

# Cardiology



Mitral Valve Prolapse

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[www.12DaysinMarch.com](http://www.12DaysinMarch.com)

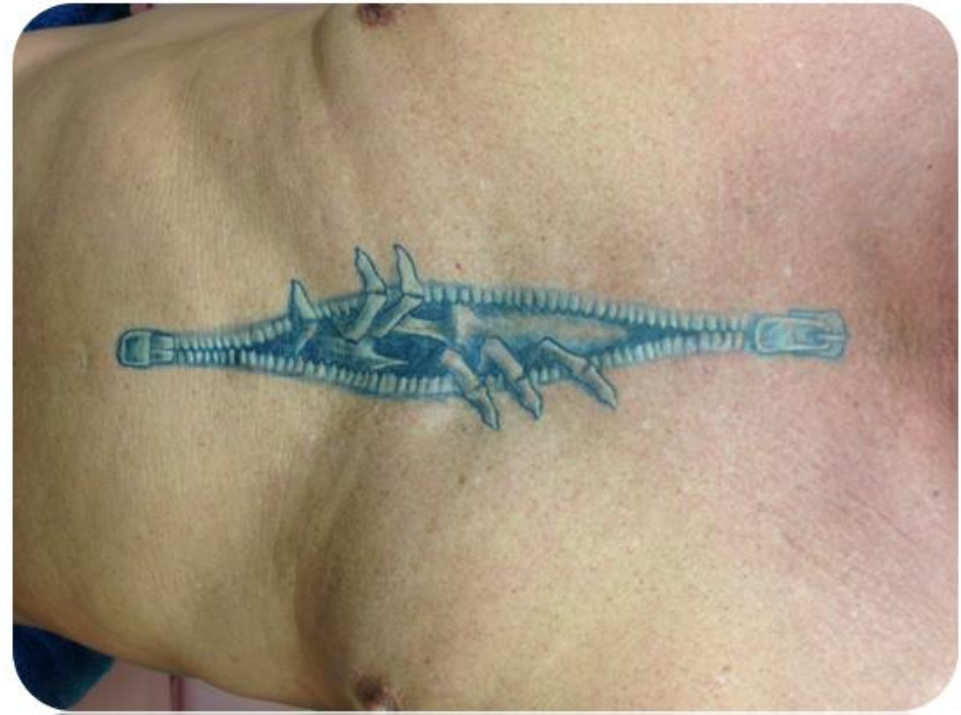
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the Sounds: #6



