's performance on the horizontal gaze nystagmus test to a conclusion that his blood-alcohol concentration exceeds the legal limit. Jordy v. State, 413 S.W.3d 227 (Tex. App. Fort Worth 2013).

Police officer was qualified to testify as an expert witness on the horizontal gaze nystagmus (HGN) test, in prosecution for driving while intoxicated (DWI); officer testified that he had attended an extensive field sobriety testing school during which he conducted field sobriety tests on multiple test subjects, in addition to additional training and practice thereafter. Salazar v. State, 298 S.W.3d 273 (Tex. App. Fort Worth 2009), reh'g overruled, (Aug. 20, 2009) and petition for discretionary review filed, (Dec. 11, 2009).
Evidence was sufficient to establish that defendant did not have normal use of his mental or physical faculties so as to support conviction for driving while intoxicated (DWI); there was eyewitness testimony regarding defendant's driving, officer described defendant's performance on field sobriety tests, there was video of defendant performing field sobriety tests, officer testified that horizontal gaze nystagmus (HGN) test was accurate measure of intoxication, and officer concluded that defendant did not have normal use of his mental or physical faculties. V.T.C.A., Penal Code § 49.01(2). Paschall v. State, 285 S.W.3d 166 (Tex. App. Fort Worth 2009), petition for discretionary review filed, (July 1, 2009).

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§ 1.5. HGN Opinions—Daubert analyses

CUMULATIVE SUPPLEMENT

Cases:

Evidence of defendant's horizontal gaze nystagmus test satisfied requirements for admission of scientific evidence, in prosecution for operating a motor vehicle while under the influence of intoxicating liquor; test and its underlying methodology were generally accepted in scientific community, methodology had been tested and subjected to peer review, there was known or potential rate of error, behavioral optometrist who testified at trial regarding test was credible, and methodology was explainable to jury in manner from which it reasonably could draw its own conclusions. State v. Commins, 83 Conn. App. 496, 850 A.2d 1074 (2004); West's Key Number Digest, Criminal Law 388.2.

While horizontal gaze nystagmus (HGN) test results are admissible under the Daubert test, the proponent of such evidence must still present a qualified witness who can testify about the subject. State v. Dahood, 148 N.H. 723, 814 A.2d 159 (2002); West's Key Number Digest, Automobiles 411.


Kelly requirements: Testimony concerning horizontal gaze nystagmus (HGN) test is scientific evidence and is subject to the Kelly requirements for scientific evidence. Rules of Evid., Rule 702. Plouff v. State, 192 S.W.3d 213 (Tex. App. Houston 14th Dist. 2006); West's Key Number Digest, Automobiles 411.

Test as novel: Application of horizontal gaze nystagmus (HGN) test is not entirely "novel," for purposes of determining admissibility of test results obtained through application of Drug Evaluation and Classification Program (DECP) incorporating HGN test as "novel scientific evidence," as test has been in use for decades as field sobriety test in context of alcohol-related arrests, and test is performed in same manner regardless of whether officer is testing for alcohol impairment or drug impairment. State v. Baity, 140 Wash. 2d 1, 991 P.2d 1151 (2000); West's Key Number Digest, Automobiles 411.

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§ 1.7. HGN Opinions—Certification of police officers

[Cumulative Supplement]

CUMULATIVE SUPPLEMENT

Cases:

Law enforcement officer was unable to adequately testify about the reliability of the horizontal gaze nystagmus (HGN) test, and thus, the results of the HGN test administered by the officer to a motorist were inadmissible as evidence that the motorist was impaired, in a prosecution for driving while impaired (DWI). Fed.Rules Evid.Rule 702, 28 U.S.C.A.; West's N.C.G.S.A. § 20-138.1. U.S. v. Van Hazel, 468 F. Supp. 2d 792 (E.D. N.C. 2006); West's Key Number Digest, Automobiles ☞411.

Horizontal gaze nystagmus test administered to defendant was performed properly and in accordance with prevailing standards, as necessary for evidence of test to be admissible; police officer who administered test provided uncontroverted testimony as to how he administered test, and he explained to jury the six clues one looks for when grading test and the number of clues that indicated failure on test. State v. Commins, 83 Conn. App. 496, 850 A.2d 1074 (2004); West's Key Number Digest, Automobiles ☞422.1.

Police officer was qualified to testify regarding scientific basis of horizontal gaze nystagmus test and about increase or decrease of blood alcohol concentration over time; questions were in context of officer's training and experience for 13 years as police officer, seven of which he was member of DUI Countermeasures Team, officer had made over 2,000 DUI arrests, and he was certified to administer field sobriety tests. Worthman v. State, 266 Ga. App. 208, 596 S.E.2d 643 (2004), cert. denied, (Sept. 7, 2004); West's Key Number Digest, Criminal Law ☞479.

Foundation regarding police officer's administration of horizontal gaze nystagmus (HGN) test to defendant was properly established, and thus results of such test were admissible in driving under the influence of alcohol prosecution absent a Frye hearing; officer testified that he was trained and certified in the use of HGN field sobriety tests and had conducted hundreds of them for ten years, officer was thoroughly cross-examined by defense counsel regarding other conditions which may have caused nystagmus, but testified that he was trained to distinguish those conditions, and other evidence of defendant's impairment existed. People v. Robinson, 349 Ill. App. 3d 622, 285 Ill. Dec. 628, 812 N.E.2d 448 (1st Dist. 2004), appeal allowed (Ill. Oct. 6, 2004); West's Key Number Digest, Automobiles ☞422.1.

State trooper's testimony about defendant's performance on horizontal gaze nystagmus (HGN) test, that he observed "lack of smooth pursuit" and "distinct nystagmus at maximum deviation" in each eye, constituted expert testimony subject to the strictures of rule governing the admissibility of expert testimony, even though trooper did not expressly provide an opinion as to defendant's state of intoxication, and thus testimony was not admissible without a preliminary legal determination that trooper was qualified to testify as an expert witness and without the State establishing the reliability of the administration of the HGN test; testimony was not based on trooper's general knowledge as a layperson but upon his specialized knowledge and training. Md.Rule 5–702. State v. Blackwell, 408 Md. 677, 971 A.2d 296 (2009).

Police officer's testimony that sergeant "did another test with the horizontal gaze" was improper in prosecution for operating a motor vehicle while under the influence of intoxicating liquor, in the absence of expert to explain the test properly. Com. v. Dumais, 60 Mass. App. Ct. 70, 799 N.E.2d 125 (2003); West's Key Number Digest, Automobiles ☞422.1.
Where a driver convicted of DWI challenged the admission of the results of the horizontal gaze nystagmus (HGN) test on the basis that the officer who testified was not qualified as a scientific expert and that the court failed to determine the reliability of the HGN test, the Court of Criminal Appeals took judicial notice that the theory underlying the HGN test is sufficiently reliable, as the scientific materials addressing the issue have reached the uniform conclusion that the consumption of alcohol has a cognizable effect on human eye movement, and that the technique employed in the HGN test, as designed and promoted by the National Highway Traffic Safety Administration, is a reliable indicator of intoxication, but not of precise blood alcohol content (BAC), and the court concluded that the officer had followed the correct procedures in his examination of the driver; the court further concluded that the officer was qualified as an expert on the HGN test because he had received practitioner certification by the state to administer the HGN and that, as a qualified expert, the officer could testify concerning the driver's performance on the HGN test but could not correlate the driver's performance on the HGN test to a precise BAC. Emerson v State (1994, Tex Crim) 880 SW2d 759, cert den (US) 130 L Ed 2d 284, 115 S Ct 323.

For testimony concerning a defendant's performance on the horizontal gaze nystagmus (HGN) test to be admissible in a prosecution for driving while intoxicated (DWI), it must be shown that the witness testifying is qualified as an expert on the HGN test, specifically concerning its administration and technique; in the case of a law enforcement official, this requirement will be satisfied by proof that the officer has received practitioner certification by the state to administer the HGN test. V.T.C.A., Penal Code §§ 49.01(2)(A), 49.04(a). Hartman v. State, 198 S.W.3d 829 (Tex. App. Corpus Christi 2006), petition for discretionary review filed, (Oct. 12, 2006); West's Key Number Digest, Automobiles 422.1.

**Improper closing argument:** Prosecutor's statement during closing argument that officer performed horizontal gaze nystagmus field-sobriety test (HGN) exactly as National Highway Traffic and Safety Administration standards dictated was not reasonable deduction from evidence properly before jury and went beyond record, and thus, was error; officer had previously testified that he was certified practitioner in HGN test, that as part of his training, he was taught HGN, walk-and-turn, one-leg-stand, and Rhomberg standardized field-sobriety tests, and that National Highway Traffic and Safety Administration set standards for these tests. Baker v. State, 177 S.W.3d 113 (Tex. App. Houston 1st Dist. 2005); West's Key Number Digest, Criminal Law 720(7.1).

Horizontal gaze nystagmus (HGN) evidence is reliable, admissible scientific evidence under rule governing testimony by experts when performed by a police officer who is certified by the National Highway Transportation Safety Administration (NHTSA) and who applies the technique properly. Rules of Evid., Rule 702. McRae v. State, 152 S.W.3d 739 (Tex. App. Houston 1st Dist. 2004), reh'g overruled, (Jan. 10, 2005) and petition for discretionary review refused, (June 29, 2005); West's Key Number Digest, Automobiles 411.

Police officer was qualified to testify about horizontal-gaze-nystagmus (HGN) test, and thus, his testimony was admissible in driving while intoxicated (DWI) prosecution; although officer lacked 16 hours of field work required to qualify for his "proficiency certification" from state, defendant completed training course, including training on the HGN test, and received his state "practitioner certification" after completing required 24 hours of classroom instruction. Rules of Evid., Rule 702. Gerron v. State, 119 S.W.3d 371 (Tex. App. Waco 2003); West's Key Number Digest, Automobiles 423.

**Mandatory certification:** Trial court abused its discretion in allowing police officer to testify about Horizontal Gaze Nystagmus (HGN) test in prosecution of defendant who was convicted of driving while intoxicated; even though officer had training and experience in administering test, officer was not certified. Ellis v. State, 86 S.W.3d 759 (Tex. App. Waco 2002), reh'g overruled, (Oct. 23, 2002); West's Key Number Digest, Criminal Law 478(1).

Officer who stopped defendant and administered field sobriety tests was qualified to testify as an expert on administration and technique of Horizontal Gaze Nystagmus (HGN) test and could testify concerning defendant's performance on HGN test, where officer was certified by the state to administer the test; officer in testifying did not impermissibly estimate defendant's blood-
alcohol content (BAC) based on his performance on the HGN, nor did he attempt to correlate defendant's performance to a precise BAC. Rules of Evid., Rule 702. Gullatt v. State, 74 S.W.3d 880 (Tex. App. Waco 2002); West's Key Number Digest, Criminal Law 478(1).

To qualify as an expert on the administration of the horizontal gaze nystagmus (HGN) test, which is used to determine whether an individual has been driving under the influence of alcohol, a police officer has to show only that he has received practitioner certification by the State. Smith v. State, 65 S.W.3d 332 (Tex. App. Waco 2001), reh'g overruled, (Dec. 28, 2001); West's Key Number Digest, Criminal Law 479.

Arresting officer's testimony that he was certified by state to administer horizontal gaze nystagmus (HGN) test was sufficient to qualify him as expert and thereby allow admission of his testimony on defendant's test results in prosecution for driving while intoxicated (DWI), despite lack of any written documentation confirming his certification. Reagan v. State, 968 S.W.2d 571 (Tex. App. Texarkana 1998), petition for discretionary review filed, (June 29, 1998).

§ 2. Explanation of the HGN test

Nystagmus is a well-known physiological phenomenon, which has been defined in the medical dictionaries as "constant, involuntary, cyclical movement of the eyeball. Movement may be in any direction." Although there are many types of nystagmus, the type usually used in field sobriety testing is labeled "horizontal gaze nystagmus." Horizontal gaze nystagmus is an involuntary, rapid oscillation of the eyes which occurs when a person looks to the side at an object, and is characterized by an involuntary pendular (back and forth) jerking movement of the eye. The field test is a measurement of the angle of onset of this jerking movement when the eye tracks a steadily moving object such as a pencil or pen-sized flashlight.

It is recognized in the medical literature that nystagmus can be caused by ingestion of alcohol, and the HGN test presumes that through measuring the point at which the subject's eyes begin jerking, a rough approximation of blood alcohol content can be determined. Based upon the results of the study commissioned by the National Highway Traffic Safety Administration, the regression test developed by the researchers shows that if gaze nystagmus is observed at an angle of 45 degrees, the subject can correctly be classified as being at a blood alcohol content of approximately 0.05%. The entire gaze nystagmus test, using all three indicators (nystagmus at 45-degree angle, nystagmus at maximum deviation, and lack of smooth pursuit in tracking), is claimed to be 77% reliable in determining a blood alcohol concentration of 0.10% where the subject scores four out of six points on the three indicators in each eye (see § 5). Some police departments instruct their officers that if gaze nystagmus is observed at the 45-degree angle, the suspect is presumed to have a blood alcohol content of 0.05%.

