What’s the Murmur I Hear?

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What is a Murmur?

A heart murmur is a swishing sound heard when there is turbulent or abnormal blood flow across the heart valve.
"So - what does it sound like to you?"
Murmur Classification

• Innocent
• Abnormal
Innocent Murmurs

• Common causes include:

  • Physical activity or exercise
  • Pregnancy
  • Fever
  • Anemia
  • Hyperthyroidism
  • Phases of rapid growth, such as adolescence
Abnormal Murmurs

• Common causes are:
  • Valve calcification
  • Endocarditis
  • Rheumatic Fever
  • In children: Congenital heart valve abnormalities or holes in the septum.
Valvular Heart Disease

• Valve stenosis – a narrow, tight, stiff valve, limiting forward flow of blood.

• Valve regurgitation – a valve that does not close completely, allowing backward flow (a "leaky" valve)
Heart Valve Disease

Stenosis

Regurgitation
Types of Murmurs

• Systolic

• Diastolic

• Continuous
Systolic Murmurs

• Occur between $S_1$ and $S_2$

• Causes:
  • Aortic and Pulmonic Valve Stenosis
  • Mitral and Tricuspid Regurgitation
Diastolic Heart Murmurs

• Occur after $S_2$ and before $S_1$

• Causes:
  • Aortic and Pulmonic Regurgitation
  • Mitral and Tricuspid Stenosis
Continuous Heart Murmurs

• Begins in systole and continues throughout $S_2$ without interruption and ends sometime in diastole.

• Causes:
  • PDA
  • Shunts
  • Congenital Heart Defects
The character of a murmur is described by a number of features, including:

- Intensity (grade)
- Pitch (frequency)
- Configuration
- Timing
- Quality
- Location
- Radiation
# Heart Murmur Grades

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>1/6</td>
<td>Very faint, heard only after listener has “tuned in”; may not be heard in all positions.</td>
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<tr>
<td>2/6</td>
<td>Faint, Quiet, but heard immediately.</td>
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<tr>
<td>3/6</td>
<td>Moderately loud.</td>
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<tr>
<td>4/6</td>
<td>Loud. Palpable thrill (i.e., a tremor or vibration felt on palpation.</td>
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<tr>
<td>5/6</td>
<td>Very Loud with palpable thrill. May be heard when stethoscope is partly off the chest.</td>
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<tr>
<td>6/6</td>
<td>Loudest possible and can be heard with stethoscope completely off the chest.</td>
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Location of Heart Sounds

1. Mitral area
2. Tricuspid area
3. Pulmonic area
4. Aortic area

ICS = Intercostal space

Apex
Usually in the 5th ICS, midclavicular line

Left sternal border
3rd, 4th and 5th ICS
Tricuspid area
Normal Heart Sounds
Aortic Valve Stenosis
Aortic Valve Regurgitation
Mitral Valve Stenosis

Normal mitral valve

Narrowing of mitral valve (mitral valve stenosis)
Mitral Valve Regurgitation
Tools of the Trade
The Smartphone Stethoscope

https://stethio.com/about/
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