**169/08 - "When Rejection Hurts: Probing the Neural Basis of Childhood Social Exclusion with a Dense-array EEG"**
Instituição/*Institution*: Yale Child Study Center, New Haven - USA
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**Objectives:** Across two studies we explored the neural correlates of social exclusion during a ball toss game between a child and two hypothetical peers and when social exclusion involved a childhood friend.

**Methods:** Event-related potentials (ERPs) were assessed during a computer-simulated ball-toss game, Cyberball. This game simulated equal throws among players "fair play" and then a social exclusion experience, when the child subject was left out of the game. This occurred between a child 8-12 yrs. and two fictitious peers (Study 1), or between a child subject, a close childhood friend and a fictitious peer (Study 2). Hurt feelings were assessed with an ostracism distress measure in both studies. Study 2 also incorporated a new scale, the Friendship Distress Questionnaire (FDQ).

**Results:** In Study 1, ERPs revealed that rejection events are perceived rapidly, evident in a posterior ERP peaking at 420 ms, consistent with a larger P3 effect for rejection events. Condition differences for rejection versus "not my turn" events were evident for slow-wave activity (500-900 ms) in the medial frontal cortical region. Distress from the rejection experience predicted a more negative frontal slow wave. Source modeling suggested that slow wave neural activity for rejection events originated from subgenual cortex, ventral anterior cingulate cortex and insula. Study 2 revealed that the traditional ostracism measure did not predict neural response among children who were best friends. Instead distress assessed by the FDQ predicted a frontal slow wave neural response among children who were excluded by their best friend.

**Conclusions:** The detection of a social exclusion event appears in less than ½ second. Cortical slow wave activity predicts degree of felt exclusion. When exclusion emerges from a friendship, themes assessed such as breach of trust and unfairness predicted cortical slow wave activity, whereas global distress did not. This outcome suggests that different processes may be engaged when social exclusion involves a close friend.

**Publications:**
Crowley, M. J., Wu, J., McCarty, E. R., David, D. H., Bailey, C. A., & Mayes, L. C. (2009). Exclusion and micro-rejection: event-related potential response predicts mitigated distress. NeuroReport, 20(17), 1518-1522.
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**Key words:** Event-related potentials, social exclusion, children.