INTRODUCTION

49% of all European deaths are associated with cardiovascular diseases.

More than one million stent implantations every year.

Stenting bifurcation lesions remains a problem (many proposed techniques)!

Investigated technique: 1) stent implantation in main branch
2) balloon inflation to improve side branch access.

METHODS

Comparison of 2 stents (Cypher™ and Multi-Link Vision™): 3D model created with pyFormex.

Validated balloon model (trifolded Raptor™).

ABAQUS finite element solver.

RESULTS

The balloon enlarges the stent opening ➔ optimized accessibility.

Negative impact on main branch scaffolding.

More advanced techniques and/or dedicated devices seem necessary.

CONCLUSIONS + FUTURE WORK

Numerical modeling offers interesting insights in complex stenting techniques.

Other (in clinical practice) proposed techniques will be investigated.

This may lead to improved stent designs and optimized interventional techniques.

Experimental validation (micro CT).