

BUILDING
ENDOVASCULAR
SYNERGIES

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Is the endovascular world ready for 3D printing ... and vice versa?

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Disclosure

Speaker name: MAENE Lieven

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Shareholder in a healthcare company
- Owner of a healthcare company
- Other(s)

- I do not have any potential conflict of interest



3D Printed Models

... reproduced from real datasets



Courtesy Materialise

3D Printed Models

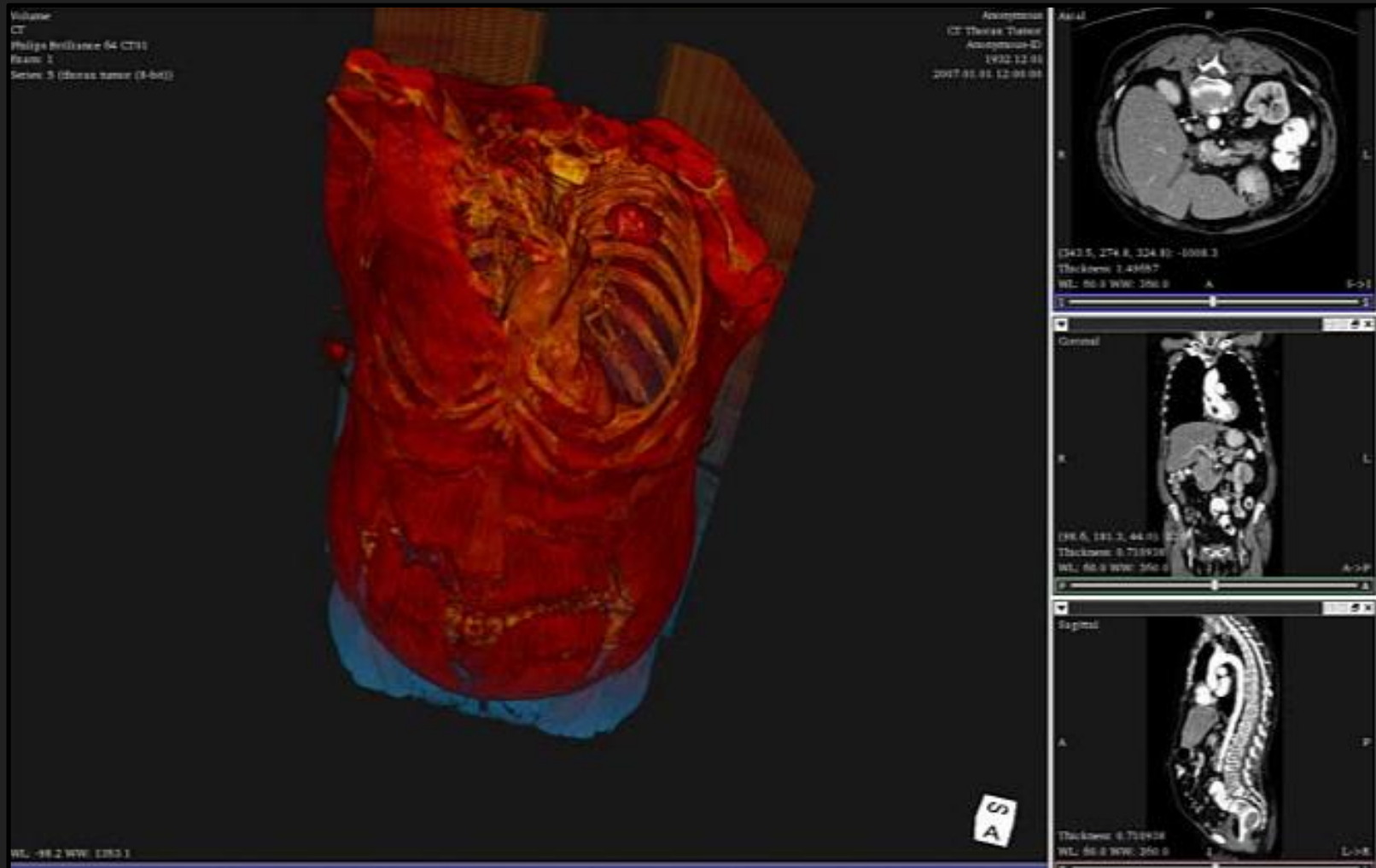
- Accurate Anatomical Representation
- Physiological conditions

