

The background of the slide is a solid orange color, decorated with various silhouettes of autumn leaves in a slightly darker shade of orange, scattered around the edges.

# 12 Lead ECG (Module Five)

## STEMI (Part I)

Jim Lockard, EMT-P, AAS

Module One – The “Starting Point”

Module Two – Rate and Rhythm

Module Three – Conduction

Module Four – Hypertrophy

**Module Five – STEMI Part I**

Module Six – STEMI Part II

Module Seven – Putting it all together

Module Eight – Let’s look at some real STEMI’s

# Part I and Part II Objectives

## Part I

- Where to look and why?

## Part II

- What to look for and what does it mean?

# Systematic Approach to Reading a 12 Lead ECG

- Rate
- Rhythm
- Conduction
  - Axis Deviation, Hemi-Blocks
  - Bundle Branch Blocks
- Hypertrophy
- **Ischemia, Injury, or Necrosis**

## What do these terms mean?

- Ischemia – Lack of oxygenation
- Injury – The start of cellular destruction
- Necrosis – Cellular death
- Hypoxia – Below normal oxygen levels

What causes cardiac hypoxia?

# What is a Heart Attack?

## Acute Myocardial Infarction (AMI or MI)

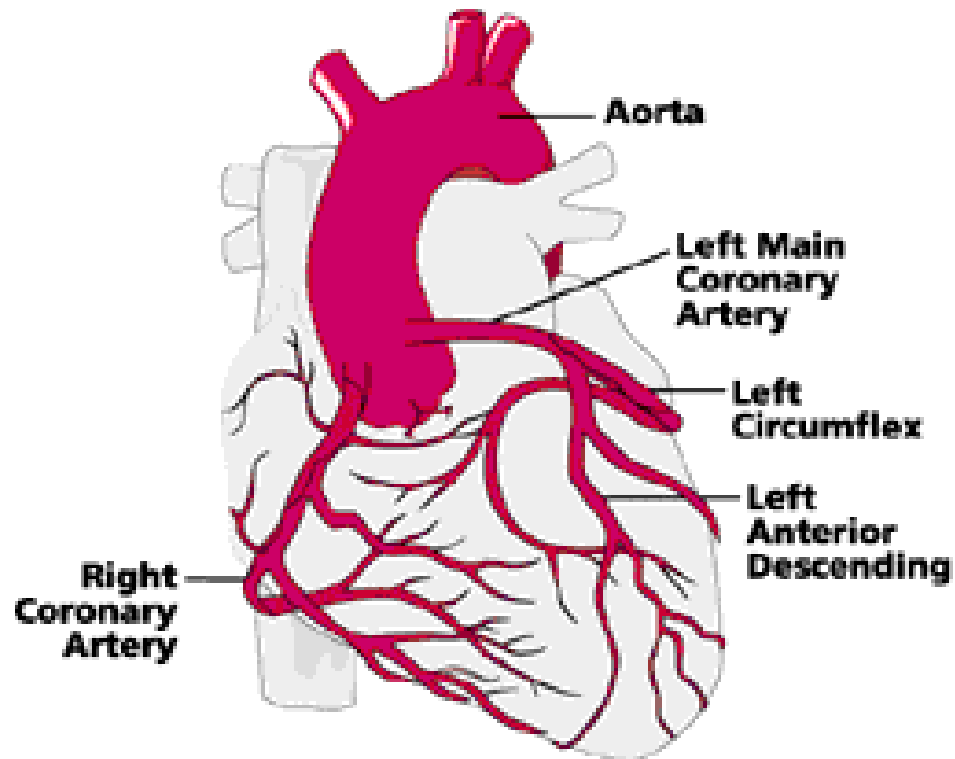
- A blockage in one or more of the coronary arteries of the heart

# Benefits of pre-Hospital 12 Lead

- Destination criteria
- Effective management based on the type of MI
- Prelude to possible sudden death

