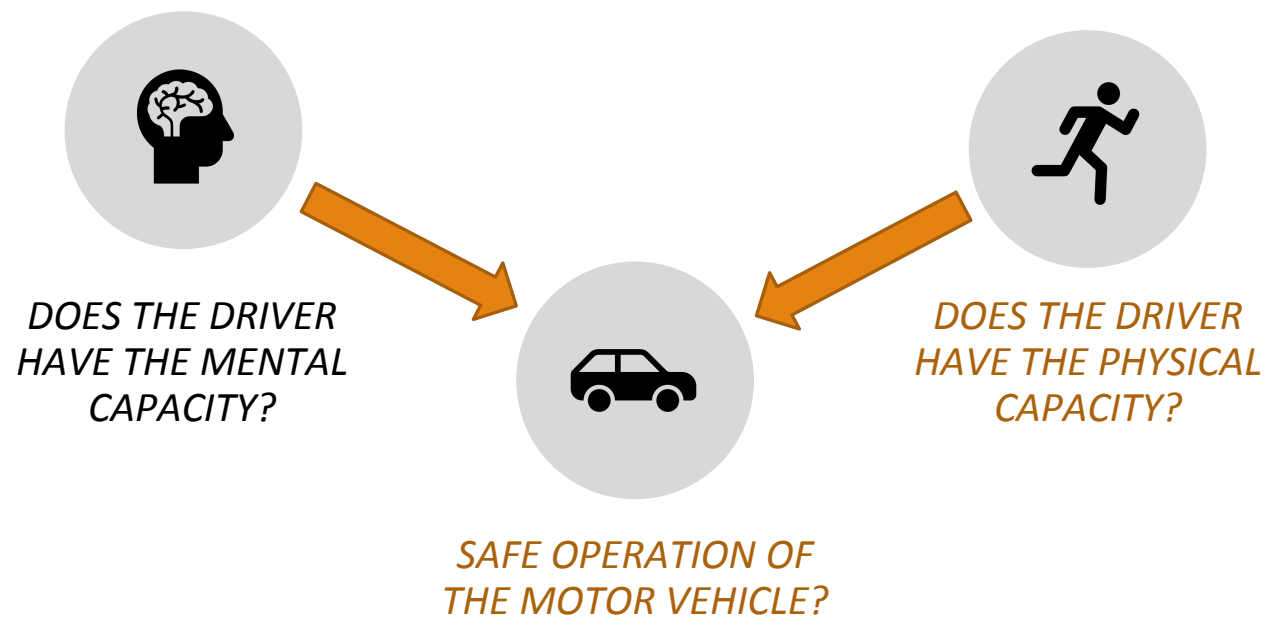
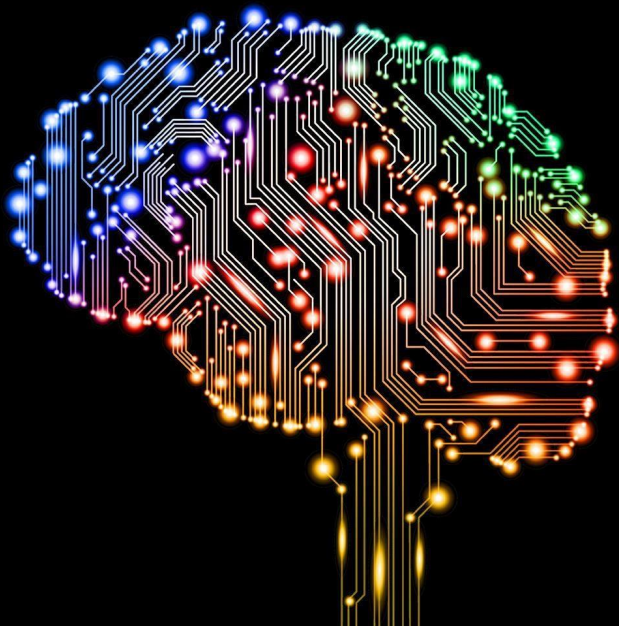




Appraising the Effectiveness of the SFST Scoring Criteria for Discerning BAC Limits Above and Below 0.08

Divided Attention



Objective

Evaluate the accuracy and reliability of the three test battery of Standardized Field Sobriety Tests (SFST's) at BAC levels of 0.08 or greater and at BAC levels of 0.04 or more but less than 0.08.

- We looked at:
 - Evaluator accuracy in scoring and clue interpretation
 - Reliability of the SFST test battery as individual tests and in combination
 - Sensitivity of the SFST test battery as individual tests and in combination



Methods

Alcoholic drinks were prepared and supplied to 59 participants (*male only, ranging from 21-49 yoa*).