CUMULATIVE SUPPLEMENT

Cases:

Nystagmus is an involuntary rapid movement of the eyeball, which may be horizontal, vertical, or rotatory. An inability of the eyes to maintain visual fixation as they are turned from side to side (in other words, jerking or bouncing) is known as
horizontal gaze nystagmus, or HGN. Some investigators believe alcohol intoxication increases the frequency and amplitude of HGN and causes HGN to occur at a smaller angle of deviation from the forward direction. People v Leahy (1993, 4th Dist) 22 Cal App 4th 1109.

Horizontal gaze nystagmus (HGN) test is based on well-known and medically accepted principles that nystagmus can be caused by ingestion of alcohol, and HGN test is an accepted, common procedure that has reached a state of verifiable certainty in the scientific community and is admissible as a basis upon which an officer can determine whether a driver was impaired by alcohol; fact finder may consider the HGN evaluation as a symptom indicative of, but not determinative of the presence of alcohol. Johnson v. State, 744 S.E.2d 921 (Ga. Ct. App. 2013).

The horizontal gaze nystagmus (HGN) test is a field sobriety test, and a driver's performance on the test is admissible as evidence that the driver may have consumed alcohol and may, therefore, be impaired; results of the HGN test are entitled to no greater weight in a license revocation proceeding than other field sobriety tests, such as the walk-and-turn test and the one-leg stand test. White v. Miller, 724 S.E.2d 768 (W. Va. 2012).

§ 3. Procedure for administering test

The National Highway Traffic Safety Administration's proposed horizontal gaze nystagmus test (HGN) consists of noting the angle of nystagmus onset in each eye as the eye is laterally deviated at an angle of 45 degrees from the suspect's nose.

The exact procedure for administering this test is laid out by the National Highway Traffic Safety Administration as follows:

Give the suspect following instructions from a position of interrogation (that is, with your weapon away from the suspect):

I am going to check your eyes. (Request the suspect remove glasses or hard contact lenses at this time if they are being worn. Nystagmus is not influenced by how clearly the suspect can see the object he is to follow.)

Now keep your head still and follow this (indicate what he is to follow) with your eyes. Do not move your eyes back to the center until I tell you. (If the...
An eye deviated to 40 degrees—note the amount of white showing on the outside (closest to the ear) of the eye.

Repeat this entire procedure for the left eye. When observing the left eye at 45 degrees of gaze, some white of the eye again should be visible at the outside (closest to the ear) of the eye.

Figure 1. Estimating forty-five degree angle

CUMULATIVE SUPPLEMENT

Cases:

Police officer substantially performed the scientific procedures involved in administering horizontal gaze nystagmus (HGN) test to defendant, and thus, results of test were admissible, in prosecution for driving under the influence (DUI); although officer did not administer the number of passes that he was trained to administer, he nevertheless observed six out of six possible
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

indicators of impairment such that trial court was authorized to conclude that the officer substantially performed the test in accordance with his training and guidelines. Duncan v. State, 305 Ga. App. 268, 699 S.E.2d 341 (2010).

Police officer had probable cause for arrest of defendant who was suspected of driving under the influence of alcohol, despite defendant's contention that officer did not conduct horizontal gaze nystagmus (HGN) test in accordance with guidelines; officer testified that he stopped defendant for driving over 100 miles per hour, that after he stopped defendant, he detected alcohol on defendant's breath, defendant's face was flushed and his eyes were watery, that defendant stated he had consumed two or three beers, that he administered the walk and turn and one-leg stand tests, and that he had to explain instructions for tests several times before defendant seemed to understand. U.S.C.A. Const.Amend. 4. Pierce v. State, 278 Ga. App. 162, 628 S.E.2d 235 (2006), cert. denied, (Nov. 20, 2006); West's Key Number Digest, Automobiles 349(6).

Police officer's failure to specifically testify that he had repeated testing procedure three times in performing horizontal gaze nystagmus (HGN) test on defendant did not show that officer had failed to perform test in compliance with protocols required in National Highway Traffic Safety Administration (NHTSA) manual, as a foundational requirement for admission of test results at trial of defendant on charge of driving under the influence of alcohol (DUI); officer gave unrebutted testimony that he was trained to administer test in accordance with the NHTSA Manual, that he had conducted over 100 HGN tests prior to testing defendant, and that he had administered the test to defendant in accordance with the NHTSA Manual. People v. Korzenewski, 2012 IL App (4th) 101026, 2012 WL 2061440 (Ill. App. Ct. 4th Dist. 2012).

Police officer's testimony that he had received the requisite eight hours of instruction on how to administer and interpret the horizontal gaze nystagmus (HGN) test, and his explanation of instructions he gave defendant and observations that were made during each phase of the HGN test before arresting defendant for driving while intoxicated (DWI), was sufficient to show that officer properly administered the test, as required for admission of test results, even if he did not follow all guidelines of National Highway Traffic Safety Administration (NHTSA); any challenges raised by defendant to the procedures followed by officer during administration of test went to its weight, rather than to admissibility of the test results. State v. Burks, 373 S.W.3d 1 (Mo. Ct. App. S.D. 2012), reh'g and/or transfer denied, (Feb. 24, 2012).

Proper administration of the horizontal gaze nystagmus (HGN) test, such that the results are admissible as evidence of driver's intoxication in prosecution for driving while intoxicated (DWI), requires: (1) that the test be conducted by requiring a suspect to follow an object such as a finger, pencil or pen with his eyes as the object is moved laterally along a horizontal plane to the periphery of the suspect's vision, and (2) that the indicators be interpreted and scored, one eye at a time, as follows: (a) the person administering the test is to observe how smoothly a suspect follows the object as it is moved to the periphery of the suspect's vision; (b) the person administering the test is to observe whether or not a distinctive jerking occurs in the eyes at the maximum point of deviation when the eye moves to the far periphery of vision; and (c) the person administering the test is to observe the angle at which nystagmus occurs. State v. Ostdiek, 351 S.W.3d 758 (Mo. Ct. App. W.D. 2011), reh'g and/or transfer denied, (72397)(Oct. 4, 2011) and transfer denied, (Dec. 6, 2011).

Test should have taken 68 seconds to administer: Highway patrol officer did not substantially comply with guidelines of National Highway Traffic Safety Administration NHTSA guidelines in administering horizontal gaze nystagmus (HGN) test to defendant, and therefore results of HGN were inadmissible to show probable cause to arrest defendant for driving under the influence (DUI); minimum times under guidelines for performing each of the three phases of exam added up to 68 seconds, and officer took only 44 seconds to perform test on defendant. U.S.C.A. Const.Amend. 4; R.C. § 4511.19(D)(4)(b). State v. Derov, 176 Ohio App. 3d 43, 2008-Ohio-1672, 889 N.E.2d 1057 (7th Dist. Mahoning County 2008), motion to certify allowed, 118 Ohio St. 3d 1503, 2008-Ohio-3369, 889 N.E.2d 1023 (2008) and appeal allowed, 118 Ohio St. 3d 1505, 2008-Ohio-3369, 889 N.E.2d 1024 (2008); West's Key Number Digest, Automobiles 422.1.
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

**Slight variations** in the administration of the horizontal gaze nystagmus (HGN) test do not render the evidence inadmissible or unreliable, but may affect the weight to give the testimony. *Plouff v. State*, 192 S.W.3d 213 (Tex. App. Houston 14th Dist. 2006); West's Key Number Digest, *Automobiles* 422.1.

HGN **test was improperly administered**, and thus, resulted in invalid test; officer administered only two out of three required parts of HGN because he did not conduct onset-of nystagmus portion of test, made only one pass of each eye rather than two passes of each eye during HGN test as set forth in guidelines in National Highway Transportation Safety Administration (NHTSA) manual, admitted making several misstatements concerning HGN test, and when confronted with procedural errors made in administering HGN test that did not comply with NHTSA guidelines, officer was asked whether there was "valid HGN test" on defendant and officer replied that there was none. *McRae v. State*, 152 S.W.3d 739 (Tex. App. Houston 1st Dist. 2004), reh'g overruled, (Jan. 10, 2005) and petition for discretionary review refused, (June 29, 2005); West's Key Number Digest, *Automobiles* 422.1.

**Time requirements:** Police officer's slight deviation in number of seconds taken to conduct horizontal nystagmus (HGN) test from number of seconds recommended by DWI Detection Manual did not invalidate test results otherwise indicating that defendant was driving while intoxicated. *Compton v. State*, 120 S.W.3d 375 (Tex. App. Texarkana 2003), reh'g overruled, (Oct. 15, 2003) and petition for discretionary review filed, (Nov. 19, 2003); West's Key Number Digest, *Automobiles* 422.1.

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**[END OF SUPPLEMENT]**

§ 4. Procedure for administering test—Estimating a 45-degree angle

[Cumulative Supplement]

The National Highway Traffic Safety Administration Manual on Improved Sobriety Testing contains the following instructions regarding the estimation of the crucial 45-degree angle by the officer:

> Since the extent of impairment is indicated by the angle at which nystagmus...

*** Start Section

.... Next, practice without the device, but check your estimates periodically.

Practice until you can consistently estimate 45 degrees. Check yourself monthly with the device to be sure that your accuracy has been sustained.

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**CUMULATIVE SUPPLEMENT**

Cases:

In administering the horizontal gaze nystagmus test, an officer must look for the following clues in each eye: (1) lack of smooth pursuit, (2) distinct nystagmus at maximum deviation, and (3) onset of nystagmus prior to 45 degrees; slight variations in the
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

test will not render the evidence inadmissible. Reynolds v. State, 163 S.W.3d 808 (Tex. App. Amarillo 2005), reh'g overruled, (June 21, 2005); West's Key Number Digest, Automobiles 422.1.

In determining whether a person's performance of the horizontal gaze nystagmus (HGN) test suggests intoxication, an officer must look for the following clues in each eye: (1) the lack of smooth pursuit, (2) distinct nystagmus at maximum deviation, and (3) the onset of nystagmus prior to 45 degrees. McRae v. State, 152 S.W.3d 739 (Tex. App. Houston 1st Dist. 2004), reh'g overruled, (Jan. 10, 2005) and petition for discretionary review refused, (June 29, 2005); West's Key Number Digest, Automobiles 411.

[Top of Section]

[END OF SUPPLEMENT]

§ 5. Procedure for administering test—Scoring

[Cumulative Supplement]

The National Highway Traffic Safety Administration Manual on Improved Sobriety Testing contains the following instructions regarding scoring of the HGN test by the officer:

You should look for three signs of intoxication in each eye. Give one point for each item checked for a maximum of six points.

1. Onset of alcohol gaze nystagmus in the right eye occurs before 45 degrees. Do not score this item unless some white is visible on the outside of the right eye (closest to the ear) at the point of onset.

2. Nystagmus in the right eye when moved as far as possible to the right is moderate or distinct. Do not score this item if you only see the faint jerking that occurs at the onset point.

3. The right eye cannot follow a moving object smoothly. If you score this item, be sure that the jerkiness was not due to your moving the object in a jerky manner.

4. Onset of alcohol gaze nystagmus in the left eye occurs before 45...

*** Start Section

... a prosecution for driving under the influence of alcohol, a police officer was properly permitted to testify that there are 6 clues of impairment in the horizontal gaze nystagmus test, that 4 is considered an indication of impairment and that the defendant exhibited all 6 clues. The officer explained what he had observed from the field sobriety tests and how those observations led to his opinion, thus laying a foundation for it. Sieveking v State (1996) 220 Ga App 218, 469 SE2d 235, 96 Fulton County D R 490, reconsideration den, mod (Ga App) 96 Fulton County D R 830.
Trial court in prosecution for driving under influence of alcohol properly allowed arresting officer to testify that he assigned numerical score to arrestee's performance on horizontal gaze nystagmus (HGN) field sobriety test, rather than simple pass/fail conclusion, where officer's scoring was simple six-point analysis of various aspects of HGN performance which explained results of test. Lorio v State (1995) 216 Ga App 255, 454 SE2d 164.

Score of four or more on the horizontal gaze nystagmus test, which gives one point for eye movement indicative of alcohol influence for each of three tests for each eye, is an indication that a suspect is intoxicated. Parrish v. Director of Revenue, 11 S.W.3d 652 (Mo. Ct. App. E.D. 1999); West's Key Number Digest, Automobiles 411.

Four second interval requirements: Officer's failure to comply with standard four-second interval requirements of applicable manual did not preclude admission of results of Horizontal Gaze Nystagmus (HGN) test in prosecution for driving under the influence of alcohol; valid HGN results were obtainable despite deviation from four-second interval requirements, particularly because nystagmus was more apparent in the more inebriated suspect. MCA 61-8-401. State v. Zakovi, 2005 MT 91, 326 Mont. 475, 110 P.3d 469 (2005); West's Key Number Digest, Automobiles 422.1.

Six clues of intoxication: Evidence was sufficient to support conviction for driving while intoxicated (DWI); on defendant's horizontal gaze nystagmus field-sobriety test, officer found six of six possible clues of intoxication, on Rhomberg field-sobriety test, defendant estimated 30 seconds as 19 seconds and exhibited one-inch sway that was outside normal range for test, on one-leg-stand test, defendant had three of four possible clues for intoxication by swaying, using arms for...

