

Publication

Acute and chronic effects of marathon running on the retinal microcirculation

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**ID** 4399389**Author(s)** Pressler, Axel; Hanssen, Henner; Dimitrova, M.; Krumm, M.; Halle, Martin; Scherr, Johannes**Author(s) at UniBasel** [Hanssen, Henner](#) ;**Year** 2011**Title** Acute and chronic effects of marathon running on the retinal microcirculation**Journal** Atherosclerosis**Volume** 219**Number** 2**Pages / Article-Number** 864-8**Mesh terms** Adult; Arterioles, physiology; Biomarkers, blood; Blood Pressure; Case-Control Studies; Germany; Humans; Linear Models; Male; Microcirculation; Middle Aged; Physical Endurance; Prospective Studies; Pulsatile Flow; Regional Blood Flow; Retinal Vessels, physiology; Running; Time Factors; Venules, physiology

Previous studies indicate an association between marathon running and premature atherosclerosis. Retinal vessel diameter alterations, in particular narrower arterioles and wider venules, reflect early stages of atherosclerosis, but the influence of marathon on the retinal microcirculation is unknown.; Retinal vessel diameters were measured in 85 male runners (age 31-60 years; previous marathons 0-56) and in 45 age-matched healthy controls using a static vessel analyzer. In runners, diameters were also measured immediately and 24h after a marathon. Cardiovascular risk profiles, clinical chemistry and, in a subgroup of 46 runners, peripheral arterial wave reflections were also assessed.; Runners had larger arterioles (median 196 μ m (IQR 25) vs. 190(25); $p = 0.068$) and smaller venules (222(25) vs. 224(18); $p = 0.063$) than controls, resulting in a significantly increased arteriolar-to-venular ratio (AVR; 0.89(0.08) vs. 0.85(0.07); $p < 0.001$). In runners, retinal vessel diameters were not associated with body mass index, blood pressure, smoking, lipids or training history, and no differences were observed between the lowest (0.71-0.84) and highest (0.95-1.06) AVR quintiles. The marathon run induced a significant increase of AVR (0.91 (0.09); $p = 0.007$) due to larger arteriolar than venular dilatations, correlating weakly to race duration ($r = 0.32$; $p = 0.003$) and to a lower increase in leucocytes ($r = -0.35$; $p = 0.001$). Vessel diameters normalized 24h after the race. Augmentation index and pulse pressure decreased significantly after the race, but no associations with retinal vessel diameters were observed.; Marathon running is not associated with an impairment of the retinal microcirculation. These findings contrast previous reports on atherosclerotic alterations of peripheral vessels.

Publisher Elsevier**ISSN/ISBN** 0021-9150 ; 1879-1484**edoc-URL** <https://edoc.unibas.ch/62273/>**Full Text on edoc** No;**Digital Object Identifier DOI** 10.1016/j.atherosclerosis.2011.08.052**PubMed ID** <http://www.ncbi.nlm.nih.gov/pubmed/21945500>**ISI-Number** WOS:000298813900082**Document type (ISI)** Journal Article