## Maneuvers

Standing:  
↓ LV Chamber filling → Click



Supine:  
↑ LV Chamber filling

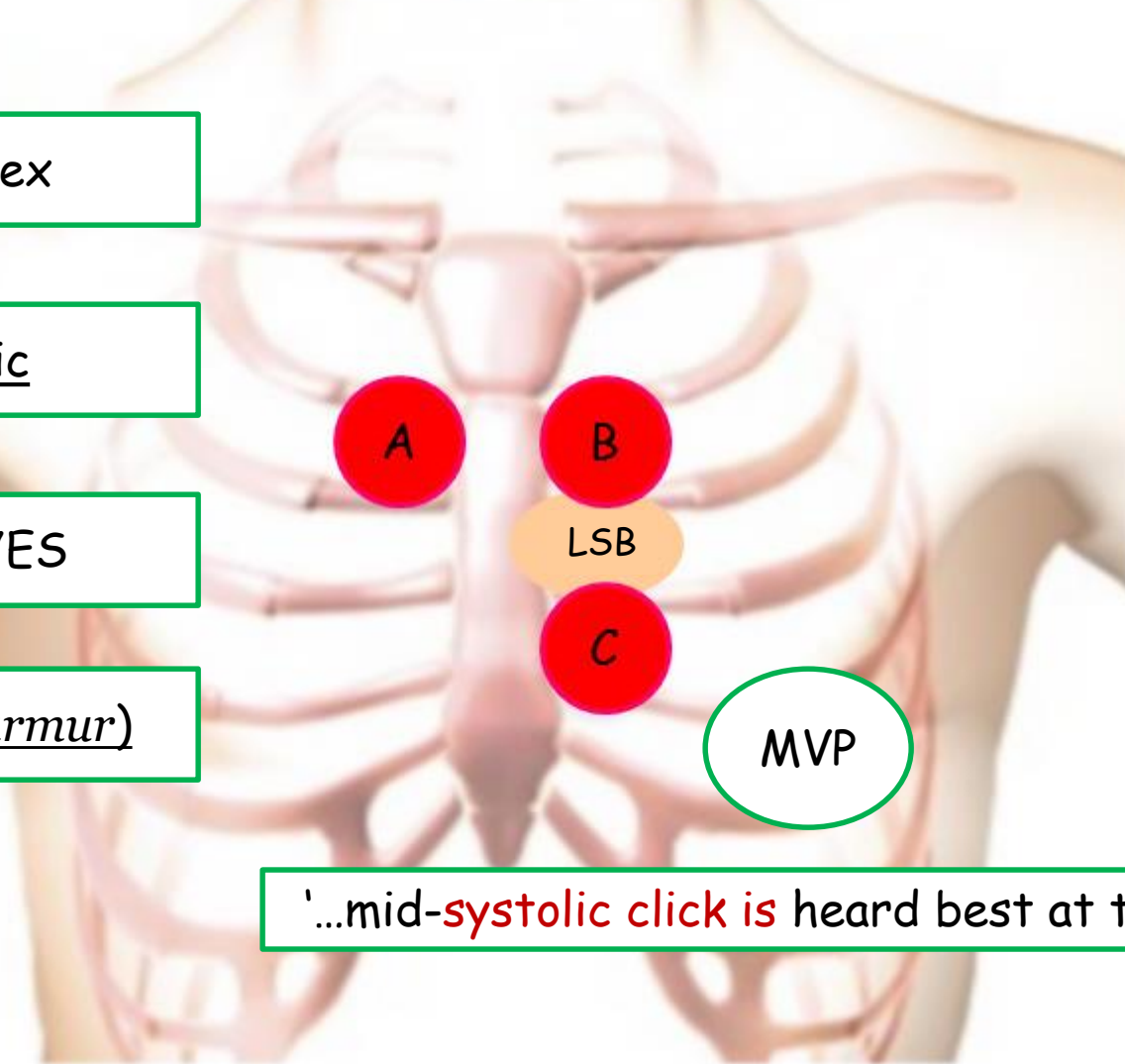
## This is the Language of MVP

Location: Apex

Mid-Systolic

Maneuvers: YES

Sound (*not a murmur*)



'...mid-systolic click is heard best at the apex'

# The Valves

Mitral  
(apex, S1)

Stenosis  
(diastolic, opening snap)

Regurgitation  
(systolic → axilla)

Prolapse  
(midsystolic click, maneuvers)

Mid-systolic click with late 2/6 systolic murmur heard best at the apex



## Mitral Valve Prolapse (**floppy** or ballooning valve)

Location: apex

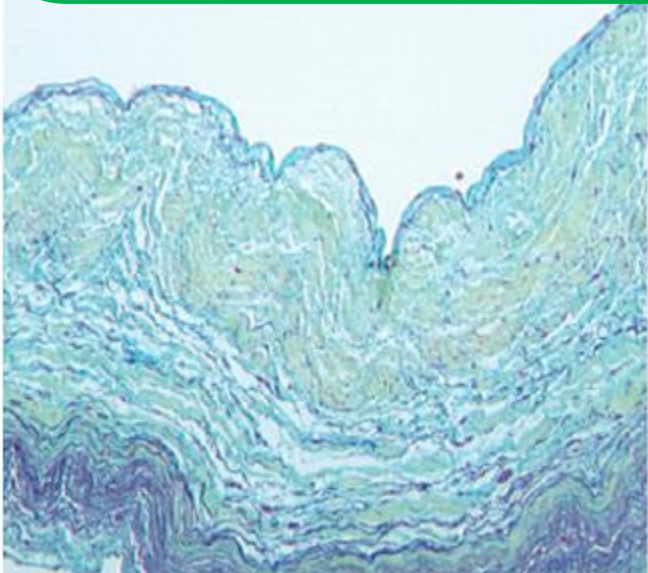
Systolic

Feature: **mid-systolic click** +/- MR

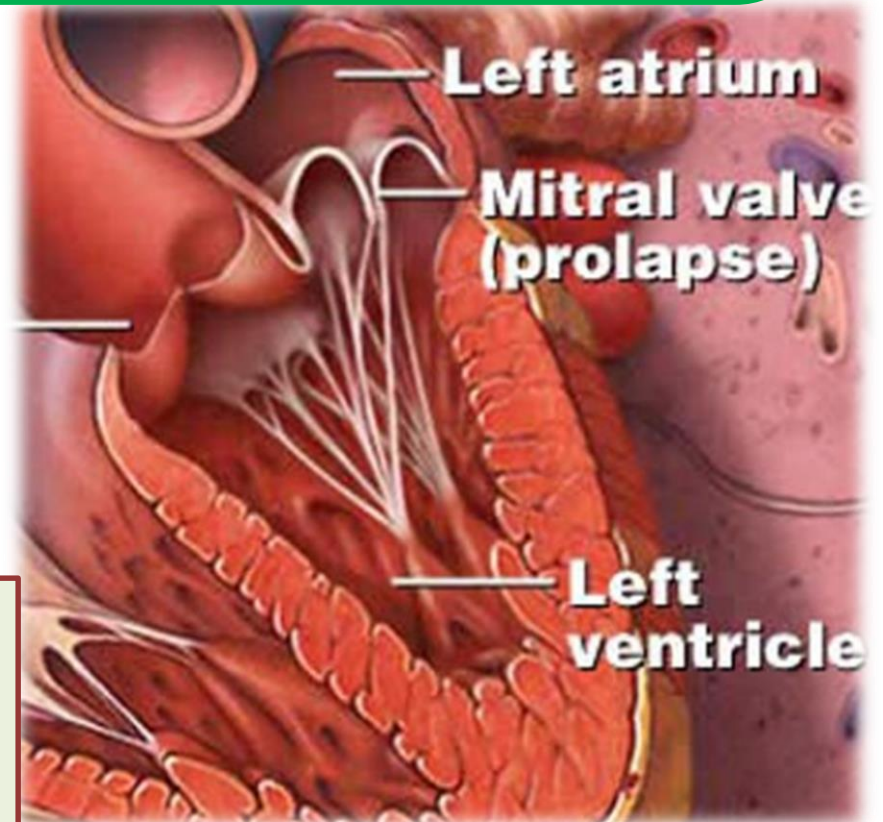
Key points:

