

EMBARGOED UNTIL 27 AUGUST 2020 AT 8.00 AM EST / 2.00 PM CEST

Weight in First Years of Life Can Affect Lung Health in Later Childhood

Study of more than 1,200 children analyses body mass index trajectories from birth to age four years and their relationship to lung function at age seven years

Barcelona, 27 August 2020.- Body mass index (BMI) trajectories in the first years of life may be associated with lung function in later childhood. For example, children with accelerated BMI gain before age four years have higher lung function at age seven years, although they also exhibit airflow limitation. This is the conclusion of a new study by the Barcelona Institute for Global Health ([ISGlobal](#)), a centre supported by the "la Caixa" Foundation, which has been published in the *European Respiratory Journal*.

Early childhood is a key period for lung function development. [Previous studies](#) have found an association between weight in the first years of life and **lung health in infancy and childhood**. "These studies had certain limitations in terms of defining weight gain," explained **Gabriela P. Peralta**, researcher at ISGlobal and lead author of the study. "Most of them only considered the difference in weight between two points in time and did not take the overall trajectory into account. That's why we decided to carry out this new study."

The study used data on **more than 1,200 children** living in three areas of Spain—Sabadell, Valencia and Gipuzkoa—who were enrolled in birth cohort of the [INMA Environment and Childhood Project](#). "First, we **determined the children's BMI trajectory** from birth to age four years and classified them in five categories. The trajectories differed in terms of weight at birth (which could be lower, average or higher) and speed of BMI gain (which could be slower or accelerated)," explained Peralta. BMI is an indicator based on weight in relation to height that is frequently used to classify overweight and obesity. The authors then analysed the relationship between BMI trajectory and **lung function**, which was measured by spirometry at age seven years. Forced vital capacity (FVC), forced expiratory volume in 1 second (FEV₁) and FEV₁/FVC ratio were measured.

The findings showed that children with accelerated BMI gain before age four years, regardless of weight at birth, had **higher lung function at age seven years** but also airflow limitation, which indicates difficulty expelling air from the lungs. In contrast, children with lower weight at birth and slower BMI gain in early childhood had lower lung function at age seven years.

Maribel Casas, a researcher at ISGlobal and co-coordinator of the study, commented: "Our findings have **important implications for research and public health**." She added: "This study shows that BMI trajectories in early childhood are a **useful tool for identifying growth patterns** associated with **poor respiratory health**."

"Since weight gain is affected by modifiable factors, **public health interventions in early childhood that promote healthy lifestyles**—for example, healthy eating and physical activity—can help **improve lung function and reduce respiratory morbidity in adulthood**," concluded **Judith Garcia-Aymerich**, head of the [Non-Communicable Diseases and Environment Programme](#) at ISGlobal and co-coordinator of the study. "Public health strategies aimed at reducing respiratory health problems may need to **focus on early weight gain**."

Reference

Gabriela P. Peralta, Alicia Abellan, Parisa Montazeri, Mikel Basterrechea, Ana Esplugues, Sandra González-Palacios, Céline Roda, Loreto Santa-Marina, Jordi Sunyer, Martine Vrijheid, Maribel Casas,* Judith Garcia-Aymerich.* Early childhood growth is associated with lung function at seven years: a prospective population-based study (*shared last authorship). *European Respiratory Journal*. August 2020.

About ISGlobal

The Barcelona Institute for Global Health, ISGlobal, is the fruit of an innovative alliance between the "la Caixa" Foundation 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 has been named a Severo Ochoa Centre of Excellence and is a member of the CERCA programme of the Generalitat de Catalunya.

ISGlobal Press Office

Marta Solano

marta.solano@isglobal.org

+34 661 451 600 / +34 93 214 73 33

Pau Rubio

pau.rubio@isglobal.org

+34 696 912 841 / +34 93 214 73 33

A partnership of:

