

# Study sheds more light on long-term developmental risks of preterm birth

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Children born moderately preterm (32–33 weeks) or late preterm (34–36 weeks) have higher long-term risks of neurodevelopmental difficulties that can affect their behavior and ability to learn, finds a study of more than 1 million children. The findings are published in *The BMJ* today.

As these [children](#) constitute about 80% of all preterm births, these risks should not be underestimated, say the researchers. The findings may also help professionals and families achieve a better risk assessment and follow-up of these children.

Previous research shows that children born early have higher risks of neurodevelopmental and behavioral disabilities in the [first years of life](#) and throughout childhood and adolescence compared with children born at term. Yet few population-based studies have investigated the long-term neurodevelopmental outcomes of these children compared with children born at term.

To fill this knowledge gap, researchers used Swedish national registry data to assess long-term neurodevelopmental outcomes of children born at different gestational ages, particularly 32–33 weeks (moderately preterm) and 34–36 weeks (late preterm), compared with 39–40 weeks ([full term](#)).

Their findings are based on 1,281,690 singleton children without [birth defects](#) born in Sweden at 32 to 41 weeks between 1998 and 2012 and a sub-group of 349,108 full siblings to control for unmeasured shared genetic and [environmental factors](#).

The main outcomes of interest were movement (motor), brain (cognitive), epileptic, hearing, and [visual impairments](#), and a combination of any neurodevelopmental impairment, diagnosed up to 16 years of age.

Potentially influential factors were taken into account including mother's age, parity, country of birth, cohabiting status, body mass index during early pregnancy, smoking during pregnancy, diabetic and hypertensive diseases, calendar period of delivery, parents' educational level and history of neurological and [psychiatric disorders](#), and infant's sex and

birth weight for gestational age.

During an average follow-up period of 13 years, 75,311 infants (48 per 10,000 person years) had at least one diagnosis of any neurodevelopmental impairment.

Some 5,899 (4 per 10,000 person years) had motor impairment, 27,371 (17 per 10,000) [cognitive impairment](#), 11,870 (7 per 10,000) epileptic impairment, 19,700 (12 per 10,000) visual impairment, and 20,393 (13 per 10,000) hearing impairment.

Overall, compared with children born full term, those born moderately or late preterm showed higher risks for any impairment (e.g., an additional 475 cases per 10,000 population by age 16 years for children born moderately preterm compared with those born full term).

The highest relative risk for children born moderately preterm compared with those born full term was for motor impairment (a nearly five-fold increased risk), followed by epileptic impairment (a nearly two-fold increased risk).

Risks for neurodevelopmental impairments appeared highest from 32 weeks, then gradually declined until 41 weeks, with higher risks also at early term (37–38 weeks) than at full term.

In the sibling comparison analysis, most associations remained stable except for gestational age and epileptic and hearing impairments, where no association was found.

This is an observational study, so can't establish cause and the researchers acknowledge that they were unable to provide precise information for some outcomes, and that possible under-reporting or misclassification of the diagnoses might lead to an underestimation of

the associations found.

What's more, they can't rule out the possibility that other unmeasured factors, such as alcohol and substance misuse during pregnancy, may have influenced the results.

However, this was a large, population based study using high quality comprehensive national registries, making it possible to investigate clinically relevant risks across the spectrum of gestational age.

As such, they say, "Children born moderately or late preterm have higher risks of adverse neurodevelopmental outcomes. The risks should not be underestimated as these children comprise the largest proportion of children born preterm."

"The findings may help professionals and families to better assess risk, follow-up, and health care systems planning for children born moderately or late [preterm](#)," they add.

**More information:** Neurological development in children born moderately or late preterm: national cohort study, *The BMJ* (2024). [DOI: 10.1136/bmj-2023-075630](https://doi.org/10.1136/bmj-2023-075630)

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