NEWS

# Study links autism to high levels of fat hormone

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Children with autism tend to gain weight rapidly in infancy and to have high levels of the fat hormone leptin, according to a new study[1].

Other studies have tied **rapid weight gain in infancy** to autism. And a 2008 study reported unusually high levels of leptin in 70 children with autism[2]. The new study is based on data from more than 800 children — including 53 with autism — in the **Boston Birth Cohort**, which has been tracking more than 8,500 children.

The results do not mean that leptin and autism are directly related: Other factors may lead to both high leptin levels and autism, says study investigator **Daniele Fallin**, professor of mental health at Johns Hopkins University in Baltimore.

For example, **premature birth** is an independent risk factor for autism and is linked to rapid weight gain in infancy, notes **Tonya White**, associate professor of child and adolescent psychiatry at Erasmus University in Rotterdam, the Netherlands, who was not involved in the work.

More than one in four children in the study were born prematurely, so factors related to that could be driving the associations, White says. “Leptin may be a proxy for something else going on during prenatal life.”

Still, if validated in bigger studies, high leptin levels may serve as a **biomarker** of autism, Fallin says. “I think it is a valuable tool to be able to identify high-risk kids as early as possible.”

## Off the charts:

Fallin and her colleagues looked at data for 822 children, 6.5 percent of whom have autism. Of these children, 211 were born prematurely and 64 were small at birth.

The researchers measured the children’s leptin levels at birth, using umbilical cord blood. They also analyzed the children’s blood at 18 months of age, on average, although the age ranged from 10 months to 4 years. They derived the children’s height and weight from their medical records.

For each association, the researchers looked at the subset of children — far fewer than 800 in some cases — for whom the relevant data were available.

They did not find a link between leptin levels at birth and autism or weight gain. By contrast, the quartile of children with the highest leptin levels had about eight times the odds of being diagnosed with autism as those in the quartile with the lowest leptin levels.

Children with extremely rapid weight gain — defined as 1.3 standard deviations above the population mean — in infancy had nearly three times the odds of having autism as those with typical weight gain. This association went away when the researchers controlled for prematurity.

The rapid weight gain and elevated leptin may both be the body’s response to prematurity or another early life event, says lead researcher **Xiaobin Wang**, professor of children’s health at

Johns Hopkins University.

The links between autism and leptin holds after controlling for premature birth. Still, says Fallin, it is impossible to rule out a role for prematurity.

The researchers did not require the children to fast before measuring leptin levels. Leptin levels vary drastically depending on when a person has last eaten, which can dramatically alter the results, says **Jill Kaar**, assistant professor of pediatrics at the University of Colorado in Aurora, who was not involved in the study.

The researchers also did not indicate whether the children were obese at the time of their leptin test. **Obesity** is linked to both elevated leptin and to autism, so it could also be driving the association, she says.

The findings would need to be confirmed in children who were not born prematurely. Another step would be to track leptin levels at multiple time points throughout infancy and childhood.

**REFERENCES:**

1. Raghavan R. *et al. Autism Res.* **11**, 1416-1431 (2018) **PubMed**
2. Ashwood P. *et al. J. Autism. Dev. Disord.* **38**, 169-175 (2008) **PubMed**