Title: Waist-to-height ratio and lung function among adults. The PLATINO cohort

Body: Background: waist-to-height ratio (WtHR) has been used as a better indicator for obesity and fat distribution rather than body mass index or waist circumference and a possible risk for several chronic diseases, including respiratory impairment. Aim: to evaluate the association between changes in WtHR and lung function among adults. Methods: a follow-up was conducted in three out of the five centers of the PLATINO study: Montevideo, Santiago, and Sao Paulo, after a period of 5, 6 and 9 years, respectively. The same spirometers, questionnaires and standardized methods for measuring height and waist circumference implemented in the baseline were carried out in the follow-up. The main exposure variable was WtHR, being a cut-off point of \( \geq 0.5 \) considered as an abdominal fat pattern; for the longitudinal analysis, this variable was categorized in four groups: low WtHR at both visits, high WtHR at the baseline, high WtHR at the follow-up visit and high WtHR at both visits. The outcomes were absolute FEV1 and FVC parameters. Unadjusted and adjusted linear regression models were performed to evaluate the association. Results: a reduced FEV1 was observed in the crude analysis (\( \beta = -0.23L \text{ – 95% CI} \ -0.36; -0.10 \)) for those subjects who had a high WtHR at both visits; in the adjusted analysis the statistical significance was lost (\( \beta = -0.04L \text{ – 95% CI} \ -0.09; 0.02 \)); for the FVC parameter, there was a reduction in the crude and adjusted analysis (\( (\beta = -0.11L \text{ – 95% CI} \ -0.19; -0.03 \)) for those subjects who had a high WtHR at both visits. Conclusion: it is suggested that the maintenance of a high waist-to-height ratio can be a predictor of low lung function, mainly FVC.