Standard Operating Procedure

Health and Exercise Science Research Group

Dexa Scan

**Equipment:** GE Medical Lunar iDXA whole body scanner

A Whole body Dual Energy Xray Absorptiometry (DEXA) scan exposes patients to a small dose of radiation (Approximately 0.001 milliSieverts effective dose per scan). The dose, risk assessment and approval should be set out by a Medical Physics Expert (MPE) or a registered clinical scientist registered with the Health Professions Council prior to scanning. **Scans should only be performed by Ionising Radiation (medical exposure) Regulation (IRMER) qualified technicians.**

If the patient is female of a child bearing age, they should provide a urine sample for a pregnancy test before a body composition scan.

**Performing a Total Body Scan**

**Quality Assurance**

Complete a Quality Assurance (QA) test each morning before you measure a patient. If the room temperature changes more the 5°C during the day, then perform another Daily QA. This procedure calibrates and verifies functionality, as well as, the accuracy and precision of the densitometer. The QA procedure should be performed a minimum of once a week if the scanner is not being used. **Save all QA printouts.**

Use the black calibration block to complete a QA test (the calibration block consists of tissue equivalent material with three bone-simulating chambers of known bone mineral content). Leave the block on the scanner table during the QA procedure.

Select **Quality Assurance** from the Main screen or select **QA** from the Common toolbar.

Select **Start**. A message instructs the technician to position the calibration block. Put the calibration block on the pad so that the laser light rests in the center of the crosshair label on the calibration block.

Select **OK.** Follow the screen prompts to complete the QA procedure.

If the QA test did not pass, reposition the calibration block and repeat the procedure.

**Performing a New Measurement**

The Directory screen is shown when you select **Directory** from the Main screen or from the Common toolbar. This screen lists the patient files that are stored in the active database.

Enter the patient details as appropriate

The New Measurement screen is used to complete a new measurement for an existing patient (recorded in the database) or for a new patient. This screen is shown or when you select **Measure** from the Common toolbar.

A list of applicable measurement sites is presented on the New Measurement screen. Select the measurement site from the Exam List or highlight the measurement region on the corresponding Skeletal Image.

**Positioning the Patient:**

Make sure all attenuating materials (shoes, belts, metal bracelets, etc.) are removed from the measurement region of the patient. For Total Body scans, all materials that may cause significant attenuation must be removed.

Note: Lunar iDXA is a scanner designed to support patient's weights up to 204 kgs.

The patient should be positioned so the body is in the center of the scanner table—use the centerline on the table as a reference to align the patient. If a patient is wider than the scan area, the patient can be positioned for a half body scan in which the entire head and spine should be included in the scan window.

The patient’s hands should be turned on sides with thumbs up, palms facing legs and arms are alongside the patient’s body. If possible, hands should not touch legs. Verify that the patient’s arms are within the scan area lines on the table pad. Make sure the patient’s head is approximately 3 cm below the horizontal line on the table pad. Use the velcro straps to secure the patient’s knees and feet to prevent movement during the measurement.

**Performing the Scan:**

Select **Start** from the New Measurement toolbar to start the measurement.

Ensure the operator is positioned behind the screen, at least 1 m away.

The scanner arm will begin to move and scan the patient. For patients <100 kg this should take approximately 7 minutes. For patients >100kg, this should take approximately 14 minutes.

Monitor the image to make sure it is correct. A correct Total Body image shows the patient's entire body. Make sure the head, feet, and patient’s arms are shown in the image.

When the measurement is complete, select **Home** to move the scanner arm to the Home position.

Select **Close** to exit the New Measurement screen.