



## Standardized Field Sobriety Testing: Learning from Our Mistakes

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### **Abstract**

The purpose of this paper is to examine whether there was a significant difference between the NHTSA/IACP standardized administrative procedures learned by officers in the basic SFST practitioner course and the manner in which these same officers administer the SFST procedures in the field. Furthermore, if there is a significant difference from the standardized NHTSA/IACP approved procedures, what elements had the most significant deviations. This examination was based on more than three hundred and fifty evidentiary videotapes which were analyzed over a four year period. The benefit of this analysis is to identify the overall rate of compliance as well as identify contributing factors to any non-compliance. By identifying proper and improperly administered elements of the SFST's, it is believed that a course of correction can be undertaken in order to eliminate officer error while administering SFST's in enforcement settings.

### **Introduction/Background**

In 1977, the initial study which served as the foundation for today's standardized field sobriety tests (SFST) that officers use in the field was published. The study, which was conducted by the Southern California Research Institute (SCRI) and funded by a grant from the National Highway Traffic Safety Administration (NHTSA), analyzed several field sobriety tests to determine which were the most reliable in identifying persons who were intoxicated at blood alcohol concentrations (BAC) above 0.10 %<sup>1</sup>.

This study and similar, subsequent research determined that the horizontal gaze nystagmus (HGN), walk and turn (WAT), and one-leg stand (OLS) tests were the most sensitive evaluations for officers to use to establish a relationship between intoxication and alcohol use<sup>1,2,3</sup>. Through this research, these three sobriety tests were determined to be the most reliable in identifying persons who were either above or below the per se legal limit<sup>2,3,7</sup>. The tests serve as the core of the NHTSA SFST training program curriculum. Additionally, this foundational research was conducted specifically to set standards in the methods in which the SFST test battery is to be administered and the manner in which the tests are to be scored<sup>2,3</sup>.

The HGN test is an evaluation that measures jerking in the eyes as they move back and forth, laterally across a horizontal plane in front of the tested subject's field of view. The test is designed to assist the evaluator in determining if there is noticeable jerking as the eyes continuously track a stimulus at three different speeds/movements. The three horizontal movements allow for the evaluator to identify clues or indicators of possible intoxication: (a) lack of smooth pursuit; (b) distinct and sustained nystagmus at maximum deviation; and (c) the onset of nystagmus prior to 45 degrees. In each phase of the horizontal movement, the evaluator determines if the eyes jerk in a noticeable and distinct manner. If so, the jerking is presumed to

have been caused by alcohol and the officer scores the observational clue for each eye in which the clue was visible. A score of four or more clues alerts the officer to the possibility that the tested person may be intoxicated above a 0.08% BAC<sup>7,8,9</sup>.

The walk and turn test (WAT) is one of two identified divided attention (psychophysical) tests used at roadside to assess a driver suspected of DWI. This test requires the subject to take nine heel to toe steps along an imaginary line, turn by taking small steps and then return back down the line taking nine heel to toe steps. The subject may not break the instructional stance, start the test too soon, step off the line, stop while walking, miss touching heel to toe as they walk, take more or less than nine steps up and back down the line, use the arms to aid with balance or turn improperly<sup>8</sup>. Based upon conducted research, persons who scored two or more clues on the WAT test had a high probability of having a BAC of above 0.08%<sup>8</sup>.

The one-leg stand test (OLS) is the second divided attentions test and requires the evaluated subject to stand on one leg while counting aloud by 1000's until told to stop. The OLS test is a timed test in which the officer keeps thirty seconds. The evaluated subject is required to maintain their balance on one leg without placing their raised foot to the ground. The evaluated subject cannot sway, hop, use their arms to aid with balance or place the raised foot to the ground. The research conducted indicated that persons who scored two or more clues on this test had a high probability of having a BAC of above 0.08%<sup>8,9</sup>.

As a result of the research conducted, the HGN, walk and turn, and one-leg stand test were standardized into a systematic method of evaluation that officers could easily be administered at roadside<sup>4,5,6</sup>.

## **Results**

Between January 1, 2003 and December 31, 2006, data was collected from three hundred and sixty (360) recorded evidentiary videotapes. Each of the videotapes had been accepted by the states prosecutor office and assigned to the appropriate court for prosecution. The tapes were analyzed to determine whether the SFST's conducted by trained officers in enforcement settings were correctly administered according to NHTSA/IACP training standards. The analysis of the videotapes was conducted by researchers who have completed the NHTSA/IACP approved SFST practitioner course, SFST instructor course, and the conducted SFST train-the-trainer courses.

In order for a videotape to be included in the research sample, several conditions had to be met. First, each videotape must have recorded all three SFST's. Second, each field test had to be recorded in its entirety through video and audio. Finally, each videotape had to have had a clear audio record of the conversation that transpired between the administering officer and the suspected impaired driver. The audio had to be clear and audible so that all instructions and comments between the evaluator and subject could be heard and understood.

