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In vivo μ PIV measurements of blood velocity in small vessels of a rat model CHIA MIN LEONG, RPI, JOHN RUSSELL, NADINE CONNOR, Univ. Wisconsin Medical School, MARKUS HONKANEN, TUT, TIMOTHY WEI, RPI — Aging-related muscular changes have been shown to affect voice production. There is correlation between muscular changes and changes in capillary hemodynamics and structure with aging. Alterations in oxygen transport to cells and tissues at the capillary level has been hypothesized as one of the key factors that causes muscular changes thus voice production. Since oxygen transport is related to hemodynamics, we start by measuring blood velocity in capillaries of cremaster muscle of a living rat. The μ PIV technique is adapted for measuring blood velocity where red blood cells are used as ‘seeding particles’. The accuracy of the μ PIV measurements are determined by comparison with results obtained using other techniques such as particle tracking velocimetry (PTV). Finally, challenges in measuring flow through three-dimensional larynx geometry will be discussed.

Timothy Wei
RPI

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