

# research snapshot

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## Does the Use of Glucocorticoids Impair Brain Growth in Infants?

### What is this research about?

Improved survival rates of preterm newborns means more infants are living. Preterm infants are at higher risk of problems with brain development. Some issues with brain development are connected with a decrease in the size of the brain. Factors that can impact brain growth need to be identified in order for best practices to be used when preterm infants are being treated. The brain grows a lot in late pregnancy and soon after birth. Thus, knowing the impact of treatments on brain growth is important for the brain development of preterm infants.

Glucocorticoids (GCs) are a treatment used before and after a preterm birth to help the survival of infants. Some GCs have been found to affect brain development. Hence, only lower-levels of GCs have been approved for use with infants. Research has not provided an agreement on how all GCs impact the brain of preterm newborns. This research aims to find agreement on the impact of GCs on the brain of preterm infants.

### What did the researchers do?

Data was gained from 2 research sites. One research site was in Canada and one in the

### What you need to know:

The focus of what impairs brain development in preterm infants has not led to improved outcomes. Glucocorticoids (GCs) are used in preterm births 85% of the time and 21% of the time after a preterm birth. Past research has suggested that GCs may impact brain growth in preterm infants.

United States. A total of 162 infants were recruited for this project. 2 magnetic resonance imaging (MRI) scans were done in most cases. The first MRI was completed soon after birth. The second MRI was done when the infant was equal to 40 weeks of gestation. There were differences in the GCs used at the research sites that were accounted for when analysis was done. 7 predictors were noted to find any other influencing factors. Statistics were then used to analyze the data.

### What did the researchers find?

There was a strong association between the use of GCs after birth and decreased brain volume. The decreases were between 8% and 10% depending on the GCs used. There was no connection found between GCs used before birth

and brain volume. This is a positive finding since up to 85% of preterm births used GCs during the labor. The amount of GCs used did not impact the decrease in brain volume.

Impairment of brain growth has been connected with issues with thinking and behavior later in life. Long-term follow-up of preterm infants that were treated with GCs could help understand the lasting effects of this medication. This research is needed if the use of GCs is to be used as a biomarker for potential issues later in life.

### How can you use this research?

Policy makers will learn that the use of GCs after birth could affect brain development. They may want to consider the guidelines for use of GCs in their neonatal units.

Practitioners need to consider the potential long-term issues of using GCs for short-term health concerns in preterm infants. Finding a way to balance the effect of GCs will be important to ensure best practices are met.

### About the Researchers

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### Keywords

Glucocorticoids, Preterm newborns, Cognitive outcomes, MRI, Postnatal risk factors

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