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## Changes in Vessel Properties During Early Progression of Murine Abdominal Aortic Aneurysms from *In Vivo* Ultrasound

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Abdominal aortic aneurysms (AAA) are a common and frequently fatal disease characterized by the weakening and dilation of the aorta. The larger the aneurysm, the higher the chances are of rupturing and life-threatening hemorrhage. The aim of this study is to apply the angiotensin II (AngII) model of AAAs in male apolipoprotein-E-deficient mice (apoE<sup>-/-</sup> C57Bl/6J), in order to analyze, quantify, and understand the pathologies and characteristics associated with early AAA development. To date, many studies focusing on the evaluation of AAA characteristics have been performed *ex vivo*. Therefore, we focused on *in vivo* assessment, through the use of high frequency ultrasound technology, to measure parameters such as aortic diameter, volume, circumferential cyclic strain, blood flow velocity, and thrombus volume. Data analysis from this 7-day study suggests an increase in aortic diameter and volume, a decrease in aortic blood flow velocity and strain, and large variations in volumes of the thrombotic volume within the aneurysm's false lumen. Our analysis of these AAA features has shown that there are a variety of patterns, which may provide insight into further understanding AAA pathology in this model. Future work will focus on comparing the relationship between the features during early AAA formation.

### KEYWORDS

Aneurysm, volume, diameter, strain, blood-flow, thrombus, angiotensin, aorta, dilation.