*** Start Section
... in front of the eyes for ease of focus.

Glasses should be removed since they may block your view of the suspect's eyes. In addition, hard contact lens may restrict the boundaries of movement of the eyes. If this appears to happen, you may still conduct the tests. You should be aware that this factor may affect the reliability of the test and you should record this condition in your field notes.

CUMULATIVE SUPPLEMENT

Cases:

Reaction to airbag deployment: Law enforcement officer did not have probable cause to arrest driver for driving under influence (DUI), even though driver had odor of alcohol, admitted to drinking, and was unsteady and had bloodshot eyes and dazed appearance, alcohol sensor showed presence of alcohol in driver's body, and horizontal gaze nystagmus (HGN) test showed two of six clues of intoxication, where driver stated that other vehicle had forced her off road causing her to hit concrete median, driver's unsteadiness, bloodshot eyes, dazed appearance, and HGN results could have been caused by impact and explosion of air bags, and officer did not necessarily follow all required procedures in performing HGN test. State v. Gray, 267 Ga. App. 753, 600 S.E.2d 626 (2004), cert. denied, (Sept. 7, 2004); West's Key Number Digest, Automobiles 349(6).

Sun blindness influence: Arresting officer did not have probable cause to believe that driver had committed an alcohol-related traffic offense, therefore precluding administrative suspension of driver's license, where officer started horizontal gaze nystagmus (HGN) test with driver looking into sun, causing driver to see sunspots, driver's speech was clear, driver passed the
alphabet test and the counting backwards test, and alternate explanations existed for driver's itchy, red eyes and scent of alcohol in the car; driver wore contact lenses and passenger in the car may have been intoxicated. U.S.C.A. Const.Amend. 4; V.A.M.S. § 302.505(1). Smith v. Director of Revenue, 259 S.W.3d 84 (Mo. Ct. App. W.D. 2008), reh'g and/or transfer denied, (July 1, 2008) and transfer denied, (Aug. 26, 2008); West's Key Number Digest, Automobiles 144.1(1.11).

Subject immobilized in ER: Evidence supported finding that results of horizontal gaze nystagmus (HGN) test performed on defendant by officer at hospital following motor vehicle accident were unreliable; officers testified that defendant was on a backboard and in a neck brace when she took the test, and that she was complaining of pain during the test, and one officer admitted that he knew that pain or injury could interfere with HGN test results. State v. Brand, 157 Ohio App. 3d 451, 2004-Ohio-1490, 811 N.E.2d 1156 (1st Dist. Hamilton County 2004); West's Key Number Digest, Automobiles 422.1.

§ 7. Unreliability of test—In general; false positives

It is clear that the reliability of the horizontal gaze nystagmus test is not a settled proposition within the scientific community.

The National Highway Traffic Safety Administration's research findings have been questioned with regard to incidence of false positives. It has been stated that "[a]s most optometrists know, many suspects will have jerky eye movements even with a 0.00% BAC." Some 50% to 60% of all individuals exhibit gaze nystagmus indistinguishable from alcohol gaze nystagmus if they deviate their eyes more than 40 degrees to the side. The test as proposed by the National Highway Traffic Safety Administration requires the subject to deviate his or her eyes 45 degrees to the side (see § 3). This would seem to indicate that the National Highway Traffic Safety Administration HGN test should result in a greater number of false positives. The National Highway Traffic Safety Administration's experimental procedure has been severely criticized for its deliberate screening out of people at high risk for being classified as false positives.

CUMULATIVE SUPPLEMENT

Cases:

60% reliable: Horizontal gaze nystagmus (HGN) testing is reliable indicator of person's alcohol consumption, though not of a person's precise level of blood alcohol, and, to that extent, HGN results are relevant circumstantial evidence to prove person's impairment; even assuming that HGN test is reliable only 60% of time, this is sufficient level of reliability for HGN test to be admitted as indicator of potential intoxication. Ballard v. State, 955 P.2d 931 (Alaska Ct. App. 1998).

The function of the criteria for determining the admissibility of expert testimony based on application of a new scientific technique is to assure the reliability of the particular technique, by examining whether it has gained general acceptance in the field to which it belongs. This is not simply a process of adding up the number of assenting and dissenting voices in the relevant scientific community; the court must also consider why there is general acceptance of the test as reliable. A number of factors may be considered in this regard, including the potential rate of error, the existence and maintenance of standards, the care and concern with...
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

*** Start Section

... overview of the literature discloses that scientists significant either in number or expertise publicly oppose the technique, there is not a sufficient consensus. This looking beyond the record can help end case-by-case controversy, and is especially justified because once a trial court has admitted evidence based on the new technique and that decision is affirmed on appeal by a published appellate decision, the precedent may control subsequent trials, at least until there is new evidence of a changed attitude in the scientific community. People v Pizarro (1992, 5th Dist) 10 Cal App 4th 57, 12 Cal Rptr 2d 436, 92 CDOS 8525, 92 Daily Journal DAR 14128.

Absent a fundamental error, such as one affecting the subject's qualification for the horizontal gaze nystagmus (HGN) test, evidence of the possibility of error goes only to the weight of the test results, not to their admissibility, in a prosecution for driving under the influence (DUI). Rowell v. State, 312 Ga. App. 559, 718 S.E.2d 890 (2011).

Human error possible: Horizontal gaze nystagmus (HGN) testing for sobriety, although far from a complex procedure, may be subject to human error in its administration or interpretation; however, such potential for error does not impact on the validity of the HGN test generally. State v. Tousley, 271 Ga. App. 874, 611 S.E.2d 139 (2005); West's Key Number Digest, Automobiles 411.

Horizontal-gaze-nystagmus (HGN) evidence is a reliable measure of a driver's illegal level of intoxication. State v. Schroeder, 330 S.W.3d 468 (Mo. 2011).

In the absence of evidence verifying the reliability of horizontal gaze nystagmus (HGN) test, testing, the results are inadmissible in prosecution for driving under the influence of intoxicating liquor (DWI). NMSA 1978, § 66-8-102, subd. A. State v. Christmas, 131 N.M. 591, 2002 -NMCA- 020, 40 P.3d 1035 (Ct. App. 2001), cert. denied, 131 N.M. 619, 41 P.3d 345 (2002); West's Key Number Digest, Automobiles 411.

Expert testimony required to establish unreliability: A trial judge or jury is not suited, absent expert testimony, to determine whether a given deviation from the field sobriety testing protocol found in the National Highway Traffic and Safety Administration (NHTSA) manual renders the results of the horizontal gaze nystagmus (HGN) test unreliable. State v. Robinson, 160 Ohio App. 3d 802, 2005-Ohio-2280, 828 N.E.2d 1050 (5th Dist. Fairfield County 2005), appeal not allowed, 106 Ohio St. 3d 1544, 2005-Ohio-5343, 835 N.E.2d 726 (2005); West's Key Number Digest, Automobiles 422.1.

Horizontal gaze nystagmus (HGN) test was admissible in prosecution for operating vehicle under the influence (OVI), although defendant was facing squad car's strobe lights when test was administered and court had concerns about test's reliability with defendant facing strobe lights; test substantially complied with National Highway Traffic Safety Administration (NHTSA) guidelines, which did not mention strobe lights as a concern. U.S.C.A. Const.Amend. 4 ; R.C. § 4511.19(A). State v. Tanner, 2010-Ohio-5231, 938 N.E.2d 108 (Ohio Mun. Ct. 2010).

Evidence resulting from horizontal gaze nystagmus tests, as from other field sobriety tests, is admissible in prosecutions for driving under the influence when the test is used to elicit objective manifestations of sobriety or insobriety. However such evidence is not conclusive proof on the ultimate issue of whether the defendant was driving while under the influence. State v Sullivan (SC, 1993) 426 SE2d 766.

Fact that presence of certain factors, including possibility of false positives and other possible physiological causes for observed phenomena, could render results of horizontal gaze nystagmus (HGN) test unreliable as indication of whether particular subject has ingested drug other than alcohol did not render such results inadmissible as novel scientific evidence, where no factor undercut scientific basis of HGN test, and where all factors alleged to render test unreliable would apply equally to other
field sobriety tests routinely used in alcohol-related arrests, could be shown through cross-examination, and went to weight of evidence rather than admissibility. State v. Baity, 140 Wash. 2d 1, 991 P.2d 1151 (2000); West's Key Number Digest, Automobiles 411.

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§ 8. Unreliability of test—Lack of correlation to BAC

[Cumulative Supplement]

Of perhaps even greater significance, the National Highway Traffic Safety Administration research findings are not in agreement with those of other scientific researchers. Specifically, in 1985, J. L. Norris of the Santa Clara County Laboratory of Criminalistics reported research findings in the Journal of the Forensic Science Society 27 which stated that the data in the study revealed that there was virtually no correlation between the actual value of blood alcohol concentration and the predicted value based upon the angle of onset of nystagmus. The report of this research, which was conducted by a prosecution-oriented research group, concluded that the use of "(HGN) to predict a person's blood alcohol level does not appear to be warranted."

The data in the Norris study showed that a high correlation did exist between the breath alcohol reading and the level predicted by alcohol gaze nystagmus, whereas slightly better than a 0.51 correlation existed where the alcohol levels were determined by drawing the individual's blood. The report stated:

Since the police officers are the ones operating the breath testing equipment, it appears that, in at least some of the cases, an already known breath alcohol value may have influenced the determination of the angle of onset. Simply put, the police fudged the horizontal gaze nystagmus determination to correspond with the already known correct answer determined by the breath test result....

*** Start Section

..., 35 it was determined that positional alcohol nystagmus phase 2 may persist up to 20 hours after alcohol is consumed.

A study conducted by Yoshio Umeda, M.D. and Eiji Sakata, M.D. 36 found that horizontal gaze nystagmus was the least sensitive eye measure of alcohol intoxication. 37 The test as conducted by Umeda and Sakata recorded all eye movements with the aid of an ENG machine.

It is important to note that all of the tests and studies discussed above have made use of a protractor or ENG machine to monitor the angle of onset and the occurrence of nystagmus. However, the National Highway Traffic Safety Administration's recommended test procedure does not require the use of either type instrument (see § 3).

CUMULATIVE SUPPLEMENT

Cases:

Horizontal gaze nystagmus (HGN) field sobriety test results, although satisfying the Frye standard of scientific reliability, cannot be used to quantify or estimate blood alcohol concentration (BAC) in a driving under the influence of intoxicant (DUI)
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

In a prosecution for driving under the influence of alcohol, even assuming that a police officer's training and experience qualified him as an expert to administer a horizontal gaze nystagmus test, the officer was not qualified to attribute the observed results to a particular cause. The officer's opinion that the accused was under the influence of alcohol, to the extent it was based on the HGN test, rested on scientific premises well beyond his knowledge, training, or education. The officer was not qualified to render a scientific opinion on the relationship of alcohol ingestion and HGN, so that the officer's opinion was unfounded and should have been excluded. However, the officer's testimony was admissible if linked to testimony of a qualified expert who could give a meaningful explanation of the results to a jury. People v Williams (1992, 5th Dist) 3 Cal App 4th 1326, 5 Cal Rptr 2d 130, 92 CDOS 1629, 92 Daily Journal DAR 2524.

Results of horizontal gaze nystagmus (HGN) test, used to estimate blood alcohol level of defendant, were generally accepted as reliable in relevant scientific community, and thus, were admissible in prosecution for operating aircraft while intoxicated or in careless or reckless manner once proper foundation was laid that test was correctly administered by officer properly trained and qualified to administer test. Hughes v. State, 943 So. 2d 176 (Fla. Dist. Ct. App. 3d Dist. 2006), review denied, 959 So. 2d 716 (Fla. 2007); West's Key Number Digest, Criminal Law 388.2.

Horizontal gaze nystagmus (HGN) testing is not admissible to establish specific blood alcohol level; as type of field sobriety test, HGN is not equivalent of laboratory chemical analysis of blood, breath, or urine. Md Rule 5-702. Wilson v. State, 124 Md. App. 543, 723 A.2d 494 (1999); West's Key Number Digest, Automobiles 411.

Horizontal gaze nystagmus (HGN) results cannot be introduced at trial for the purpose of establishing a defendant's blood alcohol content (BAC) level, and the results are not sufficient alone to establish intoxication. State v. Dahood, 148 N.H. 723, 814 A.2d 159 (2002); West's Key Number Digest, Automobiles 355(6).

A witness qualified as an expert on the administration and technique of the horizontal gaze nystagmus (HGN) test may testify concerning a defendant's performance on the HGN test but may not correlate the defendant's performance on the HGN test to a precise blood-alcohol content (BAC). V.T.C.A., Penal Code §§ 49.01(2)(A), 49.04(a). Hartman v. State, 198 S.W.3d 829 (Tex. App. Corpus Christi 2006), petition for discretionary review filed, (Oct. 12, 2006); West's Key Number Digest, Automobiles 422.1.

An officer trained in administering the horizontal gaze nystagmus (HGN) test may give his opinion that a suspect in a proceeding for driving while intoxicated (DWI) was under the influence of alcohol, but the officer may not testify to that suspect's exact blood alcohol content; in other words, he may testify to the qualitative results of the HGN test, but not to the quantitative results. Youens v. State, 988 S.W.2d 404 (Tex. App. Houston 1st Dist. 1999); West's Key Number Digest, Automobiles 441.

