Computational analysis of red blood cell aggregation kinetics to obtain representative parameters in healthy donors

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Abstract: Experimental curves of erythrocyte aggregation were modelled and fitted to obtain representative parameters of aggregation kinetics. Blood from healthy donors was collected and samples were prepared and analyzed at 40% hematocrit. Data were obtained by an optical chip aggregometer developed in our laboratory and based on light transmission. Curves, representing plots of transmitted light through a blood sample against time were recorded and subjected to custom made software in order to obtain characteristic parameters of the aggregation phenomenon. This study is of importance in biomedicine since it helps to develop simple tools and techniques for blood characterization, especially concerning vascular pathologies such as hypertension and diabetes, where the red blood cell aggregation phenomenon is altered.

Series on Biomechanics, Vol.31, No.3 (2017), 36-41

Keywords: aggregation kinetics; computational fitting; Erythrocyte aggregation; light transmission

Date published: 2017-12-12

Series on BIOMECHANICS ISSN 1313-2458 PrimaSoft Ltd.