

**Publication****Short- and Long-Term Effects of Bariatric Surgery on Vascular Phenotype****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 4510036**Author(s)** Streese, Lukas; Königstein, Karsten; Goricki, Lara; Infanger, Denis; Wölnerhanssen, Bettina; Peters, Thomas; Schmidt-Trucksäss, Arno; Hanssen, Henner**Author(s) at UniBasel** [Schmidt-Trucksäss, Arno](#) ; [Streese, Lukas](#) ;**Year** 2019**Title** Short- and Long-Term Effects of Bariatric Surgery on Vascular Phenotype**Journal** Obesity Surgery**Volume** 29**Number** 4**Pages / Article-Number** 1301-1308**Keywords** Arterial stiffness; Bariatric surgery; Cardio-ankle vascular index; Obesity; Pulse wave velocity; Retinal microcirculation**Mesh terms** Adult; Ankle Brachial Index; Arteries, physiopathology; Bariatric Surgery; Blood Pressure, physiology; Body Mass Index; Cell Count; Cell Size; Female; Humans; Male; Middle Aged; Obesity, Morbid, surgery; Phenotype; Postoperative Period; Pulse Wave Analysis; Retinal Vessels, pathology; Time Factors; Vascular Stiffness, physiology

Retinal microvascular diameters and large artery stiffness are valid biomarkers of cardiovascular risk. This study assessed short- and long-term micro- and macrovascular improvements after bariatric surgery (BS).; Sixteen patients (44 ± 12 years) underwent BS in this observational study. Two weeks before as well as 6 weeks and 4 years after surgery, retinal vessel analysis and assessment of brachial-ankle pulse wave velocity (baPWV), cardio-ankle vascular index (CAVI), and anthropometry were performed. Three patients were lost to follow-up.; Six weeks after BS, retinal arteriolar diameters (CRAE) were wider (180.1 μm vs. 188.1 μm; p = 0.001), and the arteriolar-to-venular diameter ratio (AVR) was higher (0.82 vs. 0.86; p < 0.001) compared to baseline levels. During the 4 years of follow-up, the retinal changes sustained but further improvements did not occur. Both indices of large artery stiffness, baPWV and CAVI, remained unchanged 6 weeks and 4 years after surgery.; Retinal microvascular phenotype improved 6 weeks after BS. The improvements in microvascular health were maintained during 4 years of follow-up but, despite significant further reductions in body mass index, did not improve further long-term. baPWV and CAVI were unaffected after surgery indicating that BS primarily affects microvascular phenotype rather than large artery stiffness. Retinal vessel imaging seems to be a feasible diagnostic tool to monitor microvascular health after BS. Normalization of BMI and blood pressure may be necessary to achieve long-term improvement of large artery phenotype after BS.

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