

Computational Characterisation of Bioprosthetic Heart Valve Positioning to Enhance Long Term Performance.

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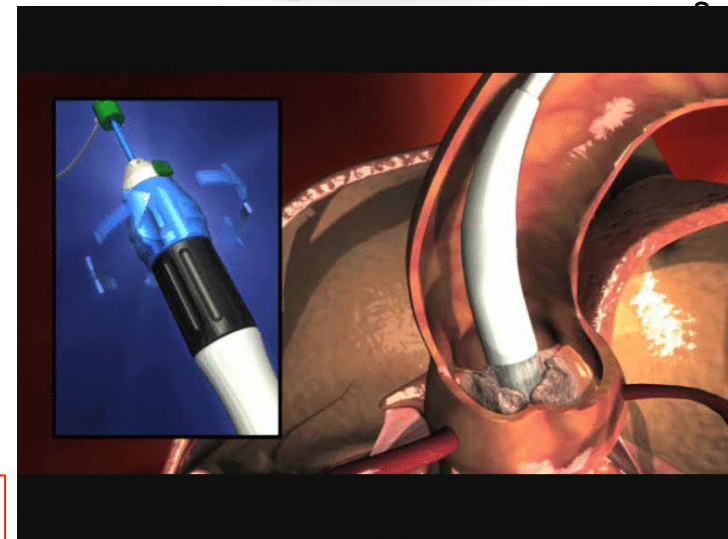
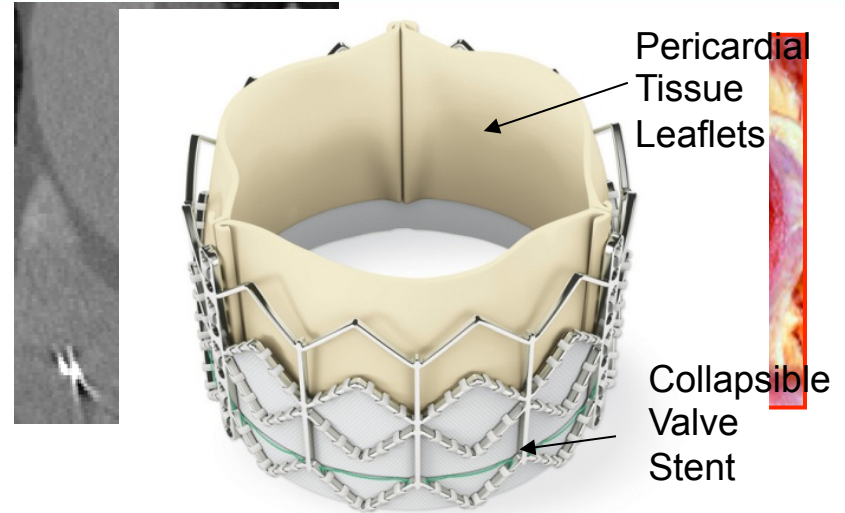
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Introduction

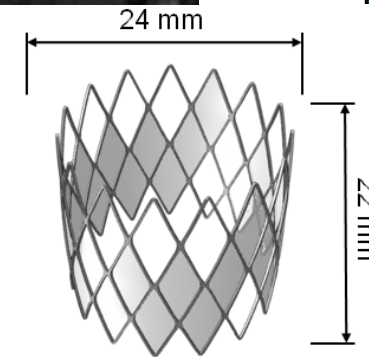
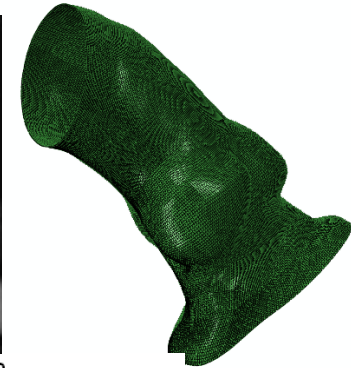
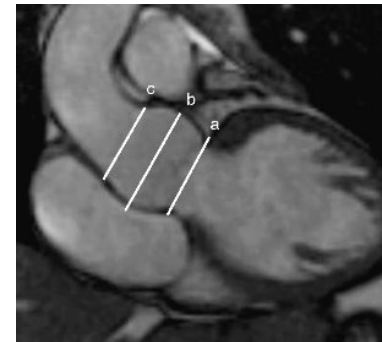
- Aortic stenosis is an age-related degenerative disease that causes progressive narrowing of the aortic valve of the heart
- Treated with Open Heart surgery
- Transcatheter Aortic Valve Implantation (TAVI) is a minimally invasive alternative
- Positioning of TAVs is challenging and incorrect positioning might lead to leakage,