# The Coronary Arteries

© 1997 HeartPoint



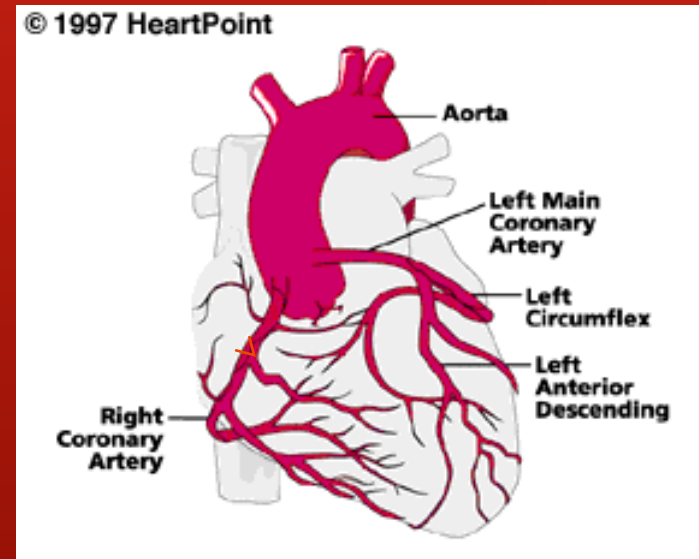


# The Coronary Arteries

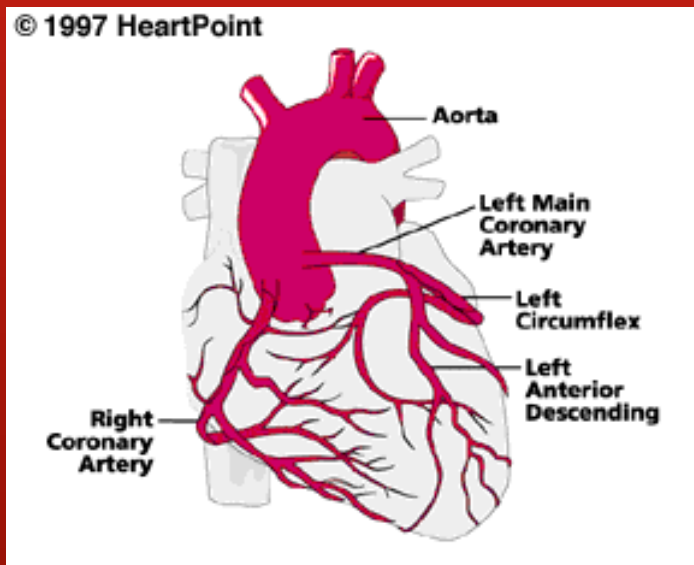
## Right Coronary Artery (RCA)

Supplies blood to:

- Inferior Wall
- Posterior Wall
- Sometimes Lateral



# The Coronary Arteries

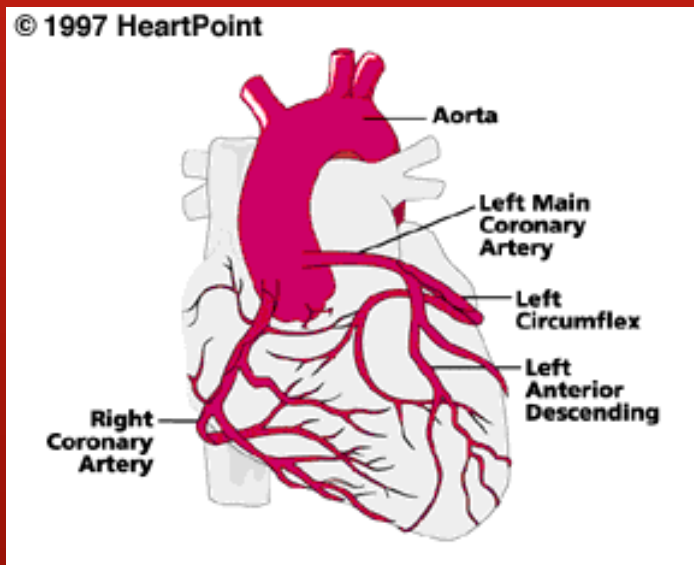


## Left Main Artery

Branches off into two smaller arteries:

