



Research investigates the influence of intrauterine environments on motor development in the first months of life

Oberdan Rodrigo Schumann / 21 de março de 2024

Maternal-child health | Research concludes that unfavorable environments during pregnancy can take negative effects on the baby’s motor progress

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*Photo: Freepik

“I want to make a difference for these children, and this is a challenge that compels me to study, research, work and put into practice what we are finding,” says Andressa Costa Wiltgen. With this motivation, the physiotherapist has been conducting research in child health since 2011, when still in the beginning of her undergraduate education, she entered the Center for Child and Adolescent Health Studies (NESCA) of the Hospital de Clínicas de Porto Alegre (HCPA).

With a Master’s degree in Child and Adolescent Health granted by UFRGS (PPGSCA) and doctoral training in course, Andressa carries out studies about the gestational period, which requires several essential cares for a mother and her baby to have a healthy life. Habits such as smoking and alcohol consumption, for example, allow harmful substances to reach the embryo/fetus, affecting its development. On the other hand, a pregnant woman with a healthy diet will see the risk of complications such as gestational diabetes mellitus (GDM) reduced, which is also for both, mother and baby, a dangerous condition.

Knowing that during pregnancy factors of the external environment can affect the formation of the central nervous system — and, consequently, affect the performance of the child’s motor activity —, Andressa’s investigations are focused on evaluating the impact of different intrauterine environments on infant motor development in the first months after birth. This was the topic of her master’s thesis, which resulted in an article published in the section Scientific Reports of Nature’s magazine, in June 2023.

The study concluded that possible deleterious effects of the evaluated environments affect negatively the baby’s motor development in the six months after birth. “In addition to the inclusion of physical activities, [the importance of motor development] is related to the cognitive that is being developed – the challenge of being able to dodge an obstacle while crawling, for example,” explains the researcher.

“Once we detect a harmful intrauterine environment, it is necessary to examine the fetus and, if any adversities are found, take an early intervention with professionals who can assess this motor development matter.”

— Andressa Costa Wiltgen

Selection and collections

Andressa was in the second semester of her undergraduate program when she joined NESCA, composed of researchers from UFRGS and HCPA. At the Center, she started to perform data collection for the project “IVAPSA — Impact of Variations in the Perinatal Environment on the Health of Newborns in the First Six Months of Life,” a cohort study that covers several areas — including motor development, the research focus of the physiotherapist.

The collection was carried out at three moments: postpartum, still in the hospital environment, and at the third and sixth months of the baby’s age, during home visits. Expectant mothers with different intrauterine environments — women who smoked or suffered from gestational diabetes mellitus, for example — were selected to participate in the study. After birth, the mother’s data were registered, such as her socioeconomic and sociodemographic conditions, in addition to the newborn’s birth data, such as sex, birth weight, length and cephalic perimeter.

At three and six months of age, the same anthropometric examinations of the children were carried out, along with the gross motor development examination, according to the *Alberta Infant Motor Scale*. This scale consists of 58 items, divided into four subscales, defined by prone, supine, sitting and standing positions. The tests conducted in babies on these four subscales leads to a total score that classifies their motor development.

Results and next stages

Andressa’s research in her master’s training, with the collection process already completed, evaluated the data collected in four groups of pregnant women and their respective children: mothers who smoked during pregnancy; mothers who were diagnosed with gestational diabetes mellitus; mothers whose babies suffered from intrauterine growth restriction (which causes the child to be born underweight, among other problems); and finally, mothers with a pregnancy without any of the previous characteristics, called the “control group”, which serves for comparison purposes in relation to the other groups.

From this analysis, it was concluded that hazardous intrauterine environments have negative impacts on motor development during the first months of life. The intrauterine growth restriction group was the most affected: “We anticipated from the very beginning (of the study) that we would have lower motor scores in the group of mothers who smoked cigarettes during pregnancy,” reports Andressa.

According to the physiotherapist, one of the explanations for this kind of result is the imposed limitations by the study: the characteristics of the groups analyzed could not be shared, that is, for instance, mothers who smoked during pregnancy and gave birth to underweight children were not included in the research. For that reason, some children who possibly suffered from intrauterine growth restriction as a result of tobacco use were not analyzed.

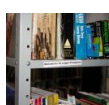
For her doctoral research, Andressa is going on with the study, and the new stage involves the analysis of new collections with the same children who participated in the previous study. “We keep observing and analyzing to see what can be improved in the research. The next step is to examine fundamental motor skills,” the researcher states. “I want to see what these children who were six months old will be like when they become five years old — that’s the next challenge,” she concludes.

Translated into English by **Paulina da Costa Amaral**, undergraduate student enrolled in the course “Supervised Translation Training II (English)” of the Undergraduate Program in Language and Literature, under the supervision and translation revision of Professor Elizamari R. Becker (P.h.D.) – IL/UFRGS.

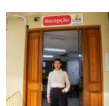
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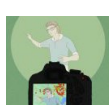
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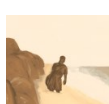
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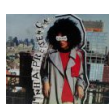
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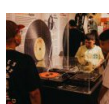
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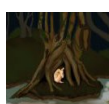
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