

**STATE V. LASWORTH, 2002-NMCA-029, 131 N.M. 739, 42 P.3d 844**

**STATE OF NEW MEXICO, Plaintiff-Appellant,  
vs.  
JAMES LASWORTH, Defendant-Appellee.**

Docket No. 21,513

COURT OF APPEALS OF NEW MEXICO

2002-NMCA-029, 131 N.M. 739, 42 P.3d 844

December 07, 2001, Filed

APPEAL FROM THE DISTRICT COURT OF SANTA FE COUNTY. Michael E. Vigil,  
District Judge.

As Corrected April 8, 2002. As Corrected March 23, 2002. Certiorari Denied, No.  
27,333, March 5, 2002.

**COUNSEL**

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**JUDGES**

A. JOSEPH ALARID, Judge. WE CONCUR: JONATHAN B. SUTIN, Judge, IRA  
ROBINSON, Judge.

**AUTHOR:** A. JOSEPH ALARID

**OPINION**

{\*739}

ALARID, Judge.

**INTRODUCTION**

{1} In **State v. Torres**, 1999-NMSC-10, P30, 127 N.M. 20, 976 P.2d 20, the Supreme  
Court held that the results of a horizontal gaze nystagmus (HGN) field sobriety test

constitute scientific evidence within the meaning of Rule 11-702 NMRA 2001 when offered by the State against a defendant in a prosecution for driving while intoxicated; and, that HGN test results may not be admitted unless the State, as the proponent of HGN evidence, has demonstrated that such evidence meets the evidentiary reliability standard adopted by the Supreme Court in **State v. Alberico**, 116 N.M. 156, 861 P.2d 192 (1993). In the present case, the district court, applying **Torres**, ruled that the results of Defendant's HGN test were inadmissible at trial. We affirm.

### Overview of HGN and Standardized Field Sobriety Tests

{2} HGN has come to be a principal component of standardized field sobriety tests {740} (FSTs) as the result of a series of studies conducted under the auspices of the National Highway Traffic Safety Administration (NHTSA). In the mid-1970's, Drs. Marcelline Burns and Herbert Moskowitz, doing business as the Southern California Research Institute, were awarded a contract by the NHTSA to conduct laboratory studies of various FSTs then in use around the country, with the goal of identifying the most effective battery of FSTs. The results of the research were published in 1977. M. Burns and H. Moskowitz, **Psychological Tests for DWI Arrest, Final Report**, No. DOT-HS-802-424 (1977) (hereafter the 1977 Report). The 1977 Report recommended a battery of three FSTs: one-leg-stand, walk-and-turn, and HGN. According to Dr. Burns and Dr. Moskowitz, the combined scores from the proposed three-test FST battery correctly discriminated between subjects having blood alcohol concentrations (BAC's) below 0.10 percent and those having BAC's at or above 0.10 percent eighty-three percent of the time.

{3} NHTSA sponsored a further study to standardize administration and scoring of the FSTs. The results of this second study were published in 1981. V. Tharp, M. Burns, and H. Moskowitz, **Development and Field Test of Psychophysical Tests for DWI Arrest**, No. DOT-HS-805-864 (1981). The researchers reported that in the laboratory, police officers trained in the administration of the three-test battery were able to discriminate between subjects whose BAC was below 0.10 percent and those whose BAC was at or above this level eighty-one percent of the time.

{4} NHTSA funded a third study. The purpose of this study was to evaluate the effectiveness of the three-test battery in the field. Researchers concluded that a properly-administered HGN test would correctly identify a suspect as having a BAC at or above 0.10 percent seventy-seven percent of the time, and that when the HGN and walk-and-turn results were combined using a decision matrix, the two tests would correctly identify a suspect as having a BAC at or greater than 0.10 percent eighty percent of the time. T. Anderson, R. Schweitz, and M. Snyder, **Field Evaluation of a Behavioral Test Battery for DWI**, No. DOT-HS-806-475 (1983).

