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**- PRESS RELEASE -**

## **Maternal Nut Consumption During Pregnancy Linked to Improvements in Neurodevelopment in Children**

*For the first time links have been observed between a nut-rich maternal diet during the first trimester of pregnancy and better outcomes after birth in cognitive function, attention capacity and long-term working memory*

Barcelona, May 7, 2019.- Nuts are known to help reduce the risk of hypertension, oxidative stress and diabetes and they may exercise a protective effect against cognitive decline in older age. To this list of beneficial health effects, we can now add new evidence from a study led by the Barcelona Institute for Global Health ([ISGlobal](#)), an institute supported by "la Caixa". The study, published in the *European Journal of Epidemiology*, found links between a **maternal diet rich in nuts during the first trimester of pregnancy and improved neurodevelopment in the child**.

The study **was carried out in Spain** and included over **2,200 mother and child pairs** enrolled in cohorts belonging to the [INMA Project](#) located in Asturias, Guipuzcoa, Sabadell and Valencia. Information on maternal nut intake was obtained from questionnaires on eating habits, which the mothers completed during the **first and last trimester of their pregnancy**. The children's neuropsychological development was assessed using several internationally validated standard tests **18 months, 5 years, and 8 years after birth**.

Analysis of the results showed that the group of children whose **mothers ate more nuts during the first trimester of pregnancy** obtained the **best results** in all the tests measuring **cognitive function, attention capacity and working memory**.

"This is the **first study** to explore the possible benefits of eating nuts during pregnancy for the child's neurodevelopment in the long term. The brain undergoes a series of complex processes during gestation and this means that maternal nutrition is a determining factor in fetal brain development and can have long-term effects, explains Florence Gignac, ISGlobal researcher and first author of the study. "The nuts we took into account in this study were **walnuts, almonds, peanuts, pine nuts and hazelnuts**. We think that the beneficial effects observed might be due to the fact that the nuts provided high levels of **folic acid** and, in particular, **essential fatty acids** like omega-3 and omega-6. These components tend to accumulate in neural tissue, particularly in the frontal areas of the brain, which influence memory and executive functions."

The benefits described in this study were observed in the group of mothers who reported the highest consumption of nuts—a **weekly average of just under three 30g servings**. This is slightly lower than the average weekly consumption recommended in the healthy eating guide published by the Spanish Society of Community Nutrition (SENC: [Guía de la alimentación saludable](#)), which is between three and seven servings per week. "This makes us think that if the mothers consumed the recommended weekly average **the benefits could be much greater**," Gignac explains. Estimated nut consumption in Spain is more than double the European average (4.8 g vs. 2.2 g).

The study also analysed the mothers' nut consumption **during the third trimester of their pregnancy**, but in this case either **no associations were observed** with the neuropsychological outcomes or the associations found were weaker. "This is not the first time we have observed more marked effects when an exposure occurs at a specific stage of the pregnancy. While our study does not explain the causes of the difference between the first and third trimesters, the scientific literature speculates that **the rhythm of fetal development varies throughout the pregnancy and that there are periods when development is particularly sensitive to maternal diet**" explains Jordi Júlvez, ISGlobal researcher and last author of the study.

"In any case", adds Júlvez, "as this is the first study to explore this effect, we must treat the findings with caution and work on reproducing them in the future with more cohort studies as well as randomised controlled trials".

## Reference

Gignac F, Romaguera D, Fernández-Barrés S, Phillipat C, Garcia-Esteban R, López-Vicente M, Vioque J, Fernández-Somoano A, Tardón A, Iñiguez C, Lopez-Espinosa MJ, García de la Hera M, Amiano P, Ibarluzea J, Guxens M, Sunyer J, Julvez J. Maternal nut intake in pregnancy and child neuropsychological development up to 8 years old: A population-based cohort study in Spain. *European Journal of Epidemiology (EJEP)*. May 2019. <https://doi.org/10.1007/s10654-019-00521-6> (The link to the publication will work after the embargo)

## About ISGlobal

The Barcelona Institute for Global Health, ISGlobal, is the fruit of an innovative alliance between "la Caixa" and academic and government institutions to contribute to the efforts undertaken by the international community to address the challenges in global health. ISGlobal is a consolidated hub of excellence in research that has grown out of work first started in the world of health care by the Hospital Clínic and the Parc de Salut MAR and in the academic sphere by the University of Barcelona and Pompeu Fabra University. The pivotal mechanism of its work model is the transfer of knowledge generated by scientific research to practice, a task undertaken by the institute's Education and Policy and Global Development departments. ISGlobal a member of the CERCA programme of the Generalitat de Catalunya.

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