The standardized administrative procedures for the HGN, WAT and OLS tests was analyzed and broken down into individual instructional elements. Each tape was analyzed for the presence or absence of each of the elements in the officer's administration of the three tests. The "skill"

competencies were also identified in order to determine if the officer followed standardized procedures for the “physical” requirements of the test. These physical requirements include but were not limited to: proper stimulus placement, movement of the stimulus (speed), and demonstration of walking, turning, and standing. Environmental conditions (rain, wind snow, etc.) that occurred during the SFST’s performance was also reported however, no analysis was conducted to determine if these varying conditions affected the outcome of the field test results.

The primary objective on this analysis was to identify any deviations which were made from the NHTSA/IACP SFST standardized procedures. Each evaluation was reviewed according to these elements and summarized across all of the evaluations. The proficiency and error rates were calculated based on number of correct and incorrect instructional elements present. These rates, according to the individual instructional elements, are summarized in the tables presented below.

*Horizontal Gaze Nystagmus (HGN).* The HGN test procedures were broken down into individual instructional elements and then analyzed to determine if each had been correctly administered as part of the standardized battery of instructions outlined in the NHTSA SFST curriculum package. In addition to the instructional elements, the physical elements such as whether the officer properly followed standards for placement and movement of the stimulus during the administration of the test and conducted the SFST’s in a fair environment free of optokinetic influences or other conditions that might impair a person’s performance. Table 1 represents the individual elements that were analyzed within the body of the NHTSA/IACP approved HGN test and the identified proficiency percentage and rate of error.

Table 1: HGN Test Administrative Elements and Proficiency Percentages

HGN Test Elements	Proficiency Rate (%)	Rate of Error (%)
Place feet together	71	29
Place hand to your sides	74	26
Maintain the position	53	47
Look at the stimulus	96	4
Follow the stimulus with your eyes only	96	4
Do not move your head	94	6
Continue to follow the stimulus until the test is complete	36	64
Do you understand	83	17
Officer positions stimulus correctly	78	22
Officer checks for equal tracking	58	42
Officer checks for equal pupil size	60	40
Lack of smooth pursuit (timing element)	19	81
Distinct & sustained nystagmus at maximum deviation (timing element)	38	62
Onset of nystagmus prior to 45 degrees (timing element)	44	56
Vertical gaze nystagmus	30	70
Possible optokinetic (environmental issue)	74	26

Of the three hundred and sixty (360) evaluations administered, the officers followed NHTSA standardized procedure in only twenty-four (24) evaluations. This represents 7% of all HGN assessments conducted. The officers using the HGN test as a single test measure of sobriety were incorrect in their administration of the test 93% of the time.

*Walk and Turn Test (WAT).* The WAT test was broken down into individual instructional elements and then analyzed to determine if each had been correctly administered as part of the standardized battery of instructions outlined in the NHTSA SFST curriculum package. Additionally, the physical aspects of the WAT test were analyzed to determine whether officers properly followed NHTSA/IACP standards regarding the demonstration of walking and turning during the test as well as whether they administered the WAT test in a fair environment free of conditions that could adversely impact performance. Conditions such as poor testing surface, weather conditions and issues with shoes were all areas of interest. Table 2 represents the individual elements that were analyzed within the body of the NHTSA/IACP approved WAT test and the identified proficiency percentage and rate of error.

Table 2: WAT Test Administrative Elements and Proficiency Percentages

<b>Walk and Turn Test Elements</b>	<b>Proficiency Rate (%)</b>	<b>Rate of Error (%)</b>
Imagine a line	74	26
Place your left foot on the line	73	27
Place your right foot in front of your left	89	11
Touch the heel of your right foot to the toe of your left	85	15
Keep your arms to your sides	91	9
Remain in this position and do not start walking until told	86	14
Do you understand	81	19
Take nine heel to toe steps up the line	95	5
Turn by leaving the lead foot on the line and taking a series of small steps	87	13
Take nine heel to toe steps back down the line	92	8
Officer demonstrates turn	95	5
Officer demonstrates walking phase	95	5
Look at your feet	73	27
Count your steps out loud	90	10
Keep arms at your side while walking	84	16
Do not stop walking	73	27
Do you understand	91	9
Begin walking and count your first step forward from the heel to toe position as step number one.	24	76
Poor testing surface	72	28
Issues with shoes	87	13
Weather	88	12

With respect to the WAT test, the officers followed NHTSA standardized procedure in only sixty-seven (67) evaluations. This represents 19% of all WAT test assessments conducted during the sample period. The officers using the WAT test as a single test measure of sobriety, were incorrect in their administration of the test 81% of the time.