- The Circumflex
- The Left Anterior Descending

# The Coronary Arteries

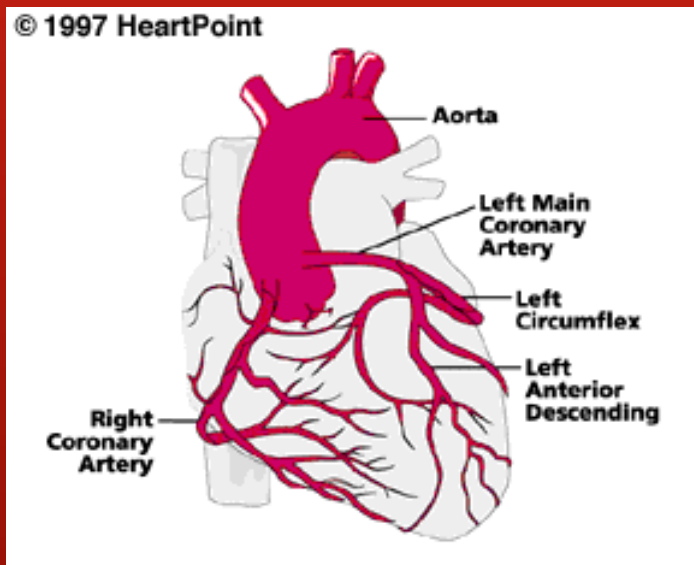


## Circumflex

Supplies blood to:

- High Lateral Wall
- Part of the Posterior Wall

# The Coronary Arteries



## **Left Anterior Descending(LAD)**

Supplies blood to:

- Septal/Anterior
- Low Lateral Wall

# The “Phases” of Cardiac Hypoxia

- Ischemia – Lack of oxygenation



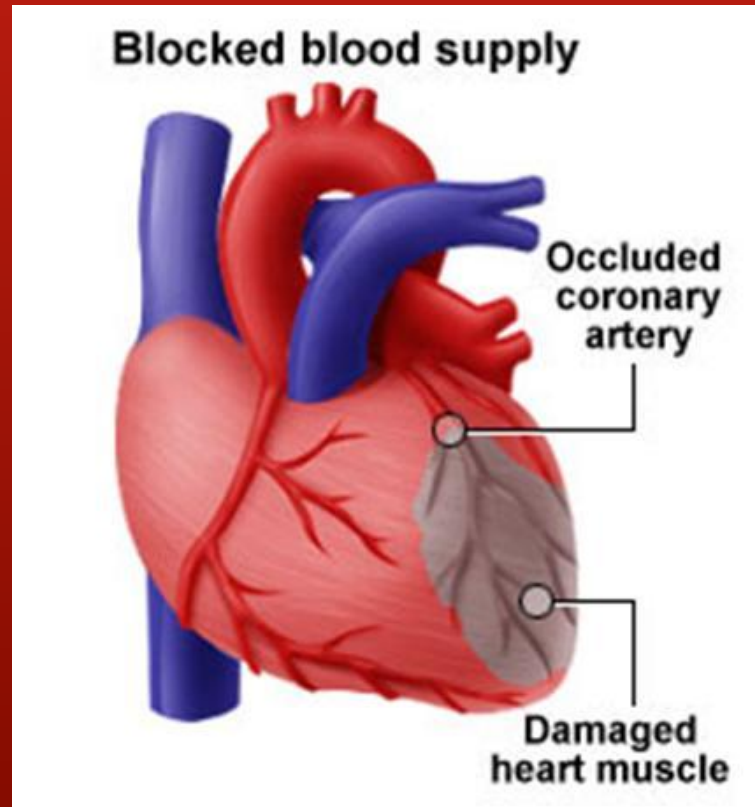
# The “Phases” of Cardiac Hypoxia

- Injury – The start of cellular destruction



# The “Phases” of Cardiac Hypoxia

- Necrosis – Cellular death



# Contiguous

Con-tig-u-ous

Touching or connected throughout in  
an unbroken sequence

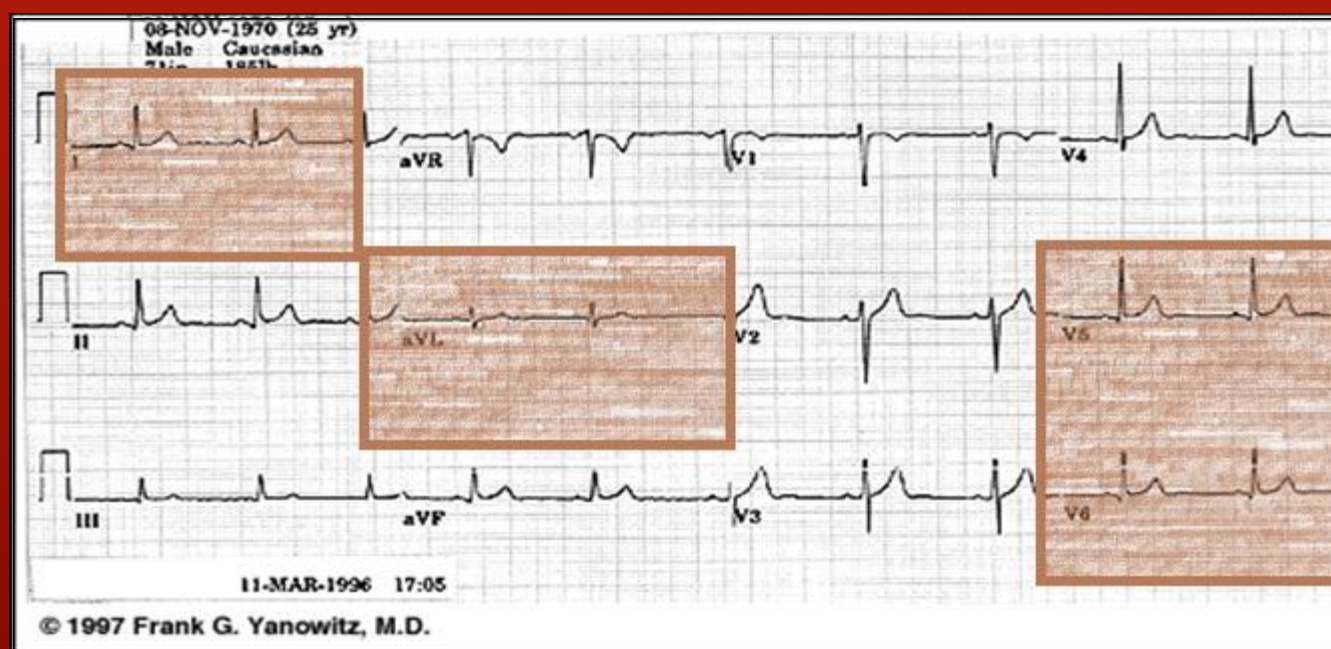
Changes resulting from one blockage?