- Procedure
- Training
- Device
- 3D Print

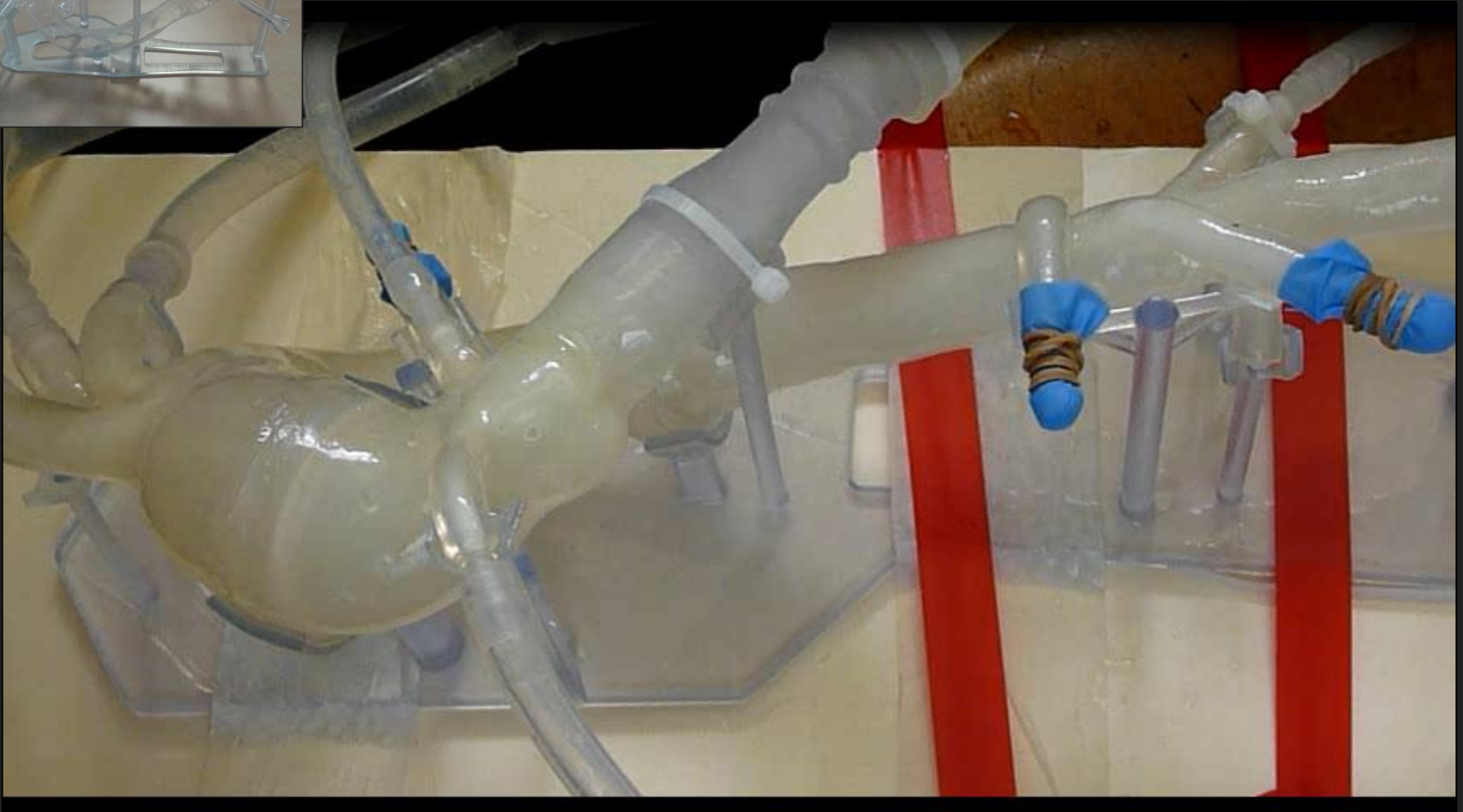


Courtesy Materialise

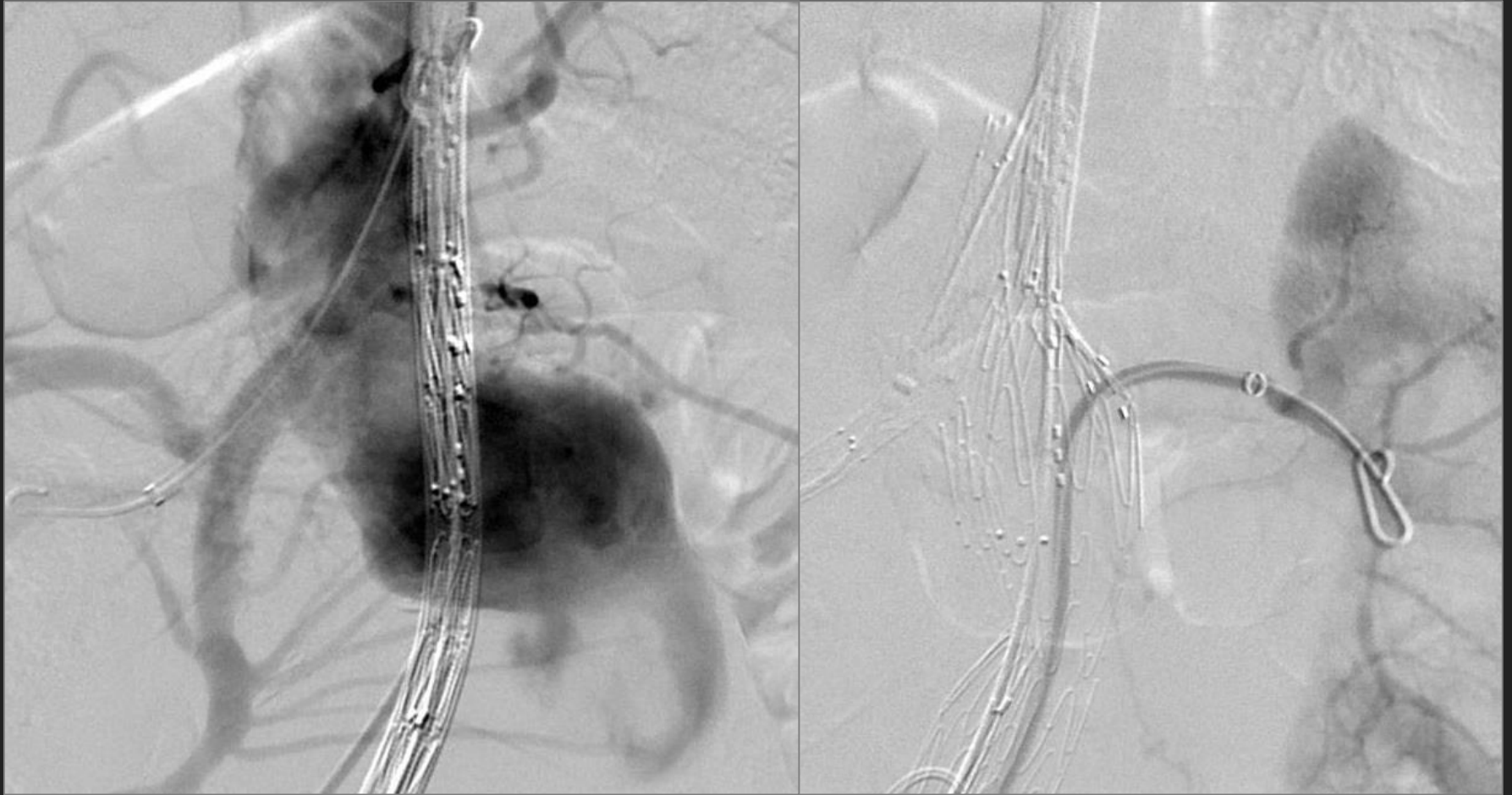
