

## Weight Gain Associated with Accelerated Lung Function Decline in Adulthood

*A new study is the first to analyse weight changes in adults and their effects on lung function over a 20-year period*

**Barcelona, 26 January 2020.** Lung function declines naturally over the course of the human lifespan. However, this decline is **steeper in individuals who experience moderate or high weight gain**. This was the conclusion of a new study led by the Barcelona Institute for Global Health ([ISGlobal](#)), a centre supported by "la Caixa", which analysed the effect of weight changes on respiratory health **over a 20-year period**.

The study, published in the journal *Thorax*, was based on data collected from **3,700 participants** recruited between the ages of 20 and 44 years. Participants repeatedly underwent measurements of weight and lung function—by means of spirometry—between 1991 and 2014. "Although previous research has shown that weight gain is linked to lung function decline, ours is the first study to analyse such a varied population sample over a longer period of time," commented **Judith Garcia Aymerich**, leader of the study and head of the [Non-communicable Diseases and Environment programme](#) at ISGlobal. Most earlier studies have had relatively short follow-up periods—ten years at the most—and focused on adults up to 50 years of age.

The study found that people with a body mass index within the recommended rates, overweight people and obese people all experienced accelerated lung function decline when they gained weight. Conversely, weight loss helped to attenuate lung function decline in obese people. Moreover, people who kept their weight low throughout adulthood exhibited a much less pronounced decline in respiratory health.

Two mechanisms could explain the association between weight gain and pulmonary health. First, weight gain can affect lung function through mechanical effects. "**Abdominal and thoracic fat mass is likely to limit the room for lung expansion** during inspiration," commented ISGlobal researcher **Gabriela Prado Peralta**, lead author of the study. Second, weight gain can impair lung function through inflammatory processes, since adipose tissue—the area where fat accumulates—is a source of **inflammatory substances that can damage lung tissue** and reduce airway diameter.

Maintaining good lung function during adulthood is crucial to prevent chronic respiratory diseases, which nowadays represent a serious public health problem around the world. "Given the epidemic levels of overweight and obesity that we are currently seeing, it is fundamental to understand the effects of weight changes on lung function, which is a powerful predictor of morbidity and mortality in the general population," commented **Garcia Aymerich**. "The good news is that the **negative pulmonary health effects of excess weight and obesity can be reversed through weight loss**. Therefore, public health policies that promote healthy lifestyles can be the key to achieving good pulmonary health."

The study formed part of the [Ageing Lungs in European Cohorts \(ALEC\) Study](#), coordinated by Imperial College London. It was financed by the European Union's Horizon 2020 research and innovation programme.

## Reference

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## About ISGlobal

The Barcelona Institute of Global Health (ISGlobal) is the result of an innovative alliance between “la Caixa” and academic and government institutions. The Institute was set up to contribute to the work undertaken by the international community to address global health challenges. The Barcelona Institute of Global Health (ISGlobal) is the result of an innovative alliance between “la Caixa” and academic and government institutions. The Institute was set up to contribute to the work undertaken by the international community to address global health challenges. 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, Policy and Global Development departments. ISGlobal is accredited as a Severo Ochoa Centre of Excellence and is a member of CERCA, the Catalan Government’s network of research centres.

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