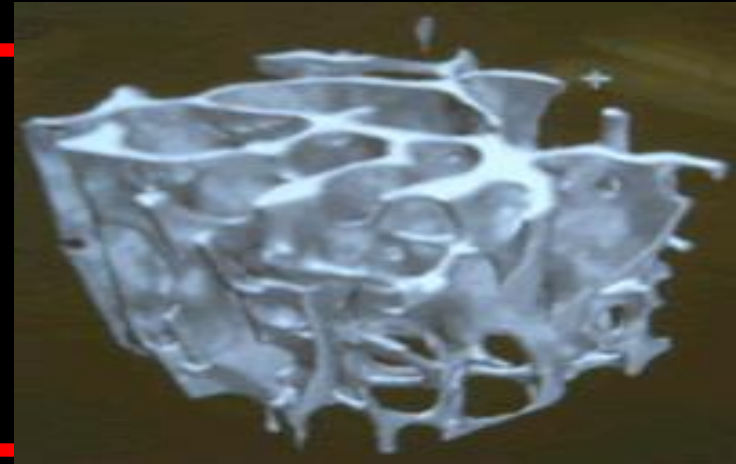




Bone Densitometry

How to dictate a DEXA

Dr. Tudor H. Hughes M.D., FRCR
Department of Radiology
University of California School of Medicine
San Diego, California



Interpretation of DEXA

DEXA References

ISCD 2019

WHO 2004

Bonepit.com

anonymous feedback to GME [Office of Graduate Medical Education](#) stress/depression focus of HEAR (Healer Education Assessment and Referral)

Ebola information for staff and faculty at <http://med.ucsf.edu/ebola>

[MSK RADIOLOGY 3D](#) a collection of over 3000 MSK cases

[UCSD RIG](#)

Bone section conference calendar

Department Guidelines	David Sartoris teaching collection	Former fellows comments	MSK Eponyms	Radiographic Projections
Book reviews	Don's gems	Interesting cases	Normal for age	Reference
			Normal variants	
Case library	Fellows Current	Jobs	News	Residents
Case of the week	Fellows Orientation	Journal articles	Orthopedic Hardware	Schedules
Classifications	Fellows program	Lectures	Phone Numbers	Syllabi
Conferences	Former fellows	Links	Quiz	Who's who

For Reference

CPT codes for DEXA

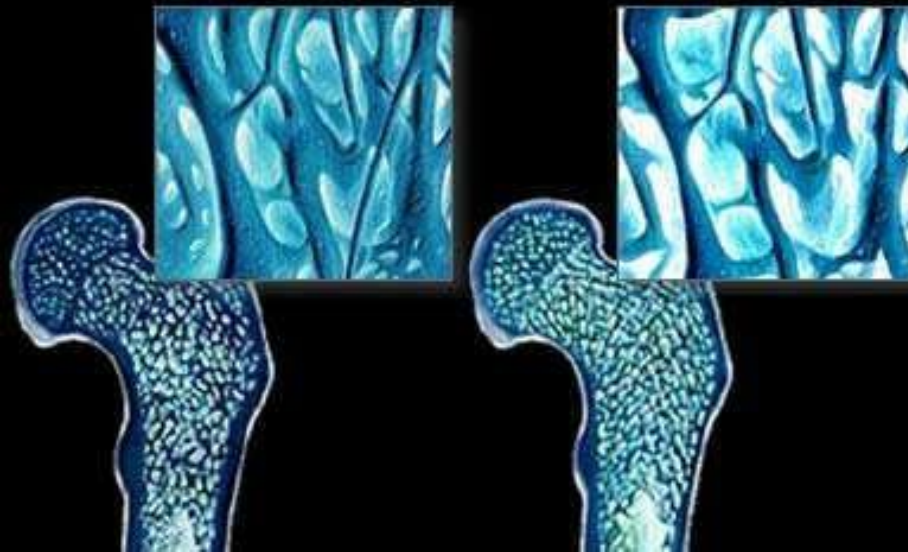
- 77085 / 77080 Axial skeleton(hips, pelvis, spine) including vertebral fracture assessment
- 77081 Peripheral DEXA forearm
- 77086 Vertebral fracture assessment-DXA

Osteoporosis

Osteoporosis is the most common metabolic bone disorder. It has been defined by the National Institutes of Health as an age-related disorder characterized by

decreased bone mass and increased susceptibility to fractures

in the absence of other recognizable causes of bone loss.

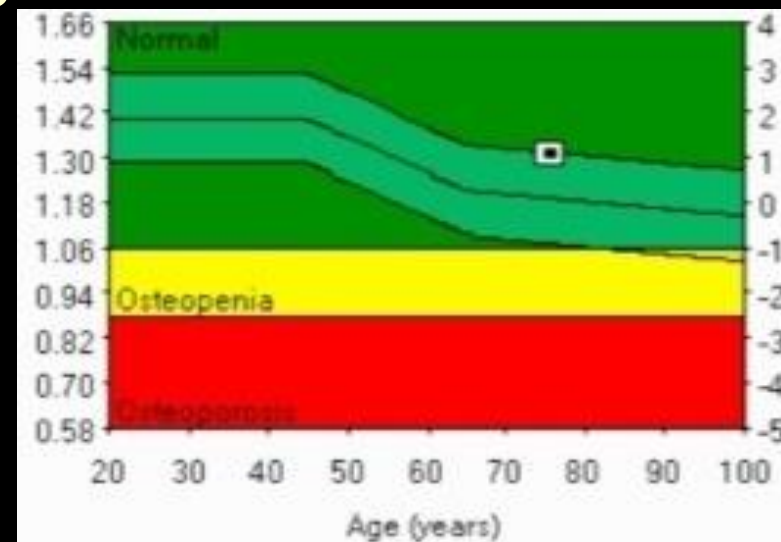


Osteoporosis

- Risk factors
 - may be superimposed upon either involutional or secondary osteoporosis, including :
 - Smoking
 - Alcohol
 - Poor diet
 - Lack of exercise
 - An early menopause
 - Strong family history
 - Small frame

Osteoporosis

- The normal rate of bone loss is 2% per year, hence 20-40% of the female bone mass is already lost by the age of 65 years of age, beginning before the menopause and accelerating during and afterwards



Osteoporosis

- **Bone mass** is the major determinant of bone strength that can be measured by non-invasive techniques, and accounts for 75-85% of this parameter

DEXA

DEXA has very high

accuracy

(the difference in the measurement from a known standard)

and

precision

(observed deviation of serial measurements with time)

both short and long term

to within 1% at the hip and spine

DEXA

- DEXA is at present the most precise measurement of BMD
- QCT is more sensitive to change

DEXA

- DEXA effective dose 1 μSv
- Fracture risk doubles with every SD drop in BD
- T score = $\frac{\text{Patient BMD} - \text{Young adult mean BMD}}{1 \text{ SD of young adult}}$

DEXA Interpretation

Find out as much
relevant information
as possible

Age

Sex

Pre or

Peri/PostMenopausal



Bone Density Clinical Information Sheet

Circle Correct Responses

Name(Label)

Sex: M or F

(Premenopausal)

F

(Perimenopausal)

(Postmenopausal)

On Hormone Replacement Therapy? N

Y

On other treatment for osteoporosis? N

Y See over

Previous Surgery: Spine? N

Y right

Hips? N

Y which?

Uterus/Ovaries? N

Y left

Known Osteoarthritis? N

Y

Previous Scans

When?

Where?

Risk Factors

Previous Fractures N

Y Where?

Family History Osteoporosis N

Y

Medication Steroids N

Y

For Epilepsy N

Y Which drug?

For Thyroid N

Y Which drug?

Dietary Calcium High

Low

Cigarette Smoking N

Y

Known Bowel Disease(diarrhoea) N

Y Diagnosis?

Other Medical Condition N

Y List

DEXA

Interpretation

Bone densitometry drug sheet

Drugs that may cause osteoporosis

Corticosteroids
Dilantin
Diuretics
Methotrexate
Thyroxine
Heparin
Depomedroxyprogesterone acetate
Gonadotrophin releasing hormone agonists
Cyclosporin

Find out as much
relevant information
as possible

Drugs to treat osteoporosis

HRT: Estrogen

(SERMS): Raloxifene (Evista)

Calcitonin: (Nasal spray) (Miacalcin)

Bisphosphonates: Alendronate (Fosamax)
Etidronate (Didronel)
Risedronate (Actonel)
Ibandronate
Pamidronate (Aredia)

Others: Combinations, Thiazides, Fluoride, PTH,
Growth Hormone, Bicarbonate, Active Vitamin D

DEXA Dictation

- In Fluency
- Templates
- Find Templates
- Owner
- Hughes, Tudor
- Modality – DEXA
- Body Part – ALL
- Insert

Fluency Reporting - Find Template

Find Template

© 2014 Multimodal Technologies, Inc. - AnyModal Edit 7.93.22

TEMPLATE NAME
[Input Field]

OWNER
HUGHES, TUDOR

MODALITY: DEXA BODY PART: ALL

Reset Search

BLANK
DEXA
DEXA FU
DEXA LESS THAN 50
DEXA LESS THAN 50 FU
DEXA PEDS
DEXA PEDS FU
DEXA RADIUS 33
DEXA RADIUS 33 FU

Insert

- AVAILABLE TEMPLATES**
1. SYSTEM DEFAULT
 2. BLANK
 3. DEXA
 4. DEXA FU
 5. DEXA LESS THAN 50
 6. DEXA LESS THAN 50 FU
 7. DEXA PEDS
 8. DEXA PEDS FU
 9. DEXA RADIUS 33
 10. DEXA RADIUS 33 FU

DEXA Dictations

- In Fluency
- Macros
- Copy
 - DEXA Bad Lx
 - “In the setting of a patient with a lumbar spine that cannot be interpreted due to surgical or degenerative reasons, a follow up scan of the radius 33%, CPT code 77081, is recommended in addition to the hips”
 - DEXA FRAX
 - 10 year probability of fracture:
 -
 - Major osteoporotic: []%
 -
 - Hip: []%
 -
 - Population: USA (Caucasian)
 -
 - Based on DualFemur (left) neck BMD

DEXA Locations

- Three locations

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Phone (619 47)19240

Irina

UC San Diego Health - Koman Family Outpatient Pavilion
9400 Campus Point Drive, San Diego, CA 92037

Phone (858 24) 93759

Rebecca and John Moores UCSD Cancer Center
3855 Health Sciences Dr. Rm 1220
La Jolla, CA 92093

Nancy

Via Tazon

Phone (858 24) 94262 Edna

TECHNIQUE:

KOP: General Electric Lunar Prodigy Advance.]
[Lewis: General Electric Lunar Prodigy.]

