

Preemies' brains reap long-term benefits from Kangaroo Mother Care

September 19 2012

Kangaroo Mother Care—a technique in which a breastfed premature infant remains in skin-to-skin contact with the parent's chest rather than being placed in an incubator—has lasting positive impact on brain development, revealed Université Laval researchers in the October issue of *Acta Paediatrica*. Very premature infants who benefited from this technique had better brain functioning in adolescence—comparable to that of adolescents born at term—than did premature infants placed in incubators.

Earlier research showed that infants born prior to the 33rd week of pregnancy experienced more cognitive and behavioral problems during childhood and adolescence. Université Laval researchers Cyril Schneider and Réjean Tessier, of the Department of Rehabilitation in the Faculty of Medicine and of the School of Psychology, respectively, and their Colombian colleagues Nathalie Charpak (Kangaroo Foundation) and Juan Ruiz-Peláez (Universidad Javeriana) wanted to determine if Kangaroo Mother Care could prevent these problems. To that end they compared, at age 15, 18 [premature infants](#) kept in incubators, 21 premature infants held in Kangaroo contact for an average of 29 days, and 9 term infants.

To assess participants' brain functions, the researchers used transcranial [magnetic stimulation](#). With this non-invasive and painless technique they could activate [brain cells](#) in targeted areas, namely the [primary motor cortex](#) that controls muscles. By measuring muscle responses to the stimulation, they were able to assess brain functions such as the level of

brain excitability and inhibition, cell synchronization, neural conduction speed, and coordination between the two cerebral hemispheres.

The data collected by the researchers indicate that all brain functions of the adolescent Kangaroo group were comparable to those of the term infant group. On the other hand, premature infants placed in incubators significantly deviated from the other two groups 15 years after their birth.

"Thanks to Kangaroo Mother Care, infants benefited from nervous system stimulation—the sound of the parent's heart and the warmth of their body—during a critical period for the development of neural connections between the cerebral hemispheres. This promoted immediate and future [brain development](#)," suggests neurophysiologist Cyril Schneider.

Psychology researcher Réjean Tessier notes that "infants in incubators also receive a lot of stimulation, but often the stimulation is too intense and stressful for the brain capacity of the very premature. The Kangaroo Mother Care reproduces the natural conditions of the intrauterine environment in which the infants would have developed had they not been born premature. These beneficial effects on the [brain](#) are in evidence at least until adolescence and perhaps beyond."

The two researchers, who are also associated with the Centre de recherche du CHU de Québec, will have the opportunity to shed more light on this subject. The Government of Canada, through its Grand Challenges Canada program, Saving Brains, just awarded their research team a \$1 million grant to measure the neurological, cognitive, and psychosocial benefits of Kangaroo Mother Care in a group of 400 young adults, aged 18 to 20, who were born premature.

Provided by Université Laval

Citation: Premies' brains reap long-term benefits from Kangaroo Mother Care (2012, September 19) retrieved 26 April 2024 from <https://medicalxpress.com/news/2012-09-preemies-brains-reap-long-term-benefits.html>

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