

# ATS 2023 Highlights

## Respiratory Structure and Function Early Career Professionals



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### Get to know members of the RSF Assembly

*Is your research clinical, basic science or translational?*

Clinical

*Tell us about your research?*

I've had the privilege of working with Dr. Sonali Bose on a longitudinal study of the influence of plant-centered diet on lung function decline in the CARDIA cohort. We're also studying a program of home monitoring in pregnant patients with asthma in NYC.

*Where do you see yourself in 5 years?*

I'm interested in the influence of modifiable exposures that occur early in the lifecourse on maintenance of lung health and incident chronic lung disease, with a particular eye to healthcare disparities. During pulmonary and critical care fellowship, I plan to pursue additional training in biostatistics and epidemiology to launch a career as a clinical investigator.

*What do you find is the major benefit of RSF Assembly Membership?*

Mentorship! It's been wonderful meeting people from diverse training backgrounds who are interested in tackling the same questions.



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If you or someone you know would like to be featured as an ATS RSF ECP please email Katrina Tonga ([katrina.tonga@sydney.edu.au](mailto:katrina.tonga@sydney.edu.au))

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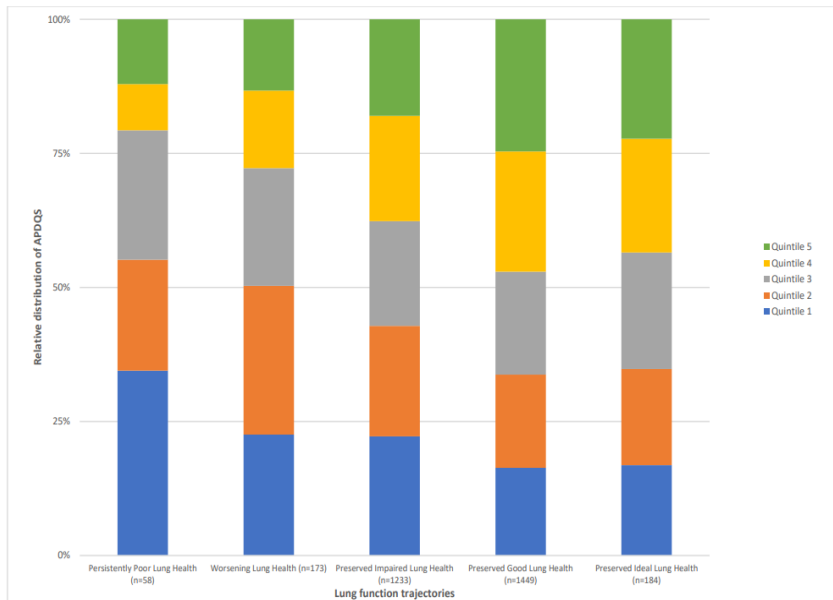
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Relative distribution of APDQS quintiles among different lung function trajectories (FEV1 % predicted). Quintile 5 APDQS was more represented in participants with preserved ideal and preserved good lung health, whereas participants with persistently poor lung health were more likely to have scores in quintile 1.

### Associations of a Plant Centered Diet and Lung Function Decline Across Early to Mid-adulthood: The Cardia Lung Study

#### RATIONALE

Lung function trajectory over the lifespan is a major determinant of future chronic lung disease. Diet quality throughout adulthood may represent a modifiable risk factor for lung function impairment later in life. We investigated associations between consumption of a nutritionally-rich plant-centered diet and lung function trajectory across early and middle adulthood among participants from The Coronary Artery Risk Development in Young Adults (CARDIA) Study.

#### METHODS

Diet was assessed at baseline and years 7 and 20 of follow-up using the validated CARDIA diet history questionnaire. Plant-centered diet quality was scored using the validated A Priori Diet Quality Score (APDQS), which weights food groups to measure adherence to a nutritionally-rich plant-centered diet 1 to 5 points for 20 beneficially rated foods and 5 to 1 points for 13 adversely rated foods. Scores were cumulatively averaged over follow-up and categorized into quintiles. The primary outcome was lung function decline, including forced expiratory volume in 1 second (FEV1) and functional vital capacity (FVC), measured at years 0, 2, 5, 10, 20, and 30. We estimated the association of APDQS with annual pulmonary function changes in a linear regression model, adjusting for clinically relevant covariates. Lifetime trajectories of percent predicted lung function were generated using a group-based trajectory modeling approach. Participants were assigned to one of five trajectories derived from the model, then stratified by APDQS quintiles.

#### RESULTS

The study included 3,787 Black and White men and women aged 18-30 in 1985-86 and followed for 30 years. In multivariable repeated measures regression models, there were significant associations between APDQS and annual changes in both FVC and FEV1. Individuals in the lowest APDQS quintile had declines in FEV1 that were 1.6 ml/year greater than individuals in the highest quintile (33.4 vs. 35.0 ml/year,  $p=0.009$ ) and declines in FVC that were 2.4 ml/year greater than those in the highest quintile (37.0 vs 34.6 ml/year,  $p<0.001$ ). APDQS was not significantly associated with FEV1/FVC. The groups of participants with preserved good and preserved ideal lung health (Figure 1) had a greater proportion of highest quintile APDQS than the group with persistently poor lung health, whereas the group with persistently poor lung health had the highest proportion of lowest quintile APDQS.

#### CONCLUSIONS

In this 30-year longitudinal study, we found that a nutritionally-rich plant-centered diet was significantly associated with less decline in lung function. At a population level, these results highlight a nutritionally-rich plant-centered diet as a treatable trait supporting long-term lung health.