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Conference Abstract

# YI 1.5 Ten Years of Ageing in the Middle-Aged Does not Increase Input Impedance or Wave Reflection–Insights from the Asklepios Study

Daimé Campos Arias[1,*], Marc L. De Buyzere[2], Julio A. Chirinos[3,4], Ernst R. Rietzschel[2,5], Patrick Segers[1]

[1]*IBiTech, Ghent University*
[2]*Cardiology Department, Ghent University Hospital*
[3]*Division of Cardiovascular Medicine, Hospital of the University of Pennsylvania*
[4]*Perelman Center for Advanced Medicine, University of Pennsylvania*
[5]*Biobanking and Cardiovascular Epidemiology, Ghent University Hospital*

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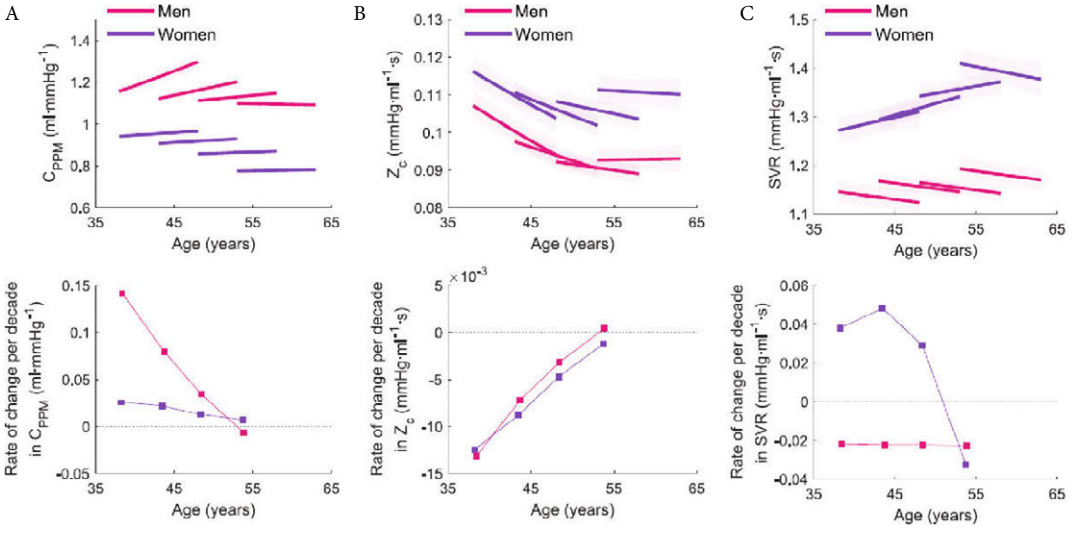
## ABSTRACT

**Background:** The changes experienced by the arterial system due to ageing are still incompletely understood. The aim of this study is to analyze the 10-year longitudinal evolution of input impedance parameters and wave reflection indices in a middle-aged population, and how these effective changes compare to what was anticipated from a previous cross-sectional study [1].

**Methods:** The Asklepios study is a longitudinal population study including 2026 apparently healthy middle-aged subjects at inclusion (52% females), who underwent two rounds of measurements of carotid pressure (applanation tonometry) and central flow (ultrasound), with a follow-up time of 10.14 ± 1.39 years. Subjects were classified into half-decades of age (35–40, 41–45, 46–50, 51–56) according to their age at baseline. Input impedance and wave reflection parameters were derived using frequency-domain methods. Arterial compliance was estimated from the pulse pressure method ($C_{PPM}$). Linear mixed-effects models were used to evaluate the longitudinal trajectories of the parameters.

**Results:** Figure shows the predicted longitudinal trajectories and rates of change per decade of input impedance parameters and wave reflection indices. Longitudinal changes of some variables opposed to what was anticipated from the cross-sectional data. $C_{PPM}$ increased with ageing mainly in younger males. Characteristic impedance decreased with age in younger subjects while increased for the older subjects in the study. Wave reflection decreased with ageing, whereas resistance increased in women and decreased in men.

**Conclusions:** We conclude that the effective impact of aging on arterial system properties is not well reflected by cross-sectional studies.




*Corresponding author. Email: daime.camposarias@ugent.be

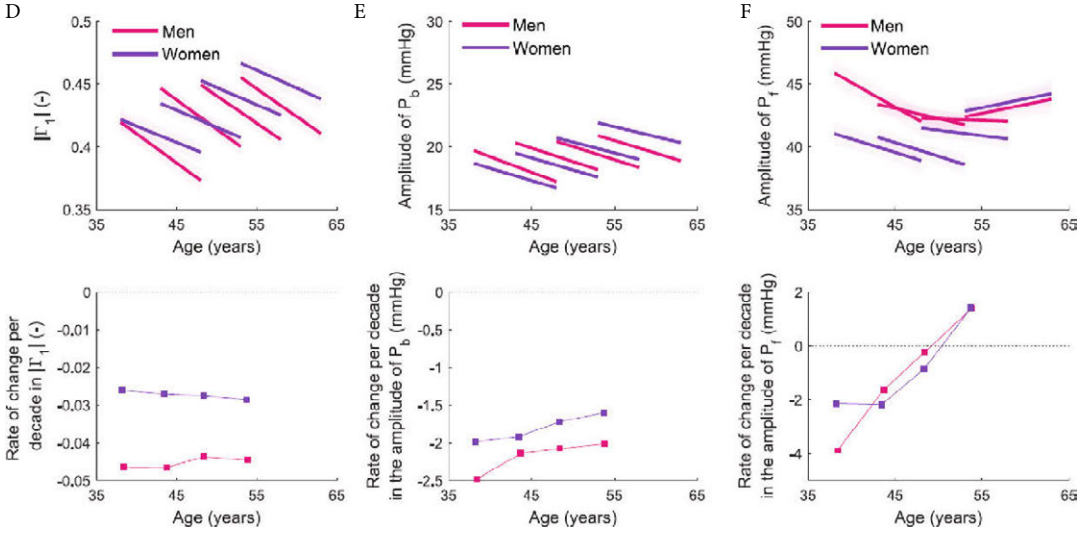



**Figure** Predicted longitudinal trajectories and rate of change per decade in impedance parameters (A–C) and wave reflection indices (D–F), for men and women and per age category. Shaded area represents the 95% confidence intervals for the predictions. Regression models included follow-up time, entry age, height, weight, heart rate, or mean arterial pressure as potential covariates. $C_{PPM}$, total arterial compliance; $Z_c$, characteristic impedance; SVR, systemic vascular resistance; $|\Gamma_1|$, amplitude of the reflection coefficient at the heart frequency; $P_b$, backward pressure wave; $P_f$, forward pressure wave.

## REFERENCE

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