12-lead electrocardiograms

SELECTING LEAD SITES
- Choose areas that are flat and fleshy, not muscular or bony.
- As needed, take steps to enhance electrode contact with the skin:
  - Clip (don’t shave) excessively hairy areas.
  - Remove excess oil and other substances from the skin.
- To ensure an accurate recording, be sure to apply the electrodes correctly.
- Keep in mind that inaccurate placement of an electrode may lead to inaccurate waveforms and incorrect ECG interpretation.

PLACING THE LEADS
Limb leads
- Place electrodes on both of the patient’s arms and on his left leg.
- Place an electrode on his right leg. (This is a ground that doesn’t contribute to the waveform.)

Precordial leads
- Place the six unipolar precordial leads (V₁ through V₆) in sequence across his chest.

Take5: © Lippincott Williams & Wilkins, 2006
**Limb lead placement**

Proper lead placement is crucial for accurate recording of cardiac rhythms. These drawings show correct electrode placement for the six limb leads. RA stands for right arm; LA, left arm; RL, right leg; and LL, left leg. A plus sign (+) indicates a positive pole; a minus sign (-), a negative pole; and G indicates a ground. Below each drawing is a sample ECG strip for that lead.

<table>
<thead>
<tr>
<th>Lead I</th>
<th>Lead II</th>
<th>Lead III</th>
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</thead>
<tbody>
<tr>
<td>Connects the right arm (negative pole) with the left arm (positive pole).</td>
<td>Connects the right arm (negative pole) with the left leg (positive pole).</td>
<td>Connects the left arm (negative pole) with the left leg (positive pole).</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Lead aVR</th>
<th>Lead aVL</th>
<th>Lead aVF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connects the right arm (positive pole) with the heart (negative pole).</td>
<td>Connects the left arm (positive pole) with the heart (negative pole).</td>
<td>Connects the left leg (positive pole) with the heart (negative pole).</td>
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</tbody>
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