

Abstract Submitted  
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**Comprehensive Spatial Display of the Microcirculation in a Capillary Bundle from Rat Spinotrapezius Muscle Fascia Tissue** NIKI YAMAMURA, FRANK JACOBITZ, University of San Diego, GEERT SCHMID-SCHÖNBEIN, University of California, San Diego — Previous investigations of the microcirculation in skeletal muscle have utilized a statistical display of fundamental hemodynamic variables without regard of actual microvascular details. The focus of this project is the development of a software tool to perform a spatial analysis of hemodynamic results. The vessel network considered in this study is a capillary bundle in rat spinotrapezius muscle fascia with transverse arterioles supplying blood, capillary vessels, and collecting venules removing blood. The software tool represents information about blood vessel location and connectivity in two matrices. The first matrix holds spatial locations of vessel intersections or nodes. This matrix is used to create a second matrix containing the locations of all microvessels. The second matrix is then used to produce result matrices holding the values of flow properties at the locations at which they are observed in the vessel network. The resulting images provide a full display, for example, of the pressure drop in the network. The highest velocities are obtained in the transverse arterioles and adjacent capillaries, while other vessels in the network show lower velocities. An area of elevated hematocrit is observed in the periphery of the network.

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