Pathology - **Myxomatous** degeneration of the valve

Provocative Maneuvers - decrease murmur w/ ↑ chamber volume



Attenuation of collagen, elastin  
with deposition of mucoid materials  
(*myxomatous degeneration*)



# Patient Scenarios



Dental

*S. mutans*

Optochin  
Resistant

Adheres to  
damaged  
tissue via  
dextran -  
fibrin binding

2

# Patient Scenarios



Dental

*S. mutans*

Optochin  
Resistant

Adheres to  
damaged  
tissue via  
dextran -  
fibrin binding

2

Symptoms:

- Young woman
- Chest pain
- Palpitations
- **Young woman**

3

# Patient Scenarios

$S_1$



$S_2$



## Symptoms:

- Young woman
- Chest pain
- Palpitations
- **Young woman**

3



*Most likely feature on PE?*

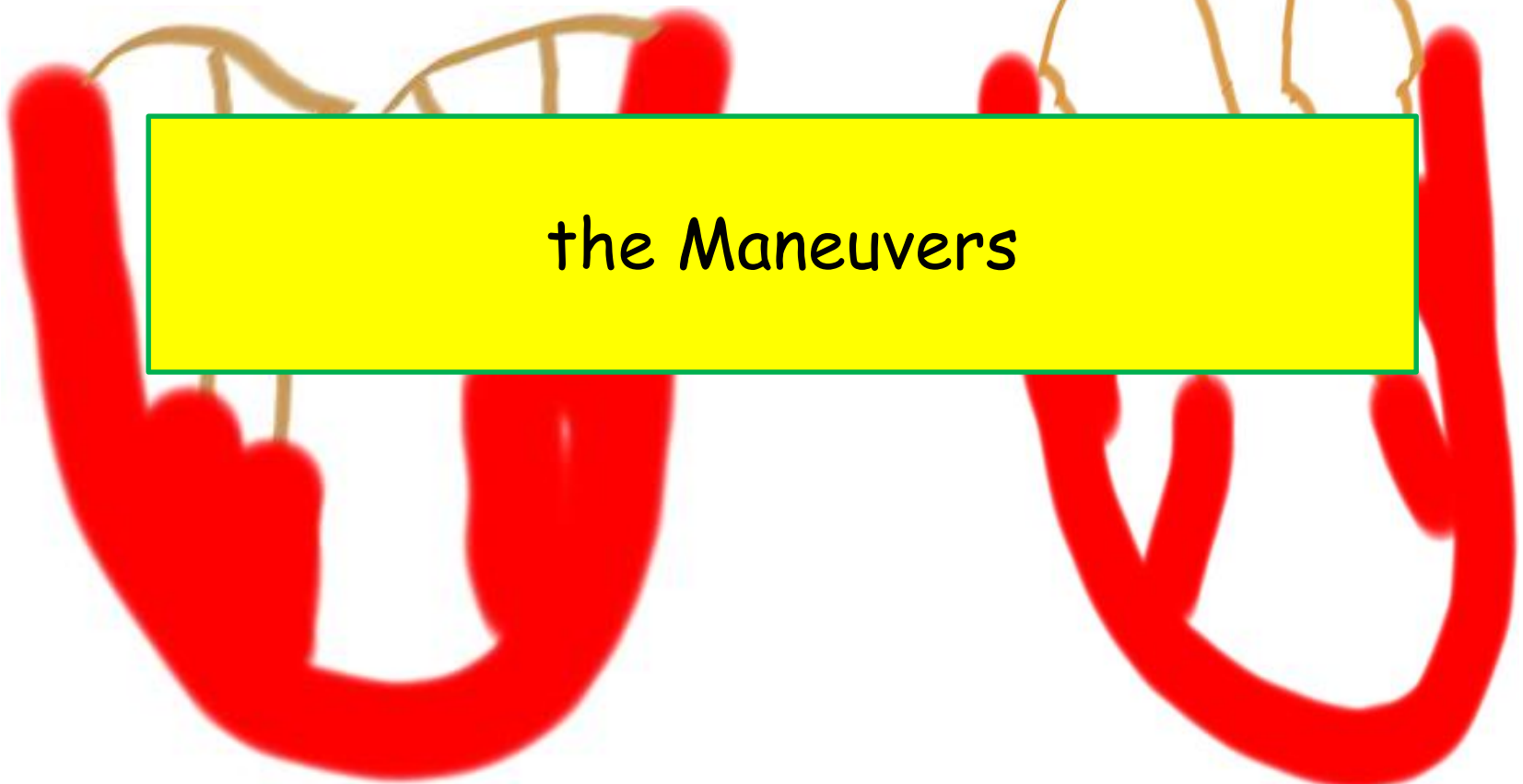


## How to fill chamber?

- A. Standing, Squeezing Abdomen
- B. Standing, Squeezing Hands
- C. Squatting, Squeezing Abdomen
- D. Squatting, Squeezing Hands