Bone Densitometry

DEXA spine check list

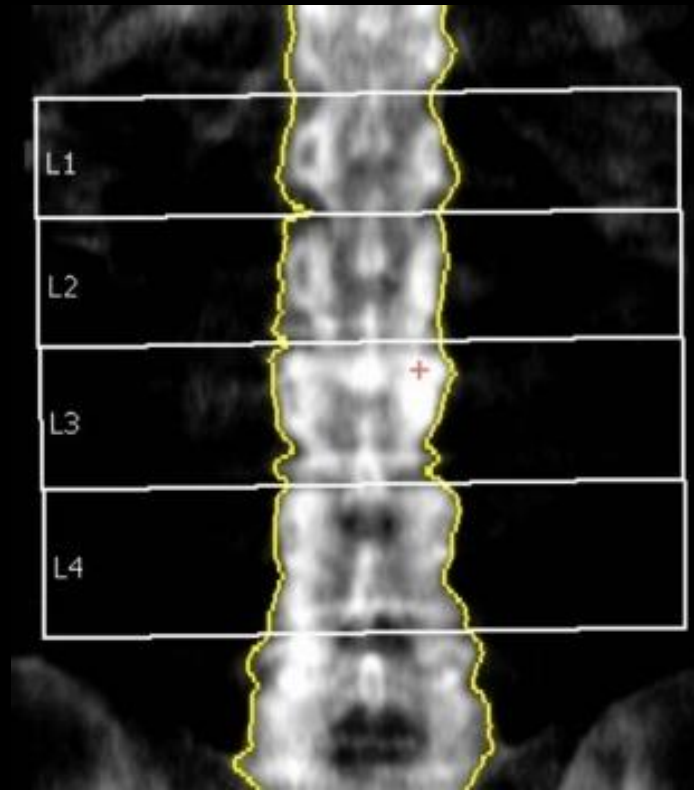
- Note the age, sex, ethnicity and weight
- Does this match the reference ranges?
- Is the bottom of L4 roughly at the level of the iliac crests.
- Are there any ribs on L1
- Scoliosis
- Are the vertebrae correctly divided
- Anything in the soft tissue

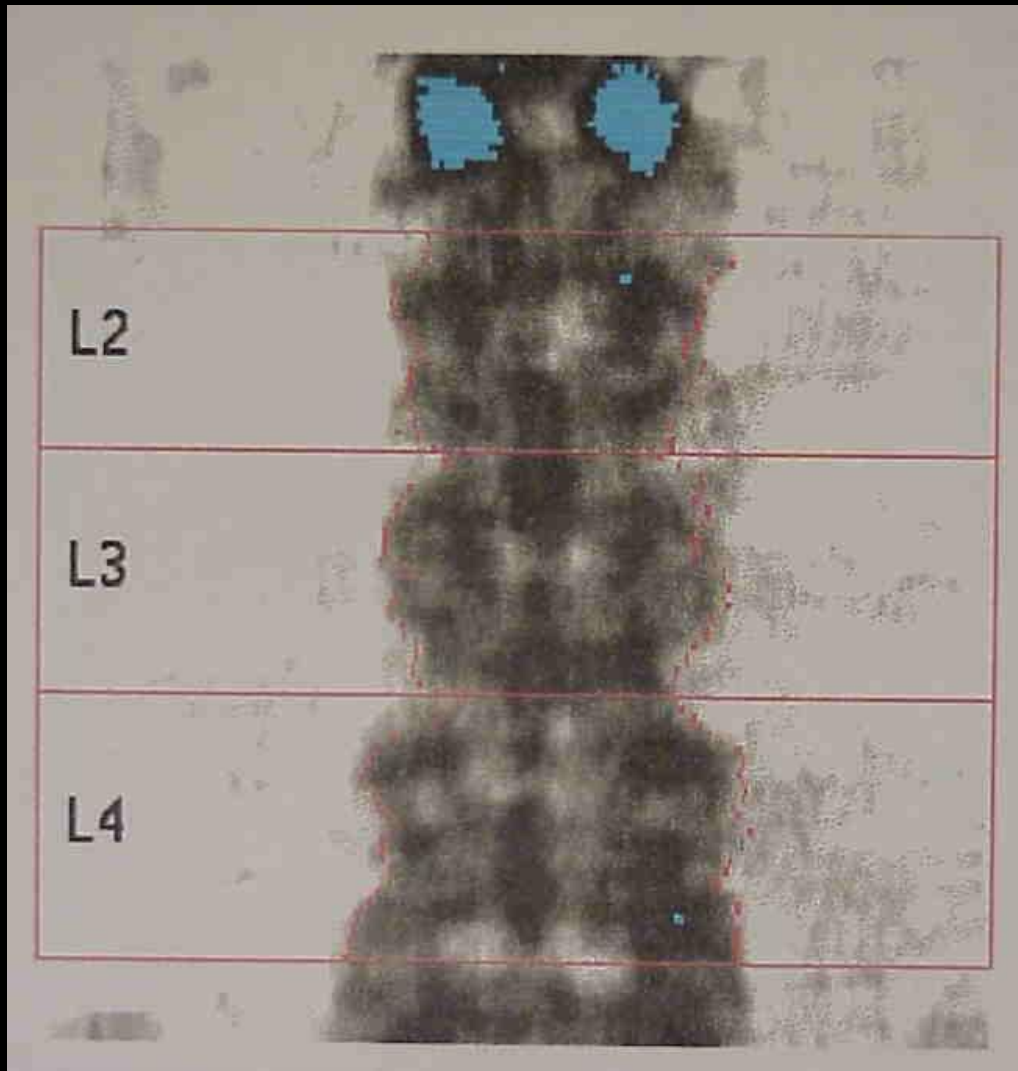
Birth Date:	10/17/1980 27.0 years	Referring Physician:	YUNG, GORDON
Height / Weight:	58.0 in. 130.0 lbs.	Measured:	10/30/2007 9:23:55 AM (11.40)
Sex / Ethnic:	Male Hispanic	Analyzed:	10/30/2007 9:25:59 AM (11.40)

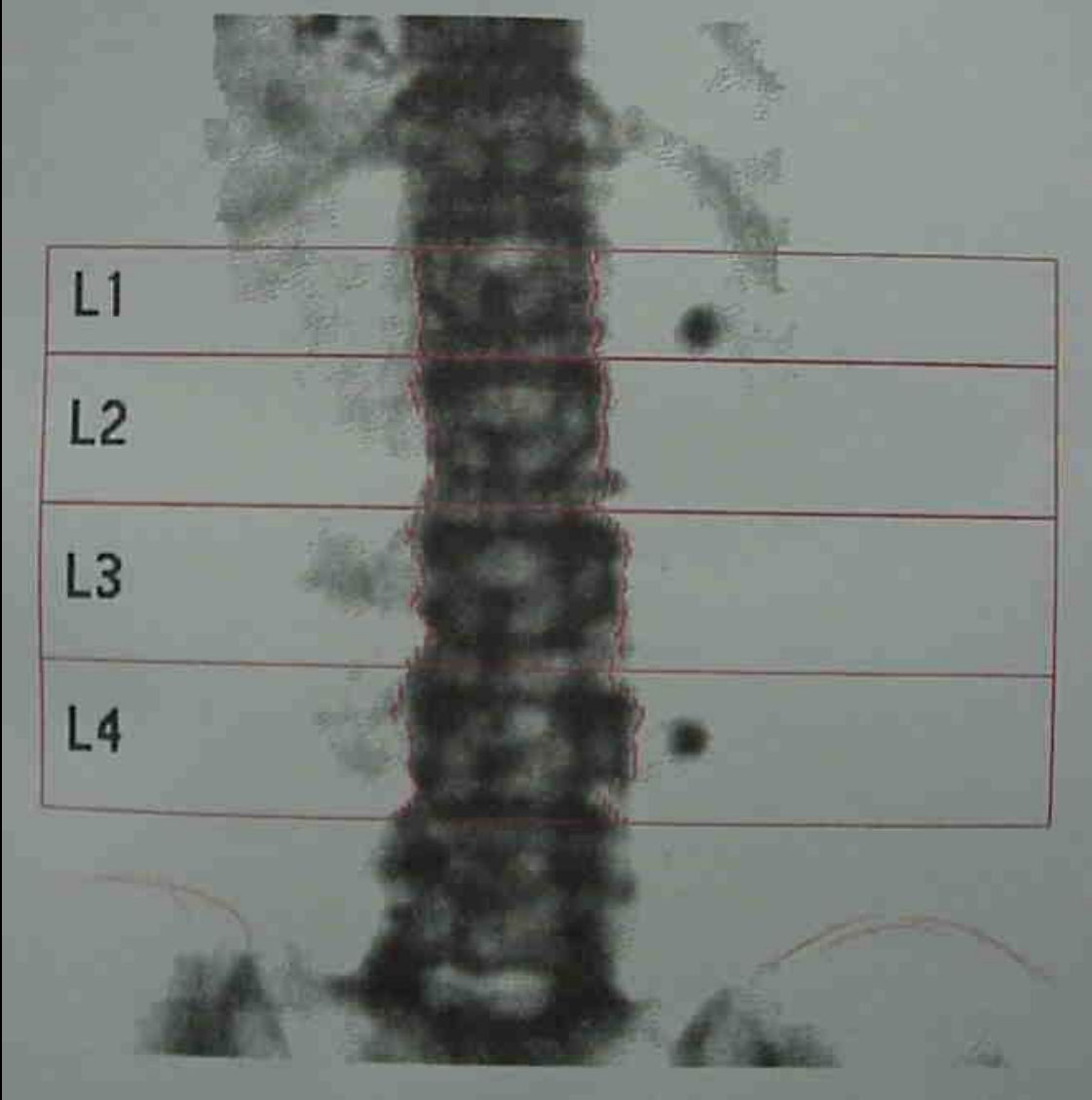
Bone Densitometry

DEXA spine check list

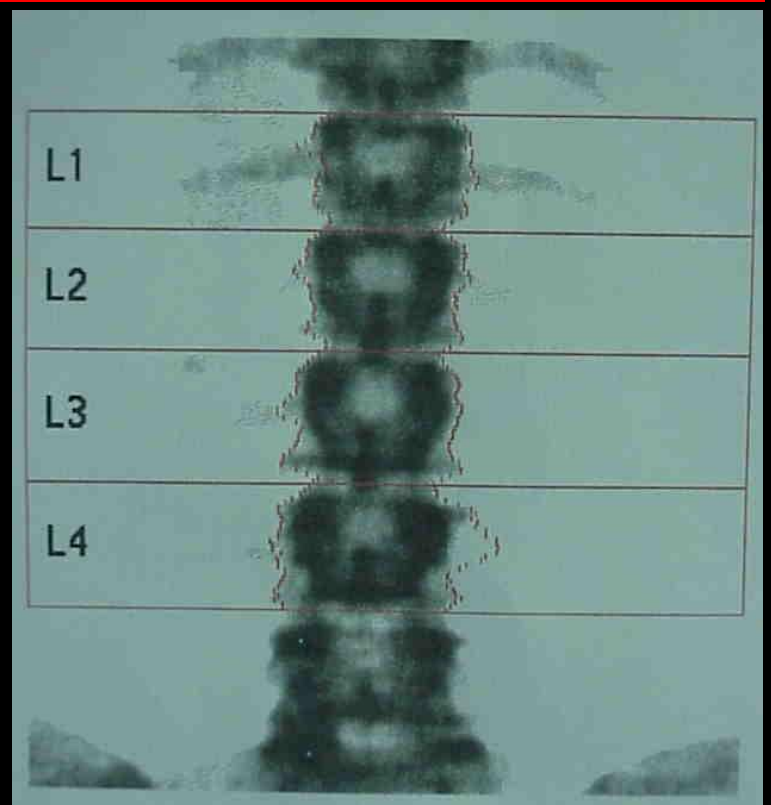
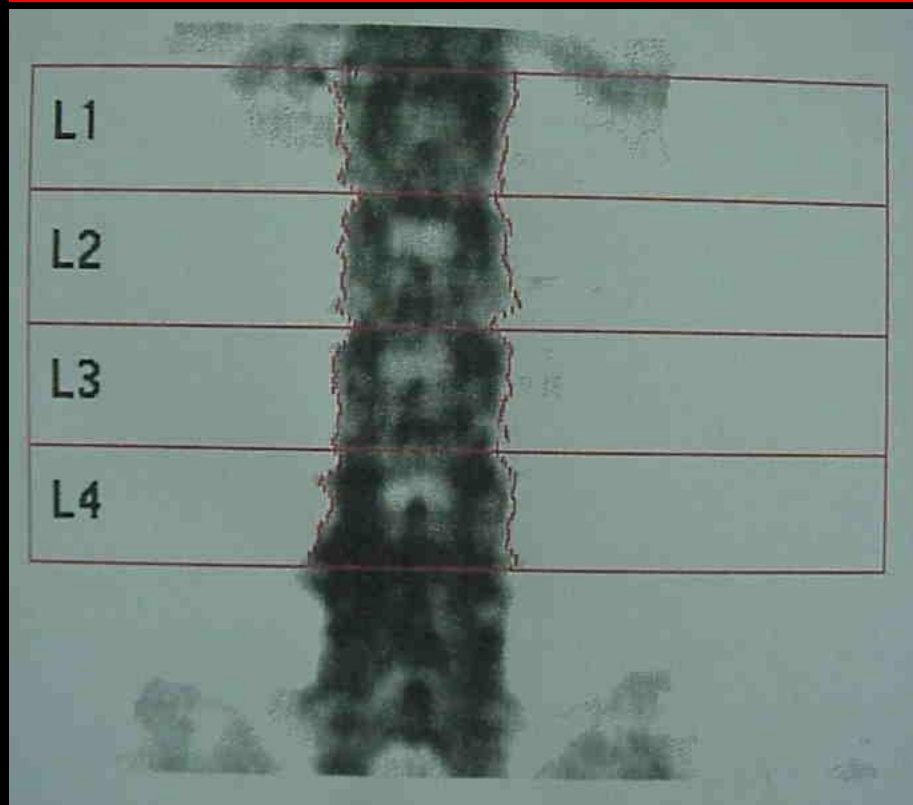
- Note the age, sex, ethnicity and weight
- Does this match the reference ranges?
- Is the bottom of L4 roughly at the level of the iliac crests
- Are there any ribs on L1
- Scoliosis
- Are the vertebrae correctly divided
- Anything in the soft tissue







