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Brain Volume Findings in Six Month Old Infants at
High Familial Risk for Autism

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ABSTRACT

Objective: Brain enlargement has been observed in individuals with autism as early as two years of age. Studies using head circumference suggest that brain enlargement is a postnatal event that occurs around the latter part of the first year. To date, no brain imaging studies have systematically examined the period prior to age two. In this study we examine MRI brain volume in six month olds at high familial risk for autism.

Method: The Infant Brain Imaging Study (IBIS) is a longitudinal imaging study of infants at high risk for autism. This cross-sectional analysis examines brain volumes at six months of age, in high risk infants (N=98) in comparison to infants without family members with autism (low risk) (N=36). MRI scans are also examined for radiologic abnormalities.

Results: No group differences were observed for intracranial cerebrum, cerebellum, lateral ventricle volumes, or head circumference.

Conclusions: **We did not observe significant group differences for head circumference, brain volume, or abnormalities of radiologic findings in a sample of 6 month old infants at high-risk for autism. We are unable to conclude that these changes are not present in infants who later go on to receive a diagnosis of autism, but rather that they were not detected in a large group at high familial risk.** Future longitudinal studies of the IBIS sample will examine whether brain volume may differ in those infants who go onto develop autism, estimating that approximately 20% of this sample may be diagnosed with an autism spectrum disorder at age two.