Closed-Course Alcohol Impaired Driving Study Extension

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Traffic Safety Conference
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Wrong Way Driving

- **Crashes**
  - Infrequent but generally severe
  - Occur more frequently at night and on weekends
  - Alcohol primary contributing factor

- **Drivers**
  - About two-thirds are male
  - Almost half are 16 to 34 years old
  - Typically enter freeway using an exit ramp
TxDOT Research Project 0-6769

- September 2012 – August 2014
- Evaluate the effectiveness of wrong way driving countermeasures

Tasks
- Assess state of the practice
- Evaluate countermeasures and detection systems
  - Closed-course
  - Field
- Develop warning messages
- Develop recommendations
Closed-Course Study

- Nighttime
- Texas A&M Riverside Campus
- BAC levels = 0.00, 0.04, 0.06, 0.08, 0.10, 0.12
- Determine alcohol impact on
  - Where drivers look
  - Sign legibility distance
  - Sign color recognition
Treatments

- White on red signs
  - Height: 2 ft and 7 ft
  - Location: left and right
  - One with red LEDs around border
- Distractor signs
- Police car
Overview of Study Procedure

- **Pre-screening**
  - 1 hour during the day

- **Part 1**
  - Sober
  - 2 hours at night

- **Part 2**
  - Alcohol-impaired
  - 9 hours at night
## What Participants Did

<table>
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<tr>
<th>BAC Level</th>
<th>Driving Course</th>
<th>Standard Field Sobriety Tests (SFST)</th>
<th>Sign Color Survey</th>
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Male Participants

- Sample size
  - 42 enrolled
    - 9 screen failures
    - 3 dropped
  - 30 completed study
- Average age = 25
- Average visual acuity = 20/18
- Average weight = 190 lbs
Data Collected

- Eye-tracking
- Lane placement
- GPS
- Sign color and legend verbal responses and comments
- Survey responses
- SFST video
TxDOT Project Data Analysis

- Where drivers look
  - Scene camera coordinates
  - Scene camera glances
- Sign legibility distance
  - Verbal responses
  - GPS distances
- Sign color recognition
  - Verbal responses
  - GPS distances
  - Survey responses
ATLAS Project Data Analysis

Police car with lights vs. no treatment

- Lane placement
- Scene camera glances
- Eye-tracker pupil diameter
- GPS vehicle speed

- Similar analysis for signs
- Extension of where drivers look analysis
- Tie to SFST data
Contact Information

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