{5} There have been further studies validating the NHTSA standardized FST battery, including studies in Colorado, M. Burns and E. Anderson, **A Colorado Validation Study of the Standardized Field Sobriety Test (SFST) Battery**, Final Report, submitted to Colorado Department of Transportation (1995) (hereafter 1995 Colorado

Report); Florida, M. Burns and T. Dioquino, **A Florida Validation Study of the Standardized Field Sobriety Test (S.F.S.T.) Battery**, (1998); and California, J. Stuster and M. Burns, **Validation of the Standardized Field Sobriety Test Battery at BAC's Below 0.10 Percent**, Final Report, submitted to U.S. Dept. of Transportation, NHTSA (1998) (hereafter 1998 Final Report). In the 1998 Final Report, researchers concluded that the NHTSA's three-test FST battery enabled officers in the field to accurately estimate whether a motorist's BAC was at or above 0.08 percent ninety-one percent of the time.

{6} The 1995 Colorado Report describes the HGN FST as follows:

The basic requirements for examination of the eyes for HGN are only that the officer must be able to see the subject's eyes and the subject must be able to see the stimulus object. No special apparatus or conditions are necessary. The officer instructs the subject to hold his/her head still and to follow the movement of a stimulus (e.g., a pen, penlight, or finger) with the eyes. The officer observes each of the subject's eyes for three signs:

(1) the ability of the eye to smoothly track or pursue the stimulus as it moves left and right in the subject's visual field.

**A lack of smooth pursuit movement is consistent with the presence of a D-I-P [depressants-inhalants-phencyclidine] drug.**

(2) the presence and the amplitude of a jerking movement, which may occur when the eyes have deviated as far as possible to the extreme side of the visual field.

**A distinct jerking is consistent with the presence of a D-I-P drug.**

{\*741} (3) the angle of the eye's gaze when the first nystagmus jerking occurs; i.e., the angle of onset.

**Jerking which occurs prior to a 45 degree angle of gaze and persists when the stimulus is held in one position indicates the presence of a D-I-P drug.**

1995 Colorado Report, *supra*, at 20.

#### Procedural History

{7} Defendant was arrested on September 10, 1998. The arresting officer had observed Defendant traveling in the wrong direction on the on ramp leading from State Road 599 to northbound I-25. After stopping Defendant's car, the arresting officer noted that Defendant "displayed signs of impairment." The arresting officer administered a "Standardized Field Sobriety Test." Based on the results of this test, the officer arrested Defendant. Defendant submitted to a breath alcohol test, which indicated a BAC of 0.09

percent. Defendant was convicted in Santa Fe County Magistrate Court of driving while under the influence in violation of NMSA 1978, § 66-8-102.

{8} Defendant appealed to the First Judicial District Court. The district court conducted a trial de novo on February 4, and March 3, 2000. The case was tried to the court without a jury. At the beginning of the trial, the prosecutor explained to the district court that the State intended to present an expert who would validate the HGN FST under the standards of **Alberico** and **Torres**. However, due to scheduling problems, the expert could not appear until later in the trial. The district court proposed that the State go ahead and present its lay HGN evidence, with the understanding that the court would disregard this testimony if the State's expert was unable to establish a foundation for its admission. During the first day of trial, the district court heard testimony from the arresting officer, who recounted his training and experience in administering the NHTSA's standardized FSTs. The arresting officer provided a detailed description of the FSTs he administered to Defendant. The officer testified that on the HGN FST, Defendant demonstrated a "lack of smooth pursuit" in both eyes, "distinct nystagmus at maximum deviation" in both eyes, and an "angle of onset of nystagmus" of approximately forty degrees. The officer testified that he observed six cues, the maximum possible under the standardized HGN FST. The officer stated that, based on his training and experience, the presence of all six HGN cues indicated Defendant was "under the influence" of alcohol or another central nervous system depressant, an inhalant, or PCP at the time of the test. After the first day of testimony, the trial was continued.