Objective: To investigate the optimal positioning for Transcatheter Aortic Valves

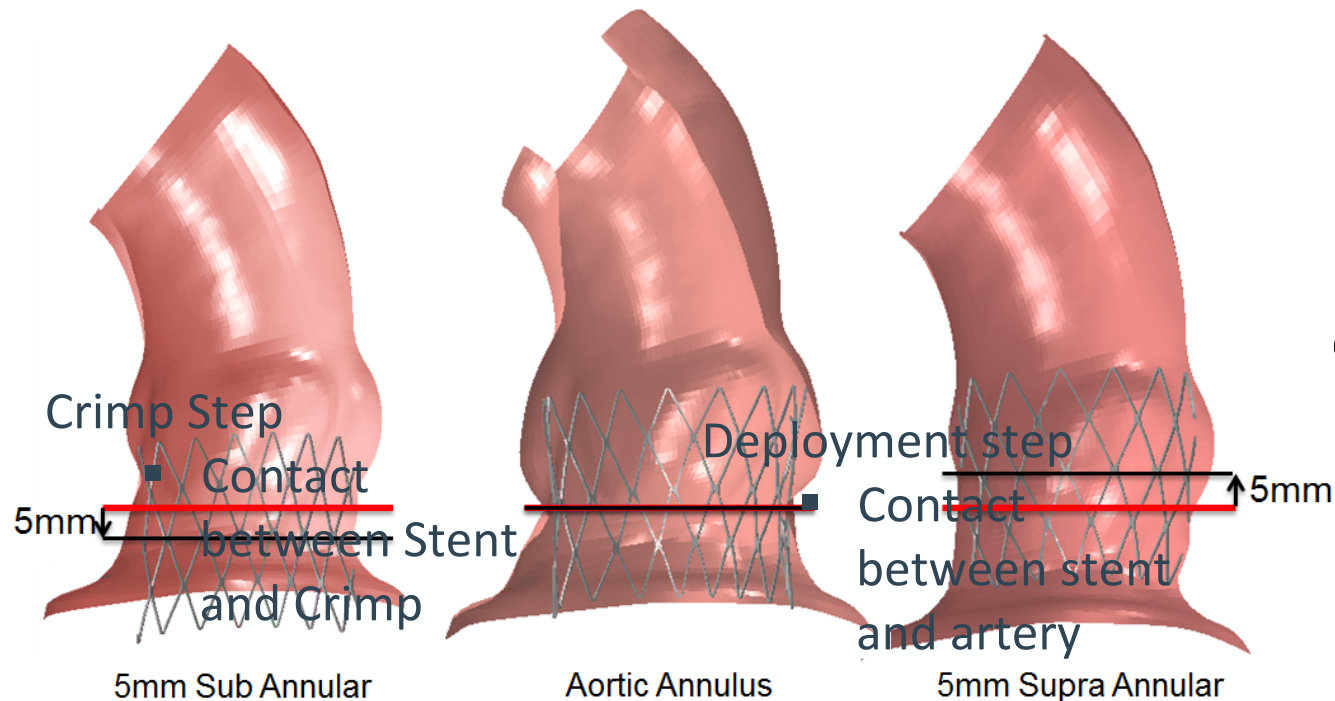


Methods

- Two Step Computational Model (Finite Element)
- Aortic Root was created from medical images (MRI)
- Model of a Generic Non-Linear Nitinol TAV Stent