Anatomical Model = Isolation



Physiological conditions = Materials

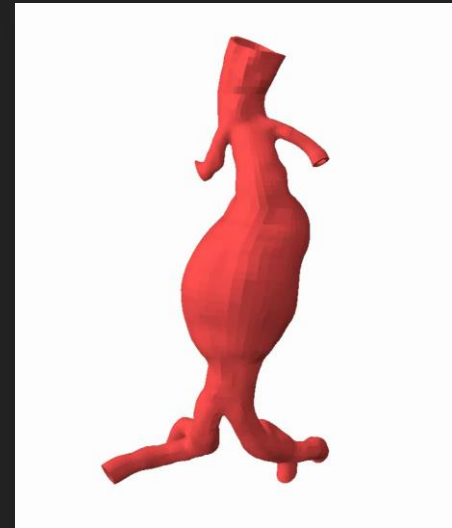
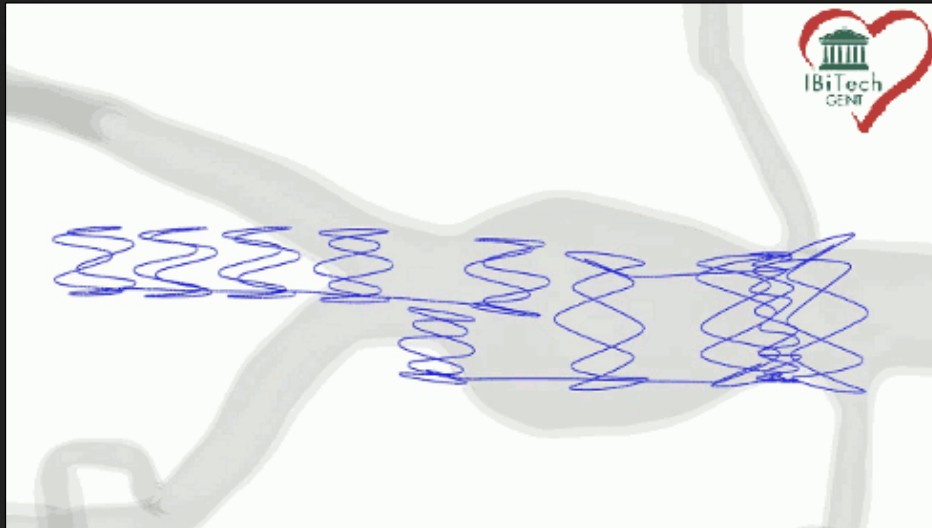


