ACYANOTIC
CONGENITAL HEART DEFECTS

Example:
Patent Ductus Arteriosus (PDA)
Atrial Septal Defect (ASD)
Ventricular Septal Defect (VSD)

- ↑ Fatigue
- ♦ Murmur
- ↑ Risk Endocarditis
- CHF
- Growth Retardation

AUSCULATING HEART VALVE SOUNDS

APE
Aortic Pulmonic

Tricuspid To

Mitral Man
CONGENITAL ♥ DEFECT
SYMPTOMS

♥ ↑ Pulse
♥ ↑ Respirations
♥ Retarded Growth
♥ Dyspnea, Orthopnea
♥ Fatigue
♥ URI
Cyanotic
Congenital \( \heartsuit \) Defects

Example:
Tetralogy of Fallot

- Squatting
- Cyanosis
- Clubbing
- Syncope

CYANOTIC
\( \heartsuit \) DEFECTS MNEMONIC

4-T’s

- Tetralogy of Fallot
- Truncus Arteriosus
- Transposition of The Great Vessels
- Tricuspid Atresia
To Calculate Heart Rate:
Count the number of "R" waves in 6 seconds.
(6 large blocks X's 10 = 1 min rate)

**LDL/HDL**

- **LDL** (Low Density Lipoprotein):
  - Want **LOW** (↓130mg/dl) or it will lower you into the ground.

- **HDL** (High Density Lipoprotein):
  - Want **HIGH** (↑45mg/dl) for client to feel healthy.
LEFT SIDED HEART FAILURE

- Paroxysmal Nocturnal Dyspnea
- Elevated Pulmonary Capillary Wedge Pressure
- Pulmonary Congestion
  - Cough
  - Crackles
  - Wheezes
  - Blood-Tinged Sputum
  - Tachypnea
- Restlessness
- Confusion
- Orthopnea
- Tachycardia
- Exertional Dyspnea
- Fatigue
- Cyanosis

MYOCARDIAL INFARCTION (MI)

- Pain:
  - Sudden Onset
  - Substernal
  - Crushing
  - Tightness
  - Severe
  - Unrelieved by Nitro
  - May Radiate To: Back
  - Neck
  - Jaw
  - Shoulder
  - Arm
- Dyspnea
- Syncope (↓ BP)
- Nausea
- Vomiting
- Extreme Weakness
- Diaphoresis
- Denial is Common

HEART ATTACK

TX: O₂ - IV - Meds
Monitor
Dietary Restrictions
↓ NA, ↓ Cholesterol,
↓ Caffeine
PCI? Surgery? Pacemaker?
**Preload and Afterload**

**Preload**
Volume of blood in ventricles at end of diastole (end diastolic pressure)

Increased in:
- Hypervolemia
- Regurgitation of cardiac valves
- Heart Failure

**Afterload**
Resistance left ventricle must overcome to circulate blood

Increased in:
- Hypertension
- Vasoconstriction

\[ \text{Afterload} = \text{Cardiac workload} \]

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**3 Areas of Damage After a Myocardial Infarction...**

**Area of Infarction**
- O₂ deprived
- Damage
- Irreversible

Causes “Q” Wave on EKG.

**Area of Injury**
- Next to infarct. Tissue is viable as long as circulation remains adequate.
- Increasing O₂ may save this area from necrosis.

Causes S-T Segment Elevation on EKG.

**Area of Ischemia**
- Viability may not be damaged as long as MI doesn’t extend and collateral circulation is able to compensate.

Causes depressed S-T Segment.
BLOOD FLOW THROUGH THE CARDIAC VALVES

Tissue Paper My Assets

• Tricuspid
• Pulmonic

• Mitral
• Aortic

CARDIAC OUTPUT

CO = HR \times Stroke Volume

Cardiac Output Heart Rate

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CARDIOVERSION

• Elective Procedure
• Client Awake & Frequently Sedated
• Synchronized With “QRS”
• 50 - 200 Joules
• Consent Form
• EKG Monitor

DEFIBRILLATION

• Emergency
• V-Fib / V-Tach
• No Cardiac Output
• Begin With 200 Joules
  Up to 360
• Client Unconscious
• EKG Monitor

HEAD TO TOE CARDIAC CLUES

HAIR • Brittle, Dry - Think poor nutrition, possibly due to cardiac or vascular insufficiency.

EYES • Vascular changes may be a result of HTN.
  Raised yellow-orange plaque under eyelids. May indicate chronic serum cholesterol elevation.

LIPS/TONGUE • Blue-tinged? Think cyanosis; Dry? Dehydration.

JUGULAR VEIN • Distended when client at 45° angle? Think hypervolemia,
  right-sided heart failure, pericardial tamponade or constrictive pericarditis.

CHEST • Auscultate; If crackles (rales) consider left-sided heart failure. Assess
  rate, rhythm, and presence of murmurs.

BLOOD PRESSURE • over 150/90 may indicate hypertension

ABDOMEN • Fluid accumulation (ascites) or enlarged, tender liver may indicate
  right-sided heart failure. Pulsating mass may indicate - AAA.

SKIN • Dry, cool - May be from poor nutrition. Blue-tinged
  indicates cyanosis. Pallor may suggest anemia or circulation.

SACRUM • Check for edema and pressure areas in immobilized clients.

NAILS • Clubbing may indicate chronic low O₂ saturation, as in congenital cardiac or
  pulmonary disease. Thick nails - poor nutrition and impaired O₂ delivery.

LOWER EXTREMITIES • Absence of hair and thin skin are signs of poor circulation.

LEGS/ANKLES/FEET • Check for edema, presence of pulses, l sensation, pressure areas.
HEART MURMURS

Did anyone else hear that... or was it just me?

Types...
- Systolic
  - Crescendo
  - Decrescendo
- Diastolic—Indicates Pathologic Disease

Causes...(S.P.A.M.S.)
- Stenosis of a Valve
- Partial Obstruction
- Aortic Regurgitation
- Mitral Regurgitation
- Septal Defect

{Innocent murmurs occur in children or with pregnancy and are noted during systole.}

IMMEDIATE TREATMENT OF AN M.I.

- Morphine
- Oxygen
- Nitroglycerine
- ASA or Flavix

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LEAD II PLACEMENT

THE PULMONARY ARTERY CATHETER

Readings with Heart Failure
↓ Readings with Hypovolemia