Results of a Longitudinal Study of the Long-Term Consequences of Drinking during Pregnancy released.

Exposure to alcohol in utero can cause birth defects, including face and brain abnormalities, and is the most common preventable cause of intellectual disabilities.

The study used structural magnetic resonance imaging to measure cortical volume change longitudinally in a cohort of human children and youth with prenatal alcohol exposure (PAE) and a group of unexposed control subjects, demonstrating that the normal processes of brain maturation are disrupted in individuals whose mothers drank heavily during pregnancy.

Trajectories of cortical volume change within children and youth with PAE differed from those of unexposed control subjects in posterior brain regions, particularly in the parietal cortex.

In these areas, control children appear to show a particularly plastic cortex with a prolonged pattern of cortical volume increases followed by equally vigorous volume loss during adolescence, while the alcohol-exposed participants showed primarily volume loss, demonstrating decreased plasticity. Furthermore, smaller volume changes between scans were associated with lower intelligence and worse facial morphology in both groups, and were related to the amount of PAE during each trimester of pregnancy in the exposed group.

This demonstrates that measures of IQ and facial dysmorphology predict, to some degree, the structural brain development that occurs in subsequent years. These results are encouraging in that interventions aimed at altering "experience" over time may improve brain trajectories in individuals with heavy PAE and possibly other neurodevelopmental disorders.

Full text is available here.

Fetal Alcohol Effects (FAE) or Fetal Alcohol Spectrum Disorder (FASD) is an umbrella term used to describe the range of effects that can occur in an individual exposed to alcohol. These effects may include physical, mental, behavioral, and/or learning disabilities and can have life-long implications. To learn more click here.