

Environment and Health over the Lifecourse (EVOLVE) Research Programme

ISGlobal
Barcelona
Institute for
Global Health

EXCELENCIA
SEVERO
OCHOA

INSTITUT DE
CERCA
Centres de Recerca
de Catalunya



General objective

The Environment and Health over the Lifecourse research programme aims to conduct **high-quality integrative research to expand knowledge on the causes and mechanisms of non-communicable diseases (NCDs)**. Our ultimate goal is to prevent and control NCDs, in line with the [United Nations Sustainable Development Goals](#).



Specific goals

- To understand the **causes, development, course and mechanisms of NCDs**.
- To quantify lifetime **risk factors and environmental exposures and NCDs burden**, globally, and in low-and-middle income countries and vulnerable populations.
- To inform, improve and promote interventions and policies for **primary and secondary prevention of NCDs**, including preparedness and resilience to health and climate emergencies.

EXPOSURES

Social



Occupational



Environmental



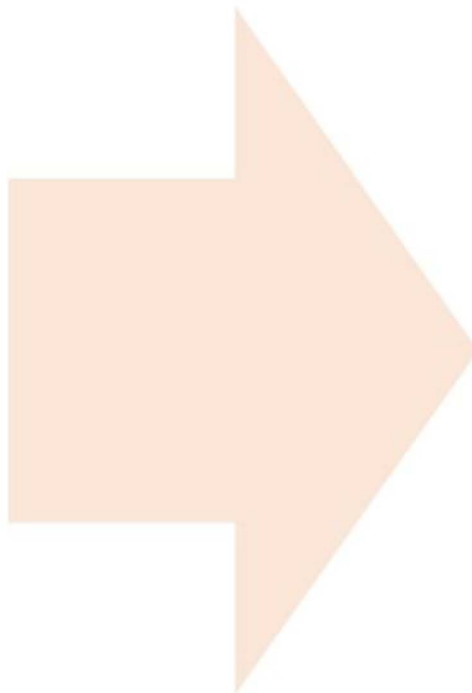
Infectious



Lifestyle



Genetic



OUTCOMES

Respiratory health



Brain health



Cardiometabolic health



Cancer



Kidney disease



Mental health



Research areas



Circadian
health



Respiratory health
over the lifecourse



Brain health over
the lifecourse



Chemicals and
water pollutants



Radiation



Environment and
Mother-child health



Occupational
health



Molecular
epidemiology

Research areas



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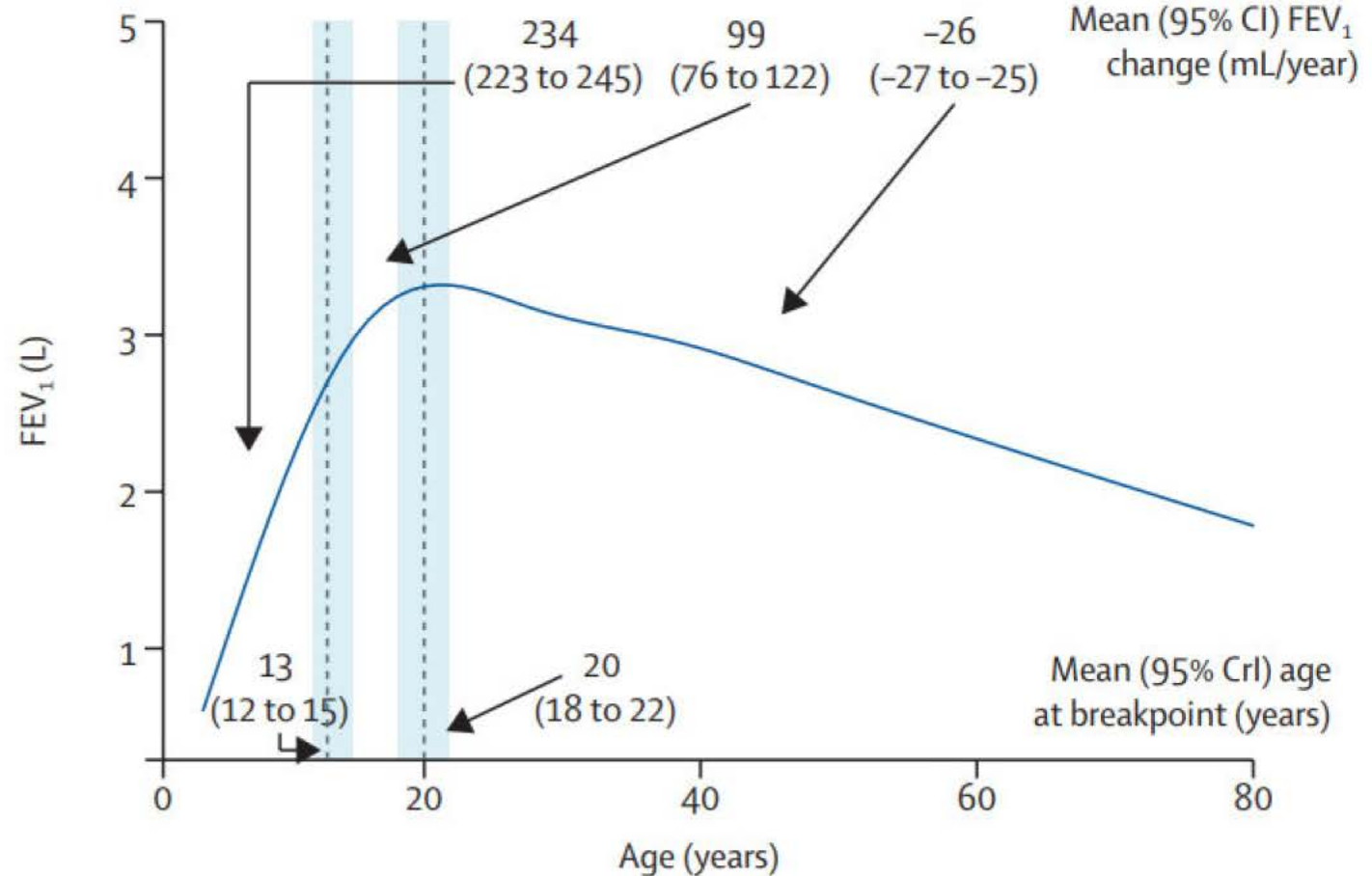
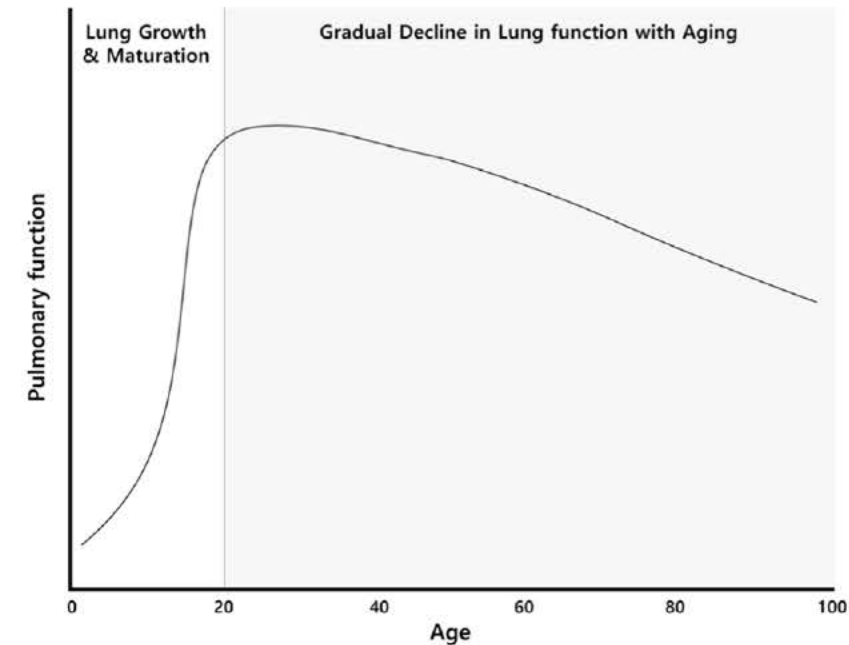