Calcium Tablets

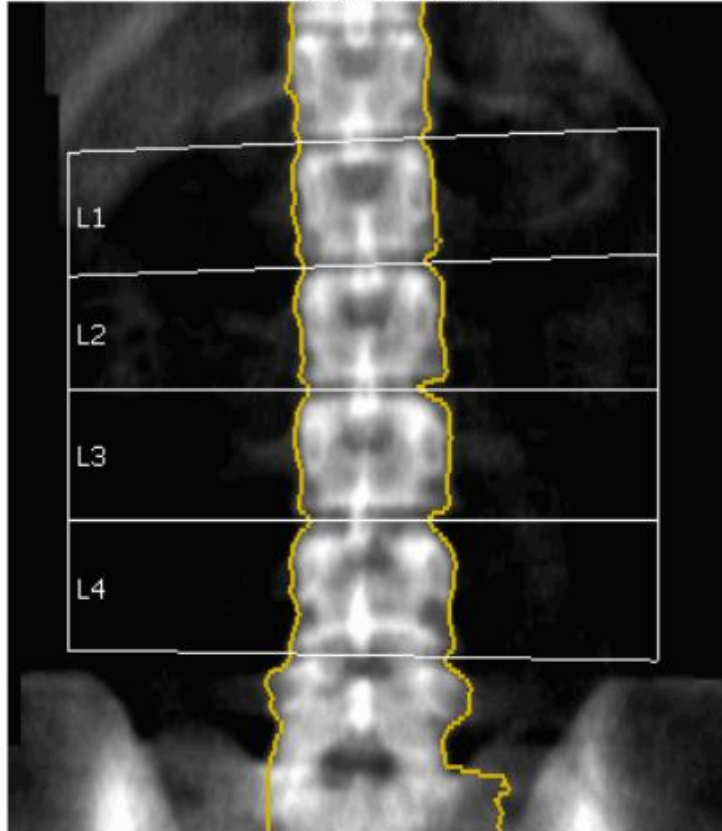


Normal study

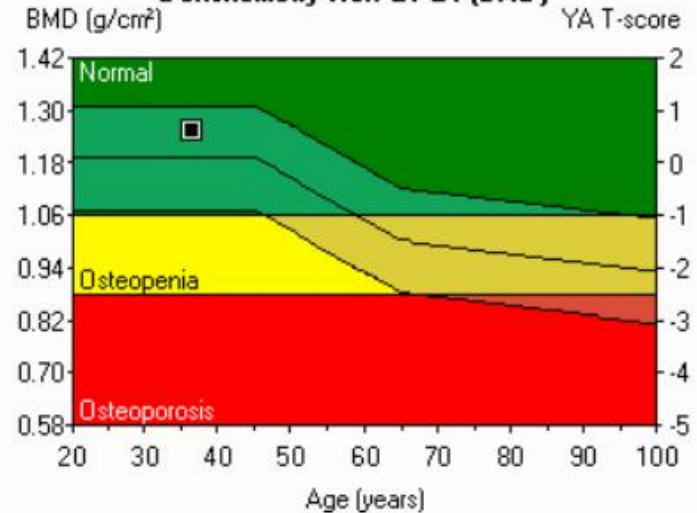
Height / Weight: 61.0 in. 150.0 lbs.
 Sex / Ethnic: Female Asian

Measured: 06/29/2016 10:13:55 AM (13.60)
 Analyzed: 06/29/2016 10:19:00 AM (13.60)

AP Spine Bone Density



Densitometry Ref: L1-L4 (BMD)



Region	¹ BMD (g/cm ²)	² Young-Adult T-score	³ Age-Matched Z-score
L1	1.160	0.3	0.1
L2	1.214	0.1	0.0
L3	1.283	0.7	0.6
L4	1.326	1.1	1.0
L1-L4	1.251	0.6	0.5

Normal study

- Spine Region of Interest (ROI)
- Use PA L1-L4 for spine BMD measurement
- Use all evaluable vertebrae and only exclude vertebrae that are affected by local structural change or artifact. Use three vertebrae if four cannot be used and two if three cannot be used
- BMD based diagnostic classification should not be made using a single vertebra.
- If only one evaluable vertebra remains after excluding other vertebrae, diagnosis should be based on a different valid skeletal site
- Anatomically abnormal vertebrae may be excluded from analysis if:
 - They are clearly abnormal and non-assessable within the resolution of the system; or
 - There is more than a 1.0 T-score difference between the vertebra in question and adjacent vertebrae
- When vertebrae are excluded, the BMD of the remaining vertebrae is used to derive the T-score
- The lateral spine should not be used for diagnosis, but may have a role in monitoring

Normal Study

Ancillary results

Height / Weight:	61.0 in. 150.0 lbs.	Measured:	06/29/2016 10:13:55 AM (13.60)
Sex / Ethnic:	Female Asian	Analyzed:	06/29/2016 10:19:00 AM (13.60)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹	Young-Adult ²	Age-Matched ³	BMC	Area	Width	Height
	(g/cm ³)	(%) T-score	(%) Z-score				
L1	1.160	103 0.3	102 0.1	12.11	10.44	3.4	3.11
L2	1.214	101 0.1	100 0.0	12.74	10.50	3.4	3.09
L3	1.283	107 0.7	106 0.6	14.87	11.59	3.6	3.26
L4	1.326	111 1.1	109 1.0	17.27	13.02	3.8	3.43
L1-L2	1.187	102 0.2	101 0.1	24.86	20.94	3.4	6.19
L1-L3	1.221	104 0.4	103 0.3	39.72	32.53	3.4	9.45
L1-L4	1.251	106 0.6	105 0.5	56.99	45.55	3.5	12.88
L2-L3	1.250	104 0.4	103 0.3	27.61	22.09	3.5	6.34
L2-L4	1.278	107 0.7	105 0.6	44.88	35.11	3.6	9.77
L3-L4	1.306	109 0.9	108 0.8	32.14	24.61	3.7	6.69

Need to have less than 1SD of difference between the T scores of adjacent vertebrae.

When there is a significant level to level variation in the spine select the levels with the lower reading

Must have 2 or more adjacent vertebrae, or exclude spine all together.

If need to exclude spine use the macro "DEXA Bad Lx"

Template “DEXA”

TECHNIQUE:

[Moore: General Electric Lunar Prodigy Advance.]
[Lewis: General Electric Lunar Prodigy.]

COMPARISON:

None.

FINDINGS:

LUMBAR SPINE([Insert appropriate levels]):
The bone mineral density is [] gm/cm sq.
Percentage of young normal mean is []%.
T-score is [].
Percentage age-matched mean is []%.
Z-score is [].

[]

IMPRESSION:

According to the World Health Organization and National Osteoporosis Foundation the classification is, [insert lowest of T-score equivalent wordage; Osteoporosis, Low bone mass, Normal]

Please contact Dr. Tudor Hughes with any question regarding this study at pager: 0408

CONCURRENT SUPERVISION:

I have reviewed the images and agree with the Fellow's interpretation.

Bone Densitometry

- In preventing Fxs it is the **worst** scenario that matters.
- Generally a slight increase in density as descend the L spine.
- Approx 6% increase between L1 and L4.

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.434	124 2.3	120 2.0	8.92	6.22	2.2	2.79
L2	1.983	160 6.2	156 5.9	24.44	12.33	3.6	3.46
L3	1.001	81 -2.0	79 -2.3	15.04	15.03	4.1	3.66
L4	0.937	76 -2.5	74 -2.8	16.51	17.62	4.8	3.69
L3-L4	0.966	78 -2.3	76 -2.6	31.55	32.65	4.4	7.35

Bone Densitometry

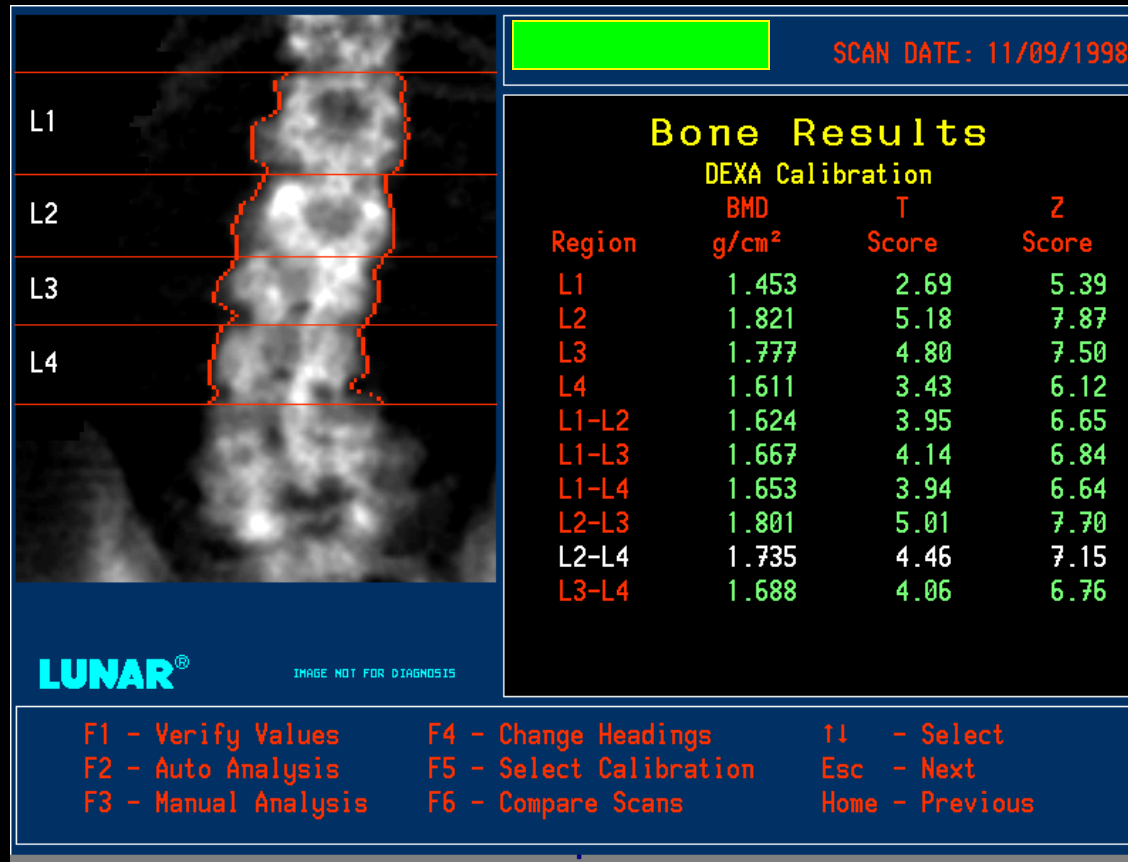
DEXA spine check list

- Look for significant level to level variations
- 1 T-score difference between adjacent levels don't include
- Use the macro "DEXA Bad Lx"

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.434	124 2.3	120 2.0	8.92	6.22	2.2	2.79
L2	1.983	160 6.2	156 5.9	24.44	12.33	3.6	3.46
L3	1.001	81 -2.0	79 -2.3	15.04	15.03	4.1	3.66
L4	0.937	76 -2.5	74 -2.8	16.51	17.62	4.8	3.69
L3-L4	0.966	78 -2.3	76 -2.6	31.55	32.65	4.4	7.35

What's wrong with this scan?



What's wrong with this scan?

