Abstract – Pupil Response to Light Reflex Test by Marijuana User Category

Introduction/Purpose:

With the current push to legalize marijuana for recreational use, an objective measure of functional impairment is needed to define driving under the influence. While multiple tests of functional impairment are conducted, such as XXX, there is research (?) demonstrating tolerance effects in these measures for habitual users of marijuana. One test for functional impairment is the pupil response to light reflex, and unlike other measures, the research is mixed on the whether this test demonstrates tolerance in habitual users [REF]. We explore differences between non-smokers, occasional and daily smokers of marijuana in a sample of 84 participants as part of X study.

Methods:

ADD Prediction Analysis

Using function-on-scalar regression (FoSR) from a newer branch of statistical analysis called, functional data analysis, we estimate differences between trajectories of pupil response, with categories of marijuana use frequency.

Results:

Using FoSR model, we saw statistically significant difference between occasional and non-users and smaller statistically significantly differences between daily and non-users in region related to minimal constriction. There were no statistically significant differences between occasional and daily users.

Conclusion:

By applying these newer statistical methods to pupil response data, we can show differences between non-user and both occasional and daily smokers of marijuana.

Limitations?

* Small sample size
* Noisy Data
* Did not capture pupil size at baseline (can affect pupil dilation rate)