MITRAL VALVE MECHANICS

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# TABLE OF CONTENTS

FRONT MATERIAL, INTRODUCTION  
CHAPTER 01  ANATOMY AND MARKER SITES  
CHAPTER 02  FIBROUS MITRAL ANNULUS  
CHAPTER 03  FIBROUS ANNULUS-PAPILLARY TIP RELATIONSHIP  
CHAPTER 04  ANTERIOR LEAFLET TRAMPOLINES  
CHAPTER 05  ANTERIOR LEAFLET MOBILITY  
CHAPTER 06  ANTERIOR LEAFLET CURVATURES  
CHAPTER 07  ANTERIOR LEAFLET CHORDAL SAFETY NET  
CHAPTER 08  ANTERIOR LEAFLET SHAPES  
CHAPTER 09  ANTERIOR LEAFLET SYSTOLIC SHAPE INVARIANCE  
CHAPTER 10  ANTERIOR LEAFLET AREA  
CHAPTER 11  ANTERIOR LEAFLET STRAINS  
CHAPTER 12  MITRAL LV RELATIONSHIP  
CHAPTER 13  ANTERIOR LEAFLET LV POSITION  
CHAPTER 14  ANNULAR SIZE VARIATION  
CHAPTER 15  ANNULAR AND ANTERIOR LEAFLET AREA AND PERIMETER  
CHAPTER 16  LV-MITRAL ANNULAR COUPLING  
CHAPTER 17  MITRAL ANNULAR FLEXION  
CHAPTER 18  ANNULAR&LEAFLET SHAPE AND PLANARITY  
CHAPTER 19  HINGE CHORDAE  
CHAPTER 20  PAPILLARY VECTORS  
CHAPTER 21  PAPILLARY FORCES  
CHAPTER 22  PAPILLARY CHIMERA  
CHAPTER 23  POSTERIOR LEAFLET ANATOMY AND MARKER SITES  
CHAPTER 24  POSTERIOR LEAFLET OPEN  
CHAPTER 25  POSTERIOR LEAFLET CLOSED  
CHAPTER 26  POSTERIOR LEAFLET PLEATS AND SCALLOPS  
CHAPTER 27  COAPTATION  
CHAPTER 28  ANTERIOR LEAFLET INDEPENDENCE  
CHAPTER 29  ANTERIOR LEAFLET STIFFNESS  
CHAPTER 30  ACTIVE ANTERIOR LEAFLET  

MITRAL VALVE MECHANICS by Neil B. Ingels, Jr. and Matts Karlsson
THIS BOOK IS DEDICATED TO
OUR PARENTS
OUR TEACHERS
OUR COLLEAGUES
BUT ABOVE ALL
TO
OUR FAMILIES
JUDY, ANNE, AND NEIL III INGELS
-AND-
ANNA, MARKUS, AND OSKAR KARLSSON
INTRODUCTION

The goal of this book is to develop a working hypothesis for mitral valve function in the beating heart. We have been studying the 4-D dynamics of the heart using biplane radiography of surgically implanted radiopaque markers for the past forty years, with emphasis on the mitral and aortic valves during the past 20 years, and dense leaflet and annular marker arrays during the past several years. Data from the control runs in these studies comprise the substrate for this book.

The data files described in the Appendices and provided in the Repository are the most important parts of this book. We present our interpretations of these data in the following chapters, but our interpretations may be wrong. It is our hope that readers will challenge and/or build on these ideas, all the while using (and constrained by) these data.

We wish to make this material freely available and shareable, thus, it can be accessed directly by clicking on the footer at bottom of each page. Readers should feel free to download this material, use it in any way they wish, and distribute it to anyone who might be interested in this subject.

In this brief introduction, we cannot individually recognize and thank each of the many individuals who have participated in these studies. This would require another book. Instead, we recognize them by listing some of their authored publications below, with each publication acknowledging and thanking the supporting individuals for that study. Without the superb interdisciplinary skills and almost miraculous collaborative efforts of all these individuals in conducting these intricate studies, these data would not exist.

Three individuals, however, have devoted more than 30 years to these studies and we must thank them individually; D. Craig Miller, in whose Stanford Laboratories these studies were conducted and without whom none of this would have been possible; George Daughters, who was crucially and fully engaged in all aspects of this work; and Carol Mead, who performed an invaluable role in both data acquisition and analysis.

SOME RELEVANT PUBLICATIONS


5. Glasson JR, Komeda M, Daughters GT, Foppiano LE, Bolger AF, Tye TL, Ingels NB, Jr., Miller DC. Most ovine mitral annular three-dimensional size reduction occurs before ventricular systole.
and is abolished with ventricular pacing. *Circulation.* 1997;96(9 Suppl):II-115-122; discussion II-123.