the Maneuvers



# How to fill chamber? ( $\uparrow$ EDV, afterload)



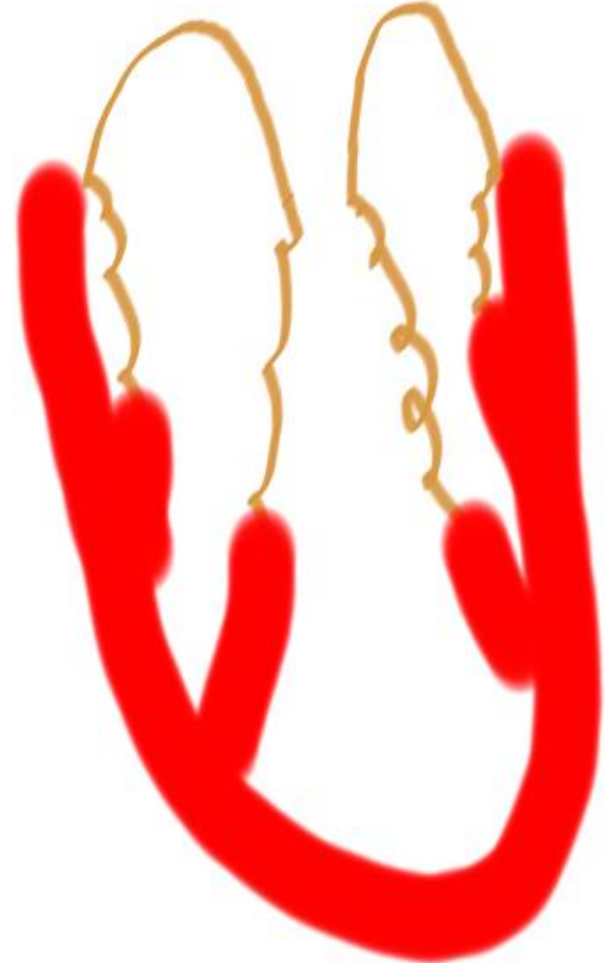
Hand Grip  
( $\uparrow$  afterload)

$\uparrow$  EDV

Squatting  
( $\uparrow$  afterload and VR)

Valsalva  
( $\downarrow$  EDV)

Standing  
( $\downarrow$  EDV)



# How to fill chamber? ( $\uparrow$ EDV, afterload)

Hand Grip  
( $\uparrow$  afterload)

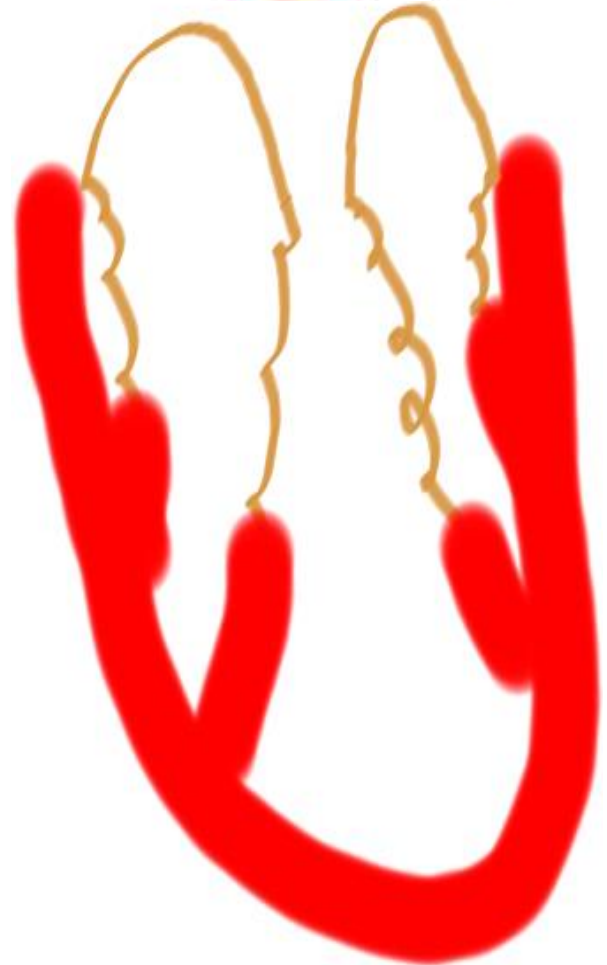
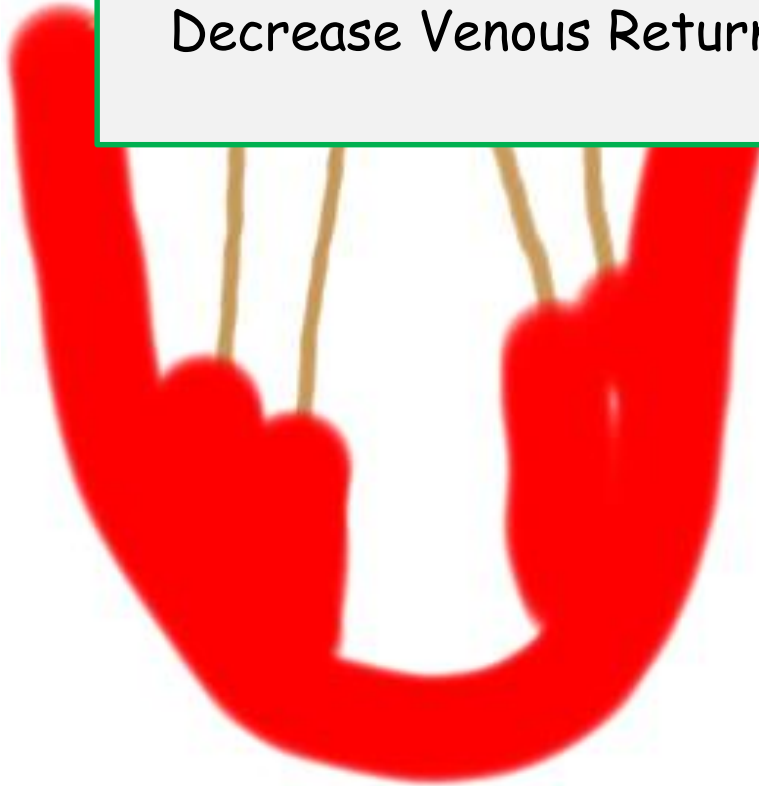
$\uparrow$  EDV