Patient specific Planning & Rehearsal



Patient specific Planning & Rehearsal

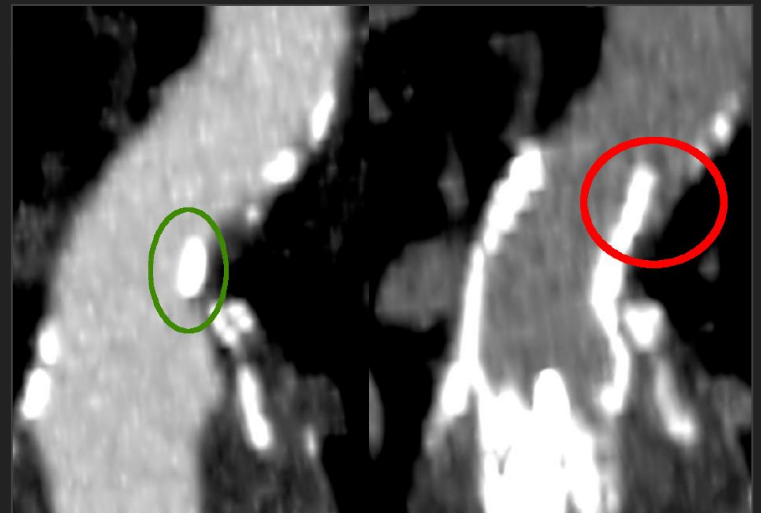
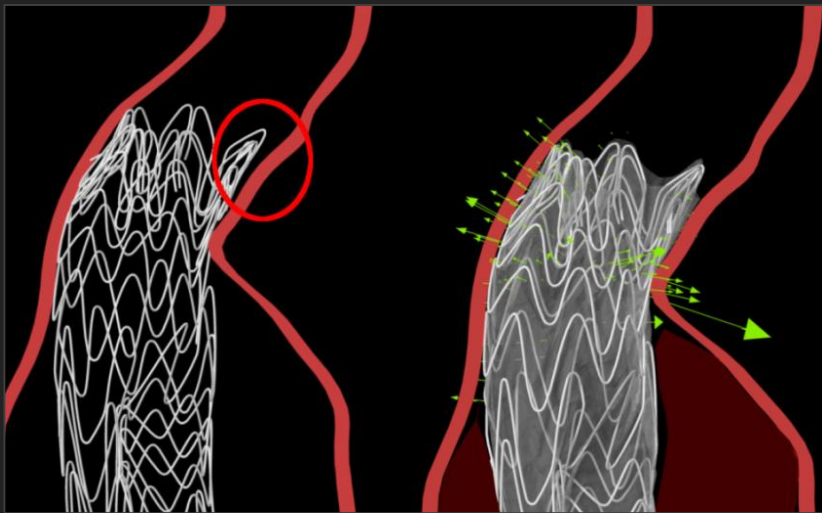
1. Computed simulation



2. 3D Model Rehearsal & Planning

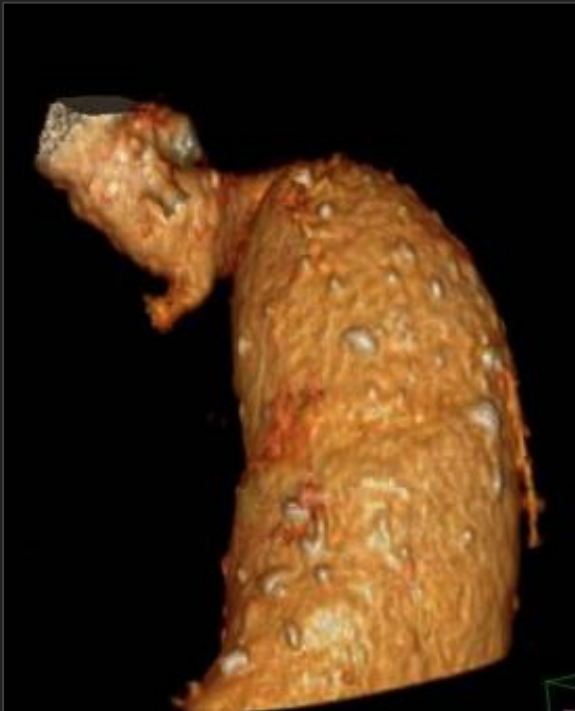
Patient specific Planning & Rehearsal

1. Computed simulation



1. Validated **match** of the computed model and real stentgraft
2. Preoperative case planning :
 - **Suboptimal apposition** in proximal neck predicted by FEA
 - **Asymmetric contact forces**

