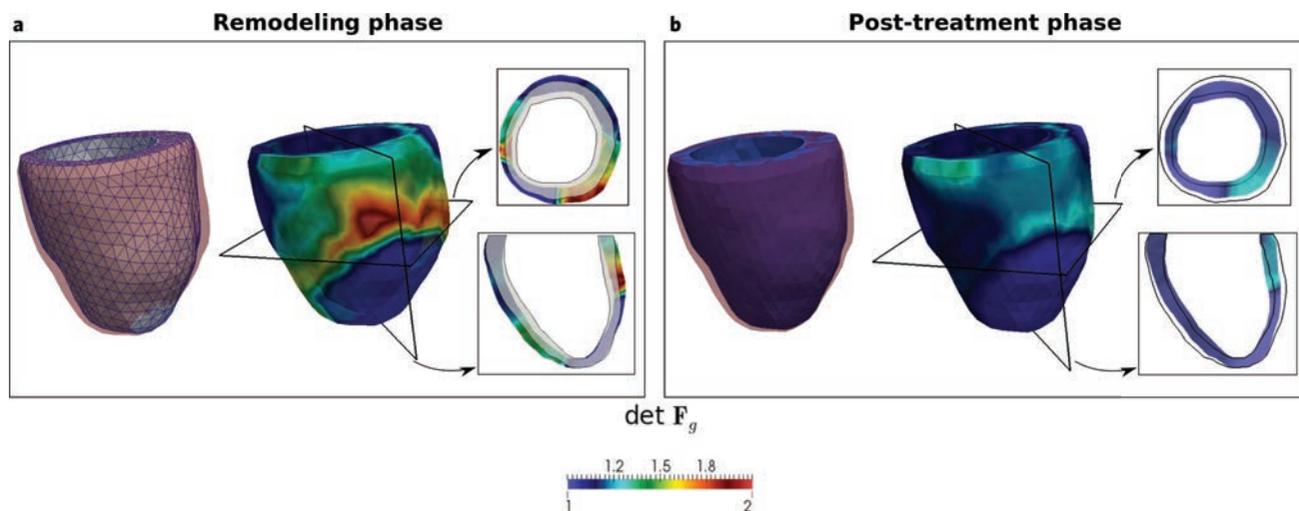


PRESS RELEASE

A computational model was developed to simulate the long term effects of cardiac regenerative therapies in a left ventricle



Geometrical changes of the left ventricular during the (a) remodeling and (b) post-treatment phases. Color scale describes the amount of tissue growth in the long-term remodeling process.

Heart failure (HF) continues to pose a significant burden on our society. One of the most common heart disease is myocardial infarction (MI), which results in a permanent loss of contractile function in the infarcted region. Cell-based cardiac regenerative therapies have garnered a considerable interest lately as a way to restore the contractile function in the infarct region. Before these treatments can be optimally applied to treat MI, however, it is necessary to develop a better understanding on the mechanisms of cardiac regenerative therapies.

To increase our understanding of cardiac regenerative therapies, a team of researchers from MSU, Simula Research Laboratory and ETH Zurich have recently developed a computational model capable of simulating the long-term effects of these therapies. This model overcomes the limitation of most existing heart models, which are only capable of simulating the immediate effects of a therapy. The results from this model are consistent with some of the findings in clinical studies. The team is extending the current model and using it to investigate more treatment parameters and optimize the therapy.

Additional co-authors of the TECHNOLOGY paper are Joakim Sundnes, Ph.D. and Samuel Wall, Ph.D. from Simula Research Laboratory, as well as, Martin Genet from ETH Zurich.

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