Artifact

EEG

Background Noise

Artifact
Artifacts

Slow Transients
- baseline DC shifts
- eye movements

Fast Transients
- muscle
- movement
- ECG
Artifacts
Artifacts

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  - Electrodes and leads
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Sources:

• EEG equipment
• Electrical interference outside of child or equipment
• Electrodes and leads
• Participant
Artifacts: EEG equipment
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**Solution**: shielded cables, and shielded, grounded equipment.
Artifacts: EEG equipment
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**Solution:** all earth connections made to a SINGLE point (PREFERABLY, an earth pin).
Artifacts: Electrodes & Leads
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3) **junction** between dissimilar metals (e.g., input lead plug & socket or between electrode and snap clip).
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4) artifacts from a single channel generally confined to the troublesome component point (unless….).
Artifacts: Participant
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Solution: alert subjects; fixation, relaxation, high frequency filters (but could risk confusing muscle artifacts with beta wave);
Artifacts: Participant (cont.)
3) **cardiac activity** - sawtooth wave synchronous with pulse;
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- more of risk with "monopolar leads" or with non-cephalic references; use bipolar cephalic leads since heart electrical field is equipotential across the head;
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- more often with wide spaced electrodes as in the case with reference under the ear; [ECG artifact (with R wave) difficult to eliminate]
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- vein pulse easier to control by moving electrode small amount;
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Artifacts: Participant (cont.)

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**Solution**: cool the subject, reduce time constants by increasing high pass filter setting (to cut out slow frequencies);
Artifacts: Eye Blinks
Artifacts: Eye movements

Vertical
Artifacts: Body Movements
Artifacts: Face Movements
Artifacts: Chewing Movements
Artifacts: Head Side Movements
Artifacts: Response Movements
Artifacts
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  - First assume that the problem is not in the equipment but in the application to the child.
  - Artifacts seldom due to equipment failure.
  - Second, after eliminating subject-related possibilities, check equipment.
QUESTIONS ???