{9} On March 3, 2000, the trial resumed. The State tendered Marcelline Burns, Ph.D., as its expert on HGN testing. Dr. Burns' twenty-one page curriculum vitae was marked and admitted. Dr. Burns holds a bachelor's degree, a master's degree, and a doctoral degree in psychology. Dr. Burns recounted her role in the development and validation of the NHTSA's standardized FST battery. Dr. Burns testified that she has qualified as an expert witness on the HGN FST in at least twenty-six states.

{10} Defense counsel objected to the State's proffer of Dr. Burns as an expert. In response to voir dire by defense counsel, Dr. Burns conceded that she is not a medical doctor, and, that as a psychologist, she is primarily interested in behavioral measurements. The district court explained that it understood **Torres** to require that HGN evidence must be both scientifically **valid** and scientifically **reliable**. The district court believed that Dr. Burns was qualified to speak to the second, "reliability," prong. However, in the district court's view, Dr. Burns was not qualified by herself to establish the first, "validity," prong. In the district court's view, the State should have called an expert in a discipline such as biology or medicine, rather than a behavioral psychologist, to explain how the amount of alcohol a person consumes correlates with HGN. The district court expressed its concern that without such testimony, it could not rule out the possibility that the correlation between BAC and HGN claimed by Dr. Burns was a "coincidence." Because the State could satisfy only the second prong of the **Torres** test, the district court ruled that the arresting officer's testimony {742} regarding the results of the HGN FST were inadmissible.

{11} At the State's request, the district court continued the trial to enable the State to appeal the ruling excluding evidence of the results of the HGN FST. We have jurisdiction pursuant to NMSA 1978, § 39-3-3(B)(2) (1972).

## DISCUSSION

{12} Before scientific evidence may be admitted, the proponent must satisfy the trial court that the technique used to derive the evidence has scientific validity--there must be "proof of the technique's ability to show what it purports to show." **Alberico**, 116 N.M. at 167, 861 P.2d at 203. We begin by deciding what it is that the HGN FST "purports to show."

{13} Dr. Burns, the State's expert, is a leading--perhaps the foremost--proponent of the HGN FST. Dr. Burns was involved in the original NHTSA-funded research, as well as many of the subsequent studies of the NHTSA's standardized FST battery. Although the original goal of the NHTSA research was "to develop more sensitive tests that would provide more reliable evidence of impairment," 1977 Report, Technical Summary, that approach was abandoned during the development of the NHTSA standardized FST battery. Dr. Burns testified that the HGN FST was validated by comparing arrest/release decisions based upon the results of the NHTSA's standardized FSTs against the subjects' BAC's as subsequently measured by breath alcohol or blood alcohol tests.<sup>1</sup>

{14} In the 1998 Final Report, Dr. Burns explained how the limitations imposed by this methodology have been misunderstood:

The only appropriate criterion measure to assess the accuracy of SFSTs is BAC. Measures of impairment are irrelevant because performance of the SFSTs must be correlated with BAC level, rather than driving performance. BAC provides an objective and reliable measure that states have recognized as presumptive and/or per se evidence of impairment, depending on the statute.

....

Many individuals, including some judges, believe that the purpose of a field sobriety test is to measure driving impairment. For this reason, they tend to expect tests to possess "face validity," that is, tests that appear to be related to actual driving tasks. Tests of physical and cognitive abilities, such as balance, reaction time, and information processing, have face validity, to varying degrees, based on the involvement of these abilities in driving tasks; that is, the tests seem to be relevant "on the face of it." Horizontal gaze nystagmus lacks face validity because it does not appear to be linked to the requirements of driving a motor vehicle. The reasoning is correct, but it is based on the incorrect assumption that field sobriety tests are designed to measure driving impairment.

