

## Publication

Does increased blood pressure rather than aging influence retinal pulse wave velocity?

**JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 4376353**Author(s)** Kotliar, Konstantin E.; Lanzl, Ines M.; Hanssen, Henner; Eberhardt, Karla; Vilser, Walthard; Halle, Martin; Heemann, Uwe; Schmidt-Trucksäss, Arno; Baumann, Marcus**Author(s) at UniBasel** [Hanssen, Henner](#) ;**Year** 2012**Title** Does increased blood pressure rather than aging influence retinal pulse wave velocity?**Journal** Investigative Ophthalmology & Visual Science**Volume** 53**Number** 4**Pages / Article-Number** 2119-2126

It was demonstrated previously that retinal pulse wave velocity (rPWV) as a measure of retinal arterial stiffness is increased in aged anamnestically healthy volunteers compared with young healthy subjects. Using novel methodology of rPWV assessment this finding was confirmed and investigated whether it might relate to the increased blood pressure usually accompanying the aging process, rather than to the aging itself.; A total of 12 young 25.5-year-old (24.0-28.8) [median(1st quartile-3rd quartile)] and 12 senior 68.5-year-old (63.8-71.8) anamnestically healthy volunteers; and 12 senior 63.0-year-old (60.8-65.0) validated healthy volunteers and 12 young 33.0-year-old (29.5-35.0) hypertensive patients were examined. Time-dependent alterations of vessel diameter were assessed by the Dynamic Vessel Analyzer in a retinal artery of each subject. The data were filtered and processed using mathematical signal analysis and rPWVs were calculated.; rPWV amounted to 1200 (990-1470) RU (relative units)/s in the hypertensive group and to 1040 (700-2230) RU/s in anamnestically healthy seniors. These differed significantly from rPWVs in young healthy group (410 [280-500] RU/s) and in validated healthy seniors (400 [320-510] RU/s). rPWV associated with age and mean arterial pressure (MAP) in the pooled cohort excluded validated healthy seniors. In a regression model these associations remain when alternately adjusted for MAP and age. When including validated healthy seniors in the pooled cohort only association with MAP remains.; Both aging (with not excluded cardiovascular risk factors) and mild hypertension are associated with elevated rPWV. rPWV increases to a similar extent both in young mildly hypertensive subjects and in aged anamnestically healthy persons. Healthy aging is not associated with increased rPWV.

**Publisher** Association for Research in Vision and Ophthalmology**ISSN/ISBN** 0146-0404 ; 1552-5783**edoc-URL** <https://edoc.unibas.ch/62118/>**Full Text on edoc** No;**Digital Object Identifier DOI** 10.1167/iovs.11-8815**PubMed ID** <http://www.ncbi.nlm.nih.gov/pubmed/22427544>**ISI-Number** WOS:000303669400049**Document type (ISI)** Article