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Paper Title: Development of a Simplified Mock Circulation Loop for Cardiovascular Flow Measurement

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## Abstract

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This study aims to develop an in-vitro testing platform for the cardiovascular flow, called mock circulation loop (MCL), where the system is simulated using hydraulic, mechanical, and electrical components. Although MCL's have been widely used for testing ventricular assist devices or artificial organs, there are often complicate to fabricate. In addition, to aid the dynamic simulation of the aortic valve, a simplified MCL is compared with and without the compliance mechanism, also known as Windkessel effect. The construction of the prototype MCL is presented, which shows how the hydro-mechanical components correspond to that of the cardiovascular circulation. Results of the simulated blood pressure reading are then presented.

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