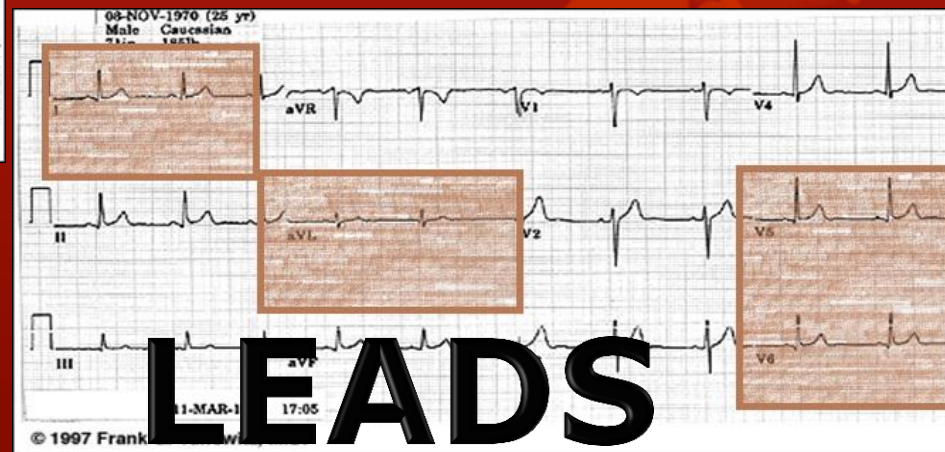
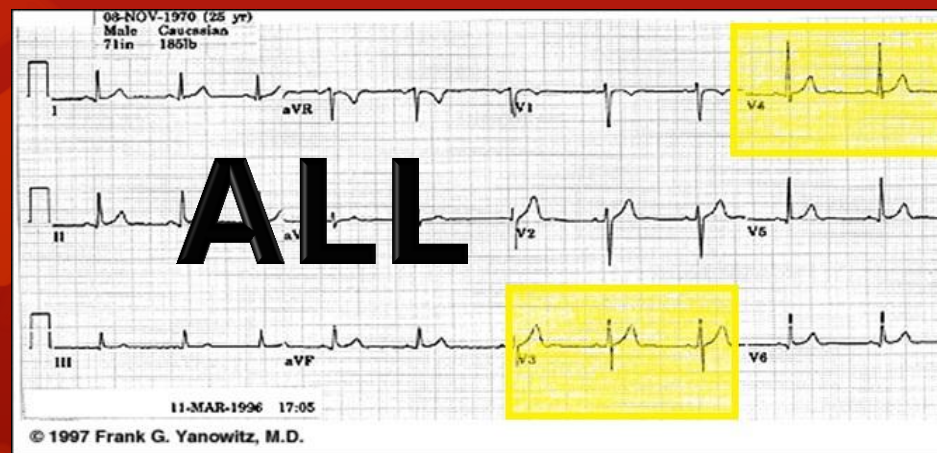
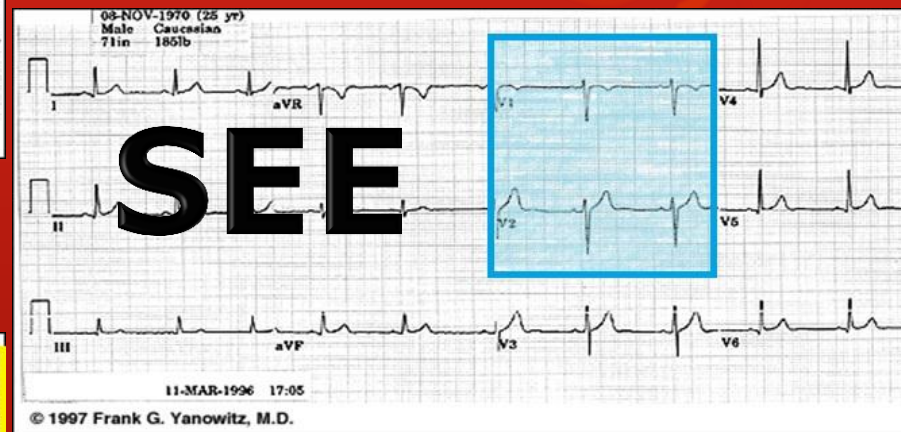
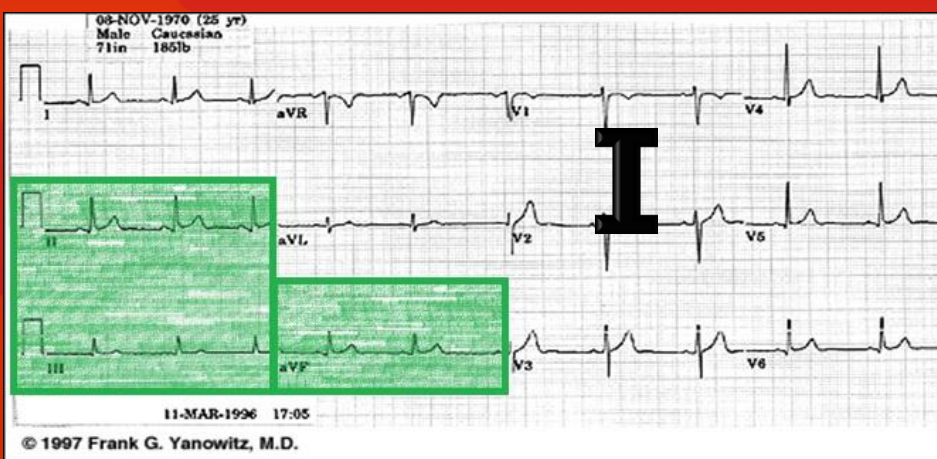


# Groupings/Contiguous Leads

<b>I</b> Lateral	<b>aVR</b>	<b>V1</b> Septal	<b>V4</b> Anterior
<b>II</b> Inferior	<b>aVL</b> Lateral	<b>V2</b> Septal	<b>V5</b> Lateral
<b>III</b> Inferior	<b>aVF</b> Inferior	<b>V3</b> Anterior	<b>V6</b> Lateral