Driving a motor vehicle is a very complex activity that involves a wide variety of tasks and operator capabilities. It is unlikely that complex human performance,

such as that required to safely drive an automobile, can be measured at roadside. The constraints imposed by roadside testing conditions were recognized by the developers of NHTSA's SFST battery. As a consequence, they pursued the development of tests that would provide **statistically valid and reliable indications of a driver's BAC, rather than indications of driving impairment. The link between BAC and driving impairment is a separate issue, involving entirely different research methods.**

{\*743} 1998 Final Report, *supra*, at 10, 27-28 (emphasis added).<sup>2</sup>

{15} "Scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes." **Daubert v. Merrell Dow Pharms., Inc.**, 509 U.S. 579, 591, 125 L. Ed. 2d 469, 113 S. Ct. 2786 (1993). As Dr. Burns has observed, "the objective of the test is to discriminate between drivers above and below the statutory BAC limit, **not to measure driving impairment.**" 1998 Final Report, *supra*, at 28 (emphasis added). Based on Dr. Burns' testimony and our own review of the 1995 Colorado Report, as well as her published statements, we conclude that the HGN FST has not been scientifically validated as a direct measure of impairment. We conclude that the sole purpose for which the HGN FST arguably has been scientifically validated is to discriminate between drivers above and below the statutory BAC limit, which in New Mexico is 0.08 percent.<sup>3</sup>

{16} The State argues that Dr. Burns was qualified to establish the validity of the HGN FST and lay a foundation for the arresting officer's testimony that Defendant was "under the influence" at the time the FST was administered. In making this argument, the State erroneously assumes that the HGN FST measures impairment. However, as noted above, "the objective of the test is to discriminate between drivers above and below the statutory BAC limit, **not to measure driving impairment,**" and "the link between BAC and driving impairment is a separate issue, involving entirely different research methods." Thus, in order to lay a foundation for the admission of the arresting officer's statement that Defendant was under the influence of alcohol or another central nervous system depressant, the State was required to establish two predicates: first, that the HGN FST is a scientifically valid means of discriminating between BAC's below 0.08 percent and those at or above 0.08 percent; and, second, that a BAC at or above 0.08 percent correlates with diminishment of Defendant's mental or physical driving skills. Dr. Burns appears to have been called to testify as to the first predicate.

{17} The State argues that the district court abused its discretion by ruling that Dr. Burns was not able to explain how alcohol caused the eye movements observed by the arresting officer. At trial, Dr. Burns testified that "alcohol is a central nervous system depressant and as it depresses the brain, which is the part that we are concerned about here, it affects the reticular formation, the brainstem, and that disrupts or causes a dysfunction in the muscle and neural control of the eyes." Dr. Burns conceded that she herself had not conducted studies or experiments to determine how and why alcohol causes HGN and that her understanding of the mechanisms that produce HGN was based upon her review of the published results of studies by other researchers.

However, Dr. Burns also testified that her knowledge of the physiological causes of HGN was sufficient to allow her to design and carry out studies correlating the HGN FST with BAC.

{18} Some minimal level of knowledge of the underlying substantive area of science is necessary even to design a statistical study. See 1 David L. Faigman, et al., **Modern Scientific Evidence: The Law and Science of Expert Testimony** § 3-1.2 (1997) (hereafter **Modern Scientific Evidence**) (noting "choice of which data to examine" may require subject matter expertise in addition to knowledge of applied statistics). Dr. Burns testified that her knowledge of the physiological basis of HGN was sufficient for her to design and carry out studies of the HGN FST. There was no evidence refuting Dr. Burns' testimony on this point. Dr. Burns' understanding of the causes of HGN therefore appears to have been sufficient for her to design and conduct studies to verify whether the HGN FST can be used to discriminate between BAC below and above a given level.

{19} {744} Evidence that Dr. Burns was qualified in the abstract to design and conduct studies of HGN does not mean that she in fact designed and conducted scientifically sound studies. See **Modern Scientific Evidence**, supra, § 1-3.3.3 (observing that "even the highest quality [scientific] journals sometimes publish work that is later found to be wrong"). The district court appears to have been concerned that without a more detailed understanding of the causes of HGN, the court could not be sure the results obtained by Dr. Burns and other HGN researchers were not a "coincidence."