SCAN DATE: 11/06/1997

Bone Results

DEXA Calibration

Region	BMD g/cm ²	T Score	Z Score
L1	0.898	-1.94	-1.07
L2	0.939	-2.18	-1.31
L3	1.246	0.38	1.25
L4	1.114	-0.72	0.15
L1-L2	0.922	-1.90	-1.03
L1-L3	1.084	-0.71	0.15
L1-L4	1.091	-0.74	0.13
L2-L3	1.132	-0.57	0.30
L2-L4	1.127	-0.61	0.26
L3-L4	1.195	-0.04	0.83

LUNAR[®] IMAGE NOT FOR DIAGNOSIS

F1 - Verify Values F4 - Change Headings ↑↓ - Select
F2 - Auto Analysis F5 - Select Calibration Esc - Next
F3 - Manual Analysis F6 - Compare Scans Home - Previous

ISCD

Spine Region of Interest (ROI)

- Use PA L1-L4 for spine BMD measurement
- Use all evaluable vertebrae and only exclude vertebrae that are affected by local structural change or artifact. Use three vertebrae if four cannot be used and two if three cannot be used
- BMD based diagnostic classification should not be made using a single vertebra.
- If only one evaluable vertebra remains after excluding other vertebrae, diagnosis should be based on a different valid skeletal site (Hip and or Forearm)
- Anatomically abnormal vertebrae may be excluded from analysis if:
 - They are clearly abnormal and non-assessable within the resolution of the system; or
 - There is more than a 1.0 T-score difference between the vertebra in question and adjacent vertebrae
- When vertebrae are excluded, the BMD of the remaining vertebrae is used to derive the T-score
- The lateral spine should not be used for diagnosis, but may have a role in monitoring

DEXA Femur check list

Hints for a good scan.

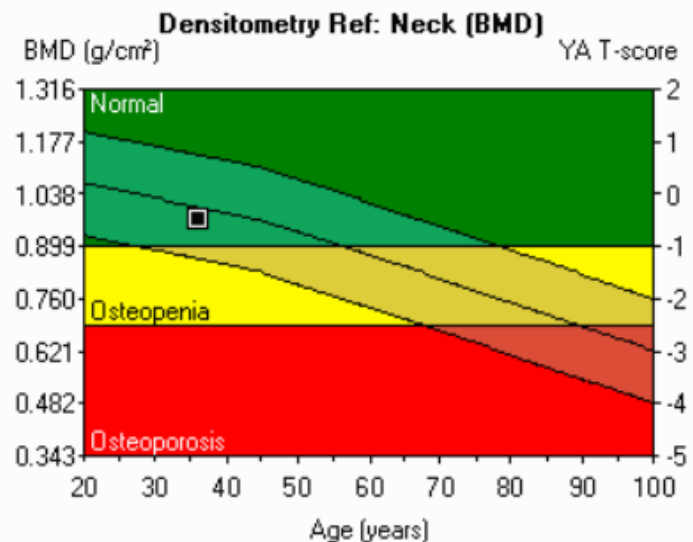
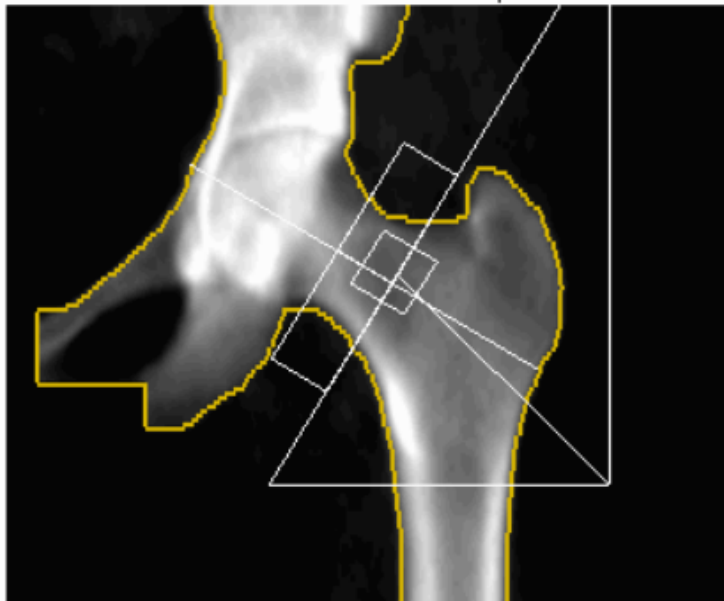
- Patient should be straight on table.
- Pack patient with rice bags.
- Shaft of femur should be straight.
- Rotate leg inward, this will hide the lesser trochanter.

Normal Hip

Height / Weight: 61.0 in. 150.0 lbs.
 Sex / Ethnic: Female Asian

Measured: 06/29/2016 10:15:22 AM (13.60)
 Analyzed: 06/29/2016 10:19:37 AM (13.60)

Left Femur Bone Density



Region	¹ BMD (g/cm ²)	² Young-Adult T-score	³ Age-Matched Z-score
Neck	0.971	-0.5	-0.2
Total	1.021	0.1	0.2

Use the Neck unless T-score femur total is lower than femur neck, then use total.

Normal Hip

Height / Weight:	61.0 in. 150.0 lbs.	Measured:	06/29/2016 10:15:22 AM (13.60)
Sex / Ethnic:	Female Asian	Analyzed:	06/29/2016 10:19:37 AM (13.60)

ANCILLARY RESULTS [Left Femur]

Region	BMD ¹	Young-Adult ²	Age-Matched ³		BMC (g)	Area (cm ²)
	(g/cm ²)	(%) T-score	(%) Z-score			
Neck	0.971	94 -0.5	97 -0.2	4.27	4.40	
Upper Neck	0.811	99 -0.1	99 -0.1	1.75	2.15	
Lower Neck	1.125	- -	- -	2.52	2.24	
Wards	0.793	87 -0.9	89 -0.8	1.70	2.14	
Troch	0.798	94 -0.5	95 -0.4	9.69	12.15	
Shaft	1.256	- -	- -	15.65	12.46	
Total	1.021	101 0.1	102 0.2	29.61	29.00	

Template “DEXA”

TECHNIQUE:

[Moore's: General Electric Lunar Prodigy Advance.]
[Lewis: General Electric Lunar Prodigy.]

COMPARISON:

LEFT FEMUR ([Neck][Total]):
The bone mineral density is [] gm/cm sq.
Percentage of young normal mean is []%.
T-score is [].
Percentage age-matched mean is []%.
Z-score is [].

[]

IMPRESSION:

According to the World Health Organization and National Osteoporosis Foundation the classification is, [insert lowest of T-score equivalent wordage; Osteoporosis, Low bone mass, Normal]

Please contact Dr. Tudor Hughes with any question regarding this study at pager: 0408

CONCURRENT SUPERVISION:

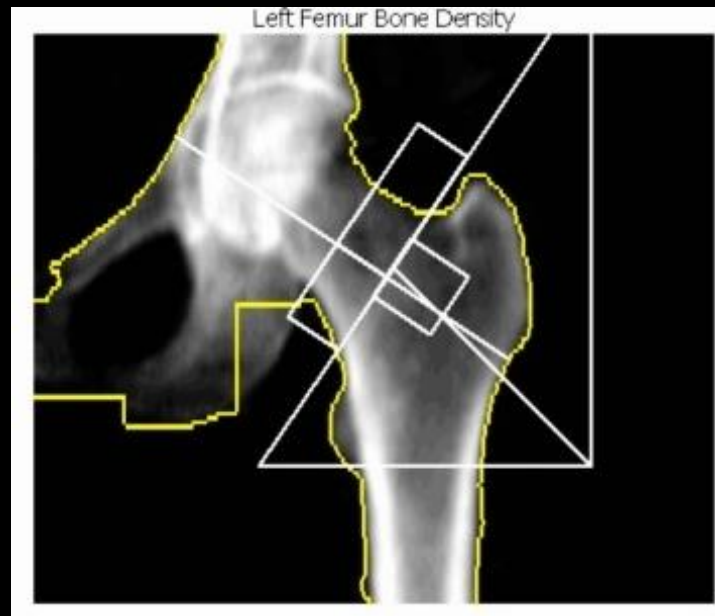
I have reviewed the images and agree with the Fellow's interpretation.

Repeat contralateral side

DEXA Femur check list

Hints for a good scan.

- The Wards area is roughly half the neck area
- Trochanteric area 8-14cm² in women, 10-16cm² in men
- Check left and right and state side being used in report.



DEXA Femur check list

Hints for a good scan.

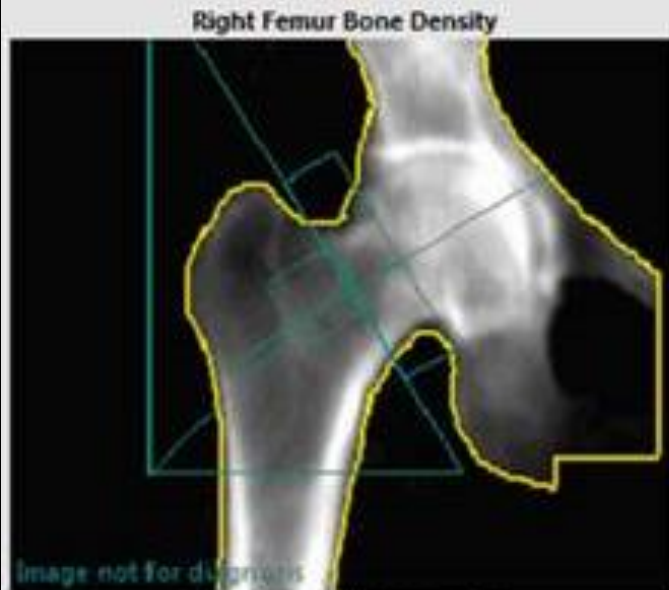
- The Wards area is roughly half the neck area
- Trochanteric area 8-14cm² in women, 10-16cm² in men
- Check left and right and state side being used in report.

ANCILLARY RESULTS [Left Femur]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%)	T-Score	Age-Matched ³ (%)	Z-Score	BMC (g)	Area (cm ²)
Neck	0.756	73	-2.0	90	-0.6	3.96	5.24
Upper Neck	0.539	66	-2.4	81	-1.1	1.39	2.58
Lower Neck	0.966	-	-	-	-	2.57	2.66
Wards	0.625	69	-2.2	94	-0.3	1.90	3.05
Troch	0.657	77	-1.7	90	-0.6	6.65	10.12
Shaft	0.993	-	-	-	-	14.75	14.86
Total	0.839	83	-1.3	98	-0.1	25.37	30.22

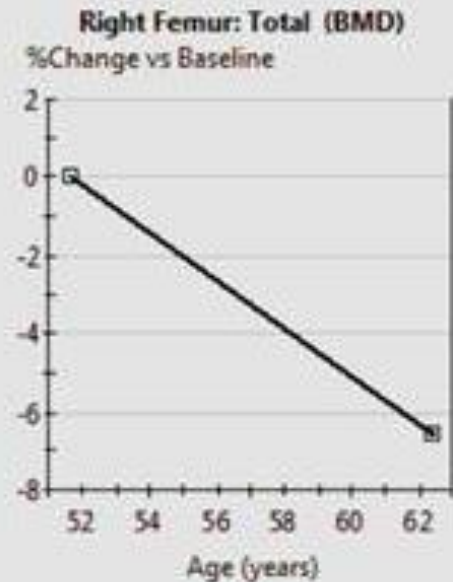
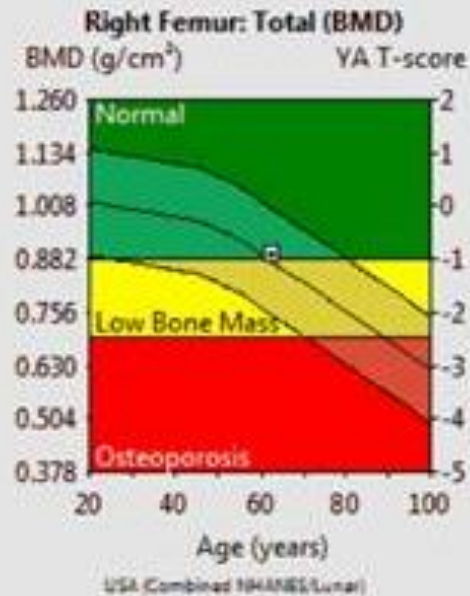
DEXA Femur check list

Hints for a good scan.



