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Effect of swirling inlet condition on the flow field in a stenosis phantom model HOJIN HA, SANG JOON LEE, POSTECH, CENTER FOR BIOFLUID AND BIOMIMIC RESEARCH TEAM — The spiral blood flow effect in an axisymmetric stenosis model was experimentally investigated using particle image velocimetry velocity field measurement technique and streakline flow visualization. Spiral inserts with two different helical pitches (10D and 10/3D) were installed upstream of the stenosis to induce swirling flows. Results show that the spiral flow significantly reduces the length of recirculation flow and provokes early breakout of turbulent transition, but variation of swirling intensity does not induce significant changes of turbulence intensity. The present results about the spiral flow effects through the stenosis will contribute in achieving better understanding of the hemodynamic characteristics of atherosclerosis and in discovering better diagnosis procedures and clinical treatments.

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