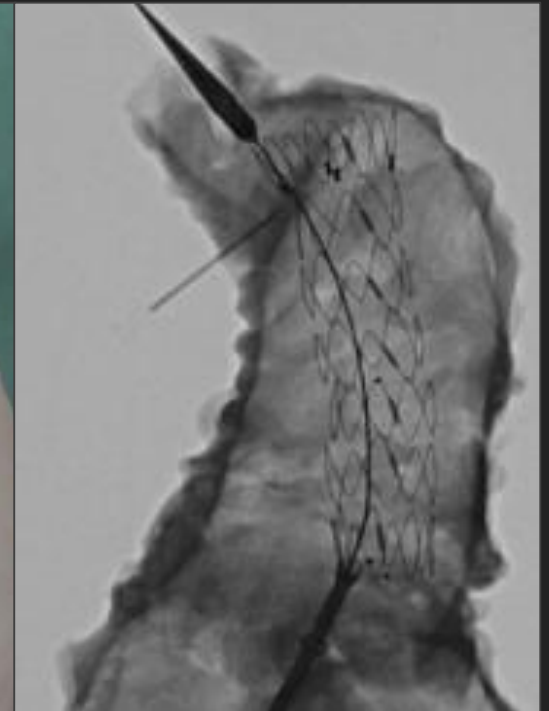
3D Model Planning & Rehearsal



Preop CT Scan

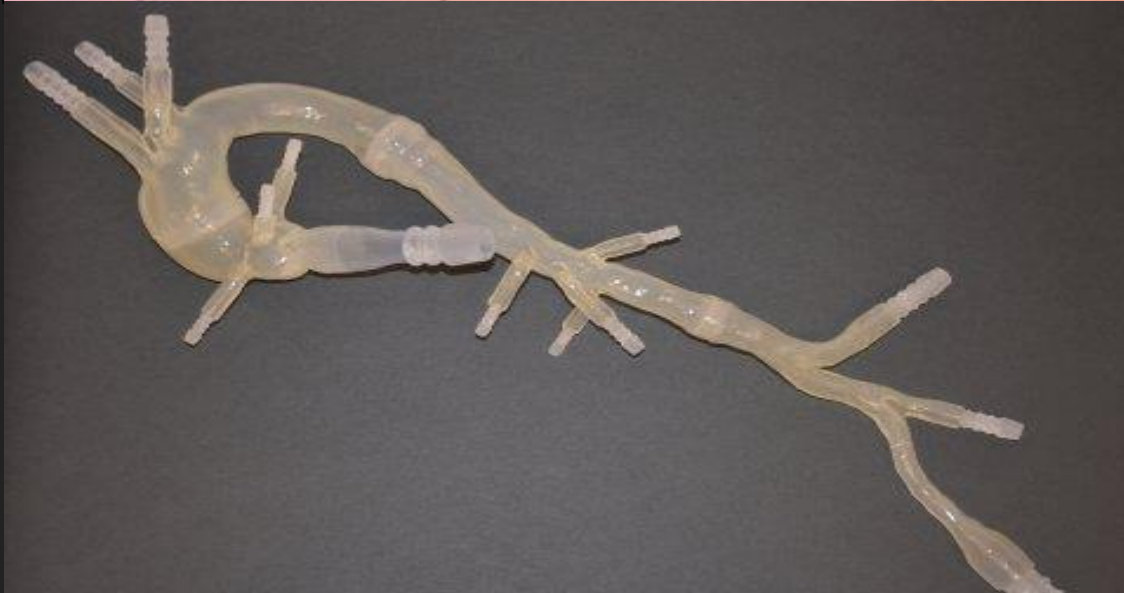
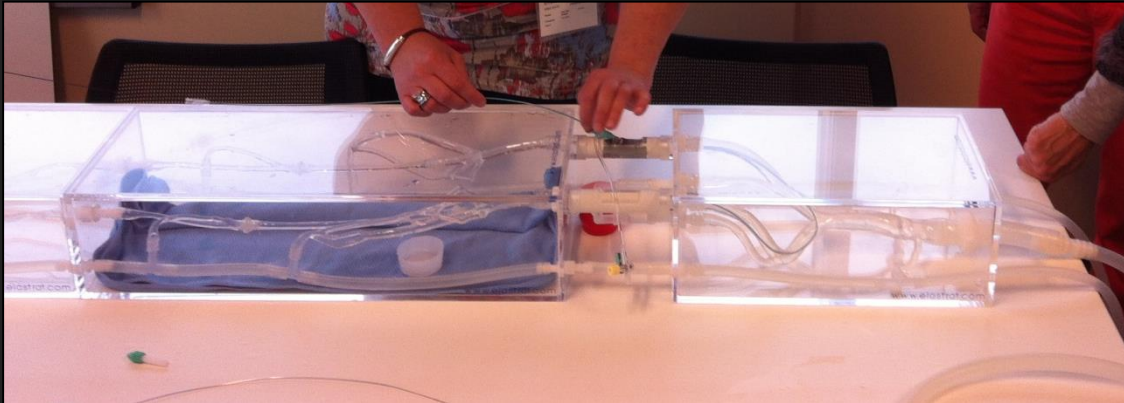


