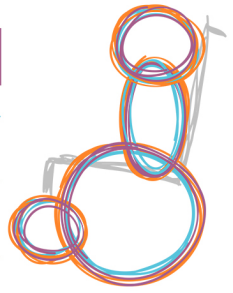


# How well does fetal MRI diagnose inferior vermian hypoplasia?

childhood  
disability  
LINK



## Glossary of terms

- Cerebellum: The cerebellum comprises approximately 10% of the brain's volume and contains at least half of the brain's neurons. It has traditionally been recognized as the brain unit for motor control that regulates muscle tone and coordination of movement. There is an increasing number of reports that support the idea that the cerebellum also contributes to non-motor functions such as cognition (thought processes) and affective state (emotion).
- Inferior vermian hypoplasia: Incomplete development of the structure between the hemispheres of the cerebellum.

## Summary

Advances in magnetic resonance imaging (MRI) done before birth (fetal) allow the detection of subtle anatomic abnormalities in the brain of the fetus, however the long-term significance of these findings is unclear. This study examined the accuracy of fetal MRI in the diagnosis of isolated inferior vermian hypoplasia and described the developmental outcome after birth. The authors compared MRI results before birth (fetal) and after birth, and then evaluated infants using standardized developmental measures. The medical histories of a group of 19 infants who were diagnosed with inferior vermian hypoplasia in the second trimester of pregnancy were studied. It was found that the diagnosis of inferior vermian hypoplasia remained after birth in 13/19 infants (68%), while the remaining 6/19 infants (32%) had normal postnatal MRI results (no hypoplasia). When the 13 infants with confirmed postnatal diagnosis were tested at around the age of one-and-a-half, 23% of these infants demonstrated mild motor and language delays and functional difficulties, and 15% had behavioral problems. None of the 6 infants with normal postnatal MRI were delayed. In conclusion, isolated inferior vermian hypoplasia in the second trimester of pregnancy may be over-diagnosed in a significant percentage of cases.

## What families and practitioners should know

Isolated inferior vermian hypoplasia in the second trimester may be over-diagnosed by fetal MRI and therefore warrants confirmation by a second MRI after birth. Overall, infants with isolated inferior vermian hypoplasia are developing well in infancy. However, it should be noted that their rate of milestone acquisition appears to be slower than the population norm.

## Reference

Limperopoulos, C., Robertson, R.L., Estroff, J.A., Barnewolt, C., Levine, D., Bassan, H., & du Plessis, A.J. (2006). Diagnosis of inferior vermian hypoplasia by fetal magnetic resonance imaging: potential pitfalls and neurodevelopmental outcome. *Am J Obstet Gynecol*, 194, 1070-6.