Peripheral Gating at Lucas MRI

I. Peripheral Gating (using GE Healthcare plethysmograph)

A. Requirements
   1. Imaging sequence on the MRI system must be compatible with the gating option.
   2. If physiological monitoring is required for fMRI studies

B. Equipment location
   1. Peripheral gating sensor and cable are located on the side of the magnet.
   2. Please check for cracked housing or frayed cable (report damages to magnet manager).

C. Sensor attachments
   1. Plastic clip
   2. Velcro wrap

D. Anatomical location
   1. Typically the index finger of the left hand is used
      a. Skin types that may not work well include
         i. Rough, calloused skin
         ii. Poor circulation in extremities (e.g. elderly, cold hands or feet, etc.)
   2. The great toe may also be used

E. Preparation of digit
   1. Thoroughly wipe the area of interest with an alcohol pad.
   2. Then wipe area with dry cloth or gauze pad to ensure the digit is dry.
   3. The digit with the attached sensor must remain cool and dry during the entire examination.

F. Placement
   1. Properly attach the sensor to the prepared digit to ensure an accurate reading.
      a. The attached sensor should not be too loose or too tight.
      b. Check the waveform display; if unsatisfactory, use another digit.
   2. Sensor position
      a. Position the sensor away from the area being imaged.
         i. This reduces the risk of heating or burns.
         ii. This minimizes the gradient interference in the imaging sequence.
      b. Do not place the patient’s arms on the chest or stomach.
         i. This prevents sensor motion.
         ii. Position the hand flat on the anterior pelvis if possible.
      c. Instruct the patient:
         i. To keep the sensor completely still during the study.
         ii. To request assistance if repositioning of the cable or sensor is necessary.
   3. Cable position (to prevent the risk of heating or burns)
      a. Do not loop the cable upon itself or other cables.
      b. Cable should not traverse through magnet bore more than once.
      c. Cable should be positioned:
         i. To exit directly out of magnet and down the center of the bore and table.
         ii. Away from the magnet bore walls.
      d. Place sponges between all patient anatomy and the cable as it exits the bore.