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[END OF SUPPLEMENT]

§ 9. Unreliability of test—Other causes

[Cumulative Supplement]

Additionally, nystagmus can be caused by problems in an individual's inner ear labyrinth. In fact, irrigating the ears with warm or cold water is a source of error. 38 Physiological problems such as certain kinds of diseases may also result in gaze
nystagmus. Influenza, streptococcus infections, vertigo, measles, syphilis, arteriosclerosis, muscular dystrophy, multiple sclerosis, Korsakoff's syndrome, brain hemorrhage, epilepsy, and other psychogenic disorders all have been shown to cause nystagmus.

Additionally, suspects who have high refractive errors could have trouble seeing the test target with their glasses removed and may therefore have problems with the test.

**CUMULATIVE SUPPLEMENT**

**Cases:**

**Contact lenses:** Slight chance that wearing of contact lenses might affect results of horizontal gaze nystagmus test, coupled with officer's failure to inquire whether driver was wearing lenses, did not render unreasonable officer's partial reliance on test results in determining that probable cause existed to arrest driver for driving under influence. U.S.C.A. Const. Amend. 4. Babers v. City of Tallassee, Ala., 152 F. Supp. 2d 1298 (M.D. Ala. 2001); West's Key Number Digest, Automobiles 349(6).

Testimony of State's expert witness that horizontal gaze nystagmus (HGN) test could detect nystagmus caused by alcohol and that arresting officer could have observed such nystagmus despite his improper administration of test was admissible as a corollary to the wide acceptance of HGN testing as a common procedure that has reached a state of verifiable certainty, in prosecution for driving under the influence (DUI). Duncan v. State, 305 Ga. App. 268, 699 S.E.2d 341 (2010).

**Multiple sclerosis:** Evidence was sufficient to support conviction for driving while intoxicated, even though defendant suffered from multiple sclerosis; defendant was uncooperative at time of his arrest, defendant smelled strongly of liquor and was staggering and slurring his speech, defendant refused to submit to a breath test, defendant admitted that he had been drinking, and defendant failed horizontal gaze nystagmus field sobriety test. V.A.M.S. § 577.010. State v. Bradley, 57 S.W.3d 335 (Mo. Ct. App. S.D. 2001); West's Key Number Digest, Automobiles 355(6).

**Eye disease or abnormality:** Defendant was not entitled in trial for driving while intoxicated (DWI) to impeach arresting officer's testimony that he would not perform horizontal gaze nystagmus (HGN) test on person with eye disease that caused eyes to look in different directions with testimony of person who was arrested by officer after officer administered HGN test on him even though person had visible eye abnormality; evidence of officer's testing of another person was collateral matter, and defendant did not produce evidence that person in question had eye disease, which meant that officer's testimony would not have been inconsistent with his having performed HGN on person in question. Surredin v. State, 165 S.W.3d 751 (Tex. App. San Antonio 2005); West's Key Number Digest, Witnesses 405(1).
The horizontal gaze nystagmus (HGN) test is an accepted, common procedure that has reached a state of verifiable certainty in the scientific community; because HGN testing has reached this level of acceptance, a trial court may judicially notice, without receiving evidence, that the standardized HGN test has been established with verifiable certainty. Laseter v. State, 668 S.E.2d 495 (Ga. Ct. App. 2008); West's Key Number Digest, Automobiles \(\text{\#}411\).

Evidence of results of horizontal gaze nystagmus (HGN) test was admissible at trial for driving under influence (DUI); deputy substantially performed test in accordance with guidelines, and defendant showed six out of six clues of impairment. Hann v. State, 292 Ga. App. 719, 665 S.E.2d 731 (2008); West's Key Number Digest, Automobiles \(\text{\#}411\).

Evidence of a defendant's performance on a horizontal gaze nystagmus (HGN) test is admissible in a trial for driving under the influence of alcohol upon a showing by the party offering the evidence that (1) the general scientific principles and techniques involved are valid and capable of producing reliable results, and (2) the person performing the test substantially performed the scientific procedures in an acceptable manner. Sultan v. State, 289 Ga. App. 405, 657 S.E.2d 311 (2008); West's Key Number Digest, Automobiles \(\text{\#}411\).

Probable cause determination: Horizontal gaze nystagmus (HGN) test, together with red, glassy eyes and smell of marijuana, could be used to determine whether probable cause existed to arrest motorist for driving under influence of marijuana, regardless of whether HGN test results would be sufficient to sustain conviction for that offense. U.S.C.A. Const.Amend. 4; Const. Art. 1, § 1, Par. 13. Albert v. State, 236 Ga. App. 146, 511 S.E.2d 244 (1999); West's Key Number Digest, Automobiles \(\text{\#}349(6)\).

Scientific principles underlying the horizontal gaze nystagmus (HGN) test results were reliable, and thus test results were admissible for limited purpose of providing circumstantial evidence of intoxication in prosecution for driving while under the influence of intoxicating liquor (DUI); theory underlying HGN field sobriety test, and validity of HGN test, could be and have been tested, theory behind test was subjected to peer review and publication, extensive scientific literature thoroughly examined and critiqued HGN test and theory underlying it, error rate of HGN testing was lower than other field sobriety tests, standards controlling HGN test existed, and technique was generally accepted in relevant scientific communities, including behavioral psychology, highway safety, neurology, criminalistics, pharmacology, ophthalmology, and optometry. Rules of Evid., Rule 702. State v. Dahood, 148 N.H. 723, 814 A.2d 159 (2002); West's Key Number Digest, Automobiles \(\text{\#}411\).

Horizontal gaze nystagmus (HGN) field sobriety test tests have been found to be accepted within scientific community as a reliable indicator of intoxication and, thus, a court may take judicial notice of test's acceptability. People v. Tetrault, 53 A.D.3d 558, 861 N.Y.S.2d 408 (2d Dep't 2008); West's Key Number Digest, Criminal Law \(\text{\#}304(1)\).

In a felony driving under the influence prosecution any error committed by court in allowing testimony concerning field horizontal gaze nystagmus test without foundation as to its scientific acceptance or reliability was harmless in light of overwhelming evidence as to defendant's state of intoxication, including arresting officers' observations that defendant's eyes were bloodshot and watery, that he smelled of alcohol and swayed as he stood, as well as...
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

... his inability to perform walk-and-turn field sobriety test. People v Erickson (1989) 156 App Div 2d 760, 549 NYS2d 182, app den 75 NY2d 966, 556 NYS2d 251, 555 NE2d 623.

Results of horizontal gaze nystagmus test were admissible without scientific foundation by expert testimony in proceeding on suspension of driver's license for driving under influence of alcohol (DUI), even though highway patrol officer did not conduct other field sobriety tests; use of the test results as circumstantial evidence of intoxication did not depend on the officer conducting other field sobriety tests. Brewer v. Ziegler, 2007 ND 207, 743 N.W.2d 391 (N.D. 2007); West's Key Number Digest, Automobiles $144.2(9.7).

Scientific foundation by expert testimony was not required for admission of HGN test results where officer's training and experience in administering test was shown, and it was also shown that test was properly administered. However, such admission was only as circumstantial evidence of intoxication; officer could not try to quantify specific BAC based on test. City of Fargo v McLaughlin (1994, ND) 512 NW2d 700.

Trial court in prosecution for driving under influence of alcohol abused its discretion in concluding that defendant's performance of horizontal gaze nystagmus test failed to give probable cause to arrest, where defendant was found parked on shoulder of road during snowstorm in early morning hours, vomiting, and smelled strongly of alcohol, since nystagmus test is generally accepted as reliable indicator of intoxication. State v Scott (1992, Logan Co) 79 Ohio App 3d 77, 606 NE2d 1023.

Results of horizontal gaze nystagmus (HGN) test performed by police officer following traffic stop of defendant could be used in determining probable cause for arrest of defendant for driving under the influence (DUI), even if evidence of HGN test results would not have been admissible at trial; criterion of admissibility in evidence was not to be applied to facts relied upon to show probable cause, and officer, who was trained in administration of HGN test, was permitted to rely on his observations gained from test in determining whether to arrest defendant. U.S.C.A. Const.Amend. 4; 75 Pa.C.S.A. § 3802(d)(1)(ii). Com. v. Weaver, 2013 PA Super 245, 76 A.3d 562 (2013).

Horizontal gaze nystagmus (HGN) test cannot be used to estimate a driver's blood alcohol concentration in driver's license revocation proceeding. White v. Miller, 724 S.E.2d 768 (W. Va. 2012).

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[END OF SUPPLEMENT]

§ 10. Foundation for admissibility of test results

[Cumulative Supplement]

Prevailing view

It has been held that the horizontal gaze nystagmus test is a scientific test involving technological evidence of a nature which places it beyond general knowledge of the average individual, and that a proper foundation by way of expert testimony is required in order to introduce results of the test in evidence at a criminal DUI trial for the purpose of proving the offense charged. Since "[i]t is a natural inclination of jurors to regard such evidence as extremely trustworthy," most jurisdictions have adopted the standard of Frye v United States, concerning scientific evidence. The Frye standard requires that the scientific principle upon which testimony is based must be deduced from well-recognized scientific principle or discovery, which is "sufficiently established to have gained general acceptance in the particular field in which it belongs."
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

Several courts have held that evidence of the scientific reliability of the HGN test is required in order for the test results to be admissible in evidence.\(^{50}\) In Commonwealth of Pennsylvania v Miller,\(^ {51}\) the court, in ruling that the results of the HGN test are scientific evidence, stated that:

\[\text{[T]he rationale for subjecting motorists suspected of driving under the influence of alcohol to the HGN test derives from the scientific principle that the consumption of alcohol causes nystagmus.}\]\(^{52}\) The court went on to state that in order for "scientific evidence" to be admissible it must be established that "the scientific principles upon which the test is based are generally accepted by scientists acting in the appropriate scientific communities."\(^ {53}\)

The Supreme Courts of Arizona,\(^ {54}\) Nebraska,\(^ {55}\) and West Virginia,\(^ {56}\) as well as intermediate appellate courts in Oregon\(^ {57}\) and California\(^ {58}\) have also considered the admissibility of the results of the horizontal gaze nystagmus test. In suppressing the test results the courts held that the results of the HGN test cannot be admitted into evidence on the question of guilt or innocence of the offense charged until it is established by competent evidence that the test is valid.

**Contrary authority**

Contrary to the case law (cited above) in most other jurisdictions which have considered the issue, including Arizona, California, Illinois, Nebraska, Oregon, Pennsylvania, and West Virginia, an Ohio appellate court has held that the results of the horizontal gaze nystagmus test are admissible to establish that the motorist was driving while impaired, without the necessity of establishing the scientific reliability of the test. In People v Nagel,\(^ {59}\) the court stated that the test:

\[\text{is not comparable … to a polygraph test which requires the use of a machine, the scientific...}\]

*** Start Section

... an opinion which is based upon a so-called "scientific" interpretation of observed facts which exist outside the common knowledge of the average lay person and therefore would require the testimony of an expert. The court also ignored the significance of the fact that the horizontal gaze nystagmus test draws its convincing force from the supposed scientific principle that alcohol affects the smooth pursuit mechanism of the human eye. It is clear that the horizontal gaze nystagmus test is scientific in nature, as are other numerous reflex response tests (such as Babinski's reflex, which does not require the use of a machine to administer, monitor or interpret).

**CUMULATIVE SUPPLEMENT**

**Cases:**

Evidence provided a basis for jury to conclude that horizontal gaze nystagmus (HGN) test conducted by police officer was conducted in accordance with generally accepted standards, as required for HGN evidence to be admissible at intoxicated-driving trial as scientific evidence under *Merritt* test; jury heard evidence of police officer's training in administering field-sobriety tests, both police officer and backup officer described field-sobriety tests that police officer conducted, and backup officer, whose experience included more than 50 arrests for driving under influence, testified that police officer properly administered field-sobriety tests, which included HGN test. *State of Connecticut v. Hall*, 110 Conn. App. 41, 954 A.2d 213 (2008); West's Key Number Digest, *Automobiles* 422.1.
Evidence based on a scientific principle or technique, such as evidence of a horizontal gaze nystagmus (HGN) test, is admissible where the state shows that, first, the general scientific principles and techniques involved are valid and capable of producing reliable results, and second, the person performing the test substantially performed the scientific procedures in an acceptable manner. Laseter v. State, 668 S.E.2d 495 (Ga. Ct. App. 2008); West's Key Number Digest, Automobiles 411.

State was not required to independently lay foundation for arresting officer's testimony, in prosecution for misdemeanor driving under the influence (DUI) with an excessive alcohol concentration of .20 or above, establishing reliability of horizontal gaze nystagmus (HGN) evidence, although it was required to present foundation establishing officer's qualifications to administer test; admissibility of HGN evidence was to be determined pursuant to state rules of evidence, which contained no requirement that state establish general acceptance in scientific community. Rules of Evid., Rule 702. State v. Besaw, 306 P.3d 219 (Idaho Ct. App. 2013).