HAL chart results unavailable

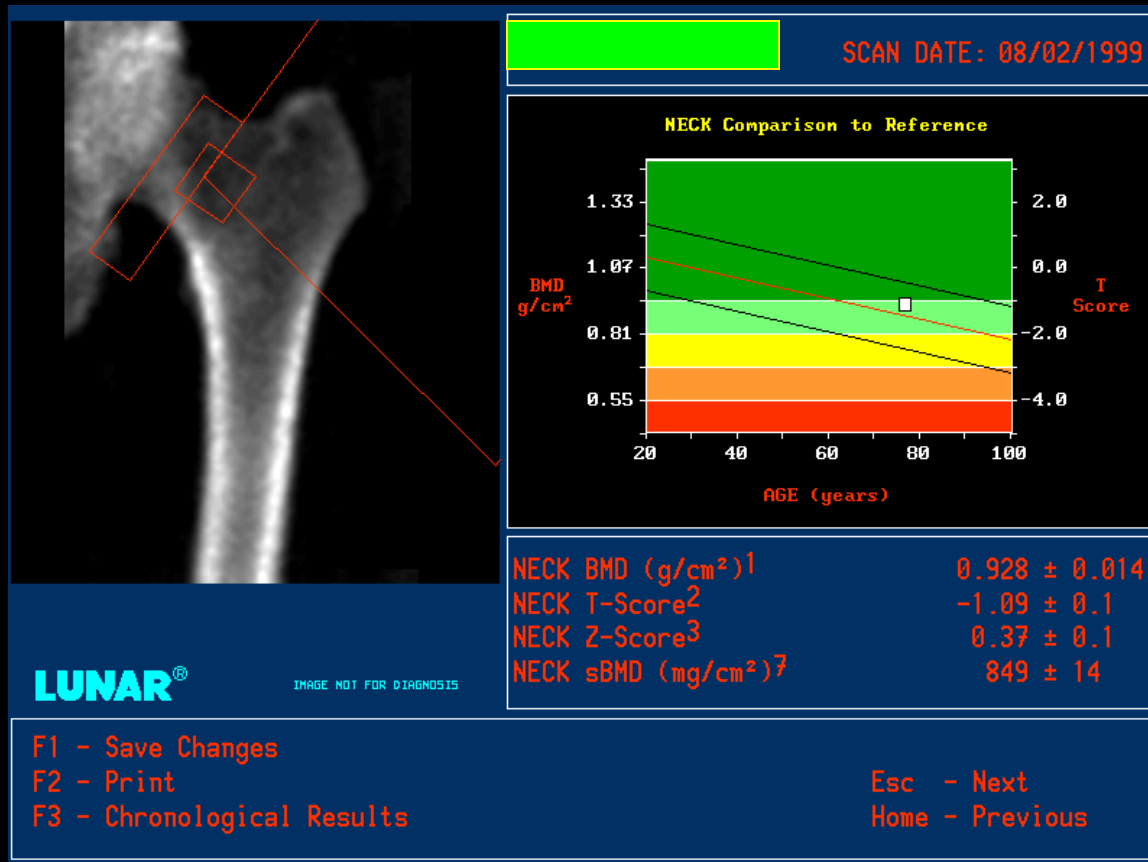
Age = 62.4 mm
Right = 101.3 mm Mean = N/A mm



Densitometry: USA (Combined NHANES/Lunar)			
Region	BMD (g/cm ²)	YA T-score	AM Z-score
Neck Right	1.043	0.0	1.4
Total Right	0.893	-0.9	0.1

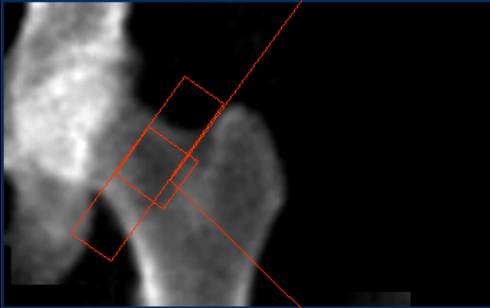
Densitometry Trend: Total Right				
Measured Date	Age (years)	BMD (g/cm ²)	Change vs Previous (%)	Change vs Baseline (%)
07/02/2018	62.4	0.893	-6.6 *	-6.6 *
09/07/2007	51.6	0.956	-	baseline

What's wrong with this scan?



What's wrong with this scan?

SCAN DATE: 04/26/1999



Bone Results
DEXA Calibration

Region	BMD g/cm ²	T Score	Z Score
NECK	0.699	-2.34	-1.98

Insufficient tissue below Neck

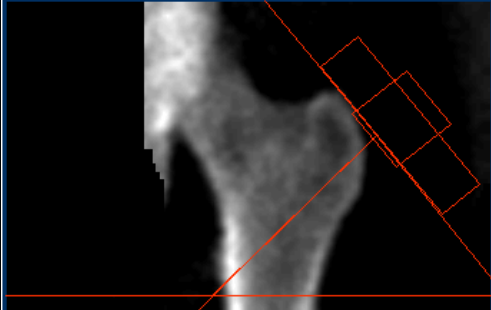
LUNAR[®] IMAGE NOT FOR DIAGNOSIS

F1 - Verify Values F4 - Change Headings ↑↓ - Select
F2 - Auto Analysis F5 - Select Calibration Esc - Next
F3 - Manual Analysis F6 - Compare Scans Home - Previous

Insufficient tissue below neck

What's wrong with this scan?

SCAN DATE: 12/13/1999



Bone Results

DEXA Calibration

Region	BMD g/cm ²	T Score	Z Score
NECK	0.025	-7.96	-7.28
TOTAL	0.981	-0.16	0.36

Insufficient Pelvis separation
Insufficient tissue above Neck

LUNAR[®] IMAGE NOT FOR DIAGNOSIS

F1 - Verify Values F4 - Change Headings ↑↓ - Select
F2 - Auto Analysis F5 - Select Calibration Esc - Next
F3 - Manual Analysis F6 - Compare Scans Home - Previous

What's wrong with this scan?

SCAN DATE: 07/29/1999

Bone Results

DEXA Calibration

Region	BMD g/cm ²	T Score	Z Score
NECK	0.626	-2.95	-1.03
TOTAL	0.591	-3.41	-1.67

Insufficient Pelvis separation

LUNAR[®] IMAGE NOT FOR DIAGNOSIS

F1 - Verify Values F4 - Change Headings ↑↓ - Select
F2 - Auto Analysis F5 - Select Calibration Esc - Next
F3 - Manual Analysis F6 - Compare Scans Home - Previous

ISCD

Hip ROI

- Use femoral neck, or total proximal femur whichever is lowest.
- BMD may be measured at either / both hip(s)
- There are insufficient data to determine whether mean T-scores for bilateral hip BMD can be used for diagnosis
- The mean hip BMD can be used for monitoring, with total hip being preferred

Indications for Forearm DEXA

33%

- Hip and/or spine cannot be measured or interpreted
- In Hyperparathyroidism
- Very obese patients (over the weight limit for DEXA table).

ISCD

Forearm ROI

- Use 33% radius (sometimes called one-third radius) of the non-dominant forearm for diagnosis. Other forearm ROI are not recommended

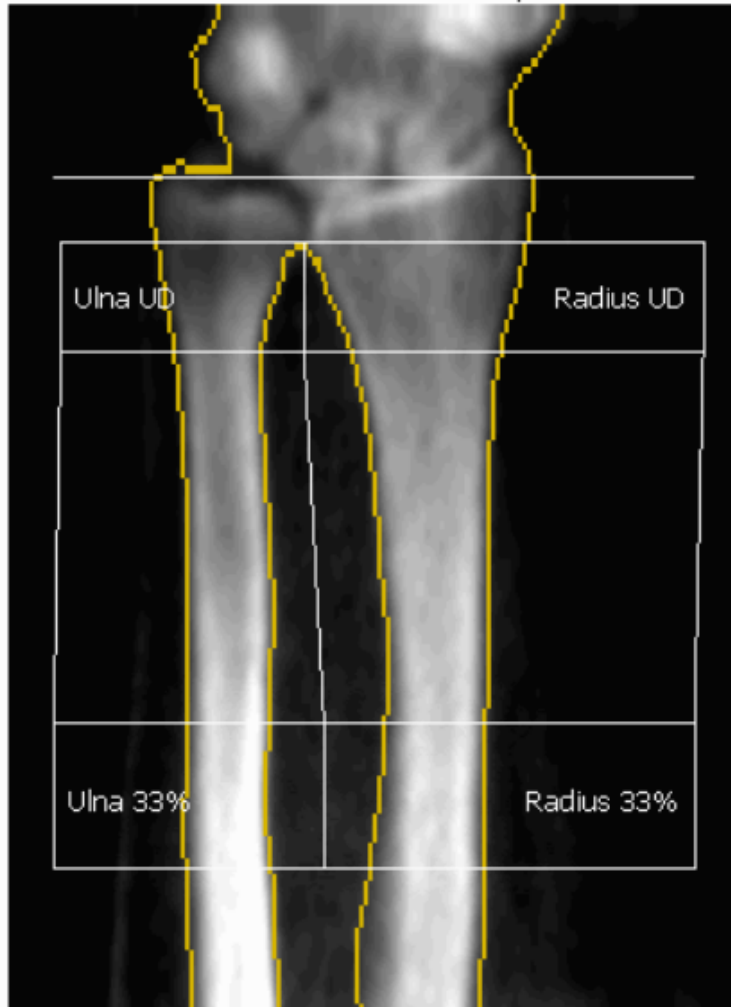
AVAILABLE TEMPLATES
1. SYSTEM DEFAULT
<i>PERSONAL</i>
2. BLANK
3. DEXA
4. DEXA FU
5. DEXA LESS THAN 50
6. DEXA LESS THAN 50 FU
7. DEXA PEDS
8. DEXA PEDS FU
9. DEXA RADIUS 33
10. DEXA RADIUS 33 FU

Normal Radius 33%

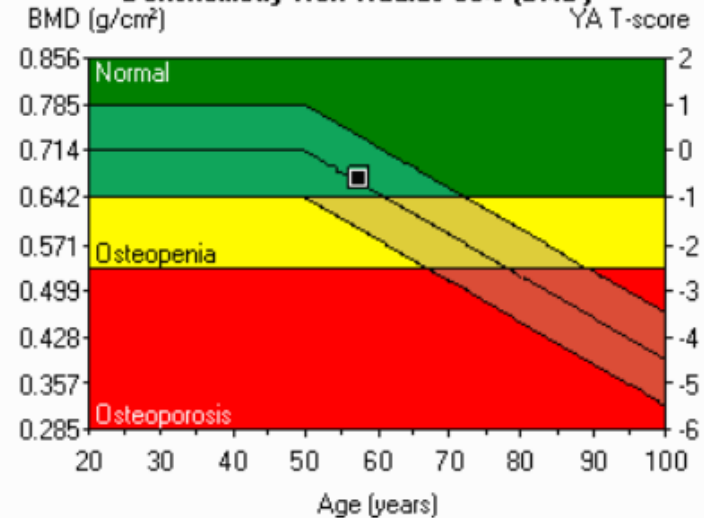
Height / Weight: 64.0 in. 186.0 lbs.
 Sex / Ethnic: Female White

Measured: 06/23/2016 10:23:53 AM (13.60)
 Analyzed: 06/23/2016 10:28:08 AM (13.60)

Left Forearm Bone Density



Densitometry Ref: Radius 33% (BMD)



Region	^{1,9} BMD (g/cm ²)	² Young-Adult T-score	³ Age-Matched Z-score
Radius UD	0.375	-0.1	0.6
Ulna UD	0.300	-	-
Radius 33%	0.670	-0.6	0.1
Ulna 33%	0.790	-	-
Both UD	0.347	-	-
Both 33%	0.722	-	-
Radius Total	0.544	-0.1	0.6
Ulna Total	0.557	-	-
Both Total	0.549	-	-

Normal Radius 33% Ancillary Results

Height / Weight:	64.0 in. 186.0 lbs.	Measured:	06/23/2016 10:23:53 AM (13.60)
Sex / Ethnic:	Female White	Analyzed:	06/23/2016 10:28:08 AM (13.60)

ANCILLARY RESULTS [Left Forearm]

Region	BMD ^{1,9}	Young-Adult ²	Age-Matched ³		BMC ⁹	Area (cm ²)
	(g/cm ²)	(%) T-score	(%)	Z-score	(g)	
Radius UD	0.375	99 -0.1	107	0.6	1.38	3.69
Ulna UD	0.300	- -	-	-	0.65	2.18
Radius 33%	0.670	94 -0.6	101	0.1	1.87	2.79
Ulna 33%	0.790	- -	-	-	1.69	2.14
Both UD	0.347	- -	-	-	2.04	5.87
Both 33%	0.722	- -	-	-	3.56	4.93
Radius Total	0.544	99 -0.1	106	0.6	7.70	14.16
Ulna Total	0.557	- -	-	-	5.52	9.91
Both Total	0.549	- -	-	-	13.22	24.07

Template DEXA Radius 33%

EXAM DESCRIPTION:

[<Procedure Description>]

CLINICAL HISTORY:

[Osteoporosis screening]

RIGHT RADIUS (33%):

The bone mineral density is [] gm/cm sq.