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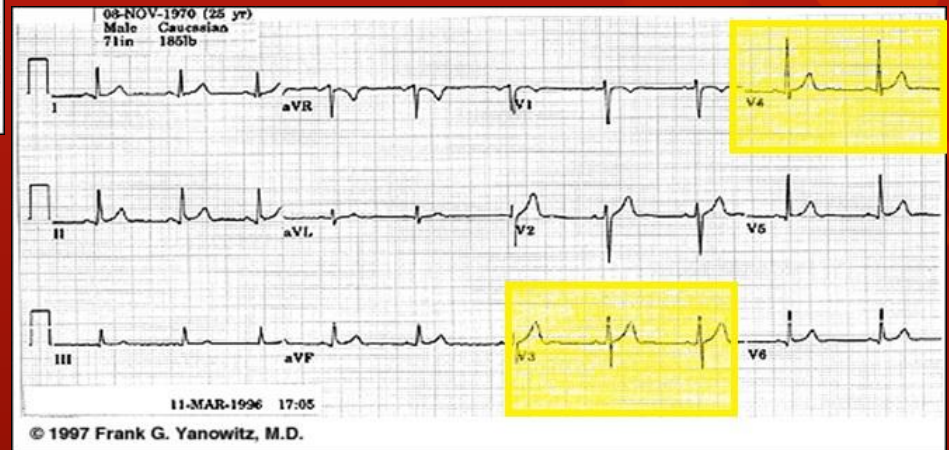
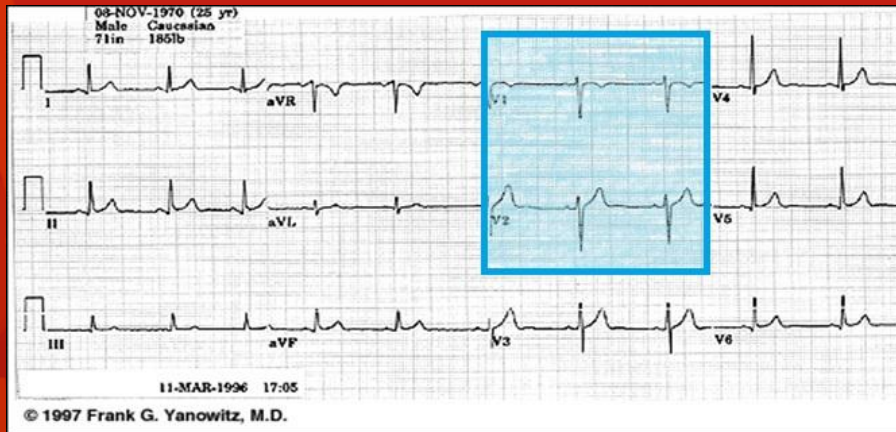