{20} We share the district court's concern. In the 1995 Colorado study, 234 motorists who were stopped subsequently submitted to a breath- or blood-test, thereby enabling the researchers to compare the subject's measured BAC with the arrest-release decision dictated by the FSTs. 1995 Colorado Report at 13. At the time of the Colorado study, a BAC of 0.05 percent or greater provided grounds for arrest under Colorado law. *Id.* at v. The mean BAC of the 234 motorists was 0.152 percent, or **over three times** the statutory limit under Colorado law. *Id.* at 16. Of the 234 motorists, 184 had BAC's at or above the statutory limit of 0.05 percent, *id.* at 14, table 4; and, of these 184 motorists, 133 had BAC's at or above 0.10, or **over twice** the statutory limit, *id.* at 17. The driving behaviors that led the officers participating in the study to stop a motorist in the first place clearly were selecting out of the general driving population a highly intoxicated group of test subjects. If the officers had simply arrested every one of the 234 motorists, without even administering the FSTs, seventy-nine percent (184 of 234) of their arrest-release decisions would have been correct. In the actual study, the researchers concluded that arrest-release decisions based on the FSTs were correct eighty-six percent of the time. *Id.* at 14. Thus, administration of the FSTs did not dramatically improve the overall percentage of correct decisions. Further, among motorists whose BAC's fell in the range between 0.03 to 0.07 percent (0.05 percent plus or minus 0.02 percent), arrest-release decisions based on the FSTs were correct only 57 percent (21 of 37) of the time. 1995 Colorado Report, Appendix IV. We share the district court's concern that some coincidental factor, such as the driving behaviors that led an officer to stop a motorist in the first place, were largely responsible for the claimed ability of the FSTs to discriminate between motorists above and below the

statutory BAC. **See Modern Scientific Evidence, supra**, § 3-5.2.3 (discussing "confounding variable"--factor omitted from the researcher's analysis, which in fact drives correlation noted by the researcher).

{21} Further, Dr. Burns stated in the 1995 Colorado Report that "it is possible that lack of smooth pursuit and distinct nystagmus at maximum deviation occur at low BAC's with some subjects but not with others, or on some occasions but not others. . . . Research has not yet clearly defined HGN signs for low BAC's." 1995 Colorado Report at 21. Dr. Burns noted that there is evidence that "smooth pursuit movement breaks down at BAC's as low as 0.04%" and that "controlled laboratory research at low BAC's is needed to examine the three HGN signs." *Id.* at 20. These statements suggest that the HGN FST may be prone to false positives under New Mexico law. **See NMSA 1978**, § 66-8-110(B)(1) (1978, as amended through 1993) (establishing presumption that motorist whose BAC is 0.05 percent or less is not under the influence of intoxicating liquor). We think that it would have been reasonable for the district court to want to know more about the effects of relatively low alcohol levels on the physiological mechanisms that produce HGN.

{22} Lastly, we note that although the HGN FST was originally validated as a means of discriminating between BAC's below 0.10 percent and those at or above 0.10 percent, in the 1995 Colorado Report the FST battery was used to discriminate between BAC's below 0.05 percent and those at or above 0.05 percent. Further, in the 1995 Colorado Validation Study, Dr. Burns suggested that the standardized FSTs also are effective when the criterion for arrest is 0.08 percent. 1995 Colorado Report at 15. The district court could reasonably have wanted to hear a more detailed scientific explanation of how the physiological cues that make up the HGN FST vary with a subject's BAC in such a remarkable manner that the HGN FST can provide statistically valid and reliable evidence at varying criterion BAC's.

{23} {745} **Torres** required the district court to conduct a searching, de novo inquiry into the validity of the HGN FST, not to merely rubber stamp the decisions of courts in other jurisdictions that have admitted such evidence. It is the district court, not the expert, however qualified, who makes the ultimate determination of the validity of scientific evidence. The district court was not required to accede to the State's take-it-or-leave-it proffer of Dr. Burns, and it did not abuse its discretion in requiring the State to produce an expert who could explain in greater detail than Dr. Burns the physiological and pharmacological basis of the six cues that make up the HGN FST.