Percentage of young normal mean is []%.

T-score is [].

Percentage age-matched mean is []%.

Z-score is [].

World Health Organization and National Osteoporosis Foundation Classification is [].

Z-score is [].

World Health Organization and National Osteoporosis Foundation Classification is [].

IMPRESSION:

According to the World Health Organization and National Osteoporosis Foundation classification, this patient's right radius 33% is [].

CONCURRENT SUPERVISION:

[I have reviewed the images and agree with the fellow's interpretation.]

Bone Densitometry

- Spine T score is compared to reference population, 20-29 years, female, white.
 - Hip uses NHANES III
 - Spine manufacturer specific
- Z score is matched for age, sex, weight and ethnicity.

Bone Densitometry

WHO uses T scores

- Normal
 - ≥ -1 SD below young adult
- Low bone mass/density (Osteopenia)
 - -1.01 -2.49 SD
- Osteoporosis
 - ≤ -2.5 SD
- Established (Manifest) Osteoporosis
 - ≤ -2.5 SD, usually spine, hip, proximal humerus, wrist, rib

Post and perimenopausal women and men over 50 only

Premenopausal Women and Men < 50

- Use Z scores
- $Z \leq -2.0$
 - “below the expected range for age”
- $Z > -2.0$
 - “within the expected range for age”

Bone Densitometry

- Never round up figures
 - -0.99 is “normal”
 - -1 is “low bone mass”
 - -2.49 is “low bone mass”
 - -2.5 is “osteoporosis”,

Template "DEXA"

TECHNIQUE:

[Moore's: General Electric Lunar Prodigy Advance.]

RIGHT FEMUR ([Neck][Total]):

The bone mineral density is [] gm/cm sq.

Percentage of young normal mean is []%.

T-score is [].

Percentage age-matched mean is []%.

Z-score is [].

IMPRESSION:

According to the World Health Organization and National Osteoporosis Foundation the classification is, [insert lowest of T-score equivalent wordage; Osteoporosis, Low bone mass, Normal]

Please contact Dr. Tudor Hughes with any question regarding this study at pager: 0408

Choose the lowest T score

LUMBAR SPINE([Insert appropriate levels]):

The bone mineral density is [] gm/cm sq.

Percentage of young normal mean is []%.

T-score is [].

Percentage age-matched mean is []%.

Z-score is [].

nal Osteoporosis Foundation the classification is, [insert lowest of T-score
ormal]

egarding this study at pager: 0408

/s interpretation.

ISCD

Follow Up

- Intervals between BMD testing should be determined according to each patient's clinical status: typically one year after initiation or change of therapy is appropriate, with longer intervals once therapeutic effect is established.
- In conditions associated with rapid bone loss, such as glucocorticoid therapy, testing more frequently is appropriate.

Bone Densitometry

Comparison with previous

- Are the studies comparable
- Always compare like with like
 - KOP L1-4
 - 4th and Lewis
- Any intervening events
- Cannot compare Hologic and Lunar
- Cannot compare KOP and Hillcrest
- We try to have follow up scans at same location as prior

Bone Densitometry

Comparison with previous

- If over a period of time there is an increase in BMD in the lower lumbar spine and decrease in the upper lumbar spine, it is likely there is OA of the lower facet joints, and the upper lumbar spine is a truer reflection of useful BMD.

Bone Densitometry

Comparison with previous

- Increase in BMD of the femoral neck can be due to calcar buttressing with OA of the hip.

Bone Densitometry

Comparison with previous

- If you want to eyeball the % for a comparison, use the young adult % since the reference range will not change with age.

Height / Weight:		67.0 in.	140.
Sex / Ethnic:		Female	Whit

ANCILLARY RESULTS [AP S			Trend: L2-L4		Change vs					
Region	BMD ¹ (g/cm ²)	T	Measured Date	Age (years)	BMD ¹ (g/cm ²)	Previous (%)	Baseline (%)			
						4.2 *	7.8 *			
L1	1.230	1	06/24/2016	47.5	1.529	4.2 *	7.8 *			
L2	1.464	1	07/30/2015	46.6	1.467	-0.3	3.4 *			
L3	1.555	1	08/14/2014	45.6	1.472	3.7 *	3.7 *			
L4	1.556	130	06/26/2013	44.5	1.419	-	baseline			
L1-L2	1.342	115		3.0	133	3.2	24.56	15.79	4.1	3.83
L1-L3	1.415	121		1.5	118	1.7	33.17	24.71	3.7	6.61
L1-L4	1.457	123		2.0	124	2.3	53.25	37.63	3.7	10.07
L2-L3	1.511	126		2.3	127	2.6	77.81	53.41	3.8	13.90
L2-L4	1.529	127		2.6	129	2.8	37.41	24.75	3.7	6.76
L3-L4	1.555	130		2.7	131	3.0	61.97	40.54	3.8	10.59
				3.0	133	3.2	44.64	28.71	3.9	7.29

Bone Densitometry

Comparison with previous

- If you would have expected the bone density to have fallen 4% in 2 years, and it is static, then this is a positive response to RX

Bone Densitometry

Comparison with previous

- Generally Rx affects all levels equally.
- OA does not.

ISCD

Hip ROI

- Total hip is preferred for monitoring, no matter if total is denser than neck.
- So report lower of “total” or “neck” in measurements and “total” in comparison.

Femur

Selecting area to measure

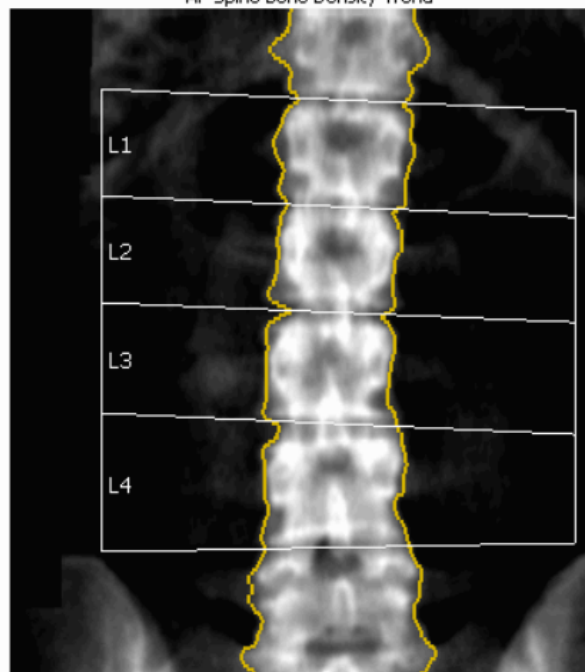
- Always explain any variation in reading technique from the previous study.
- Watch out for the * that denotes a significant change from prior.

Measured Date	Age (years)	Trend: L2-L4 ¹ BMD (g/cm ²)	Change vs	
			Previous (%)	Baseline (%)
06/24/2016	47.5	1.529	4.2 *	7.8 *
07/30/2015	46.6	1.467	-0.3	3.4 *
08/14/2014	45.6	1.472	3.7 *	3.7 *
06/26/2013	44.5	1.419	-	baseline

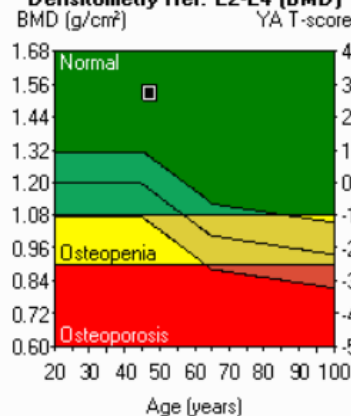
Height / Weight: 67.0 in. 140.0 lbs.
 Sex / Ethnic: Female White

Measured: 06/24/2016 3:15:38 PM (13.60)
 Analyzed: 06/24/2016 3:23:01 PM (13.60)

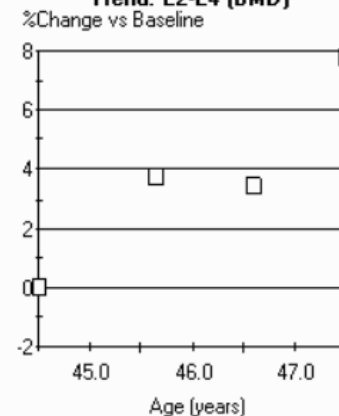
AP Spine Bone Density Trend



Densitometry Ref: L2-L4 (BMD)



Trend: L2-L4 (BMD)



Region	¹ BMD (g/cm ²)	² Young-Adult T-score	³ Age-Matched Z-score
L1	1.230	0.8	1.1
L2	1.464	2.2	2.5
L3	1.555	3.0	3.2
L4	1.556	3.0	3.2
L1-L4	1.457	2.3	2.6
L2-L4	1.529	2.7	3.0

Measured Date	Age (years)	Trend: L2-L4		
		¹ BMD (g/cm ²)	Change vs Previous (%)	Change vs Baseline (%)
06/24/2016	47.5	1.529	4.2 *	7.8 *
07/30/2015	46.6	1.467	-0.3	3.4 *
08/14/2014	45.6	1.472	3.7 *	3.7 *
06/26/2013	44.5	1.419	-	baseline

COMMENTS: F/U 2015
 POST LUNG TRANSPLANT
 ON PREDNISONE

NANCY

Image not for diagnosis

Printed: 06/24/2016 3:23:47 PM (13.60)76:3:00:50.03:12.0 0.00:8.58 0.60x1.05
 20.7%Fat=37.1%
 0.00:0.00 0.00:0.00
 Filename: 14ra9o2sqt.dfx
 Scan Mode: Standard 37.0 µGy

* -Indicates significant change based on 95% confidence interval.

1 -Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for AP Spine L2-L4)

2 -USA (Combined NHANES (ages 20-30) / Lunar (ages 20-40)) AP Spine Reference Population (v112)

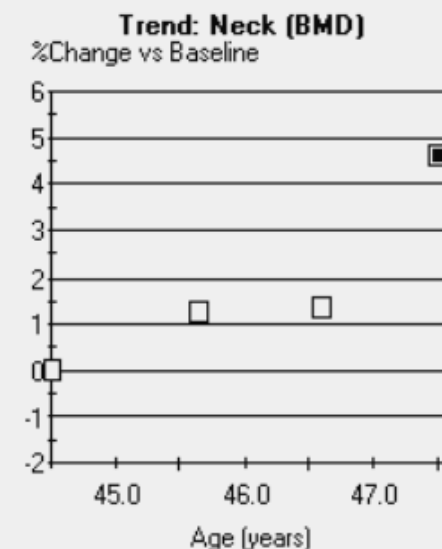
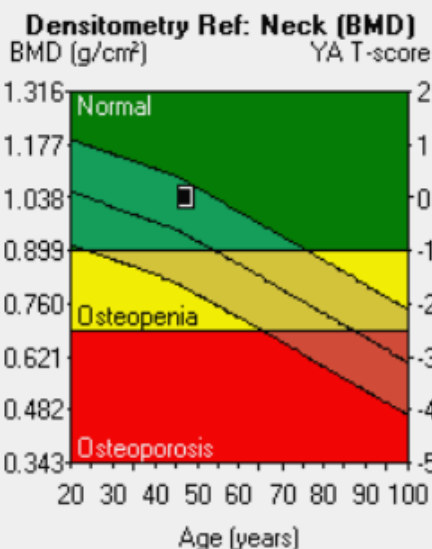
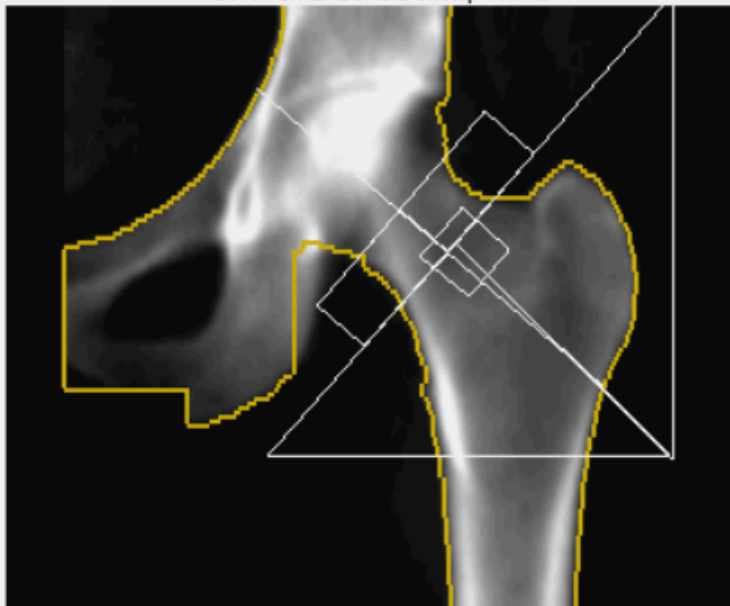
3 -Matched for Age, Weight (females 25-100 kg), Ethnic

11 -World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-score at or above -1.0 SD; Osteopenia = T-score between -1.0 and -2.5 SD;
 Osteoporosis = T-score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-scores.)