Officer's testimony regarding results of horizontal gaze nystagmus (HGN) test was not improper opinion testimony at driving under the influence (DUI) trial, where officer testified on direct examination that he had successfully completed police academy training in performing HGN tests, and defendant did not question officer's qualifications to perform HGN tests nor did he assert an objection on the ground of improper opinion testimony. U.S.C.A. Const.Amend. 4; West's K.S.A. 8–1012(b); Rules of Evid., K.S.A. 60–456. City of Wichita v. Molitor, 268 P.3d 498 (Kan. Ct. App. 2012).

Indirect evidence of horizontal gaze nystagmus (HGN) test and preliminary breath test (PBT) results officer performed on defendant were inadmissible in prosecution for driving under the influence of alcohol (DUI); state failed to present an expert witness to testify as to the scientific basis for or the accuracy of the HGN test, or to present expert testimony as to the accuracy of the PBT. MCA 61–8–401. State v. Chavez-Villa, 2012 MT 250, 366 Mont. 519, 289 P.3d 113 (2012).

Reversible error: Trial court's error in admitting, when the State failed to lay the proper foundation, police officer's testimony on the results of horizontal gaze nystagmus (HGN) test performed on defendant and the inferences that the officer drew from those results, was reversible error, in trial that led to conviction of defendant for driving under the influence (DUI); though the error was trial error and not presumptively prejudicial, it was scientific evidence likely to be accorded more weight by the jury and, despite evidence that defendant failed two other field sobriety tests, State did not demonstrate that there was no reasonable possibility that the tainted HGN evidence might have contributed to defendant's conviction. Rules of Evid., Rule 702. State v. Michaud, 2008 MT 88, 342 Mont. 244, 180 P.3d 636 (2008); West's Key Number Digest, Automobiles 422.1.

In a prosecution for driving under the influence of alcohol, the testimony of a police officer, who had administered the horizontal gaze nystagmus (HGN) test to defendant, as to the cause of defendant's nystagmus reaction had a sufficient foundation, even though defendant contended that the testimony was not sufficient to establish a general acceptance of the test in the scientific community. The court held that unless an exaggerated popular opinion of the accuracy of a particular technique makes its use prejudicial or likely to mislead the jury, the better approach is to admit all relevant scientific evidence in the same manner as other expert testimony and allow its weight to be attacked by cross-examination or refutation. The court further held that, although defendant contended that the police officer was not qualified to testify as to the scientific reliability of the HGN test, the scientific reliability was nonetheless discussed through defendant's own physician witness where the physician testified as to the various factors which could cause a nystagmus reaction. The court also noted that the police officer was qualified to testify as to the results of the HGN test where he testified that he was certified through the state law enforcement academy, that he had completed the required number of training hours, and that he administered the test in the proper manner. State v. Clark (1988) 234 Mont 222, 762 P2d 853.

Adequate foundation was laid for admission of results of horizontal gaze nystagmus test conducted in course of 12-step protocol to determine whether defendants were driving while under influence of drugs, where State presented testimony of forensic toxicologist and optometrist who testified regarding physiological relationship between horizontal gaze nystagmus and
impairment, and between horizontal gaze nystagmus and particular categories of drugs. NMRA, Rule 11-702. State v. Aleman, 2008-NMCA-137, 194 P.3d 110 (N.M. Ct. App. 2008), cert. denied, 2008-NMCERT-008 (N.M. 2008); West's Key Number Digest, Automobiles

In prosecution for driving while under influence of drug, state laid sufficient foundation for introduction of testimony regarding HGN test where nine credible witnesses, whose testimony was unrefuted, stated that HGN test, as part of protocol, allowed drug recognition expert to reliably and accurately determine whether person was impaired. People v Quinn (1991, Dist Ct) 153 Misc 2d 139, 580 NYS2d 818, later proceeding (Sup App T) 158 Misc 2d 1015, 607 NYS2d 534.

Amendment to rule governing expert testimony, specifying both the admissibility of horizontal gaze nystagmus (HGN) testimony and the admissibility of expert testimony on that test by "a person who has successfully completed training in HGN" obviates the need for the State to prove that the HGN testing method is sufficiently reliable. Rules of Evid., Rule 702(a1), West's N.C.G.S.A. § 8C–1. State v. Smart, 674 S.E.2d 684 (N.C. Ct. App. 2009).


Upon a challenge by the driver of a motor vehicle to the admission in evidence of the results of the horizontal gaze nystagmus (HGN) test in driver's license revocation proceeding, the police officer who administered the test, if asked, should be prepared to give testimony concerning whether he or she was properly trained in conducting the test, and assessing the results, in accordance with the protocol sanctioned by the National Highway Traffic Safety Administration and whether, and in what manner, he or she complied with that training in administering the test to the driver. White v. Miller, 724 S.E.2d 768 (W. Va. 2012).

In a prosecution for driving under the influence of alcohol, the trial court erred in permitting the arresting officer to testify as to the results of the horizontal gaze nystagmus (HGN) test administered to defendant where the state failed to demonstrate the reliability of either the HGN test or the scientific principle upon which the test is based. The court noted that the only testimony regarding the HGN test came from the arresting officer who told the jury that the HGN test consisted of the measurement of the horizontal movement of the eye as it is affected by alcohol and described how he performed the test. He also described the reaction of a sober person's eye to the test, and how that reaction is affected by consumption of alcohol, but he did not, however, address the scientific reliability of the test. The court further noted that even if the reliability of the HGN test had been demonstrated, an expert's testimony as to a driver's performance on the test is admissible only as evidence that the driver was under the influence and is not admissible as an estimate of blood alcohol content. State v Barker (1988, W Va) 366 SE2d 642.

Time-of-trial horizontal gaze nystagmus (HGN) test that defendant performed outside jury's presence in prosecution for operating a motor vehicle while intoxicated (OWI) was not "testimonial," but was physical evidence, and, therefore, defendant's constitutional privilege against self-incrimination was not violated by admission of evidence that he showed zero out of six indicia of impairment on that test, administered after defense counsel suggested on cross-examination of arresting officer that defendant's diabetes may have affected his performance on a time-of-arrest HGN test and defendant testified that he did not drink any alcohol the day of trial or the night before. U.S.C.A. Const.Amend. 5; W.S.A. Const. Art. 1, § 8; W.S.A. 346.63(1) (a). State v. Schmidt, 2012 WI App 137, 345 Wis. 2d 326, 825 N.W.2d 521 (Ct. App. 2012).
A demonstration of the scientific validity and reliability of the HGN test ordinarily requires testimony by expert witnesses, as well as relevant scholarly publications and articles. In State v Barker and People v Vega, the courts held that the testimony of the arresting officer simply as to the test procedures followed in the particular case is an inadequate foundation for the admission of his testimony regarding the results of the test, since it does not address the scientific reliability of the test.

The courts in Barker and Vega declined to determine the ultimate validity and admissibility of the horizontal gaze nystagmus test because the prosecution did not introduce evidence of the scientific reliability of the test. Thus, the issue was not properly presented to the court.

In State v Superior Court of Cochise County, the Arizona Supreme Court did consider the issue of the scientific reliability of the test. At an evidentiary hearing on the defendant's motion to exclude testimony of the HGN test at trial, the state presented evidence regarding the principles and use of HGN testing from (1) a research psychologist who had studied the effect of alcohol on behavior; (2) a police officer who was at that time a supervisor in charge of DUI enforcement for the City of Los Angeles and a consultant for the National Highway Traffic Safety Administration on field sobriety testing; and (3) two officers of the Arizona Department of Public Safety, one of whom at that time administered the HGN training program for the State of Arizona. In addition to the testimony of these witnesses, the prosecution submitted scientific publications and research reports done for the National Highway Traffic Safety Administration. The Arizona Supreme Court held that based on that evidence, as well as its own research, the HGN test satisfies the Frye standard.

In State of Montana v Clark, the Supreme Court of Montana took a position that lies somewhere in between strict application of the Frye standard, and total rejection of it. The court stated that the foundation requirements surrounding expert testimony have been substantially liberalized, eroding the "general acceptance" doctrine enunciated in Frye. The court took the view that unless an exaggerated popular opinion of the accuracy of the particular technique makes its use prejudicial or likely to mislead the jury, the better approach is to admit all relevant scientific evidence in the same manner as other expert testimony and allow its weight to be attacked by cross-examination or refutation. The court pointed out that the scientific reliability of the HGN test had been discussed in the trial court in the case at bar through the defendant's own expert witness, who stated that "a multitude" of different things could cause nystagmus, and that "[n]ystagmus is a very nonspecific diagnostic test in the world of medicine. It's gained some credibility with alcohol, but if it's thrown in any other variable, it's kind of questionable whether it's really reliable.… [Nystagmus] was instituted as one of the relatively simple … studies for a police officer to do on somebody suspected of being intoxicated." Upon this testimony, the trial court found sufficient basis for the admissibility of the HGN test, and the Montana Supreme Court held it was within the discretion of the trial judge to do so.

CUMULATIVE SUPPLEMENT

Cases:

Under Louisiana law, proper foundation was laid for officer's testimony concerning drunk driving defendant's performance on field sobriety tests, and thus officer's observations and the test results were admissible as circumstantial evidence that defendant had been driving under the influence of alcohol; officer testified that he received training concerning the horizontal gaze nystagmus (HGN) test, the walk-and-turn test, and the one-leg stand test during a forty-hour course at the Louisiana State Police Academy, for which he received certificate indicating that he had passed standardized field sobriety and breathe tests measuring blood alcohol content, that he had received post-certification training, and that he made one or two driving while intoxicated
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Horizontal gaze nystagmus (HGN) test for intoxication is a scientific test, and thus, any testimony regarding the HGN test is scientific testimony subject to the evidentiary rule and case law governing expert testimony. Fed.Rules Evid.Rule 702, 28 U.S.C.A. U.S. v. Van Hazel, 468 F. Supp. 2d 792 (E.D. N.C. 2006); West's Key Number Digest, Automobiles 411.

Trial court did not abuse its discretion in admitting evidence of horizontal gaze nystagmus test and its results in prosecution for operating a motor vehicle while under the influence of intoxicating liquor or drugs; officer testified that she had been trained in administering field sobriety tests and interpreting the results of those tests, officer testified to the sources of her training, and officer's testimony demonstrated that her administration of the horizontal gaze nystagmus test complied substantially with accepted standards. C.G.S.A. § 14–227a. State v. Weed, 118 Conn. App. 654, 984 A.2d 1116 (2009).

Trial court's error in admitting horizontal gaze nystagmus (HGN) test evidence to establish defendant's specific numeric blood alcohol content (BAC) at trial for driving under the influence (DUI) to the extent that it was less safe to drive was not harmless, thus warranting reversal, as only evidence of BAC was arresting officer's testimony as to HGN test result. Bravo v. State, 304 Ga. App. 243, 696 S.E.2d 79 (2010).

Defendant did not show that a police officer incorrectly administered the horizontal gaze nystagmus (HGN) test to him, such as would have rendered evidence of the test results inadmissible at a trial for driving under the influence (DUI); the officer testified that he had received specialized training in field-sobriety tests and that he had even more classes in addition to those mentioned to learn how to properly perform the HGN test, and defendant did not indicate in the record the standardized techniques that the officer purportedly failed to follow. Harris v. State, 301 Ga. App. 775, 689 S.E.2d 91 (2009).

HGN test results were scientific evidence; HGN testing was based on a scientific principle that was not common knowledge to an average person, and expert testimony as to how to interpret HGN test results was required. People v. McKown, 226 Ill. 2d 245, 314 Ill. Dec. 742, 875 N.E.2d 1029 (2007); West's Key Number Digest, Automobiles 411.

State failed to meet foundational threshold for state trooper's horizontal gaze nystagmus (HGN) testimony in driving under the influence (DUI) prosecution, and thus, admission of trooper's testimony was improper; trooper testified that he placed stimulus about four inches from defendant's eyes, yet National Highway Transportation Safety Administration (NHTSA) manual indicated that the stimulus was required to be positioned approximately 12 to 15 inches from the suspect's nose and slightly above eye level. People v. Borys, 2013 IL App (1st) 111629, 995 N.E.2d 499 (Ill. App. Ct. 1st Dist. 2013).

Trial court did not abuse its discretion by finding that police officer's testimony regarding his horizontal gaze nystagmus (HGN) testing of defendant had sufficient foundation and was admissible, in trial of defendant for aggravated driving under the influence of alcohol (DUI); though defendant's arrest was officer's first DUI arrest, officer followed National Highway Transportation Safety Administration (NHTSA) protocol when conducting the HGN testing, officer had recently received 12 hours of training on conducting DUI investigations, officer had passed a practical skills exam for the nystagmus test, officer was working under the supervision of his field training officer, and officer's lack of knowledge about the causes for nystagmus went to the weight of officer's testimony rather than admissibility. People v. Graves, 2012 IL App (4th) 110536, 2012 WL 273153 (Ill. App. Ct. 4th Dist. 2012), appeal pending, (May 1, 2012).

