

## What is a DEXA Body Composition Scan?

Dual Energy X-Ray Absorptiometry – is established clinical technique to measure bone mineral density in order to detect the early signs of osteoporosis however it is also the gold standard for assessing body composition.

Fat, muscle and bone have different densities and absorb the low dose x-ray beams from the DEXA at different levels. A detector measures the amount of x-rays that passes through the tissues and this data is processed by a computer to calculate a score of the average body fat, lean body (muscle) mass and bone mineral density.

## Comparing DEXA to BIA?

Bioimpedance Analysis (BIA) measures total body water and only predicts body composition rather than measure it. Significant variability in test results exists due to variations hydration status, food intake and other factors relating to the balance of electrolytes. Variation also exists with ethnicity status. DEXA is not sensitive to these factors and represents one of the closest non-invasive methods of measuring total body fat in a highly reproducible fashion.

## Is there a difference between DEXA Scanners?

Yes. The MediLink MedixDR DEXA system used in Busselton produces the highest image resolution out of the four major brands. It has 256 detector elements, compared with the 128 or 64 element systems used elsewhere. MediLink elements are also stacked, which allows multiple focal depths, meaning better sensitivity. Higher resolution images increase the accuracy of compartmental differentiation and visual representation of adipose tissue.

The MediLink scanner is able to detect the smaller lower density fatty deposits within the higher density muscle/lean tissue. Lower resolution scanners produce a simplified composition image, where entire regions are 'painted' with colours and fail to show any detail or fat deposits.



## What is the procedure?

DEXA can be performed at any time of day. Weight and height is recorded before positioning on the examination table. The scanner passes over the entire body whilst supine and the test usually takes less than 10 minutes. The level of radiation exposure is negligible, approximately 1/30th (3.5%) of normal daily background radiation exposure.

## Body Composition Scanning

# Why choose a DEXA assessment?

## Establish an accurate baseline to track your progress.

Compare baseline scans prior to training or lifestyle modification with follow-up studies to compare changes

## Monitor muscle growth and fat loss

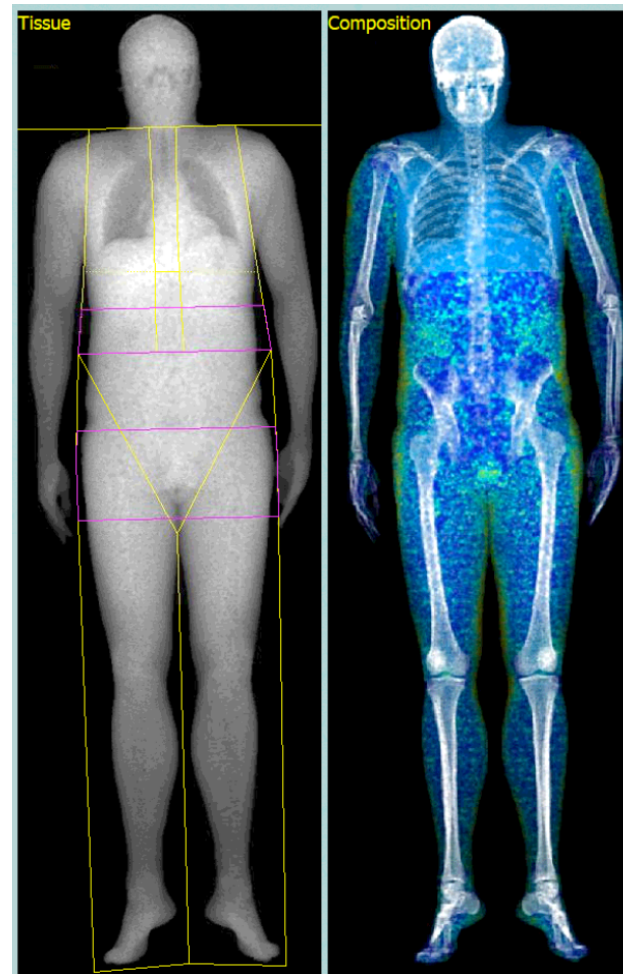
Track and trend your body composition over time. DEXA scans will assist to quantify the effectiveness of diet and training programs. The metrics provide motivational information to reach set targets.

## Monitor your visceral fat and health risk

Visceral fat or deep belly fat wraps itself around vital organs and secretes substances into the bloodstream called adipocytokine. Elevated levels of adipocytokine increase risk of developing diabetes, high blood pressure, high cholesterol and triglycerides and cardiovascular disease.

# DEXA Body Composition measurements

- Total body bone mineral density
- Total body muscle mass (g)
- Total body fat mass (g)
- Total body bone mass (g)
- Total body fat percentage
- Muscle and fat mass of the trunk, arms and legs
- Central abdominal fat measurement



Composition indices	
Measure	Results
Total body weight (kg)	93.356
Total body % Bone	5.1
Total body % Lean	77.1
Total body % Fat	17.7
BMC/Height <sup>2</sup> (g/m <sup>2</sup> )	1.4
Fat mass/height <sup>2</sup> (kg/m <sup>2</sup> ) (FMI)	4.9
Android/Gynoid % fat ratio	1.02
Trunk/legs % fat ratio	1.19
Trunk/limb fat mass ratio	0.91
Lean mass/height <sup>2</sup> (kg/m <sup>2</sup> )	21.3
Skeletal lean mass index (kg/m <sup>2</sup> )	10.0
Basal metabolic rate (kcal/Day)	1863.6
Body mass index (kg/m <sup>2</sup> ) (BMI)	28.06

Fat Mass Index (FMI) = 4.89

03691215(FMI) 21

Fat DeficitNormalExcess FatObese Class IObese Class IIObese Class III

ROI	Tissues (%Fat)	Tissues (g)	Fat (g)	Lean (g)	BMC (g)	Total mass (kg)
Left Arm	17.2	5379	925	4454	330.1	5.7
Right Arm	18.3	5540	1014	4526	355.3	5.9
Left Ribs	18.3	12206	2238	9968	286.0	12.5
Right Ribs	18.9	11006	2081	8925	301.0	11.3
T Spine	18.8	2986	562	2424	198.7	3.2
L Spine	14.9	1967	293	1673	104.9	2.1
Pelvis	16.4	13688	2245	11443	515.7	14.2
Left Leg	20.4	15337	3133	12204	1004.9	16.3
Right Leg	19.8	15594	3089	12505	994.3	16.6
SubTotal	18.6	83702	15581	68122	4090.8	87.8
Head	20.0	4848	969	3879	715.0	5.6
Total	18.7	88550	16550	72000	4805.8	93.4
Android	20.8	5899	1227	4672	80.7	6.0
Gynoid	20.4	12364	2524	9840	454.1	12.8