

Abstract Submitted
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Viscoelastic Properties of Vitreous Gel H. PIROUZ KAVEHPOUR, POORIA SHARIF-KASHANI, University of California, Los Angeles — We studied the rheological properties of porcine vitreous humor using a stressed-control shear rheometer. All experiments were performed in a closed environment at body temperature to mimic in-vivo conditions. We modeled the creep deformation using a two-element retardation spectrum model. By associating each element of the model to an individual biopolymeric system in the vitreous gel, a separate response to the applied stress was obtained from each component. The short time scale was associated with the collagen structure, while the longer time scale was related to the microfibrils and hyaluronan network. We were able to distinguish the role of each main component from the overall rheological properties. Knowledge of this correlation enables us to relate the physical properties of vitreous to its pathology, as well as optimize surgical procedures such as vitrectomy.

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