Combined Effects of Optimism Level and Caffeine Intake on QEEG Alpha Wave Power: A Pilot Study
Melissa Lenert & Dr. Luis Aguerrevere
Stephen F. Austin State University

Introduction

- Caffeine has a general effect on alpha brain waves (Diukova, 2010).
- Heavy caffeine users experienced increased neural activity compared to vasoconstriction (Gilbert et al., 2000).
- Purpose of the pilot study is to assess the effects of caffeine intake and optimism levels on alpha wave activity in heavy caffeine users.

Method

Participants
- Six participants: three males and three females
- All participants are heavy caffeine users – defined as daily consumption of more than one cup of coffee

Materials and Methods
- Participants abstained from caffeine for 12 hours prior to assessment
- Assessments occurred between 8am and 11am
- Standard QEEG assessments using the 10-20 system
  - First assessment prior to coffee
  - Participants drank one cup of black coffee
  - Second assessment 20 minutes after coffee

Results

- Strong correlations between absolute power and optimism in frontal (before \( R=-0.345 \); after \( R=-0.447 \))
- Greater caffeine activity correlated with optimism in frontal (\( R=0.413 \)) and central (\( R=0.359 \)) locations
- Interhemispheric differences in temporal areas (Mean before=1.54; Mean after=1.46)

Conclusion

Caffeine has a general effect on alpha wave activity and optimism scores in heavy users. Although the sample size is small, the trend is significant enough to warrant further study.