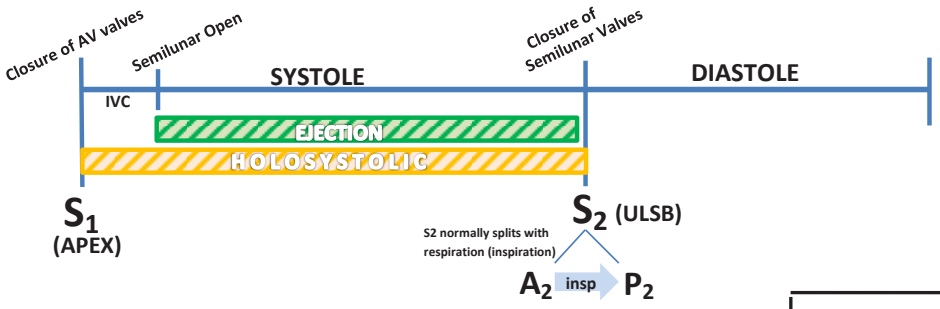
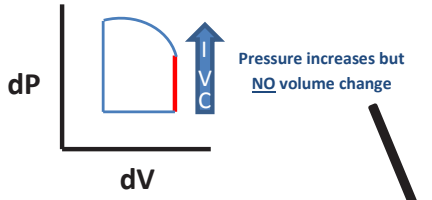
Children's Healthcare of Atlanta
Cardiology

GUIDE TO SYSTOLIC MURMURS





Pressure increases but NO volume change

So… the only way noise can be generated during the isovolumetric contraction time (IVC) is by:

VSD or AV valve regurgitation

ASD murmur – the "mother lode" of all murmurs

1. **Systolic ejection murmur at the ULSB** (relative "pulmonary stenosis")
2. **Fixed and widely split S2**
   - P2 prolonged due to increased RV volume from left to right atrial shunt (takes longer for RV to eject than LV)
3. **Diastolic rumble**
   - Increased volume through the tricuspid valve

SYSTOLIC MURMURS

HOLOSYSTOLIC

"S1 coincident murmur" obscures S1

1. **AV valve regurgitation**

   MR>>>TR

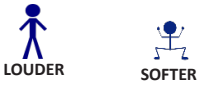
2. **Ventricular Septal Defect (VSD)**
3. ***Patent Ductus Arteriosus (PDA)**

* PDA is continuous murmur (systole AND diastole)

SYSTOLIC EJECTION

PATHOLOGIC

1. **Aortic Stenosis**
   - URSB radiates carotids
   - thrill @ suprasternal notch
   - Click – Apex (does NOT vary with resp)
2. **Pulmonic Stenosis (ToF)**
   - ULSB radiates axillae/upper back
   - thrill @ ULSB
   - Click – Apex (varies with resp)
3. **HOCM**



4. **ASD** (see below/left)
5. **Coarctation of Aorta**
   - Left axillae or upper back
   - Pulse/BP differential

INNOCENT

1. **Still's Murmur**
   - low, vibratory frequency (use bell)
   - ≤ Grade 3/6 at MLSB/LLSB

2. **Peripheral Pulmonic Stenosis (PPS)**
   - Newborn
   - high pitched, loudest in axillae/upper back
3. **"Flow" murmur**
   - ≤ Grade 2/6 at ULSB/URSB
   - usually teens or hyperdynamic state (fever, anemia, etc.)