研究業績　英文表記

和文	
表題	屋内プールにおける泳者足部周りの後流可視化と推力推定
著者名	下門洋文 1)、山城昌一郎 1)、市川浩 2)、下山好充 1)、角川隆明 3)、仙石泰雄 3)、高木英樹 3)
所属	1）新潟医療福祉大学、2）西九州大学、3）筑波大学
英文	
Title	Wake flow visualization around swimmer's foot and thrust force estimation at an indoor swimming pool.
Author	Shimojo H.1), Yamashiro S. 1), Ichikawa H. 2), Shimoyama Y. 1), Tsunokawa T. 3), Sengoku Y. 3), Takagi H. 3)
Affiliation	1) Niigata University of Health and Welfare, 2) Nishikyushu University, 3) University of Tsukuba
Abstract	Although we visualized the wake flow around a skilled swimmer's foot during leg-kick swimming in a circular flume (Shimojo et al., 2019), the wake flows in an indoor swimming pool with the same devices and settings are unclear. This study aimed to visualize the wake flow around the foot during human leg-kick swimming in an indoor swimming pool. We experimented with the indoor swimming pool with underwater windows installed. A competitive swimmer participated in this study, and performed submaximal legkick swimming with 30 repetitions. We captured the swimmer's leg motion in 3D (100Hz). The microbubbles dissipated as tracer particles, and a double-pulse Nd: YAG laser with a thickness of 4 mm was irradiated around the swimmer's foot from the bottom in the sagittal plane to the swimmer. We recorded the measurement area of wake flow after the swimmer passed through with two high-resolution cameras. We visualized the jet flow and vortices, and this flow structure is similar to circular flume conditions. In addition, we estimated the thrust of about ?20N from the vortex structure (Akanyeti et al., 2017). In the practical situation of such the study, we realized the wake flow visualization around a swimmer and estimated the thrust. It will be cross-validated against an experimental environment, specifically a circular flume, to enhance its reliability further.
keyword	wake flow visualization, thrust, indoor swimming pool

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