Height / Weight: 67.0 in. 140.0 lbs.
 Sex / Ethnic: Female White

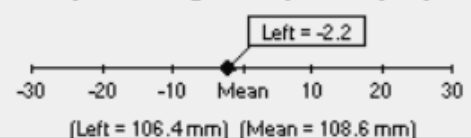
Measured: 06/24/2016 3:16:39 PM (13.60)
 Analyzed: 06/24/2016 3:21:54 PM (13.60)

Left Femur Bone Density Trend



Region	¹ BMD (g/cm ²)	² Young-Adult T-scores	³ Age-Matched Z-score
Neck	1.041	0.0	0.7
Total	0.980	-0.2	0.2

Hip Axis Length Comparison (mm)



COMMENTS: F/U 2015
 POST LUNG TRANSPLANT
 ON PREDNISONE

NANCY

Trend: Neck

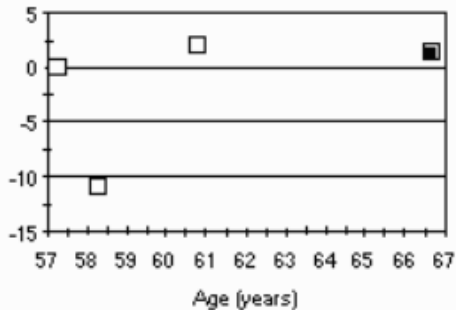
Measured Date	Age (years)	¹ BMD (g/cm ²)	Change vs Previous (%)	Baseline (%)
06/24/2016	47.5	1.041	3.3	4.6 *
07/30/2015	46.6	1.008	0.1	1.3
08/14/2014	45.6	1.007	1.2	1.2
06/26/2013	44.5	0.995	-	baseline

DEXA FU

Height / Weight: 60.5 in. 97.0 lbs. Measured: 06/28/2016 2:04:12 PM (13.60)
 Sex / Ethnic: Female White Analyzed: 06/28/2016 2:06:08 PM (13.60)

Trend: Neck Mean (BMD)

%Change vs Baseline



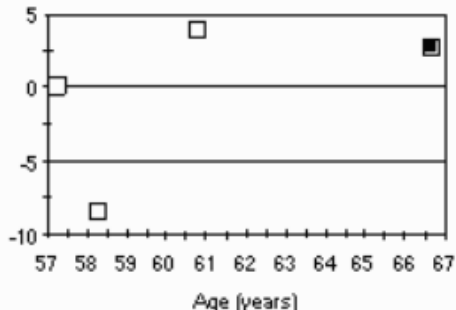
Trend: DualFemur Neck Mean

Measured Date	Age (years)	BMD ¹ (g/cm ²)	Change vs	
			Previous (%)	Baseline (%)
06/28/2016	66.6	0.743	-0.7	1.2
08/19/2010	60.8	0.748	14.5*	1.9
02/13/2008	58.2	0.653	-11.0*	-11.0*
01/31/2007	57.2	0.734	-	baseline

1 - Statistically 68% of repeat scans fall within 1SD (± 0.012 g/cm² for DualFemur Neck)
 7 - DualFemur Total T-score difference is 0.0. Asymmetry is None.

Trend: Total Mean (BMD)

%Change vs Baseline



Trend: DualFemur Total Mean

Measured Date	Age (years)	BMD ¹ (g/cm ²)	Change vs	
			Previous (%)	Baseline (%)
06/28/2016	66.6	0.851	-1.2	2.7
08/19/2010	60.8	0.861	13.6*	3.9*
02/13/2008	58.2	0.758	-8.6*	-8.6*
01/31/2007	57.2	0.829	-	baseline

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for DualFemur Total)
 7 - DualFemur Total T-score difference is 0.0. Asymmetry is None.

This new page in PACS helps separate "Neck" and "Total"

DEXA FU

RIGHT FEMUR ([Neck][Total]):

The bone mineral density is [] gm/cm sq.

Percentage of young normal mean is []%.

T-score is [].

Percentage age-matched mean is []%.

Z-score is [].

COMMENT:

The right femur total demonstrates an interval change of []% from the most recent previous study of [], which is [not] a statistically significant change and an interval change of []% from the baseline study of [], which is [not] a statistically significant change.

LEFT FEMUR ([Neck][Total]):

The bone mineral density is [] gm/cm sq.

Percentage of young normal mean is []%.

T-score is [].

Percentage age-matched mean is []%.

Z-score is [].

COMMENT:

The left femur total demonstrates an interval change of []% from the most recent previous study of [], which is [not] a statistically significant change and an interval change of []% from the baseline study of [], which is [not] a statistically significant change.

LUMBAR SPINE([Insert appropriate levels]):

The bone mineral density is [] gm/cm sq.

Percentage of young normal mean is []%.

T-score is [].

Percentage age-matched mean is []%.

Z-score is [].

COMMENT:

The lumbar spine [Insert appropriate levels] demonstrates an interval change of []% from the most recent previous study of [], which is [not] a statistically significant change and an interval change of []% from the baseline study of [], which is [not] a statistically significant change.

[]

DEXA FU

IMPRESSION:

According to the World Health Organization and National Osteoporosis Foundation the classification is [insert lowest of T-score equivalent wordage: Osteoporosis, Low bone mass, Normal]

In comparison with the most recent previous study of [] there has been a percentage [increase/decrease] that is greatest at the [X] of []%, which is [not] a statistically significant change and from the baseline study of [], that is greatest at the [X] of []%, which is [not] a statistically significant change.

[]

Please contact Dr. Tudor Hughes with any question regarding this study at pager: 0408

Select worse case scenario for current and comparison

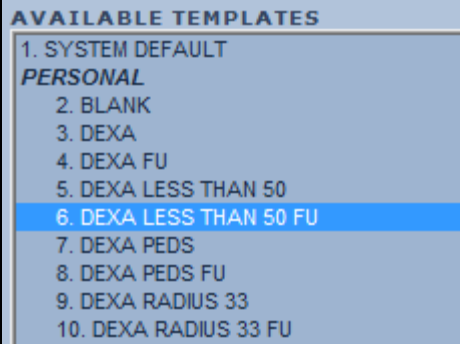
If there is no * next to the % change, please just use the wordage “No significant change”.

ISCD

Serial BMD Measurements

- Serial BMD testing can be used to determine whether treatment should be started on untreated patients, because significant loss may be an indication for treatment.
- Serial BMD testing can monitor response to therapy by finding an increase or stability of bone density.
- Serial BMD testing can evaluate individuals for non-response by finding loss of bone density, suggesting the need for reevaluation of treatment and evaluation for secondary causes of osteoporosis.
- Follow-up BMD testing should be done when the expected change in BMD equals or exceeds the least significant change (LSC).

Bone mass in healthy children



Bone mass in healthy children

- Increases with age, weight and pubertal Tanner stage.
- **Tanner stage and weight** are best predictors of bone mass.
- Age, sex, race, activity and diet are not good predictors, when weight and Tanner stage are controlled.

Bone mass in healthy children

- Make sure we have at least the age and weight of the child, if not the Tanner stage.

BMD in children and adolescents

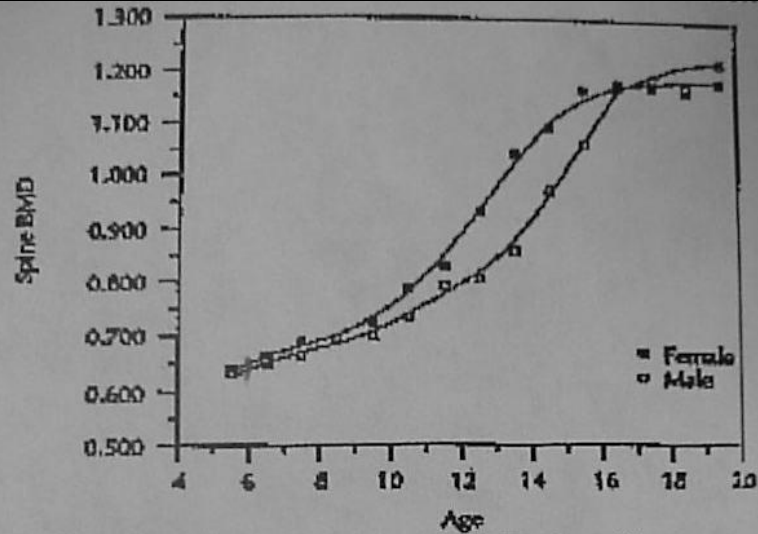


Figure 1. Male and female spine BMD plotted by age.

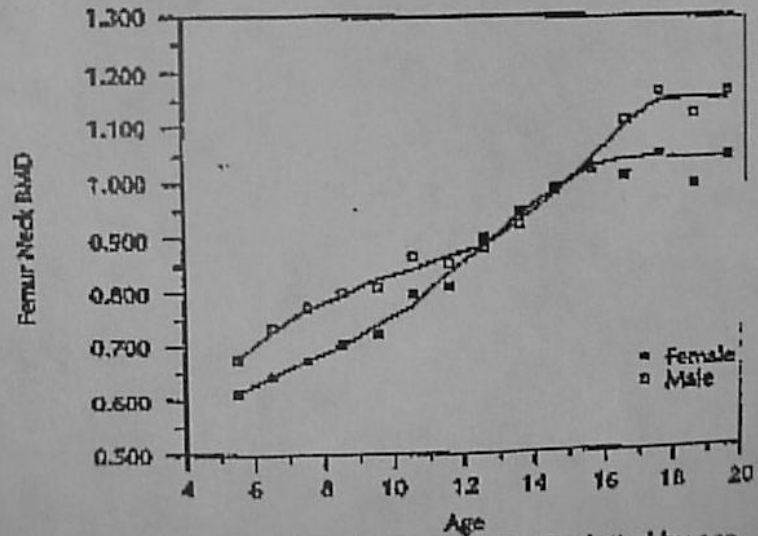


Figure 2. Male and female femur neck BMD plotted by age.

ISCD

BMD Reporting in Females Prior to Menopause and in Males Younger Than Age 50

- Z-scores, not T-scores, are preferred. This is particularly important in children.
- A Z-score of -2.0 or lower is defined as “below the expected range for age”
- A Z-score above -2.0 is “within the expected range for age.”
- Osteoporosis cannot be diagnosed in men under age 50 on the basis of BMD alone.
- The WHO diagnostic criteria may be applied to women in the menopausal transition.

DEXA PEDS

EXAM DESCRIPTION:

[<Procedure Description>]

CLINICAL HISTORY:

[Osteoporosis screening]

TECHNIQUE:

[Moore's: General Electric Lunar Prodigy Advance.]

[Lewis: General Electric Lunar Prodigy.]

COMPARISON:

[]

FINDINGS:

LUMBAR SPINE (L1-4):

The bone mineral density is [] gm/cm sq.

Percentage age-matched mean is []%.

Z-score is [].

Due to patient age, T- score could not be calculated.

IMPRESSION:

In comparison with age, weight, sex, and ethnicity matched children, this patient has [] standard deviations [less] bone density.

CONCURRENT SUPERVISION:

[I have reviewed the images and agree with the fellow's interpretation.]

