

Abstract Submitted  
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**Injection From Side Holes on a Generic Catheter Tip** JASON

FOUST, DONALD ROCKWELL, Lehigh University — Central venous catheters (CVC), typically positioned within the superior vena cava (SVC), play an important role in the process of hemodialysis. Simultaneous extraction and injection of blood typically occur through one or more side holes at the catheter tip. High-image-density particle image velocimetry is employed, in conjunction with a scaled-up water facility, to characterize the structure of single and multiple jets. The injection jets that penetrate the steady crossflow generate complex, but deterministic, flow patterns. Significant interaction between multiple jets generates flow features that are more pronounced than those of a single jet, including increased jet penetration and elevated levels of turbulent shear stresses. In addition, the effects of a pulsatile throughflow on the structure of an isolated, single jet are determined as a function of phase of the systole-diastole cycle, corresponding to actual blood flow in a normal adult.

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