Molecular
epidemiology

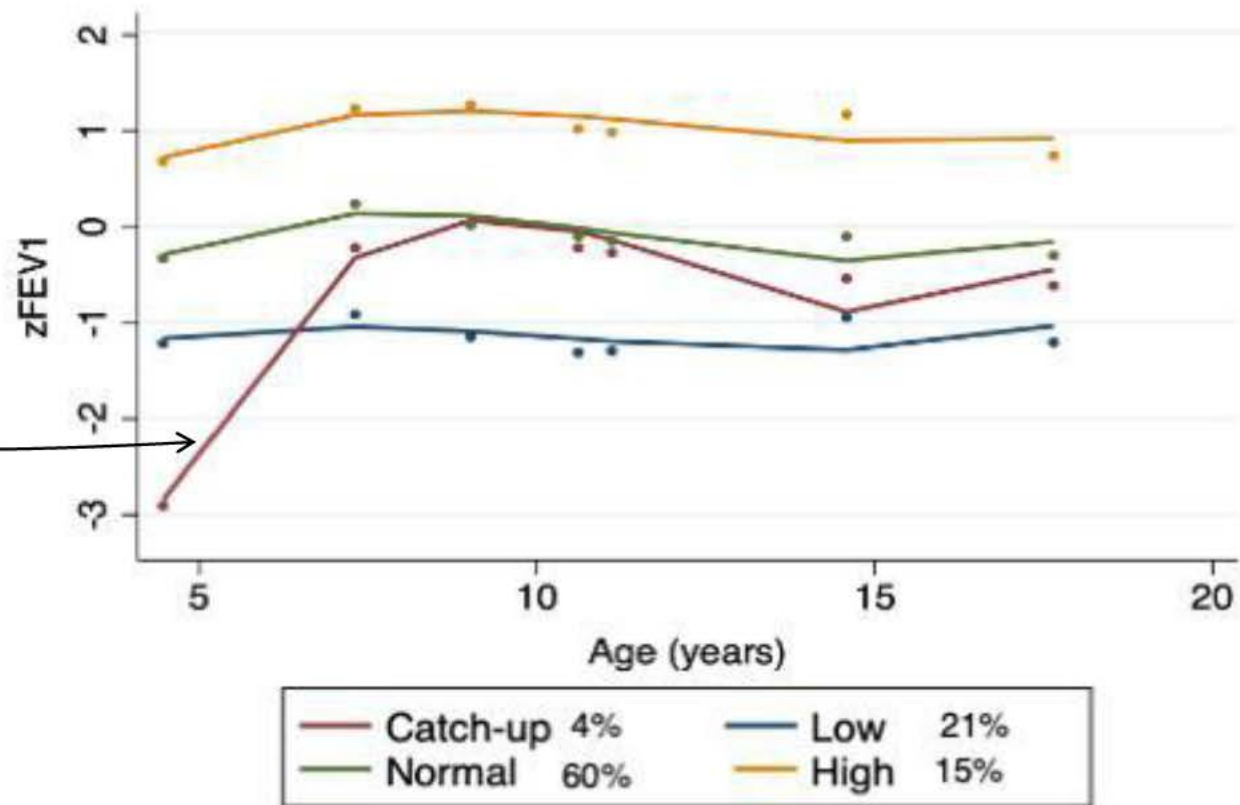
1. Trajectory of lung function growth and decline