Gunning, P. S., et al. 2014



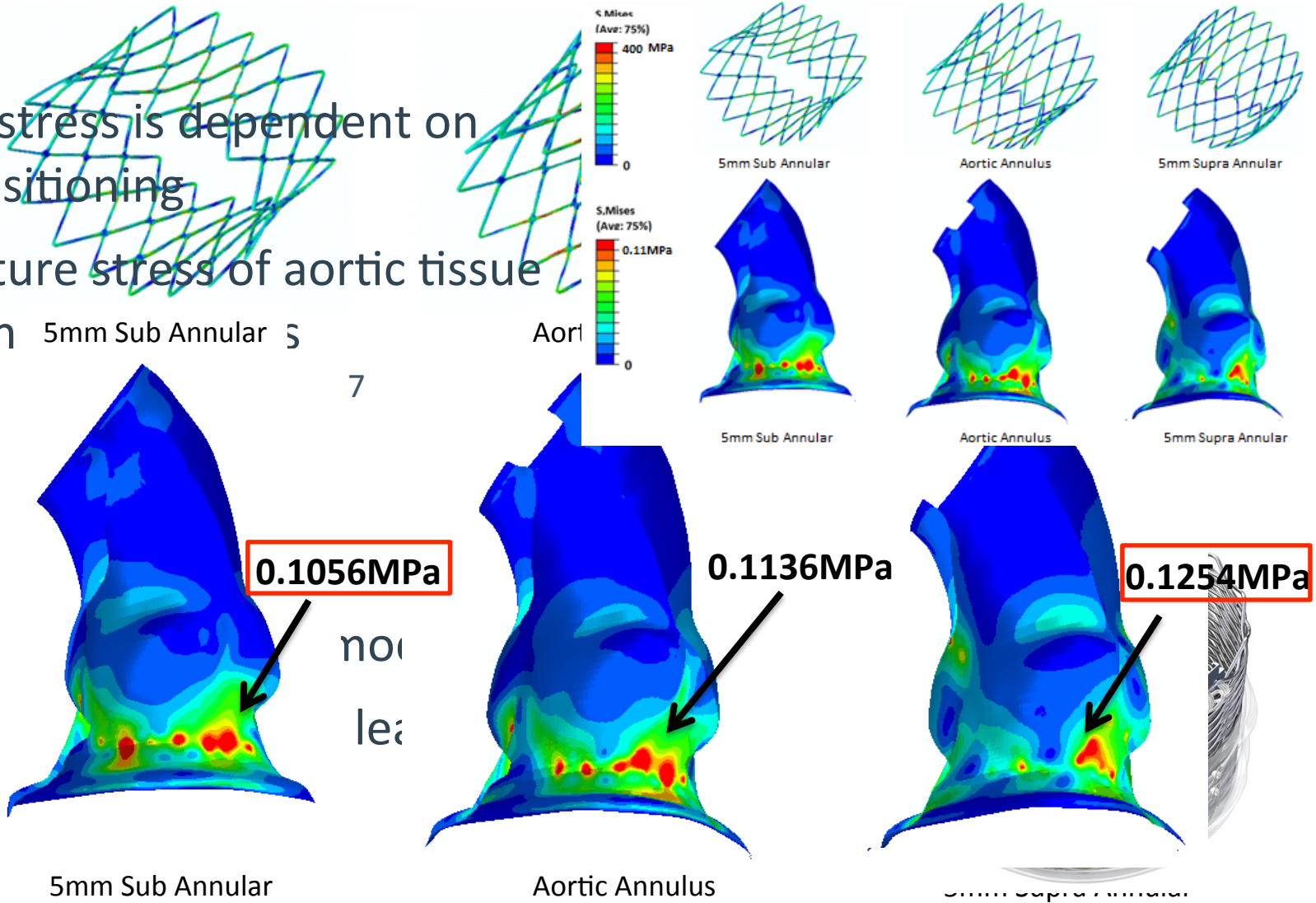
Conclusions & Future Work

Conclusion

- Arterial stress is dependent on valve positioning
- The rupture stress of aortic tissue has been

approx

- Comme
- Inclusio



References

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