Squatting  
( $\uparrow$  afterload and VR)

Valsalva  
( $\downarrow$  EDV)

Standing  
( $\downarrow$  EDV)

Decrease Venous Return



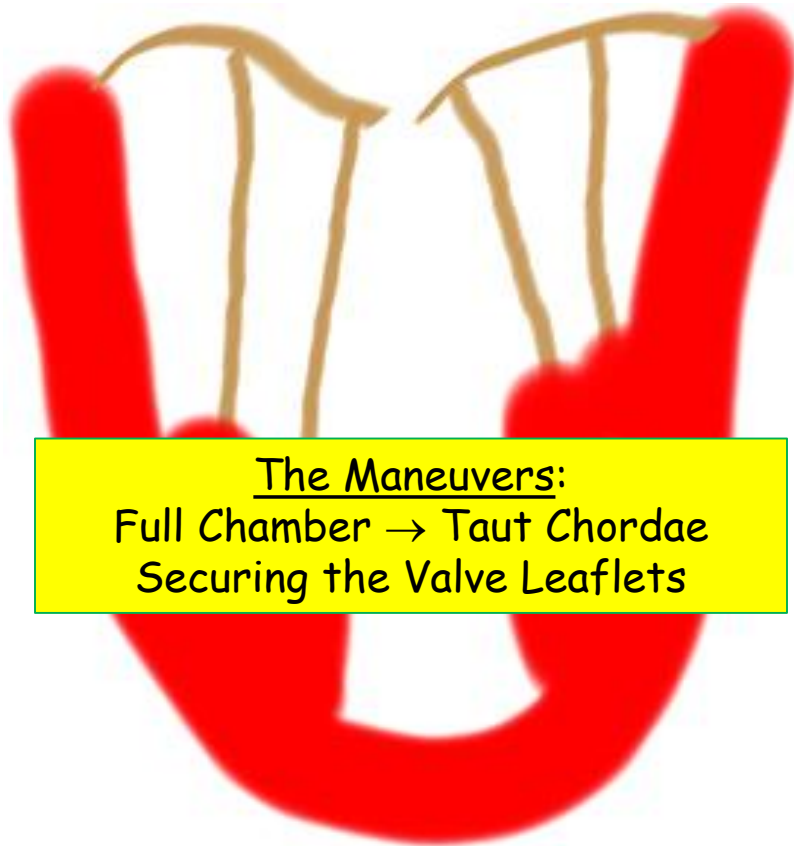
# Mitral Valve Prolapse

Hand Grip  
(↑ afterload)