{24} In its reply brief, the State argues that the district court misapplied **Torres** by reading **Torres** to require testimony from a medical doctor, and that it was on this narrow basis that the district court rejected Dr. Burns. Although some of the district court's remarks could be understood as a request for testimony from a medical doctor, in other places the district court expressed its concern more broadly, using the terms "biological or physical or medical evidence," "some basis biologically or medically," "the biological, medical explanation." Our review of the entire transcript of Defendant's trial satisfies us that the district court remained open to any witness who was capable of



providing biological, physical, **or** medical evidence about the relationship of HGN to a subject's BAC.

{25} We note an alternate statutory rationale for upholding the exclusion of HGN evidence. This alternate ground follows from our recognition that the HGN FST has been validated, if at all, solely as a means of discriminating between BAC's at or above a given level, and BAC's below that level.

{26} NMSA 1978, § 66-8-107(A) (1978, as amended through 1993) provides that "any person who operates a motor vehicle within this state shall be deemed to have given consent . . . to **chemical** tests of his breath or blood or both, **approved by the scientific laboratory division of the department of health.**" (Emphasis added). NMSA 1978, § 66-8-110(A) (1978, as amended through 1993), provides that "the results of **a test performed pursuant to the Implied Consent Act** [66-8-105 to 66-8-112 NMSA 1978] may be introduced into evidence in any civil action or criminal action arising out of the acts alleged to have been committed by the person tested for driving a motor vehicle while under the influence of intoxicating liquor or drugs." (Emphasis added). Lastly, Section 66-8-110(E) provides that "the determination of alcohol concentration **shall** be based on the grams of alcohol **in one hundred milliliters of blood** or the grams of alcohol **in two hundred ten liters of breath.**" (Emphasis added).

{27} The statutes cited in the preceding paragraph were enacted by Chapter 35 of 1978 N.M. Laws, which created the Motor Vehicle Code. In 1978 when the Motor Vehicle Code was enacted, Dr. Burns and her colleagues had only recently published the first laboratory study advocating the adoption of HGN as a FST. In view of the experimental status of the HGN FST in 1978, it is not surprising that the Legislature did not include HGN as a method of proving a suspect's BAC. Although the HGN FST has come to be widely known and widely used subsequent to the enactment of the Motor Vehicle Code in 1978, the Legislature has not amended the Motor Vehicle Code to authorize a conviction<sup>4</sup> based upon the results of non-chemical BAC tests such as the HGN FST.

## CONCLUSION

{28} The decision of the trial court excluding the results of Defendant's horizontal gaze nystagmus field sobriety test is affirmed.

**{29} IT IS SO ORDERED.**

A. JOSEPH ALARID, Judge

WE CONCUR:

JONATHAN B. SUTIN, Judge

IRA ROBINSON, Judge

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1 We realize that during its redirect examination of Dr. Burns, the State inserted the phrase "horizontal gaze nystagmus as a measure of impairment" into a series of questions, and, that in responding to these questions, Dr. Burns did not take issue with the State's characterization of HGN "as a measure of impairment." In our view, any inference that may be drawn from Dr. Burns' failure to correct the State's characterization of HGN as a "measure of impairment" does not overcome her testimony on direct examination and her unequivocal published statements that the HGN FST has been validated as a means of discriminating between BAC's below a given level and BAC's at or above that level, and not as a direct measure of impairment.

2 The 1998 Final Study is available online at the National Highway Traffic Safety Administration's website:

**<http://www.nhtsa.dot.gov/people/injury/alcohol/limit.08/SFSTRE P.pdf>**

3 The standardized FSTs initially were validated as means of discriminating between BAC's at or above 0.10 and those below this level. In the 1998 Final Report, Dr. Burns concluded that the standardized FST battery was a valid and "extremely accurate" means of discriminating between BAC's above and below the 0.08 percent level and she suggested that the FST battery can be used to accurately discriminate BAC's above or below 0.04 percent. 1998 Final Report, **supra**, at 26.

4 Nothing in our discussion of the Motor Vehicle Code should be understood as foreclosing the use of the results of an HGN FST to establish probable cause for arresting a motorist or to establish "reasonable grounds" for administering a chemical BAC test. **See** § 66-8-107 (1978, as amended through 1993).