3D Model



Rehearsal : MIGRATION

Hands-on Endovascular Training

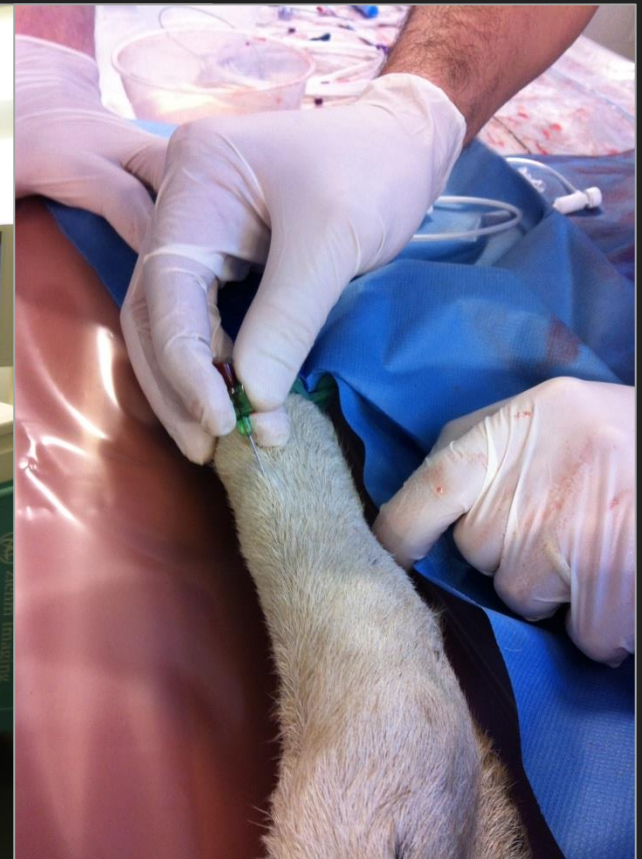
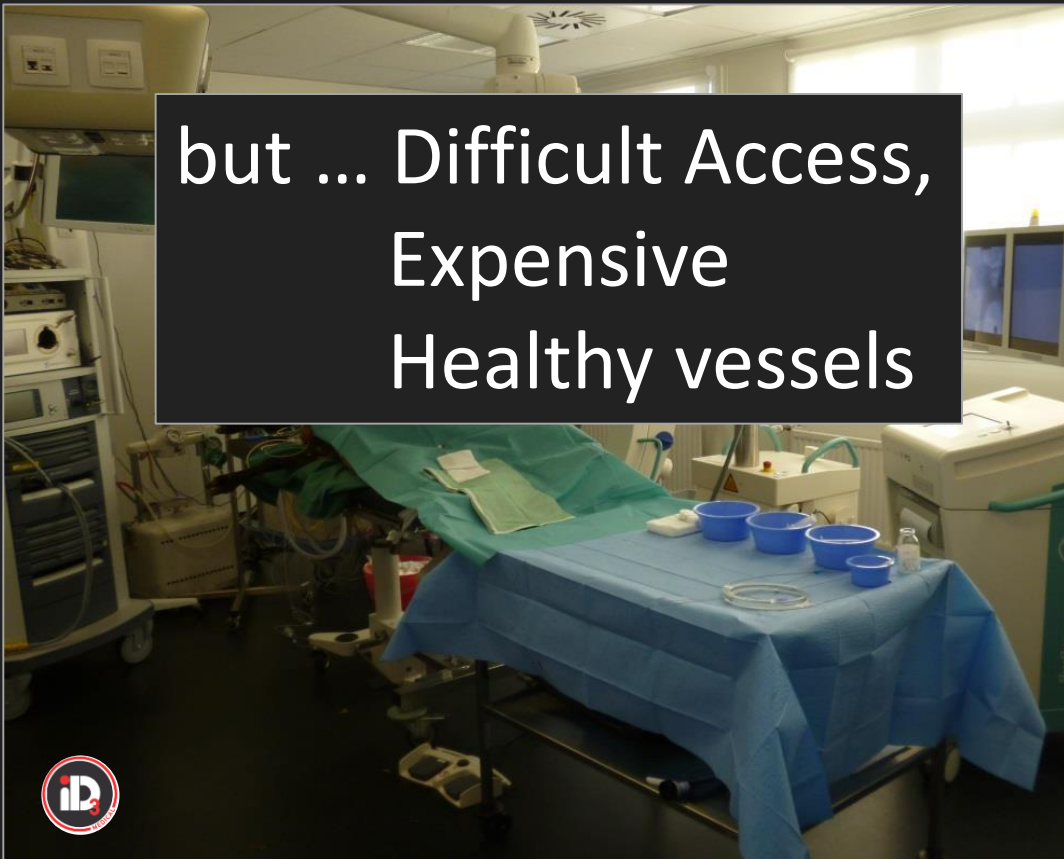