Participants were not allowed to consume any alcohol beverages or ingest any drug within 24 hours before testing.

Participants consumed a normal meal before being transported to the study location.

All staff investigators were SFST trained instructors and former state SFST Program Coordinators/LEOs.

Participants completed the Standardized Field Sobriety test evaluations for each round of trials administered (*306 SFST cases evaluated as part of this study*).

Participants were considered impaired $> .08$ for individual tests when four or more indicators of HGN; two or more indicators on walk and turn; or two or more indicators on the one leg stand were observed.

Participants were considered impaired at $0.04 >$ but < 0.08 when two or more indicators of HGN were observed and one or more indicators was observed on the walk and turn and one leg stand test.

Results (0.08 or >)

Individual Results (*Shows some vulnerability*)

- **HGN** as an independent test was found to be *accurate in 90% of cases* with a sensitivity level of 95%.
- **Walk and Turn** as an independent test was found to be *accurate in 67% of cases* with a sensitivity level of 36%.
- **One Leg Stand** tests as an independent test was found to be *accurate in 61% of cases* with a sensitivity level of 12%.

In Combination (*more robust*)

- **HGN and Walk and Turn** combined was found to be *accurate 84%* of the time with a sensitivity level of 92%.
- **HGN and One Leg Stand** combined was found to be *accurate 87%* of the time with a sensitivity level of 92%.
- **One Leg Stand and Walk and Turn** combined was found to be *accurate 66%* of the time with a sensitivity level of 38%.
- **HGN, Walk and Turn and One Leg Stand** combined was found to be *accurate 83%* of the time with a sensitivity level of 92%.

Results (0.04 or > but < 0.08)

Individual Results (Accuracy and sensitivity weaker than those found at 0.08 or >)

- **HGN** as an independent test was found to be *accurate in 75% of cases* with a sensitivity level of 63%.
- **Walk and Turn** as an independent test was found to be *accurate in 41% of cases* with a sensitivity level of 30%.
- **One Leg Stand** tests as an independent test was found to be *accurate in 41% of cases* with a sensitivity level of 12%.

In Combination

- **HGN and Walk and Turn** combined was found to be *accurate 66%* of the time with a sensitivity level of 71%.
- **HGN and One Leg Stand** combined was found to be *accurate 73%* of the time with a sensitivity level of 68%.
- **Walk and Turn and One Leg Stand** combined was found to be *accurate 45%* of the time with a sensitivity level of 37%.
- **HGN, Walk and Turn and One Leg Stand** combined was found to be *accurate 66%* of the time with a sensitivity level of 74%.

1

The SFST test battery and scoring criteria at 0.08 or > are accurate and sensitive for measuring impairment.

2

As individual metrics: the SFSTs appears to be less accurate and sensitive than when the entire battery of tests are properly administered and scored in combination.

3

The HGN test as an individual method of assessing impairment is the most accurate at 90% with a sensitivity level of 95%.

4

The most robust combination of tests for determining impairment at 0.08 or > include the HGN and one leg stand with an accuracy of 87% and a sensitivity level of 92%.

5

When all three SFSTs are combined they are accurate in 83% of the cases with a sensitivity level of 92%.

Discussion- SFSTs at 0.08 or >

Discussion- SFSTs at 0.04 or > but < 0.08

The SFSTs test battery and scoring criteria are less accurate and sensitive for measuring impairment than at 0.08 or >.

As individual metrics, the SFSTs at this level appear to be less accurate and sensitive than when the entire battery of tests are properly performed and scored in combination.

The HGN test as an individual method of assessing impairment is the most accurate at 75% with a sensitivity level of 63%.

The most robust combination of tests for determining impairment at this level include the HGN and one leg stand with an accuracy of 75% and a sensitivity level of 63%.

When all three SFSTs are combined the results are accurate in 66% of the cases with a sensitivity level of 74%.

Conclusion

The findings of this study suggest that the SFSTs and scoring criteria for determining persons at BAC of 0.08 or above are accurate and reliable methods for measuring impairment. However, for determining impairment at BACs between 0.04 and 0.08, the results are less accurate and reliable.

The findings also suggest that using SFSTs as individual tests for measuring impairment appear to be less reliable and less sensitive than when the entire battery of tests is properly administered, scored to standards, and indicators of impairment interpreted correctly. The exception is the HGN test.

QUESTIONS?

Troy D. Walden

Director Center for Alcohol and Drug Education Studies

Texas A&M University

Texas A&M Transportation Institute

1111 RELLIS Parkway

Bryan, Texas 77807

(979) 317-2526 (office)

t-walden@tti.tamu.edu