

## Publication

### Physical activity is associated with lower arterial stiffness in older adults : results of the SAPALDIA 3 cohort study

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Associations of physical activity (PA) intensity with arterial stiffness in older adults at the population level are insufficiently studied. We examined cross-sectional associations of self-reported PA intensities with arterial stiffness in elderly Caucasians of the Swiss Cohort Study on Air Pollution and Lung and Heart Diseases in Adults. Mixed central and peripheral arterial stiffness was measured oscillometrically by the cardio-ankle vascular index (CAVI) and brachial-ankle pulse wave velocity (baPWV). The self-reported International Physical Activity Questionnaire long version was administered to classify each subject's PA level. We used univariable and multivariable mixed linear and logistic regression models for analyses in 1908 persons aged 50 years and older. After adjustment for several confounders moderate, vigorous and total PA were inversely associated with CAVI ( $p = 0.02-0.03$ ). BaPWV showed negative and marginally significant associations with vigorous and moderate PA (each  $p = 0.06$ ), but not with total PA ( $p = 0.28$ ). Increased arterial stiffness ( $CAVI \geq 9$ , upper tertile) was inversely and significantly associated with vigorous PA [odds ratio (OR) 0.65, 95% confidence interval (CI) 0.48-0.88], and marginally significantly with total PA (OR 0.76, 95% CI 0.57-1.02) and moderate PA (OR 0.75, 95% CI 0.56-1.01). The odds ratio for  $baPWV \geq 14.4$  was 0.67 (95% CI 0.48-0.93) across the vigorous PA levels, and was non-significant across the total (OR 0.91, 95% CI 0.66-1.23) and moderate PA levels (OR 0.94, 95% CI 0.69-1.28). In this general Caucasian population of older adults higher levels especially of vigorous PA were associated with lower arterial stiffness. These data support the importance of PA for improving cardiovascular health in elderly people.

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