

**Jeffrey W. Holmes****Associate Professor of Biomedical Engineering and Medicine**

B.S., Biomedical Engineering, The Johns Hopkins University, 1989

Ph.D., Bioengineering, UCSD, 1995

M.D., UCSD, 1998

Biomedical Engineering

Box 800759

University of Virginia

Charlottesville, Virginia 22908

Office: Room 2334

Phone: 434-243-6321

Lab: Room 2232-8

Phone: 434-924-8797

holmes@virginia.edu

Research Interests

The Cardiac Biomechanics Group focuses on the interactions between mechanics, function, and growth and remodeling in the heart. The mechanical properties of normal and diseased myocardium are important determinants of overall heart function. These mechanical properties change during growth, remodeling or disease, often in part as a response to changes in the mechanical environment. Our group studies this interplay between mechanical environment, tissue response, and heart function, not only to better understand the basis for heart disease but also to identify new opportunities to intervene.

Current Projects

Currently, most of our projects are related to myocardial infarction (MI):

1. a translational effort to help prevent MI by developing new quantitative measures of heart wall motion that improve screening for coronary artery disease;
2. a basic biomechanics project focused on understanding how the structure of a healing infarct gives rise to its mechanical properties and how those mechanical properties influence overall heart function; and
3. longer-term efforts to determine how mechanical factors regulate both cardiac wound healing and remodeling of non-infarcted myocardium in post-MI patients

Recent Publications

Fomovsky GM, Holmes JW

[Evolution of Scar Structure, Mechanics, and Ventricular Function after Myocardial Infarction in the Rat.](#)

[More Publications](#)