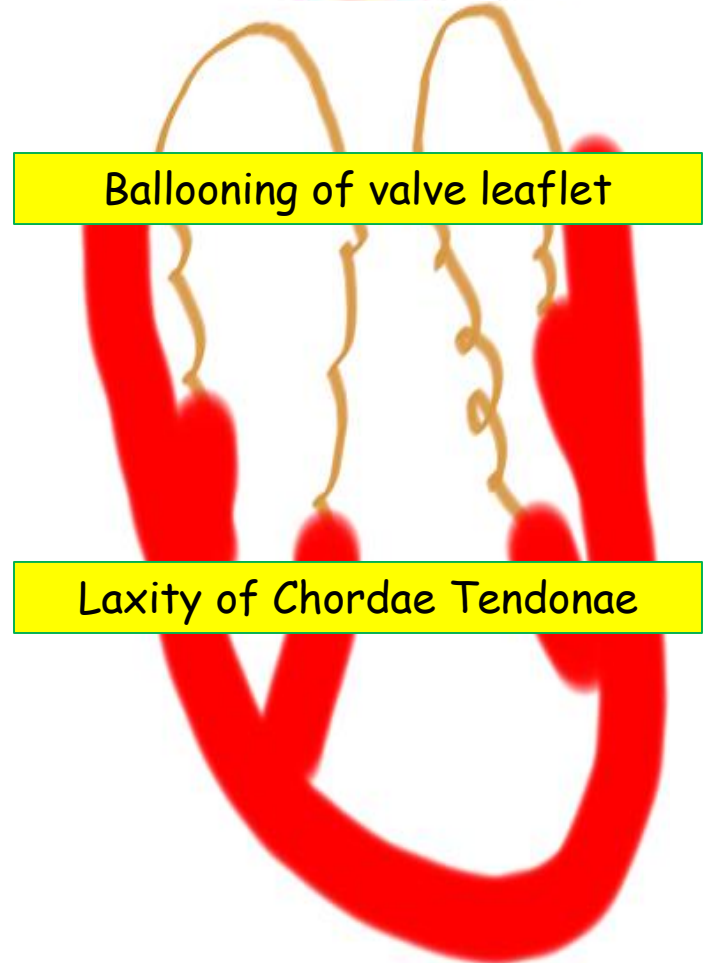
Squatting  
(↑ afterload and VR)

Valsalva  
(↓ EDV)

Standing  
(↓ EDV)