Proper foundation was laid for introduction of horizontal gaze nystagmus (HGN) test administered to defendant by trooper during investigation of automobile accident, in trial for operating motor vehicle while intoxicated resulting in serious bodily injury; trooper performed first two stages of test in proper manner, defendant exhibited four clues in first two stages, and
although trooper admitted that he failed to properly check whites of defendant's eyes during third stage, as required by protocol, trial court excluded evidence of that stage. Brown v. State, 915 N.E.2d 996 (Ind. Ct. App. 2009).

Proper foundation was laid for introduction of horizontal gaze nystagmus (HGN) test administered to defendant by trooper during investigation of automobile accident, in trial for operating motor vehicle while intoxicated resulting in serious bodily injury; trooper testified that he attended law enforcement academy and had completed field training program after graduation, training included administration of HGN test, trooper performed first two stages of test in proper manner, defendant exhibited four clues in first two stages, and although trooper admitted that he failed to properly check whites of defendant's eyes during third stage, as required by protocol, trial court excluded evidence of that stage. Brown v. State, 911 N.E.2d 668 (Ind. Ct. App. 2009).

The proper foundation for admitting evidence related to administration of the horizontal gaze nystagmus (HGN) field sobriety test should consist of describing the investigating officer's education and experience in administering the test, and showing that the procedure was properly administered. Cooper v. State, 761 N.E.2d 900 (Ind. Ct. App. 2002); West's Key Number Digest, Automobiles 422.1.

Trial court did not abuse its discretion in finding a foundation had been laid for deputy's testimony regarding the results of defendant's horizontal gaze nystagmus (HGN) test; deputy testified at length regarding her qualifications to administer the HGN test, when asked how many hours of training she had regarding the HGN test, deputy stated, "[t]oo many to recall. I've had two or three classes in the past year or two," and she also testified that she performed defendant's HGN test in accordance with the training she had received and that defendant exhibited all three clues of nystagmus, indicating that he was intoxicated. State v. Ostdiek, 351 S.W.3d 758 (Mo. Ct. App. W.D. 2011), reh'g and/or transfer denied, (72397)(Oct. 4, 2011) and transfer denied, (Dec. 6, 2011).

**Burden of proof:** Trial court abused its discretion in permitting officer to offer horizontal gaze nystagmus (HGN) field sobriety test results into evidence without the State first establishing the requisite scientific basis for the test's reliability in that nothing in the record established that officer was specially trained or educated or that he had adequate knowledge to qualify him as an expert to explain the correlation between alcohol consumption and nystagmus, the underlying scientific basis of the HGN test. State v. Van Kirk, 2001 MT 184, 32 P.3d 735 (Mont. 2001); West's Key Number Digest, Criminal Law 388.2.

Horizontal Gaze Nystagmus (HGN) test was sufficiently reliable to be admitted as scientific evidence of intoxication in criminal trial; first expert testified that validation studies revealed 91% correct determination by officers overall and 94% correct determination by those officers who made arrest, second expert, who had performed more than thirty (30) years of clinical research on issue, stated that study illustrated that there was 99% accuracy rate when administering HGN test if all six (6) indicators were present, and he also testified as to articles, papers, and resolutions which supported HGN test within scientific community. N.J.S.A. 39:4-50, State v. Maida, 332 N.J. Super. 564, 753 A.2d 1240 (Law Div. 2000); West's Key Number Digest, Automobiles 411.

Admission of results of horizontal gaze nystagmus (HGN) testing without the necessary showing of evidentiary reliability was reversible error in prosecution for driving while intoxicated (DWI), where evidence of defendant's intoxication was limited to personal observations by two police officers and the results of three field sobriety tests, and state presented HGN test as the most accurate of those three. New Mexico Statutes § 66-8-102 (1978); NM Stat Ann § 11-702. State v. Torres, 1999 -NMSC-010, 127 N.M. 20, 976 P.2d 20 (1999); West's Key Number Digest, Automobiles 411.

State laid proper foundation for admission of horizontal gaze nystagmus (HGN) field sobriety test administered by arresting officer in prosecution for driving while intoxicated, where officer who conducted HGN test testified regarding his qualifications to administer test and techniques he employed. People v. Julius, 93 A.D.3d 1296, 941 N.Y.S.2d 408 (4th Dep't 2012).
Under *Daubert*, the reliability of horizontal gaze nystagmus (HGN) testing as an indicator of whether a person is under the influence of alcohol need not be established through expert testimony if adequate foundation is laid to establish that the officer was trained to administer the test and that the officer administered the test properly; a defendant may refute the State's HGN-test-result evidence through cross-examination and by presenting rebuttal evidence of causes, other than alcohol ingestion, of physical abnormalities detected by an HGN test. *State v. Yuel*, 2013 SD 84, 840 N.W.2d 680 (S.D. 2013).

Testimony concerning Horizontal Gaze Nystagmus (HGN) sobriety test is "scientific, technical, or other specialized knowledge" and, therefore, must be offered through expert witness; witness must necessarily explain underlying scientific basis of test in order for testimony to be meaningful to jury, and that testimony may involve nonscientific measurement of scientifically measurable phenomenon of eye angle. *Tennessee Rules of Evidence 702, 703. State v. Murphy*, 953 S.W.2d 200 (Tenn. 1997).

Police officer's alleged failure to properly administer horizontal gaze nystagmus test did not preclude admission of evidence regarding licensee's performance on test in administrative driver's license revocation proceeding stemming from driving under the influence (DUI) arrest; licensee failed to question officer regarding officer's performance of the test in accordance with the law, and any failure to by officer to properly conduct test went to the weight of the evidence, not its admissibility. *Dale v. McCormick*, 749 S.E.2d 227 (W. Va. 2013).

**§ 12. Foundation for admissibility of test results—Purpose for which test results are offered**

Even if the HGN test is found to be reliable, and its results admissible, the question remains as to the purpose for which such evidence is admissible. In *State v Superior Court of Cochise County*, the Arizona Supreme Court held the horizontal gaze nystagmus test to be sufficiently reliable to satisfy the Frye standard for the limited purpose of establishing the presence of alcohol in an individual's blood. However, it expressly excluded the admissibility of the HGN test for the purpose of establishing a BAC of 0.10% or more.

Similarly, in *State v Barker*, the Supreme Court of West Virginia reached the same conclusion. Noting that a police officer's testimony as to a driver's performance on other field sobriety tests like finger-to-nose or walking the line is admissible at trial as evidence that the driver was under the influence of alcohol, the court stated that the HGN test should not be entitled to any more evidentiary value than these other field sobriety tests. Accordingly, the court concluded that even if the reliability of the HGN test is demonstrated, testimony as to a driver's performance on the test is admissible only as evidence that the driver was under the influence. Estimates of a specific blood alcohol content based on the HGN test are inadmissible.

It is specifically worth noting that the Arizona court expressly held that HGN test evidence that is used to establish probable cause to arrest is not required to pass the Frye test for admissibility of scientific evidence on the question of guilt or innocence. It is clear that this is not the proper rule, given the logical proposition that the facts upon which an officer establishes his decision to make an arrest must be reliable. If evidence is not sufficiently reliable for admissibility at trial it is inconceivable that it could be reliable for forming the basis of probable cause. In the Illinois case of *People v Haymer*, the court held that police cannot rely upon the results of a polygraph examination in making their determination of whether probable cause for an
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

The court stated that because polygraph examinations are not admissible in a trial in Illinois to prove either the guilt or innocence of the defendant, it would be improper for such questionable or unreliable evidence to form the basis of the determination of probable cause to make an arrest.

CUMULATIVE SUPPLEMENT

Cases:

A failed horizontal gaze nystagmus (HGN) test is relevant to impairment by alcohol in the same manner as the smell of alcohol on the subject's breath or the presence of empty or partially empty liquor containers in his car; each of these facts is evidence of alcohol consumption and is properly admitted into evidence on the question of impairment. People v. McKown, 236 Ill. 2d 278, 924 N.E.2d 941 (2010).

HGN to establish probable cause: Evidence was sufficient to find that police officer testified about administering horizontal gaze nystagmus test (HGN) test to defendant, and results of that test, to show probable cause to arrest defendant and, thus, administer intoxilyzer, rather than for impermissible purpose of indicating that test was scientific evidence to prove intoxication or as a showing of defendant's impairment, where officer testified that he gave HGN test along with several other field sobriety tests and these tests led him to believe defendant might be intoxicated, and therefore, he took defendant to patrol office to administer the intoxilyzer. Graves v. State, 761 So. 2d 950 (Miss. Ct. App. 2000); West's Key Number Digest, Automobiles 426.

Although Horizontal Gaze Nystagmus (HGN) test is sufficiently reliable to be admitted as scientific evidence of intoxication in criminal trial, it is not conclusive proof of intoxication. N.J.S.A. 39:4-50. State v. Maida, 332 N.J. Super. 564, 753 A.2d 1240 (Law Div. 2000); West's Key Number Digest, Automobiles 355(6).

Results of field sobriety tests did not provide probable cause to arrest motorist for driving under the influence of alcohol (DUI), where city police officer administered the tests incompetently and in ways that could completely undermine their reliability; for example, National Highway Traffic Safety Administration (NHTSA) required minimum of 32 seconds for horizontal gaze nystagmus (HGN) test and minimum of 12 seconds for vertical gaze nystagmus (VGN) test, but officer performed the tests in 19 seconds and 3.5 seconds, respectively, and officer also did not comply with NHTSA standards for administering one-leg stand test and walk-and-turn test. U.S.C.A. Const.Amend. 4. Strickland v. City of Dothan, AL, 399 F. Supp. 2d 1275 (M.D. Ala. 2005); West's Key Number Digest, Automobiles 349(6).
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

Where defendant was found guilty of operating a motor vehicle under the influence of alcohol (OMVI), trial court properly admitted the results of the Horizontal Gaze Nystagmus test even though the officer administering the test did not testify as to the actual technique that he used, where the entire procedure involving defendant was videotaped, because the videotape was part of the record and showed the exact technique the officer used, establishing the foundational requirement that the record contain evidence of the actual technique used. Columbus v Anderson (1991) 74 Ohio App 3d 768, 600 NE2d 712, dismd, motion overr 62 OS3d 1475, 581 NE2d 1097.

Testimony of arresting officer and officer who assisted in videotaping motorist supported conviction for driving while intoxicated, even though arresting officer conceded that some of factors indicating that motorist was intoxicated could have been consistent with motorist possessing normal use of his faculties, and despite existence of sobriety tests which officer did not administer, criticism of horizontal gaze nystagmus test (HGN) test, and claim that videotape contradicted assisting officer's testimony; officers indicated that motorist could not complete one-leg-stand test, had slurred speech, reeked of alcohol, and exhibiting mood swings. Downs v. State, 947 S.W.2d 312 (Tex. App. Fort Worth 1997), reh'g overruled, (July 24, 1997).

Video recording of field sobriety tests, if possible, is in the best interest of the state, those suspected of driving under the influence (DUI), and the public. State v. Beckstrom, 2013 UT App 104, 300 P.3d 773 (Utah Ct. App. 2013).

II. Elements of Proof

§ 13. Checklist—Proving unreliability of horizontal gaze nystagmus test

The following facts and circumstances tend to establish that the results of a horizontal gaze nystagmus test should not be admitted in a legal proceeding as evidence of an individual's intoxication or sobriety:

# Qualification of witness as expert to give opinion [§ 14]

# Explanation of HGN test [§§ 16, 28]

— Development of test [§ 20]

— Theory of test [§ 16]

— Purpose of test [§ 16]

— Procedures for administration of test [§§ 29, 30]
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

— Scoring [§§ 16, 29]

# Minimum training required for officer administering test [§§ 17, 27]

# Explanation of nystagmus

— Definition [§ 15]

— Biomechanics of nystagmus [§ 18]

# Effect of alcohol on eye movements[§ 19]

# Scientific literature on HGN test

— Existing literature critical of HGN test [§ 22]

— Visual acuity of subject

— Incidence of false positives [§ 7]

— Lack of correlation to BAC [§ 8]

— Limited and conflicting nature of existing literature

# Other causes of nystagmus [§ 9]

— Blind eyes or severely impaired visual acuity

— Eye strain

— Poor lighting (miner's nystagmus)

— Extreme fear or anxiety
— Fatigue

— Central nervous system depressants

— Antihistamines

— Asthma medication

— Caffeine

— Poor vision in one eye

— Glaucoma

— Injury to optic nerve

— Previous surgery for strabismus

— Injury to vestibular apparatus (inner ear)

  — Ear infection

  — Vertigo

  — Labyrinthine infection

  — Previous inner ear surgery

— Bacterial and viral infections

  — Influenza

  — Streptococcus infections
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

— Measles

— Syphilis

— Arteriosclerosis

— Muscular dystrophy

— Multiple sclerosis

— Nervous disorders

— Korsakoff's syndrome

— Brain hemorrhage

— Epilepsy

— Circadian rhythms

— Atmospheric pressure changes

# Basis of opinion that HGN test is not generally accepted as reliable [§ 24]

— Lack of specificity

— Lack of sensitivity

# Circumstances of administering test to defendant

— Arresting officer's lack of qualifications to administer test [§ 25]

— Procedures used in testing defendant [§ 30]
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

CUMULATIVE SUPPLEMENT

Cases:

**Judicial notice:** Court would not take judicial notice of the reliability of the horizontal gaze nystagmus (HGN) test, including the purported causal connection between exaggerated HGN and alcohol ingestion, in a prosecution for driving while impaired (DWI); the purported reliability of the HGN test was not a "fact" generally known within the jurisdiction of the court, and the test's reliability could not be ascertained through sources whose accuracy could not reasonably be questioned. Fed.Rules Evid.Rule 201, 28 U.S.C.A. U.S. v. Van Hazel, 468 F. Supp. 2d 792 (E.D. N.C. 2006); West's Key Number Digest, Criminal Law 304(1).