Courtesy Materialise

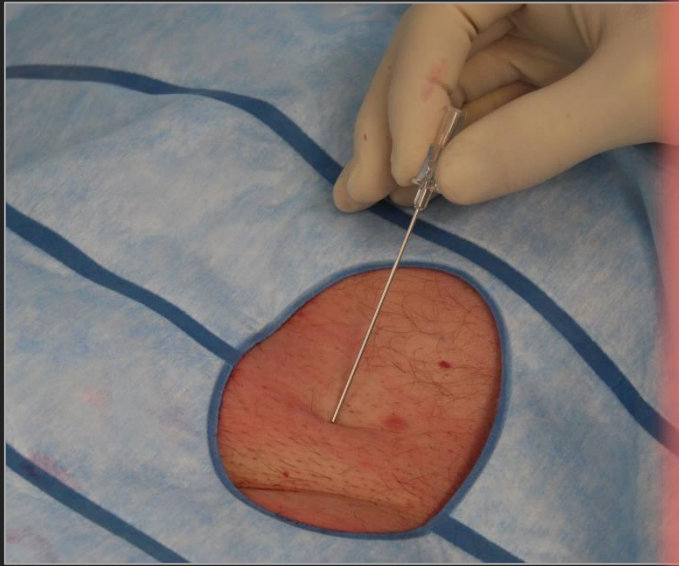
Animal Lab Training

Almost real...