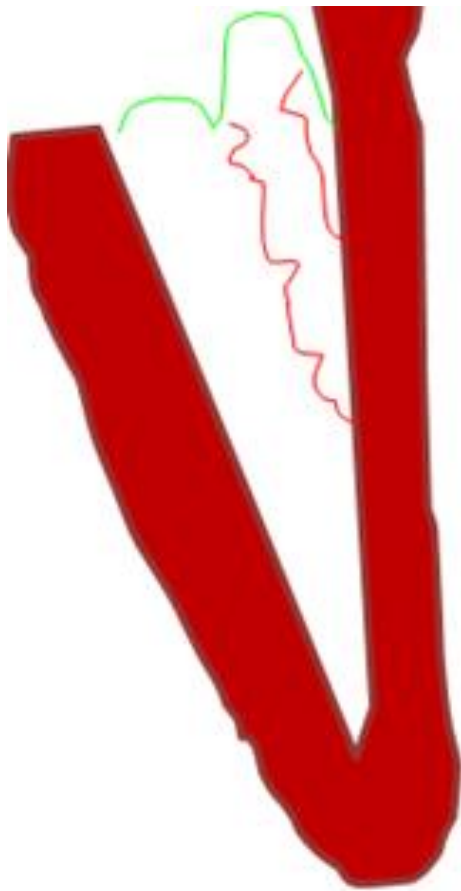


The Maneuvers:  
Full Chamber → Taut Chordae  
Securing the Valve Leaflets



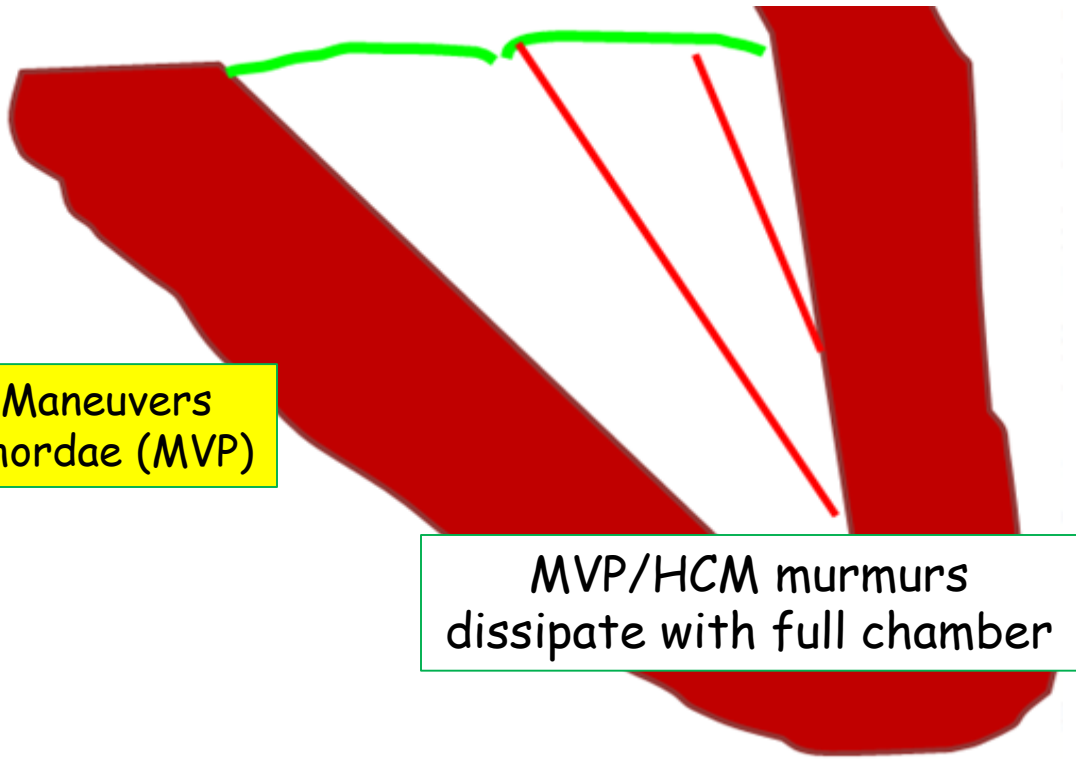
Ballooning of valve leaflet

Laxity of Chordae Tendinae



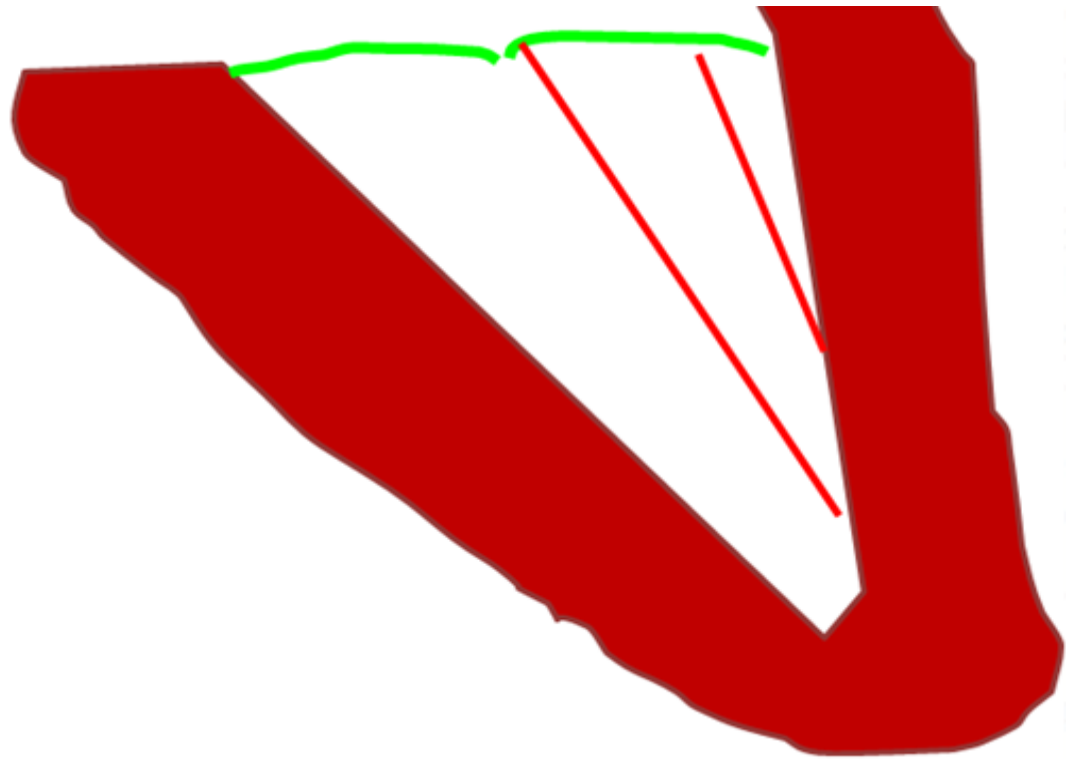
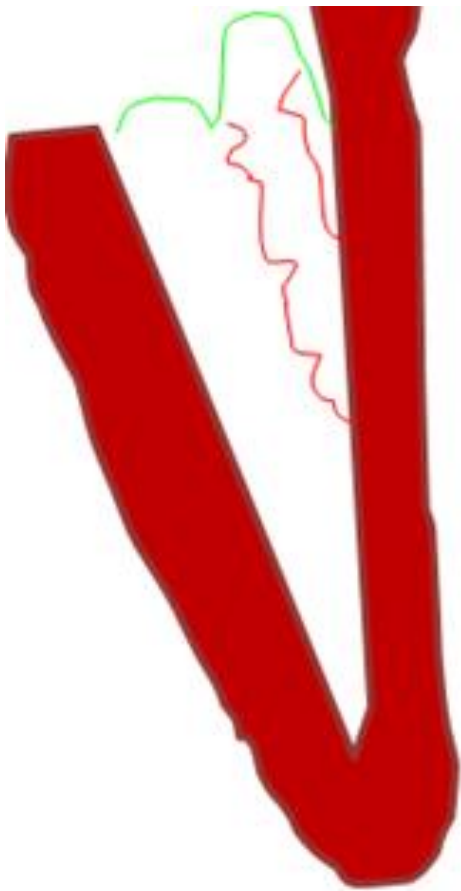
Think Maneuvers  
Think Chordae (MVP)

Empty Chamber  
(↓ EDV)



MVP/HCM murmurs  
dissipate with full chamber

Full Chamber  
(↑ EDV)