**Judicial notice of reliability:** Defendant was not entitled to evidentiary hearing to determine reliability of horizontal gaze nystagmus test, in trial for operating motor vehicle while under influence of intoxicating liquor; trial court could take judicial notice of prior determination in unrelated case that test was scientifically reliable. State v. Balbi, 89 Conn. App. 567, 874 A.2d 288 (2005), certification denied, 275 Conn. 919, 883 A.2d 1246 (2005); West's Key Number Digest, Criminal Law 304(1).

**Judicial notice:** The trial and appellate courts erred when they took judicial notice of the general acceptance of the reliability of the horizontal gaze nystagmus (HGN) test as an indicator of alcohol impairment based on prior judicial decisions; prior judicial decisions regarding the admissibility of HGN evidence as an indication of alcohol impairment varied greatly between the states. People v. McKown, 226 Ill. 2d 245, 314 Ill. Dec. 742, 875 N.E.2d 1029 (2007); West's Key Number Digest, Criminal Law 304(1).

Results of the horizontal gaze nystagmus (HGN), one-leg stand, and walk-and-turn field sobriety tests are admissible as non-expert evidence of intoxication, so as not to require a *Daubert* hearing on reliability of the methodology employed, provided a proper foundation is laid by showing that the officer who administered the tests was trained in the procedure and certified in their administration and that the procedures were properly administered. LSA–C.E. art. 702. State v. Waldrop, 93 So. 3d 780 (La. Ct. App. 1st Cir. 2012).

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[END OF SUPPLEMENT]

III. Proof of Unreliability of the Horizontal Gaze Nystagmus Test

A. Testimony of Ophthalmologist

§ 14. Qualifications of witness

[Cumulative Supplement]

[After introduction and identification of witness]

**Q.** Could you tell us what your occupation is?

A....

### Start Section


**Q.** Have you conducted any research in the area of ophthalmology?
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

A. Yes.
Q. Have you ever published any articles relating to ophthalmology?
A. Yes, I have. In the American Journal of Ophthalmology I have published studies relating to rare tumors of the eye and to a retinal disease that I discovered.
Q. Have you written any articles or prepared any materials relating to nystagmus?
A. Yes, I annotated both the types of nystagmus and the frequency of nystagmus in the general population for ________[authoritative text.]

CUMULATIVE SUPPLEMENT

Cases:

Testimony by a behavioral optometrist fell short of establishing the general acceptance in the scientific community of the horizontal gaze nystagmus (HGN) test and, therefore, the results of an HGN test would not be admitted into evidence in a prosecution for driving under the influence of alcohol where the optometrist's testimony was largely based on his own personal views and observations, rather than on the views of the scientific community at large. Commonwealth v Apollo (1992) 412 Super Ct 453, 603 A2d 1023, app den (Pa) 613 A2d 556.

Emergency room physician's testimony in driving under the influence (DUI) manslaughter case, describing horizontal gaze nystagmus (HGN) test, and stating that it was common practice for physicians to administer test, that it was scientifically reliable and accepted in the medical community and that he had performed the test 10,000 times was sufficient to establish predicate for the test and results of test physician performed on defendant in hospital emergency room following fatal automobile accident. Jordan v. State, 707 So. 2d 816 (Fla. Dist. Ct. App. 5th Dist. 1998).

Trial court abused its discretion in restricting the direct testimony of defendant's expert witness on field sobriety tests, National Highway Traffic Safety Administration (NHTSA) rules, and the consequences of failing to comply with NHTSA training, where arresting officer conducted horizontal gaze nystagmus (HGN) test and testified in detail regarding the positions and timing of an involuntary jerk in defendant's eyes while following a prescribed pattern of testing, which he asserted showed that defendant was under the influence of alcohol, and where State relied entirely on officer's testimony regarding his field sobriety evaluation to prove its case. James v. State, 260 Ga. App. 536, 580 S.E.2d 334 (2003); West's Key Number Digest, Criminal Law 489.

The field of optometry was the relevant scientific community for purposes of determining whether the horizontal gaze nystagmus (HGN) field sobriety test has been generally accepted as a reliable indicator of intoxication. People v. Vanderlofske, 186 Misc. 2d 182, 717 N.Y.S.2d 450 (County Ct. 2000); West's Key Number Digest, Automobiles 411.

Q. Could you explain to us what nystagmus is?
A. Nystagmus is an involuntary, oscillatory jerking of the eye or eyes.
Q. How many different types of nystagmus are there?
A. There are over 25 different types of nystagmus.

Different types of nystagmus.
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

It is important to point out that many different types of nystagmus exist, so that the court is aware of the possibility that an officer who is not trained in distinguishing the various types of nystagmus may mistake another type of nystagmus for the type...

*** Start Section
... interacts with the visual system by producing alternating fast and slow eye movements in addition to the sensation of movement. The brain makes periodic adjustments to maintain visual fixation. For example, one can move one's head back and forth and still maintain fixation. The last type of eye movement is the tracking movement. An example of this would be when someone is riding in a train and telephone poles pass by. In this situation the eye picks up the poles and moves along involuntarily until corrected.
Q. Which of the systems are involved in the horizontal gaze nystagmus test?
A. The horizontal gaze nystagmus test involves tracking, smooth pursuit tracking and the vestibular system.

CUMULATIVE SUPPLEMENT

Cases:

"Nystagmus," measured by Horizontal Gaze Nystagmus (HGN) sobriety test to determine whether driver was under influence of intoxicant, is involuntary jerking movement of eye either as it attempts to focus on fixed point or as it moves to one side; phenomenon results from body's attempt to maintain orientation and balance. State v. Murphy, 953 S.W.2d 200 (Tenn. 1997).

[Top of Section]

[END OF SUPPLEMENT]

§ 19. Effect of alcohol on eye movement

Q. How is it believed that alcohol affects the movement of an individual's eyes?
A. In order to understand the effect of alcohol upon an individual's eye movements, we must examine the vestibular mechanism. In each inner ear a person has three semicircular canals which are joined at right angles. These canals are filled with a fluid known as endolymph. A swelling known as the...

*** Start Section
... of that canal. A number of hairlike fibers attached to sensory cells project into a gelatinous mass which is known as the cupula. The cupula acts like a plumb bob in that it is attached at one end so that it can swing from side to side with the ampulla. When the cupula is moved within the endolymph the person notes a sensation of movement. Both the cupula and endolymph have the same specific gravity. If a slight change in the specific gravity of either the cupula or endolymph occurs, then the vestibular system becomes more sensitive to gravity with certain head positions. Alcohol and some other drugs can alter the balance of specific gravity between the cupula and the endolymph, causing cupular deflection and therefore causing nystagmus.

§ 20. Development of HGN test

Q. When was the HGN test developed?
A. The horizontal gaze nystagmus test in terms of alcohol intoxication was developed in the mid-70s. It was developed with the specific idea of the long-recognized tendency for alcohol intoxication to cause nystagmus. The field test as originally designed involved individuals who were supposedly normal with known blood alcohol levels. Researchers gave the test and attempted to correlate the blood alcohol to the angle of deviation from the primary gaze.
Q. When the test was developed, were any special devices used for measuring the angle of onset?
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

A. Yes. Since the angle of deviation is crucial to the test, the individuals conducting the test used protractors in order to estimate the angle at which nystagmus occurred.

Q. Do you believe that the use of a protractor is important for determining the angle at which nystagmus occurs?
A. Yes. It is significant in that the person administering the test may incorrectly estimate the angle at which nystagmus occurs.

Q. Do you know whether the National Highway Traffic Safety Administration’s proposed testing procedures require the testing officer to use a protractor?
A. Yes. The test procedures as outlined by the National Highway Traffic Safety Administration state that the officer should initially practice determining the 45-degree angle by using a template. However, with practice they believe that the officer should be able to recognize this angle without using the template.

§ 21. Problems with HGN test

Q. Does the testing procedure make any mention of whether an individual may wear his glasses while taking the test?
A. The testing procedure states that glasses should be removed, as they may block the officer’s view of the suspect’s eyes. In addition, hard contact lenses may restrict the boundaries of the movement of the eyes.

Q. Would the removal of an individual’s glasses affect his ability to do the test?
A. Yes. It was noted by Doctors Halperin and Yolton in an article in the Journal of the American Optometric Association that suspects who have a high refractive error could have trouble seeing the test target with their glasses removed and may therefore have problems with the test.

Q. Is the visual acuity of an individual’s eye important to this test?
A. Yes.

Q. ... *** Start Section

... of false positives?
A. Yes, very frequently.

Q. First, perhaps you should explain what a false positive result is.
A. A false positive result occurs where the test indicated that an individual was under the influence of alcohol when he was not. In fact, it has been noted by Toglia, in his book Electronystagmography: Technical Aspects and Atlas, that some 50 to 60% of all individuals exhibit gaze nystagmus which is indistinguishable from alcohol gaze nystagmus if they deviate their eyes more than 40 degrees to the side.

Q. Is Toglia referring to individuals who have consumed alcohol?
A. Absolutely not. He has stated that 50 to 60% of the general population will have horizontal gaze nystagmus when they look to the side without regard to any intoxication.

§ 22. Problems with HGN test—Critical literature

Q. Doctor, you have already mentioned some of the scientific literature dealing with nystagmus. Could you explain what other literature has been written criticizing the horizontal gaze nystagmus testing procedure?
A. James Norris of the Santa Clara County Laboratory of Criminalistics reviewed the efficacy of the test to determine whether police officers under field conditions were able to predict an arrestee’s blood alcohol level by determining the angle of onset of gaze nystagmus. His paper is reported in the Journal of the Forensic Science Society. He asked officers to measure the angle of onset of nystagmus as soon as possible after the arrest, and to make the measurement before the blood alcohol level of the arrestee was determined. The...

*** Start Section

... police officers should adjust their criteria by subtracting 5 degrees from the angle of onset.
Q. Do you know whether the National Highway Traffic Safety Administration recommends that the police officers include that adjustment in their determination?
A. It does not.

Q. Do you know whether a strain on the eyes, such as insufficient lighting, could cause temporary nystagmus?
A. There is a type of nystagmus known as miner's nystagmus. It was observed early in the century when people would go down into coal mines with very poor lighting for long periods of time. When the individuals exited the mines they would have nystagmoid movements. It is well-documented that very poor lighting for extended periods of time will cause nystagmus.

§ 24. Opinion on general acceptance of HGN test as reliable

[Cumulative Supplement]

Q. Doctor, have you read the scientific literature regarding the horizontal gaze nystagmus test?

Frye standard.

The Frye standard for scientific evidence requires that a certain type of scientific evidence be generally accepted as reliable within the scientific community to which it relates prior to its admissibility into evidence (see § 10). Therefore, where few or no scientific studies corroborate the proposed scientific principle, it should not be admissible pursuant to the Frye standard.

A. As much as is available at this time. There is a limited amount of scientific literature available and it is conflicting and contradictory in terms of its conclusions.

Q. Do you have an opinion on whether the scientific research...

*** Start Section

... content.

CUMULATIVE SUPPLEMENT

Cases:

Testimony by a behavioral optometrist in driving while intoxicated case failed to establish that the horizontal gaze nystagmus test was not sufficiently established to have gained acceptance in the scientific community where optometrist testified that in his own study only one in 500 sober patients would fail the test while national studies indicated a failure rate of 2 to 4 percent and other evidence suggested that the test was not a settled proposition within the scientific community because optometrist's testimony was largely based on his own personal views and observations. Commonwealth v Apollo (1992) 412 Super Ct 453, 603 A2d 1023, app den (Pa) 613 A2d 556.

The administration procedures of the horizontal gaze nystagmus (HGN) field sobriety test, as well as the HGN field sobriety test results, are generally accepted within the scientific community of optometrists as a reliable indicator of intoxication, and thus the results are admissible if officer who administered the test was trained in the administration of the test and his administration of such test to defendant, as well as his scoring/assessment of the results of such testing, was in accordance with the accepted techniques and procedures. People v. Vanderlofske, 186 Misc. 2d 182, 717 N.Y.S.2d 450 (County Ct. 2000); West's Key Number Digest, Automobiles 422.1.

[Top of Section]

[END OF SUPPLEMENT]
B. Testimony of the Testing Officer (Cross-examination)

§ 25. Lack of qualifications

[Cumulative Supplement]

[After introduction and identification of witness]

Q. What is...

*** Start Section

... if it would offend the court or if the police officer has a four-year degree from an accredited college.

Q. Do you have any licenses to practice medicine?
A. No.

Q. Have you received any awards or honors in the fields of medicine or science?
A. No.

Q. Have you conducted any research in the areas of ophthalmology, neurology, pharmacology, behavioral psychology, highway safety or criminalistics?
A. No, I have never conducted any research.

