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CAPILLARY DIAMETER AND LENGTH DENSITY IN NORMOTENSIVE (WKY) AND HYPERTENSIVE (SHR) RATS. H. N. Mayrovitz and Y-C. Cha
Miami Heart Institute, Miami Beach, FL 33140

Arteriolar rarefaction in hypertension is well documented but data on capillaries (CAP) are less extensive and conflicting. We measured CAP diameter (D) and length per unit tissue volume (L) as an index of number density in the cremaster of 9 SHR and 10 WKY (6-7 wk). D and L were measured in 6 randomly chosen zones after rendering the vasculature fluorescent via intravenous administration of Fluorescein Isothiocyanate- Dextran 150 (30 μg/g). D was measured with a Filar micrometer 10X eyepiece and 40X objective and L by quantitative stereology using a grid within a 5X eyepiece. Groups (WKY vs SHR) differed in mean blood pressure (95.4 vs 145.4 mmHg., $P < 0.001$, t-test) and differed significantly with regard to D and L ($P < 0.001$, analysis of variance). Group means ± SEM are shown below.

	Diameter (μm)	Length Density (mm/cu.mm)
WKY	5.88 ± 0.18	194.0 ± 6.0
SHR	6.48 ± 0.17	152.6 ± 7.5

The D and L values herein found are greater than reported by others, probably due to the fluorescence which makes missed vessels and diameter underestimation less likely. The smaller L in SHR is consistent with reports in the same tissue but a larger D in SHR was not previously shown. The larger D may be an adaption to greater blood flow per CAP and/or a passive increase due to greater pressure in SHR.

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