

Study examines umbilical cord clamping and neurodevelopment

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Delayed clamping of the umbilical cord to help prevent iron deficiency in infancy was associated with improved scores in fine-motor and social skills in children at age 4, particularly in boys, although it was not associated with any effect on overall IQ or behavior compared with children whose cords were clamped seconds after delivery, according to an article published online by *JAMA Pediatrics*.

Iron deficiency is a global health issue among preschool [children](#) associated with impaired neurodevelopment that can affect cognitive, motor and behavioral abilities. Delaying [umbilical cord](#) clamping by two to three minutes after delivery allows fetal blood remaining in the placental circulation to be transfused back to the newborn. This process

has been associated with improved iron status at 4 to 6 months of age. There is a lack of knowledge regarding the long-term effects and evidence of no harm, causing policymakers to be hesitant about making clear recommendations concerning delayed [cord clamping](#) in full-term infants, according to the study background.

Ola Andersson, M.D., Ph.D., of Uppsala University, Sweden, and coauthors conducted a follow-up of a [randomized clinical trial](#) at a Swedish hospital to assess the long-term effects of delayed cord clamping on neurodevelopment in children at age 4. The authors assessed 263 children (about 69 percent of the original study population) based on IQ tests, as well as development and behavior using other assessments and questionnaires. Delayed cord clamping (141 children in follow-up) was greater than or equal to three minutes after delivery and early cord clamping (122 children in follow-up) was less than or equal to 10 seconds after delivery.

The authors found no difference between the two groups for full-scale IQ, according to the study results. However, the proportion of children with an immature pencil grip was lower in the delayed cord clamping group and that group had higher scores in personal-social and fine-motor skill assessments. There were no differences between the groups for girls in any of the assessments. However, boys who had delayed cord clamping had higher average scores in several tasks involving fine-motor function and personal-social domains, the results show.

"Delaying CC [cord clamping] for three minutes after delivery resulted in similar overall neurodevelopment and behavior among 4-year-old children compared with early CC. However, we did find higher scores for parent-reported prosocial behavior as well as personal-social and fine-motor development at 4 years, particularly in boys. The included children constitute a group of low-risk children born in a high-income country with a low prevalence of [iron deficiency](#). Still, differences

between the groups were found, indicating that there are positive, and in no instance harmful, effects from delayed CC. Future research should involve large groups to secure enough power to draw clear conclusions regarding development," the study concludes.

In a related editorial, Heike Rabe, M.D., Ph.D., of the Brighton and Sussex Medical School and University Hospitals, Brighton, England, and coauthors write: "Until now, data on long-term follow-up of preterm and full-term infants who have been randomized to early vs. delayed CC [cord clamping] have been limited. Awareness of the benefits for all newborns continues to increase as more studies are published. While many physicians have incorporated delayed CC into practice, there remains a hesitation to implement delayed CC, particularly with full-term infants. As evidence of the safety and benefits of delayed CC are demonstrated, this hesitation should disappear."

"We applaud Andersson and colleagues for their persistence because their study closes the knowledge gap regarding the long-term safety of delayed CC in healthy full-term newborns. Their important findings suggest that there is an absence of harm that lasts until 4 years of age," the authors conclude.

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