MVP/HCM murmurs  
dissipate with full chamber

Hand Grip: ↑ Afterload

Squat: ↑ VR and Afterload

### Maneuvers:

Increase  
Volume

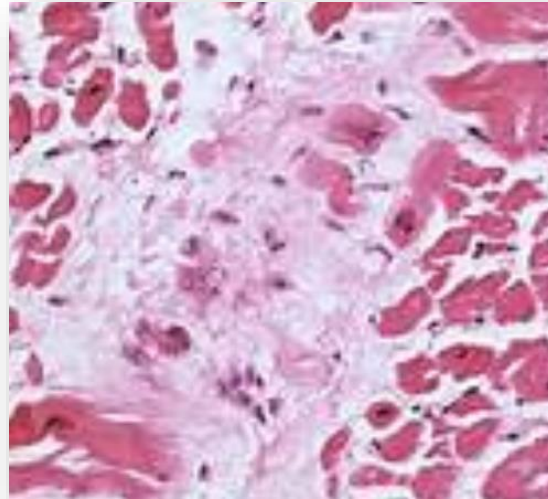
Decrease  
Volume

Hand grip  
Squatting

Valsalva  
Standing

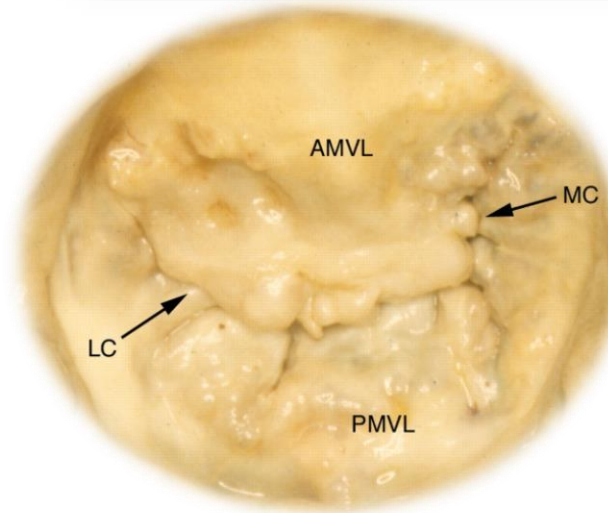
# Mitral Valve

Stenosis  
(diastolic, opening snap)



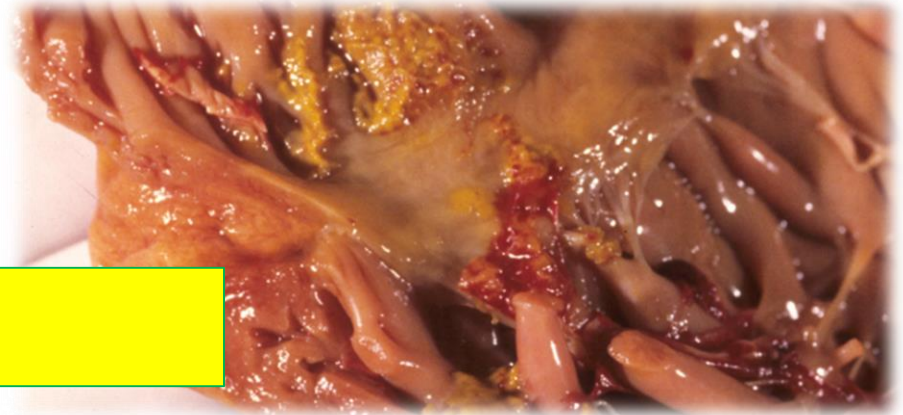
Aschoff Body

Hemodynamics  
Rheumatic Fever  
A fib



Commissure  
Fusion

# Mitral Valve



## Stenosis

(diastolic, opening snap)

## Regurgitation

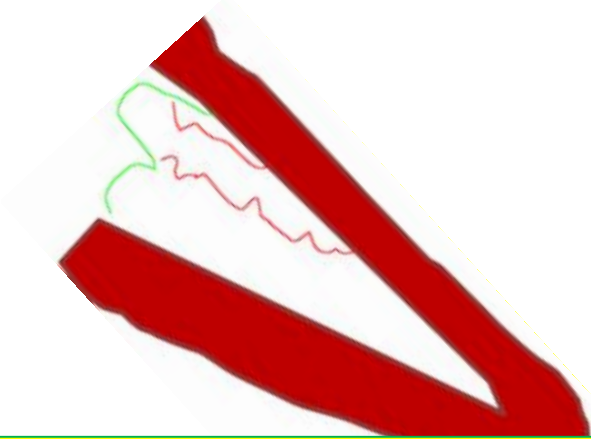
(systolic, → axilla)

Hemodynamics  
Rheumatic Fever  
A fib

Endocarditis  
Post-MI CHF  
Acute RF  
Rx: ↓ afterload







# Mitral Valve

## Stenosis

(diastolic, opening snap)

Hemodynamics  
Rheumatic Fever  
A fib

## Regurgitation

(systolic, → axilla)

SBE  
Post-MI CHF  
Acute RF  
Rx: ↓ afterload

## Prolapse

(midsystolic click, maneuvers)

Young woman w/  
palpitations and  
abnormal exam  
  
What maneuvers?

Ao

PV

Mitral Valve:

Take it off your bucket list!

Done!



B

LSB



Axilla



Apex (5<sup>th</sup> IC)

MV

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