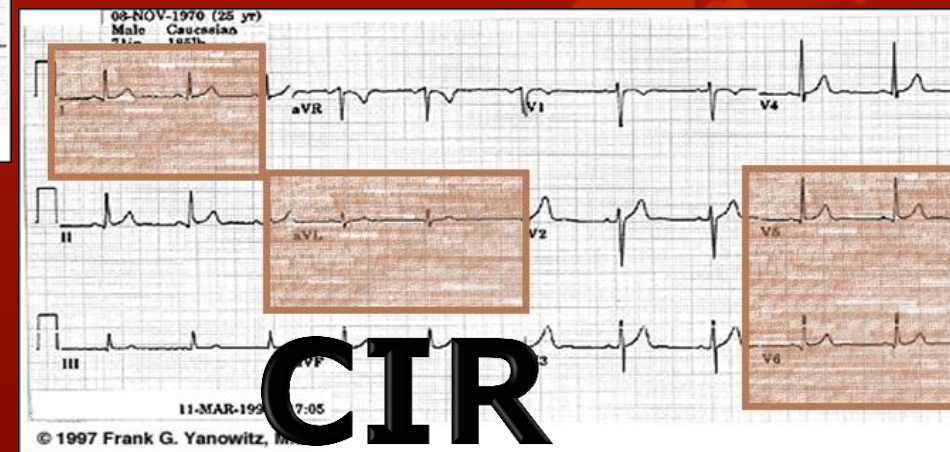
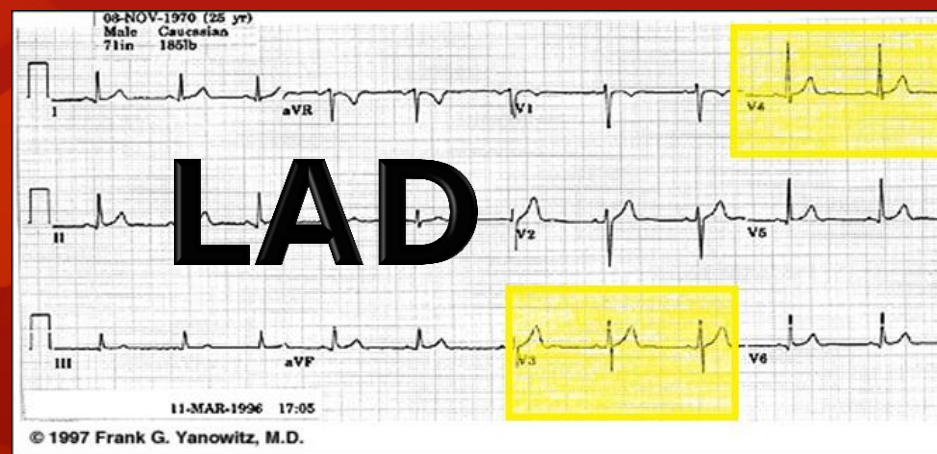
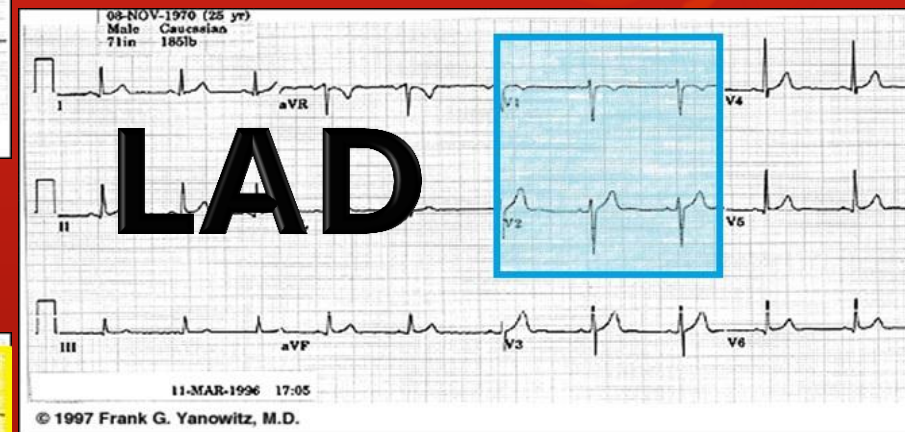
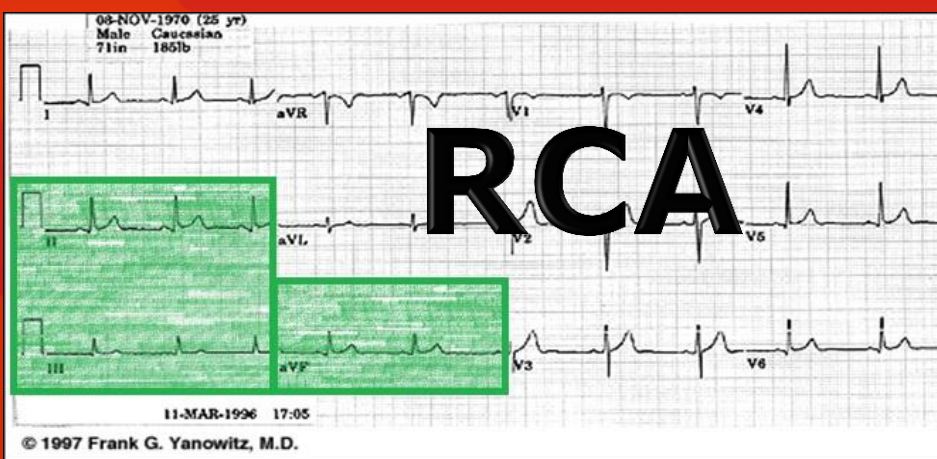
LEADS



Could these leads be considered contiguous?



Yes, changes could be from one blockage in the Left Main or LAD.



# What about the posterior wall?

<b>I</b> Lateral	<b>aVR</b>	<b>V1</b> Septal	<b>V4</b> Anterior
<b>II</b> Inferior	<b>aVL</b> Lateral	<b>V2</b> Septal	<b>V5</b> Lateral
<b>III</b> Inferior	<b>aVF</b> Inferior	<b>V3</b> Anterior	<b>V6</b> Lateral

