

### Blood flow and its biomedical applications

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The circulating system of a human body is a rheological system, in which deformable particles such as erythrocytes are floating in plasma medium. Blood vessels of various size and shape form complex geometries and generate mixed flow that consists of shear and extensional flow. Red blood cell (RBC), which occupies more than 45% of blood constituents, easily deforms to deliver oxygen and nutrients to the terminal tissues. The circulating system has been extensively studied from the rheological point of view as well as from the clinical point of view. Among the rheological characteristics of blood, RBC deformability is most meaningful not only for RBC's high concentration, but also for its alteration in response to outer circumstances. The deformability is known to show different behavior according to age, sex, or life span of RBC. In this study, we have studied RBC deformability, described it in rheological language, and related it to specific health condition i.e. arteriosclerosis.