*One Leg Stand (OLS) Test.* The One-Leg Stand (OLS) test was the third set of data to be analyzed. The OLS test procedures were broken down into individual instructional elements and then analyzed to determine if each had been correctly administered as part of the standardized battery of instructions outlined in the NHTSA SFST curriculum package. Additionally, physical aspects of the OLS test were analyzed to determine whether or not officers properly followed NHTSA/IACP standards regarding the demonstration of the balance and counting portion of the test. Officers were also analyzed to determine whether or not they administered the OLS test in a fair environment free of conditions that could adversely impact performance. Conditions such as poor testing surface, weather conditions and issues with shoes were areas of interest. Table 3 represents the individual elements that were analyzed within the body of the NHTSA/IACP approved OLS test.

Table 3: OLS Test Administrative Elements and Proficiency Ratings

<b>One Leg Stand Test Elements</b>	<b>Proficiency Rate (%)</b>	<b>Rate of Error (%)</b>
Place feet together side by side	82	18
Keep your arms to your sides	83	17
Remain in this position and do not start until told	70	30
Do you understand	72	28
Lift the leg of your choice	99	1
Approximately 6 inches up off the ground	95	5
Keep both legs straight	67	33
Keep your arms by your sides	86	14
Point the toe of the elevated foot parallel to the ground	80	20
Look down at the raised foot	87	13
Count out loud by 1000's until told to stop	90	10
Do you understand	90	10
Officer demonstrates balance and counting	97	3
Poor testing surface	72	28
Issues with shoes	87	13
Weather	87	13

The officers followed NHTSA standardized procedure in one hundred seventy nine (179) of the three hundred sixty evaluations. This represents 50% of all OLS assessments that were conducted. The officer's using the OLS test as a single test measure of sobriety, were incorrect in their administration of the test 50% of the time.

*SFST's as a Three Test Battery.* Out of a total of three hundred sixty (360) evaluations that were administered (three test battery); the officers followed all of the NHTSA standardized procedures in only ten (10) evaluations. This represents 3% of all tests that were correctly administered as a battery of three tests. The officers using the HGN, WAT, and OLS tests as part of a three test battery for measuring sobriety were incorrect in their administration of one or more tests 97% of the time.

## **Discussion**

*Competency Based Training.* The SFST training program has a long history of being instructed to law enforcement officers throughout the United States as well as internationally<sup>9</sup>. The SFST training program has been predominantly provided using traditional classroom methods. In these types of traditional educational systems, learning emerges over time through teacher-centered instructional methods which are, often times, in passive learning settings for the students<sup>10</sup>. In these passive learning settings, students become accustomed to accepting their lecture, notes, and their textbook passages as "truth." By instructing the SFST course using traditional classroom methods, it is common for students to learn without ever having critically challenged the appropriateness of the standard or procedures learned in varying contexts.

Additionally, evaluation of traditional classroom methods typically involves administering knowledge-based written examinations<sup>11</sup>. While knowledge-based assessments can certainly be used in to measure mastery of information, the primary focus in SFST training should be on measuring mastery of skills which are taken away from the training in order to be employed in the field. While it is true that the SFST program has some of its learning objectives directed toward the practice of learned skills (practice sessions and wet workshops), the majority of the training is communicated through formal teacher-learner relationships. With this being said, instructors should consider the benefits of "stepping away" from the traditional classroom paradigm in order to consider how SFST training might be more suitable to a competency based learning platform.

Competency-based training for SFST's is training based upon the learner's ability to demonstrate attainment and mastery of specified skills performed under certain conditions to specific standards (the skills then become competencies)<sup>10,11</sup>. Since the SFST training is best suited for competency based training methods of learning, progress can be measured by mastery of specific knowledge and skills in a learner/participant centered training environment.

## **Conclusions**

Based upon the quantitative data collected as part of this study, it can be presumed that officers who have attended SFST training appear to be able to recall some of the elements of

administering the tests better than others. It was evident that the majority of officers lack the skills to physically administer the SFST's, especially with the HGN test. Some possible reasons for this could be attitude toward enforcement, length of time since last training, or carelessness to name a few. Whatever the reason, there does appear to be significant room for improvement, specifically where applied skills are concerned.

However, the data collected supports a theoretical position that current training utilizing traditional classroom methods may not adequately address training needs when it comes to transfer of learning from the class room to the enforcement environment. As a result there appears to be a gap between how the officer learns to administer the SFST's in the classroom versus how they actually administer the SFST's in the field.

Creating that connection between formal classroom training and practice in enforcement settings is the basis for effective transfer of knowledge<sup>10, 11</sup>. When the administration of the test strays from standardized procedures the test loses its sensitivity and the integrity of the assessment is compromised<sup>8</sup>. This is especially true if the element of the test that is deviated from most often affects the clue(s) that are being assessed for. Consequently, the problems that have been identified from this research indicate that alternative teaching modalities should be considered and explored in order to address the identified problem areas with regard to administration.

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