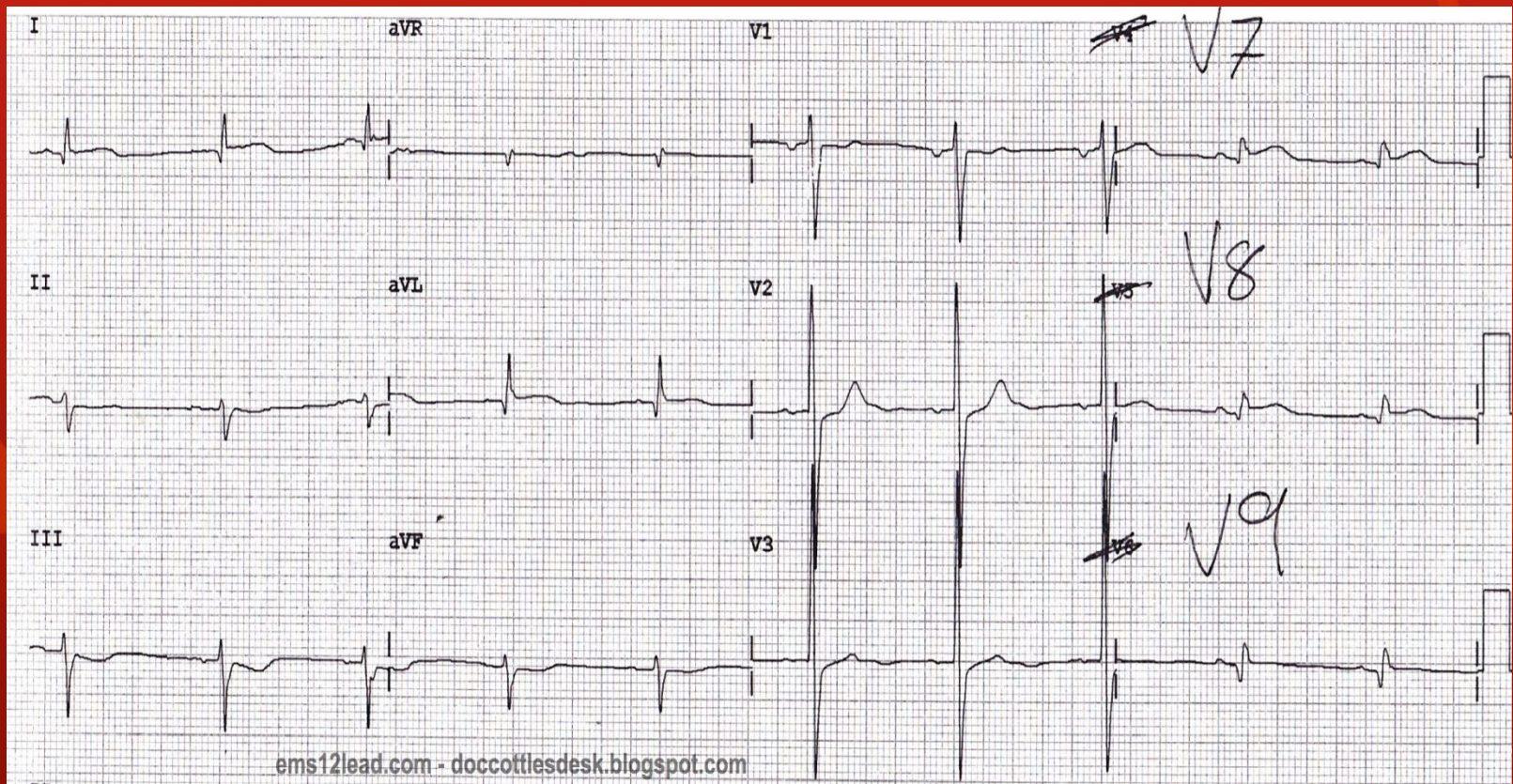
Look up the work “reciprocal” before  
the next class.



# Can leads be moved around?

<b>I</b> Lateral	<b>aVR</b>	<b>V1</b> Septal	<b>V4</b> Anterior
<b>II</b> Inferior	<b>aVL</b> Lateral	<b>V2</b> Septal	<b>V5</b> Lateral
<b>III</b> Inferior	<b>aVF</b> Inferior	<b>V3</b> Anterior	<b>V6</b> Lateral

# Can leads be moved around?





# Who, where, and why?

Who see's where?

II, III, AVF, V4R?      Inferior

V1 and V2      Septal

V3 and V4      Anterior

I, AVL, V5, and V6      Lateral

V7, V8, V9, and V1      Posterior

# Who, where, and why?

What coronary  
arteries?

II, III, AVF, V4R?

RCA

V1 and V2

Left Main, LAD

V3 and V4

LAD

I, AVL, V5, and V6

Circumflex, LAD

V7, V8, V9, and V1

RCA, Circumflex

The background is a solid orange color with a pattern of stylized, darker orange leaves scattered along the left and right edges. The leaves vary in shape, including some with multiple lobes and others that are more elongated.

Questions?