

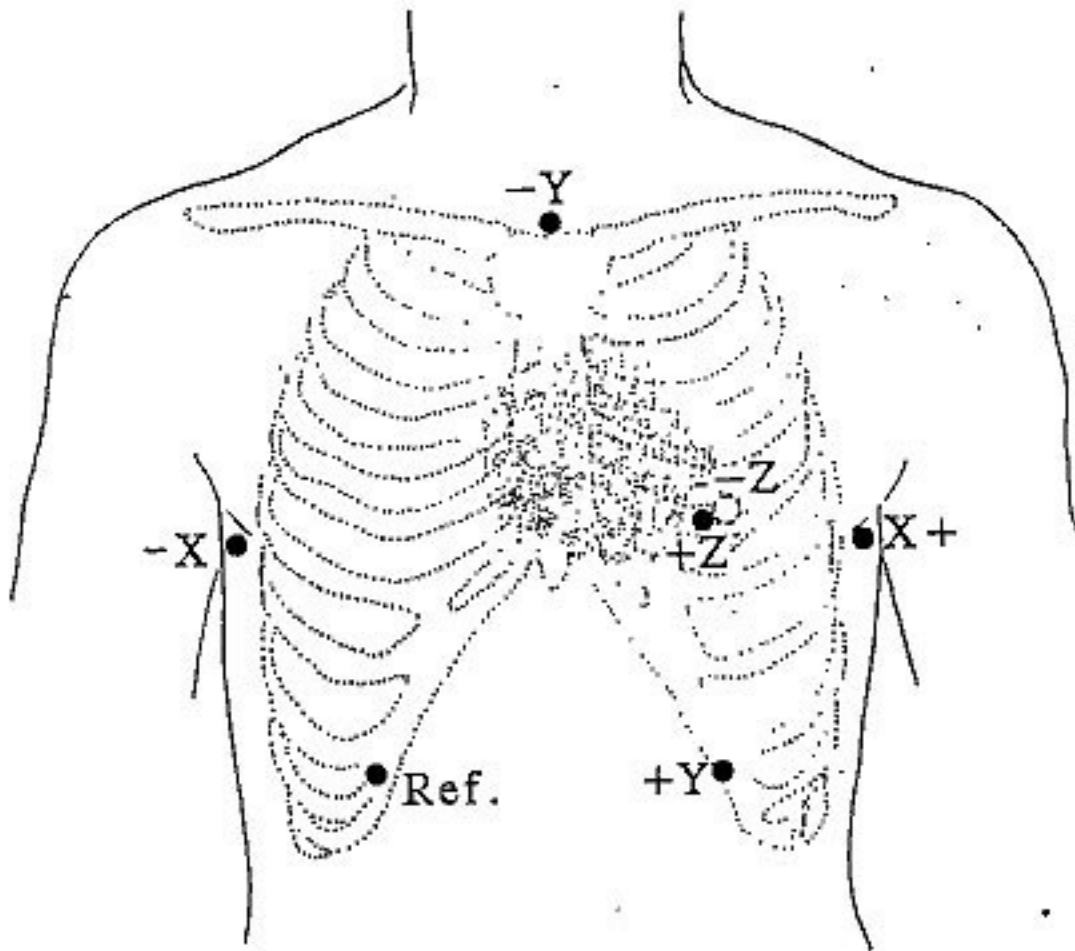
## SIGNAL AVERAGED ECG

1. Skin preparation. (The quality of the tissues/electrode interfaces is important)
  - a. Shave hair from the electrode sites.
  - b. Wipe skin with alcohol pad.
  - c. Mildly abrade the electrode contact site with ultrafine sandpaper (220 –400 grit). Place the electrode on one site at a time to make sure the electrode gel is in contact with the abraded area. Use five to 10 gentle strokes per area. If sandpaper is not available, use dry gauze pad to abrade the skin.
  - d. Use high quality electrodes of the type used for Holter monitoring.
  
2. Apply electrodes as shown in Figure 1. The X lead is positioned at the fourth intercostal space in both mid axillary lines (V6R and V6 positions, the Y lead is positioned on the superior aspect of the sternum and on either the upper left leg or left iliac crest, and the Z lead at the fourth intercostal space (V2 position) with a second electrode directly posterior on the left side of the vertebral column. Positive electrodes are left (X lead), inferior (Y lead) and anterior (Z lead).
  
3. **Record Signal Averaged ECG three times consecutively at a filter setting of 40 to 250 Hz. The final noise level should be less than 0.3 u V.**

Reference: Berbari, E.J. & Lander, P. The Methods of Recording and Analysis of the Signal Averaged ECG in, "Signal Averaged ECG", Ed J.A. Gomes, Kluwer Academic Publishers, Massachusetts 1993

	<b><u>NORMAL VALUES</u></b>
<b>Filtered QRS duration (msec)</b>	<b>&lt;114msec*</b>
<b>RMS voltage of terminal 40 msec (<math>\mu</math>V)</b>	<b>&gt;20<math>\mu</math>V</b>
<b>LAS or Duration of terminal QRS signals &lt;40<math>\mu</math>V</b>	<b>&lt;38msec</b>

\*The filtered QRS duration may be an average of 7 msec shorter in females.



The approximate positions for the X, Y, and Z lead electrodes used to record the SAECG. Note that the -Z lead electrode is on the back. The reference site is not critical.