but ... Difficult Access,
Expensive
Healthy vessels



MEDTECH Brainstorming

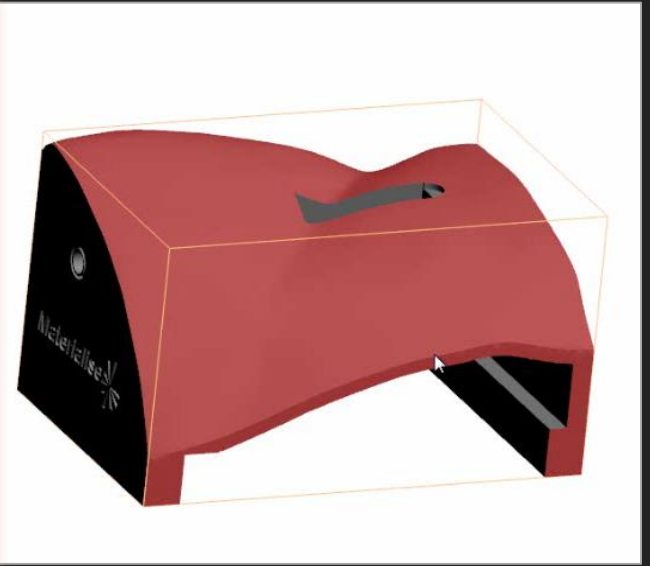


Surgical needs



Materials

3D Printing



Engineering

Puncture – Closure Trainer

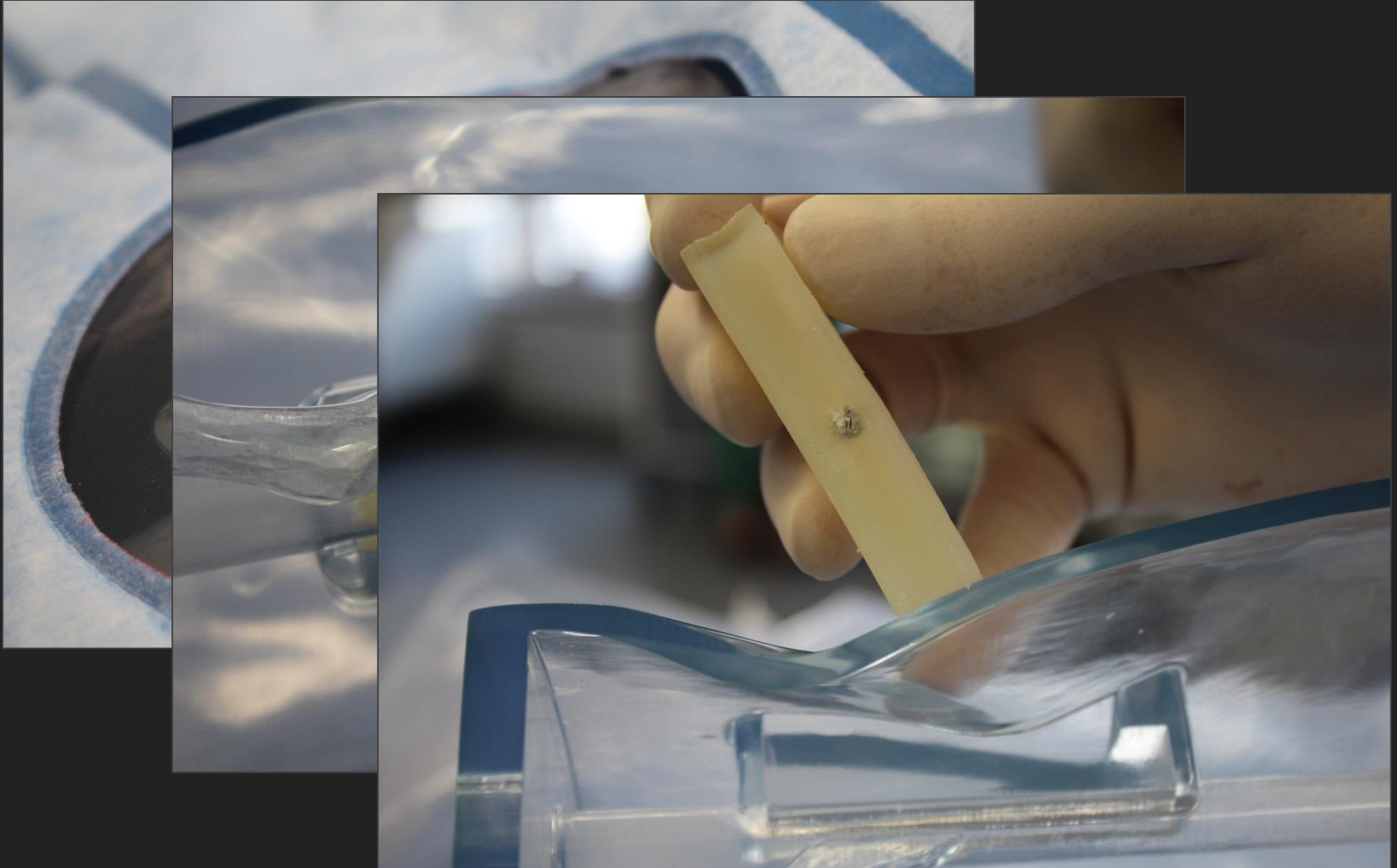




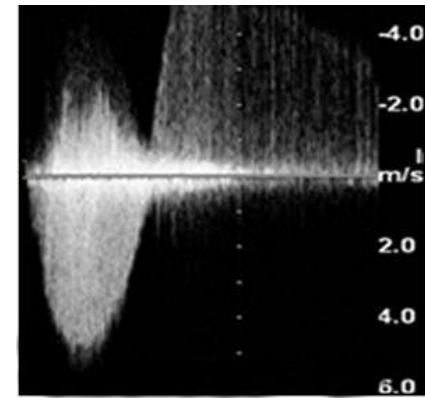
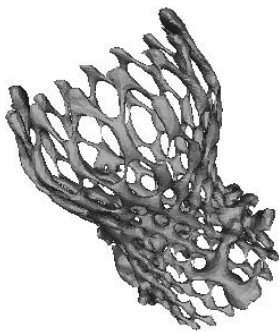
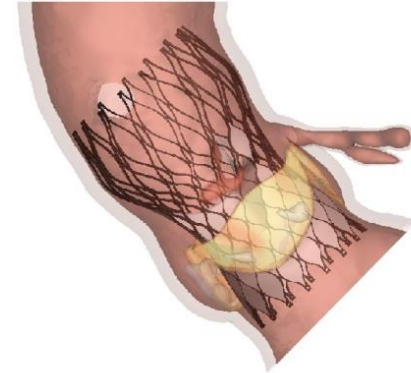
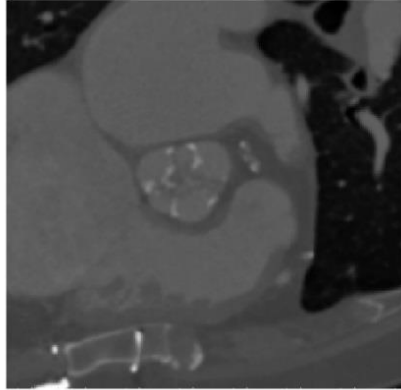
Procedure Training



Puncture – Closure Trainer



Device Testing & Development



Conclusion

Surgical planning and training is the **core** of good clinical practice ...

... maybe one day most of it will be **3D PRINTED**