**Do You Feel How I Feel?: Developmental Differences in Affective Neural Representations**  
  
2000 Character Limit:

BACKGROUND AND AIM: The intensity with which children feel the joys of eating birthday cake or the fear of skulking monsters under the bed has few parallels in the adult world, and this may be attributable to developmental differences in how emotions are represented within affect-related neural circuitry. We hypothesized that adults and children would demonstrate differences in activation patterns in the amygdala, nucleus accumbens (NAcc), and ventromedial prefrontal cortex (vmPFC) in response to valenced stimuli.

METHODS: Using Representational Similarity Analysis (RSA) on functional magnetic resonance imaging (fMRI) data, we examined fine-grained pattern level responses from children (n = 25, aged 4 - 10, mean = 7.4) and adults (n = 20, aged 20 - 44, mean = 26.7) during passive viewing of positive and negative clips from popular children’s films in 2 (age group: children, adults) x 3 (valence type: positive, negative, mixed) Mixed ANOVA models. RESULT: Compared to adults, children generated greater pattern similarity in neural activation within the vmPFC, regardless of emotional valence. No differences in pattern similarity were measured between age groups within the amygdala or NAcc. However, when comparing pattern similarity within age group and across ROIs, adults demonstrated comparable representational similarity, while children generated statistically significant differences across the vmPFC, NAcc, and amygdala, such that the vmPFC produced the highest pattern similarity score and the amygdala produced the lowest pattern similarity score.

CONCLUSIONS: These results may suggest a maturation from visceral emotional responses which merely assess how significant an affective experience is to more evaluative analyses that modulate emotional responses. This project represents the first examination of pattern similarity analyses differences between a developmental and adult population for affective responses in the amygdala, NAcc, and vmPFC structures.