Q. Have you ever published any articles relating to any of those fields or to horizontal gaze nystagmus?
A. No, I have not written or published any articles.

CUMULATIVE SUPPLEMENT

Cases:

Despite police officer’s years of experience, his professional credentials did not qualify him as an expert on the general acceptance of horizontal gaze nystagmus (HGN) testing for the purpose of alcohol impairment within the scientific fields of medicine, ophthalmology, and optometry. People v. McKown, 236 Ill. 2d 278, 924 N.E.2d 941 (2010).

Trial court did not abuse its discretion by limiting defendant’s cross-examination of police officer regarding non-alcohol-related nystagmus, in trial of defendant for aggravated driving under the influence of alcohol (DUI); officer conducted horizontal gaze nystagmus (HGN) testing of defendant, during cross-examination defense counsel elicited testimony from officer that he did not know how many non-alcohol-related causes for nystagmus there were and that officer did not know or remember the differences between alcohol-related nystagmus, non-alcohol nystagmus, rotational nystagmus, caloric nystagmus, natural nystagmus, optokinetic nystagmus, or physiological nystagmus, trial court only sustained the State's objections to only two questions relating specifically to optokinetic nystagmus, and there was no connection between that specific condition and defendant. People v. Graves, 2012 IL App (4th) 110536, 2012 WL 273153 (Ill. App. Ct. 4th Dist. 2012), appeal pending, (May 1, 2012).

Evidence that police officer was trained to administer horizontal gaze nystagmus (HGN) field sobriety test and that he administered it in accordance with his training was insufficient foundation for admission of HGN test results in proceeding for reinstatement of driver’s license, where no evidence was introduced of officer’s special training or education or adequate knowledge qualifying him as expert to explain correlation between alcohol consumption and nystagmus, the underlying scientific basis of HGN test. Bramble v. State, Dept. of Justice, Motor Vehicle Div., 1999 MT 132, 982 P.2d 464 (Mont. 1999); West's Key Number Digest, Automobiles 423.
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

State properly qualified police officer as an expert in the administration of horizontal gaze nystagmus (HGN) test in prosecution for driving while intoxicated (DWI), where officer testified he had used test on regular basis and had been trained to determine based on HGN testing whether an individual had been drinking, and that the techniques he employed when testing defendant were those in which he had been trained. New Mexico Statutes § 66-8-102 (1978); NM Stat. Ann. 11-702. State v. Torres, 1999 -NMSC- 010, 127 N.M. 20, 976 P.2d 20 (1999); West's Key Number Digest, Automobiles ☞423.

For police officer or law enforcement official to testify as expert on administration of horizontal gaze nystagmus (HGN) test, he must merely prove that he is certified by state to administer HGN test. Held v. State, 948 S.W.2d 45 (Tex. App. Houston 14th Dist. 1997), petition for discretionary review filed, (July 18, 1997).

Deputy sheriff's testimony that he was trained in administering and evaluating horizontal gaze nystagmus test (HGN) provided a reasonable basis for the trial court to conclude that deputy was qualified, pursuant to evidence rule governing expert testimony, to offer the expert opinion regarding the HGN sobriety test in defendant's prosecution for operating a motor vehicle while under the influence of an intoxicant. Wisconsin Statutes § 907.02. State v. Zivcic, 598 N.W.2d 565 (Wis. Ct. App. 1999); West's Key Number Digest, Criminal Law ☞488.

Testimony of 16-year police veteran regarding his training and experience in administering and assessing field sobriety tests provided sufficient foundation to admit officer's testimony regarding such tests in administrative proceeding to revoke driver's license; officer testified he had received training in conducting, and had instructed others to conduct, horizontal gaze nystagmus (HGN) test, that he did not use HGN test in isolation to determine probable cause and did not attempt to use it to extrapolate driver's blood alcohol concentration, and that he had significant training in standardized field sobriety testing based on studies conducted by National Highway Traffic Safety Administration. Smith v. State ex rel. Wyoming Dept. of Transp., 11 P.3d 931 (Wyo. 2000); West's Key Number Digest, Automobiles ☞422.1.

§ 26. Limited understanding of nystagmus

Q. Officer, would you please explain what nystagmus is?
A. Nystagmus is a jerking or twitching of the eyeballs.

Q. How many different types of nystagmus are there?
A. I don't know. The only one I was taught about was horizontal gaze nystagmus.

Q. Isn't it true that there are over twenty-five different types of nystagmus?
A. There may be. I wouldn't know.

Q. Then you wouldn't be able to tell one type of nystagmus from any of the other types of nystagmus—would you?
A. I don't know.

§ 27. Training for HGN test

[Cumulative Supplement]

Q. Are you familiar with the procedure or test known as the horizontal gaze nystagmus test?
A. Yes.

Q. How did you become familiar with this test?
A. I learned about the test as a part of my field sobriety training.

Q. Where did you receive this training?
A. I was involved in a course that was taught by the State Police.
Q. How many days of training did this course involve?
A. It was a three-day course which covered a lot of different areas regarding intoxicated and drugged drivers.
Q. What areas did the training include?
A. As part of the course, we learned the horizontal gaze nystagmus test, which is to be scored along with the walk and turn test and the stand on one leg test. We also learned how to recognize the effects of certain types of drugs on individuals and what to look for when deciding to make a DWI stop.
Q. So this course didn't just deal with the horizontal gaze test, is that correct?
A. Yes.

CUMULATIVE SUPPLEMENT

Cases:

Evidence that police officer was trained to administer horizontal gaze nystagmus (HGN) field sobriety test and administered the HGN test on motorist in accordance with this training was insufficient foundation to support admission of HGN test results in proceeding to reinstate motorist's driver's license, absent evidence that officer had special training or education or adequate knowledge qualifying him as an expert to explain the correlation between alcohol consumption and nystagmus, the underlying scientific basis of the HGN test. Rules of Evid., Rule 702. Hulse v. State, Dept. of Justice, Motor Vehicle Div., 1998 MT 108, 961 P.2d 75 (Mont. 1998).

[Top of Section]

[END OF SUPPLEMENT]

§ 28. Training for HGN test—Explanation of test

[Cumulative Supplement]

Q. Will you please explain the horizontal gaze nystagmus test as it was taught to you?
A. The test requires us to look for three different things. First, we are supposed to see if there is nystagmus or this jerking of the eyeball at a 45-degree angle from the center of a person's head. The second thing we are supposed to look for is whether the eye moves smoothly when it is following an object which is moved towards the side of the person's head. The third thing we are instructed to look for is whether or not the eye has nystagmus before reaching a 45-degree angle.
Q. Do you know how alcohol is supposed to cause nystagmus in the eye?
A. No, they didn't teach us anything about that.

CUMULATIVE SUPPLEMENT

Cases:

In a...

*** Start Section

... of nystagmus symptoms and alcohol, was not admissible to give the jury a factual basis for concluding that defendant's horizontal gaze nystagmus test results showed he was under the influence of alcohol. The supervisor did not offer an opinion as to the test given to defendant or as to what caused the nystagmus observed in defendant. The testimony, which indicated that factors other than alcohol could be responsible for nystagmus symptoms, was not sufficiently factual to aid a jury in making
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...

a meaningful evaluation of the testimony of the officer who had administered defendant's test. People v Williams (1992, 5th Dist) 3 Cal App 4th 1326, 5 Cal Rptr 2d 130, 92 CDOS 1629, 92 Daily Journal DAR 2524.

[Top of Section]

[END OF SUPPLEMENT]

§ 29. Training for HGN test—Administration of test to subject

[Cumulative Supplement]

Q. How is the test performed?
A. The first thing I do is tell the individual that I am going to perform a test which requires him to follow my penlight. Then I tell the individual to hold his head steady while I move the penlight.
Q. What if the individual is wearing glasses?
A. Well, if he is wearing glasses, I tell him that he has to take his glasses off.
Q. Why do you do that?
A. So that I can see his eyes better.
Q. Do you know whether asking the individual to remove his glasses will cause him any problems with the test?
A. In our training course we were taught that it would not cause the individual any problems with the test.
Q. What do you do next?
A. I hold my penlight directly in front of the individual's face...

*** Start Section

... eye moves smoothly and whether it starts twitching at the 45-degree angle.
Q. What do you do next?
A. I then repeat the same movement only slower.
Q. How slowly do you move the object the second time?
A. It should take about 4½ seconds to travel the entire 45 degrees.
Q. What are you looking for this time?
A. I am looking to see whether the eye starts jerking back and fourth before the 45 degrees. If I see it jerking, I am supposed to stop to see whether it continues and to determine whether that is less than the 45 degrees.
Q. How is the horizontal gaze nystagmus test scored?
A. There is one point given for each of the three criteria observed in each eye. In other words, there is a total of six points on the test.

CUMULATIVE SUPPLEMENT

Cases:

Results of horizontal gaze nystagmus (HGN) test were admissible in prosecution for driving under the influence of alcohol to extent that it was less safe to drive, despite fact that police officer could only estimate angle of onset of nystagmus in test in which defendant was seated, where defendant could introduce evidence of error in testing and officer performed second test on defendant while he was standing. O.C.G.A. § 40-6-391(a)(1). Tuttle v. State, 232 Ga. App. 530, 502 S.E.2d 355 (1998).
§ 30. Procedures followed in administering test to defendant

[Cumulative Supplement]

Q. You stated that when you give the test, it is possible that the subjects can have twitching in their eyes that is really caused because of your twitching the penlight, is that correct?
A. Yes...

*** Start Section
... no further?
A. I believe so.
Q. Even though you didn't use an instrument, and even though you didn't check yourself for accuracy on a monthly basis as recommended by the National Highway Traffic Safety Administration?
A. Yes.
Q. Before you gave this test to the defendant, when was the last time you checked yourself with an instrument to be sure that your determinations of the 45-degree angle were accurate?
A. I don't recall.
Q. What did you use to keep Mr. ________'s head from moving when you performed the test?
A. I didn't use anything.
Q. As you were instructed to perform the test, isn't it extremely important that the subject's head remain stationary?
A. Yes.

CUMULATIVE SUPPLEMENT

Cases:

Variations by state trooper from proper procedure for administering horizontal gaze nystagmus (HGN) test did not render his testimony inadmissible or unreliable in driving while intoxicated (DWI) case, but affected the weight to be given to his testimony. Pointe v. State, 371 S.W.3d 527 (Tex. App. Beaumont 2012).

[Top of Section]

§ 31. Lack of scientific understanding of problems with test

Q. Are there any problems with the horizontal gaze nystagmus test?
A. Not really. It is supposed to be the most accurate field sobriety test around.
Q. What is the significance of the 45-degree angle?
A. If a person's eye starts twitching at the 45-degree angle, he is probably above the legal alcohol level.
Q. Isn't it a fact that according to the National Highway Traffic Safety Administration the onset of nystagmus at a 45-degree angle would only indicate a...

*** Start Section
... how alcohol is supposed to cause nystagmus?
A. No, I was just told that it does.
Q. Isn't it a fact that you know very little about the scientific basis for the horizontal gaze nystagmus test?
A. Yes.

IV. Bibliography

§ 32. Legal periodicals and texts

Editor's Comment:
The references from this Bibliography can be found in the frontmatter of this article, 4 Am. Jur. Proof of Facts 3d 439.

§ 33. Medical/technical publications

Editor's Comment:
The references from this Bibliography can be found in the frontmatter of this article, 4 Am. Jur. Proof of Facts 3d 439.

RESEARCH REFERENCES

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DWI courts: the newest problem-solving courts, 42 Court Rev. 22 (2005 WL 3725720)
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The ABC's of FSTs: a brief summary of field sobriety tests in DUI cases, 14 Nev. Law. 8 (2006 WL 3506883)

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Index to Annotations: Automobile and Highway Traffic

Index to...

63 See also State v Reed (1987) 83 Or App 451, 732 P2d 66 (court held that testimony of the arresting officer was insufficient to establish the reliability of the relationship, if any, between nystagmus and alcohol consumption).
64 State v Superior Court of County of Cochise (1986) 149 Ariz 269, 718 P2d 171, 60 ALR4th 1103.
65 The court held that the test satisfied the Frye standard for the limited purpose of showing intoxication, but could not be admitted to show blood alcohol concentration. See § 12.
67 State v Superior Court of County of Cochise (1986) 149 Ariz 269, 718 P2d 171, 60 ALR4th 1103.
68 Id., 718 P2d 171, at 181.
Unreliability of the Horizontal Gaze Nystagmus Test, 4 Am. Jur. Proof of Facts 3d 439...


71 State v Superior Court of County of Cochise (1986) 149 Ariz 269, 718 P2d 171, 60 ALR4th 1103.

72 People v Haymer (1987, 1st Dist) 154 Ill App 3d 760, 107 Ill Dec 323, 506 NE2d 1378, app den People v Haymer (1987, Ill) 113 Ill Dec 309, 515 NE2d 118.


74 But see People v Furness (1988, 5th Dist) 172 Ill App 3d 845, 122 Ill Dec 554, 526 NE2d 947 (results of HGN test held acceptable to establish probable cause for arrest in judicial hearing on suspension of driver's license).

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