Previous model, based on experts' opinion

Empirical model, derived from >30 000 subjects from 13 countries



2. Trajectory groups of lung function growth and their causes



3. Digital health tools to measure respiratory health

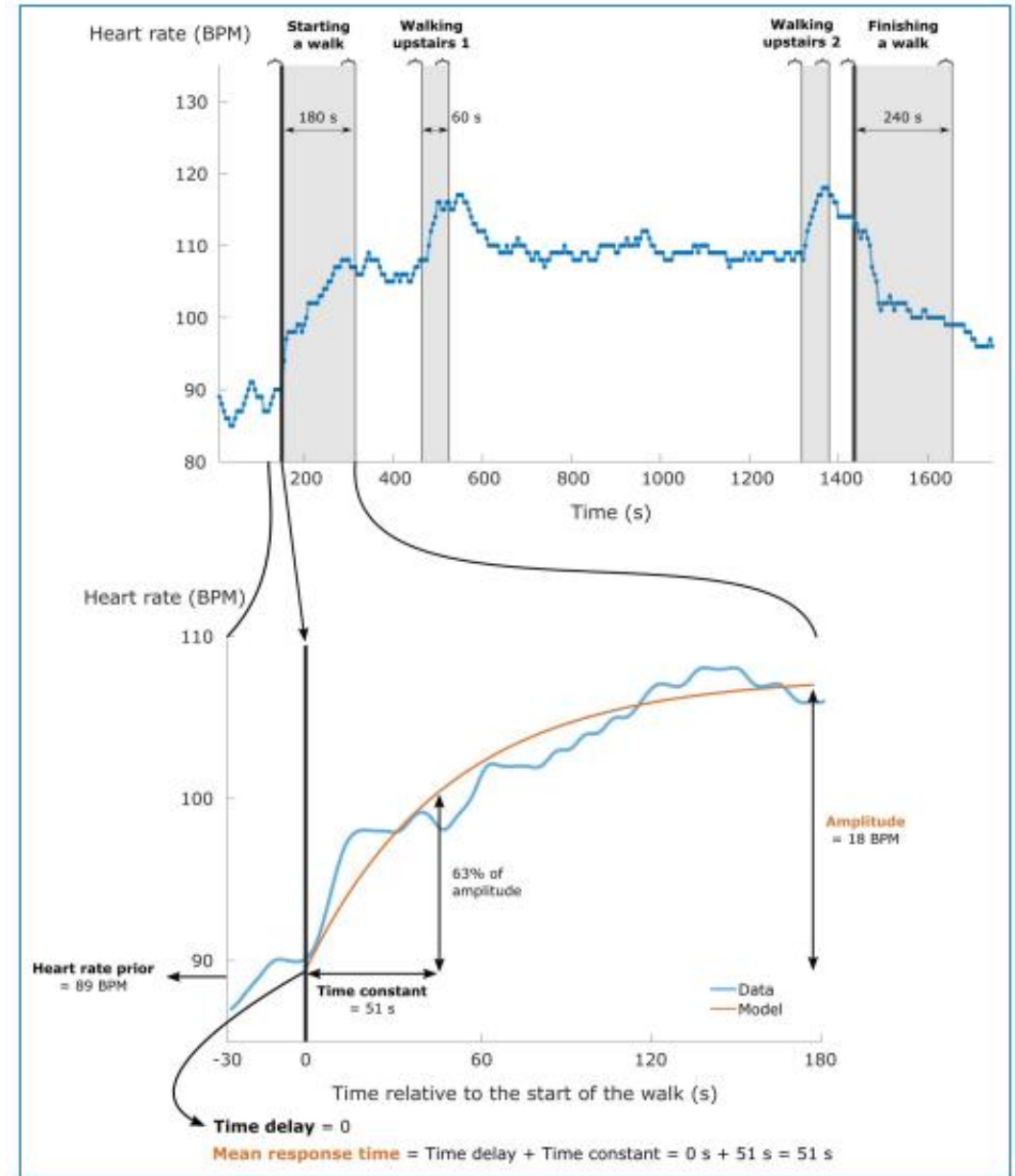
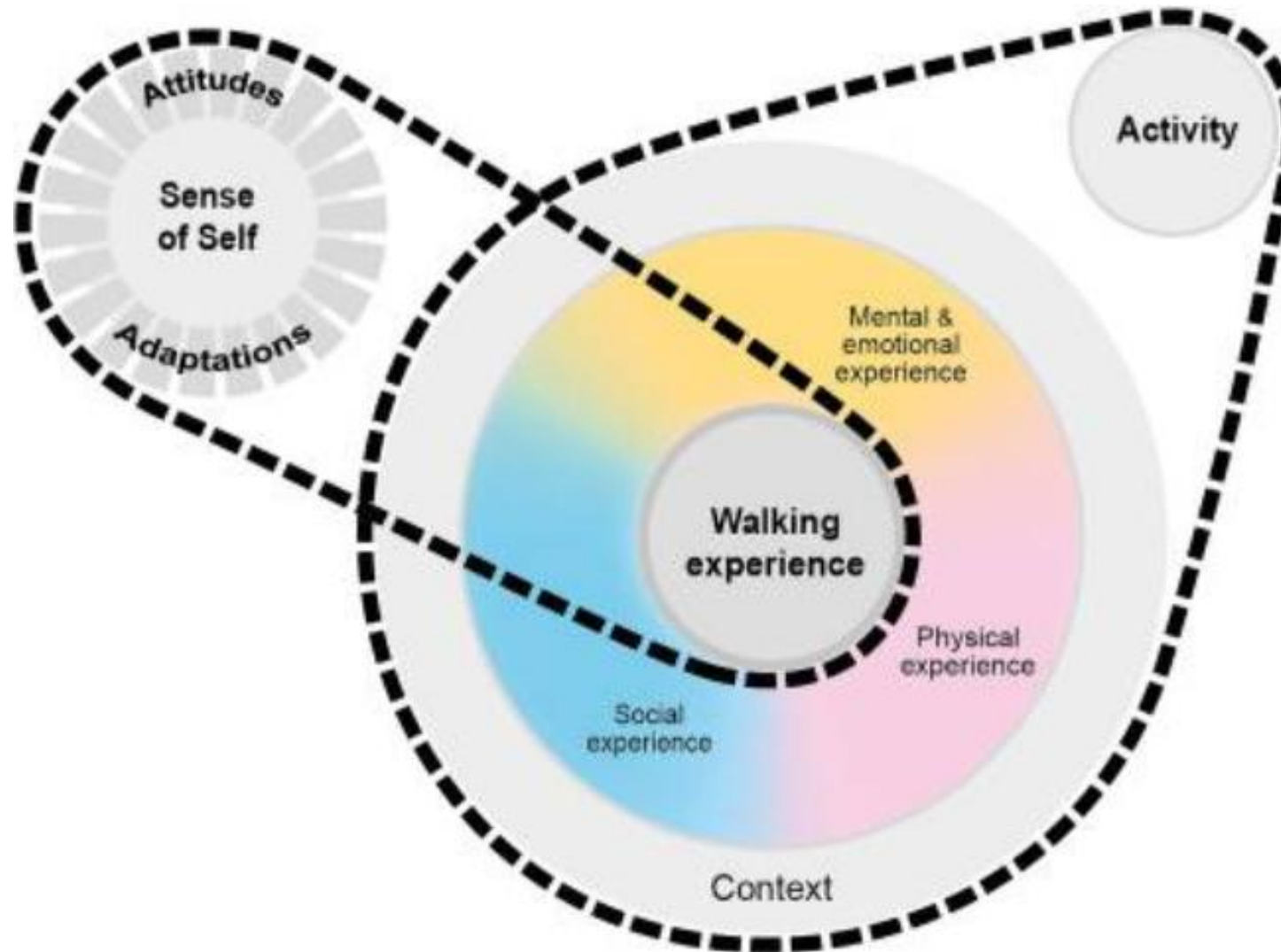


Figure 1. The upper panel visualises the heart rate response of a subject walking on the orange trail. The start and the end of the walk are indicated by the two thick black lines. Light grey zones indicate the considered time windows for every physical activity transition. The curly braces above the figure represent the time periods that were used to calculate the magnitude of the heart rate response related to the different physical activity transitions. The lower panel zooms in on the considered time window when starting a walk to visualise the meaning of heart rate kinetics (e.g., mean response time and amplitude), as extracted from a kinetic model (orange line).

4. What is walking for people living with respiratory diseases (and others, and in older ages)



Examples from Respiratory health over the lifecourse

Main impacts:

- Clinical guidelines
- Public health policies
- Regulatory approvals

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Thank you

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