

NUMERICAL AND EXPERIMENTAL ANALYSIS OF THE MECHANICAL BEHAVIOR OF HUMAN DESCENDING AORTA

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Abstract. This paper presents a numerical and experimental characterization of the mechanical behavior of the wall of the human descending aorta. The importance of this study lies in the possibility to predict the mechanical response of the human descending aorta under generalised physiological loading states and clinical conditions of interest. The aim of this study is to provide experimental and numerical data to a model to predict and characterize the mechanical response of the aortic wall. Constitutive models were adjusted throughout tensile tests. Different constitutive models were calibrated and considered to simulate the mechanical response of vessel in a pressurization test. Finally, the computed results were validated with the corresponding experimental measurements.