EEGInfo

The Basics of EEG

General Welcome and Introduction, Overview of Course

Background

- History, anatomy vs. physiology (structure vs. function)
- Technology – digital EEG, computer power
- Advantages of EEG technology - timing, noninvasive, inexpensive
- Clinical Applications, Diagnostic issues, Treatment related (including NF)
- Amplitude and frequency, filters, infra-low frequency signals
- *Q and A*

EEG Sources, Recording, Viewing

- Generators – where do EEG signals come from?
  - High threshold bursting neurons and chemical environment
- Localization - dipole model, LORETA (more in qEEG presentation)
- Measurement 10/20, 10/10
- Viewing and interpretation of waveforms
  - Montage and reference
  - Artifacts
- Reliability of EEG Patterns: Phenotype model
- *Q and A*

Cygnet Screens

- Examples
- *Q and A*

Examples of EEG Patterns and Abnormalities

- Slowing
  - Drowsiness and sleep
- Developmental
  - Hypnagaugic hyper synchrony
  - Posterior slow waves of youth
- Pathology
  - Persistent focal v. Diffuse
  - Intermittent bursts of slow
- Burst patterns and paroxysms
- Seizures, types, first aid
- *Q and A*

Medication Effects

- Psychotropic medications
- Neutraceuticals, vitamins, hormones
- Drugs of Abuse
- *Q and A*

Summary and Review

The Basics of qEEG

Brief Review of Previous Day, Outline of Today's Lecture

Background on EEG Analysis

- Basics of spectral analysis – artifacting, background vs. transients, resolution
- Compressed Spectral Array, sum and difference displays using two EEG channels
- Topographic Mapping – amplitude, variability, difference maps
- Coherence and phase
- Bispectral analysis
- *Q and A*

Z-Scores and Normal Databases

- Meaning and computation of a z-score
- Patterns of z-score deviations
- Databases- Availability, usefulness and weaknesses
  Infra-low and Gamma
- *Q and A*

Source Localization

- LORETA – intensity vs. connectivity
  Number of electrodes
- Network Analysis – Covariation over time
- *Q and A*

Event Related Potentials

- Signal Averaging
- BAERs
- Dipole Generators vs., Phase reset Models
- P300, MMN
- P600 and language
- *Q and A*

Examples of qEEG Patterns and Abnormalities

- Slow patterns:
  Dementia
  Stroke
  Drowsiness and sleep
- Developmental:
  Learning disability- Dyslexia
  Autism and PDD
  Effects of abuse, trauma, and neglect
- Psychiatric:
  Anxiety
  Depression
  Psychosis
  Medication Effects
  - *Q and A*

Predicting Outcome

- Predicting Outcome with medication and neurofeedback
  BRITE trial
- Clinical Interview
- Phenotype Model again
- *Q and A*

Summary and Review