ISCD

Fracture Risk Assessment

- A distinction is made between diagnostic classification and the use of BMD for fracture risk assessment.
- For fracture risk assessment, any well-validated technique can be used, including measurements of more than one site where this has been shown to improve the assessment of risk.

WHO Fracture Risk Algorithm (FRAX®)

- FRAX was developed to calculate the 10-year probability of a hip fracture and the 10-year probability of a major osteoporotic fracture (defined as clinical vertebral, hip, forearm or proximal humerus fracture)
- This takes into account femoral neck BMD and the clinical risk factors
- The FRAX® algorithm is available at www.nof.org

FRAX

- FRAX is intended for postmenopausal women and men age 50 and older.
- The FRAX tool has not been validated in patients currently or previously treated with pharmacotherapy for osteoporosis

FRAX

- FRAX can be calculated with either femoral neck BMD or total hip BMD but when available, femoral neck BMD is preferred.

FRAX

- Please remember that FRAX is only of use in patients who are of “low bone mass” and not on treatment for osteoporosis.

FRAX print out 4th + Lewis

Height / Weight:	60.5 in. 97.0 lbs.	Measured:	06/28/2016 2:04:12 PM (13.60)
Sex / Ethnic:	Female White	Analyzed:	06/28/2016 2:06:08 PM (13.60)

DualFemur FRAX*

Risk Factors:

- None
- Alcohol (3 or more units per day)
- Family Hist. (Parent hip fracture)
- Glucocorticoids (Chronic)
- History of Fracture (Adult)
- Secondary Osteoporosis
- Rheumatoid Arthritis
- Tobacco User (Current Smoker)

10-year Probability of Fracture:¹⁷

Major Osteoporotic ¹⁸	11.2%
Hip	2.6%
Population	USA (Caucasian)
Based on DualFemur (Left) Neck BMD	

FRAX print out KOP

Birth Date:	08/07/1943	Age:	74.9 years	Patient ID:	30622866
Height:	66.0 in.	Weight:	212.0 lbs.	Measured:	07/03/2018 7:46:27 AM (17 [SP 1])
Sex:	Female	Ethnicity:	White	Analyzed:	07/03/2018 7:56:56 AM (17 [SP 1])

FRAX* 10-year Probability of Fracture

Based on femoral neck BMD: DualFemur (Left)



Major Osteoporotic Fracture:	9.1%
Hip Fracture:	1.3%
Population:	USA (Caucasian)
Risk Factors:	Secondary Osteoporosis

FRAX macro

- 10 year probability of fracture:
-
- Major osteoporotic: []%
-
- Hip: []%
-
- Population: USA (Caucasian)
-
- Based on DualFemur (left) neck BMD

Vertebral Fracture Assessment

- Nomenclature
- Vertebral Fracture Assessment (VFA) is the correct term to denote densitometric spine imaging performed for the purpose of detecting vertebral fractures.



Bone Densitometry

Height 5'2 Weight 182
 Current Medical Problems: Arthritis, Hemorrhoids

Reason for Bone Density Assessment?
 Current Medications: Oxycodone 500 mg, Methotrexate 2.5 mg 2 tablets morning and 3 tablets evening one day per week, Lisinopril 10mg 1mg per day, Diltiazem XL 180 mg 1/2 per day, folic acid 1mg 1/2 per day, Aspirin 81mg 1 every day

* Do you smoke? Y N For how long? _____ How many per day? _____
 * Do you drink alcohol regularly? Y N If yes, drinks per day? _____
 * Dietary Calcium? High Low
 * Supplemental Calcium? Y N Oxycodone 500 mg/day

FOR WOMEN ONLY: Premenopausal Perimenopausal Postmenopausal
 * Irregular periods? Y N
 * Hysterectomy? Y N
 * Ovaries removed? Y N
 * Are you taking: Birth control pills? Y N Hormone replacement? Y N

FOR ALL HAVE YOU HAD:
 Any non-trauma related fractures? Hip Spine Wrist/Forearm Humerus
 Abnormal Blood calcium levels? Y N When? _____
 History of blood clots? Y N When? _____
 Diabetes? Y N When? _____
 Kidney stones? Y N When? _____
 Known Bowel disease? Y N When? _____
 Other major diseases? stroke Y N When? 1991

Do you have any of the following?
 Heart disease? Y N
 Hypertension? Y N
 Hyperthyroidism? Y N
 Hypothyroidism? Y N

Have you taken?
 Thyroid hormones? Y N How long? _____
 Cortisone or prednisone? Y N How long? prednisone every day
 Any seizure medications? Y N How long? _____
 Diuretics? Y N How long? _____
 Miacalcin Calcimar Fosamax Raloxifene (Evista) Other _____
 for the treatment of Osteoporosis?

HAVE OTHERS IN YOUR FAMILY HAD:
 Osteoporosis? Y N

Age: 44 Years

Height / Weight: 62.0 in. 182.0 lbs. Measured: 7/5/2006 1:54:04 PM (9:30)
 Sex / Ethnic: Female Hispanic Analyzed: 7/5/2006 1:59:06 PM (9:30)

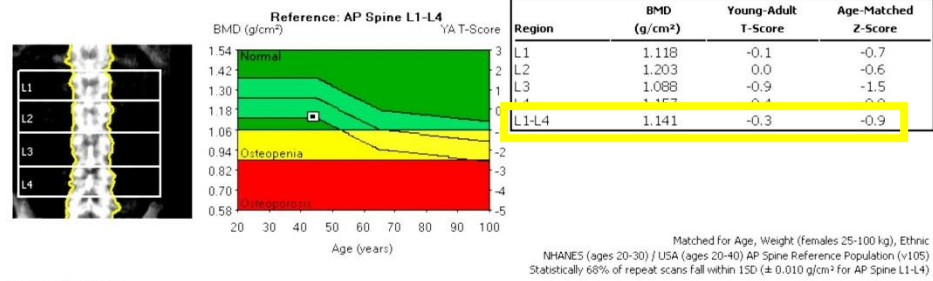


Image not for diagnosis

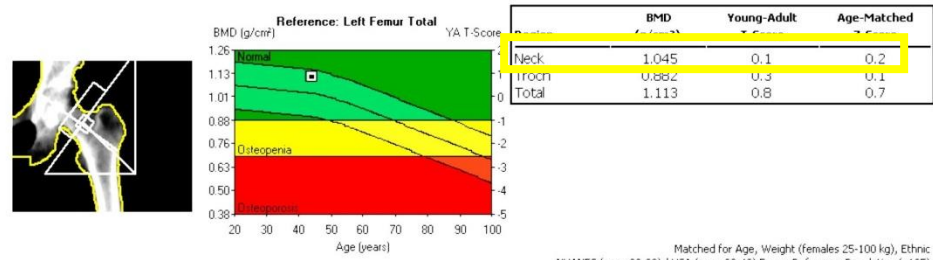
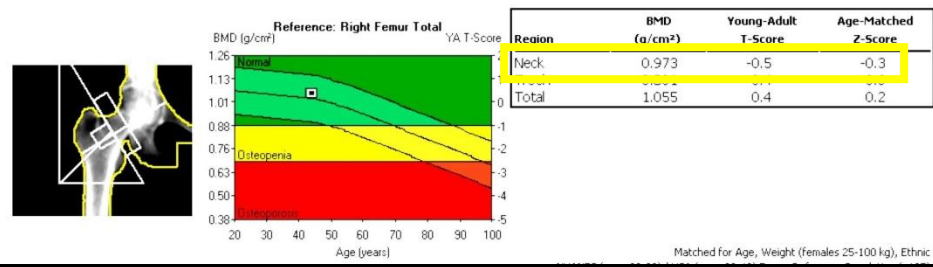


Image not for diagnosis



Bone Densitometry

Height / Weight:	62.0 in. 182.0 lbs.	Measured:	7/5/2006	1:54:04 PM	(9.30)
Sex / Ethnic:	Female Hispanic	Analyzed:	7/5/2006	1:59:06 PM	(9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.118	99 -0.1	93 -0.7	12.24	10.94	3.7	2.97
L2	1.203	100 0.0	95 -0.6	14.42	11.99	3.7	3.26
L3	1.088	91 -0.9	86 -1.5	14.02	12.88	3.7	3.44
L4	1.157	96 -0.4	91 -0.9	14.55	12.57	4.1	3.05
L1-L2	1.162	100 0.0	94 -0.6	26.66	22.93	3.7	6.22
L1-L3	1.136	97 -0.3	92 -0.9	40.68	35.82	3.7	9.66
L1-L4	1.141	97 -0.3	91 -0.9	55.23	48.39	3.8	12.71
L2-L3	1.144	95 -0.5	90 -1.1	28.44	24.87	3.7	6.69
L2-L4	1.148	96 -0.4	90 -1.0	42.99	37.45	3.9	9.74
L3-L4	1.122	94 -0.6	88 -1.2	28.57	25.46	3.9	6.48

Check T scores for more than a 1.0 level to level difference

Bone Densitometry

Height / Weight:	62.0 in.	182.0 lbs.	Measured:	7/5/2006	1:58:07 PM	(9.30)
Sex / Ethnic:	Female	Hispanic	Analyzed:	7/5/2006	1:58:48 PM	(9.30)

ANCILLARY RESULTS [Right Femur]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%)	T-Score	Age-Matched ³ (%)	Z-Score	BMC (g)	Area (cm ²)
Neck	0.973	94	-0.5	96	-0.3	5.20	5.34
Upper Neck	0.882	107	0.5	104	0.3	2.31	2.62
Wards	0.990	109	0.6	109	0.6	3.14	3.17
Troch	0.801	94	-0.4	92	-0.6	8.35	10.43
Shaft	1.284	-	-	-	-	17.35	13.51
Total	1.055	105	0.4	103	0.2	30.90	29.28

Neck or total, which is lowest?

Bone Densitometry

Height / Weight:	62.0 in.	182.0 lbs.	Measured:	7/5/2006	1:57:23 PM	(9.30)
Sex / Ethnic:	Female	Hispanic	Analyzed:	7/5/2006	1:58:45 PM	(9.30)

ANCILLARY RESULTS [Left Femur]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)
Neck	1.045	101 0.1	103 0.2	3.96	3.79
Upper Neck	0.889	108 0.6	105 0.4	1.65	1.86
Wards	0.890	98 -0.2	98 -0.1	1.42	1.60
Troch	0.882	104 0.3	102 0.1	9.66	10.95
Shaft	1.321	- -	- -	17.67	13.37
Total	1.113	110 0.8	108 0.7	31.30	28.12

Neck or total, which is lowest?

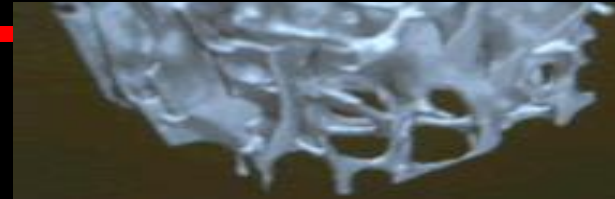
Z and T

Z score is matched for age, sex, weight and ethnicity.

REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	0.954	84	-1.47	79	-2.08
L2	0.997	83	-1.69	78	-2.35
L3	1.166	97	-0.28	91	-0.93
L4	1.112	93	-0.73	87	-1.38
L1-L2	0.977	85	-1.44	80	-2.07
L1-L3	1.045	89	-1.04	84	-1.68
L1-L4	1.064	90	-0.96	85	-1.60
L2-L3	1.084	90	-0.97	85	-1.62
L2-L4	1.094	91	-0.88	86	-1.54
L3-L4	1.137	95	-0.52	89	-1.17

Two possible reasons for this lady's Z score being worse than the T score?

Z and T



REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	0.954	84	-1.47	79	-2.08
L2	0.997	83	-1.69	78	-2.35
L3	1.166	97	-0.28	91	-0.93
L4	1.112	93	-0.73	87	-1.38
L1-L2	0.977	85	-1.44	80	-2.07
L1-L3	1.045	89	-1.04	84	-1.68
L1-L4	1.064	90	-0.96	85	-1.60
L2-L3	1.084	90	-0.97	85	-1.62
L2-L4	1.094	91	-0.88	86	-1.54
L3-L4	1.137	95	-0.52	89	-1.17

Two possible reasons for this lady's Z score being worse than the T score?

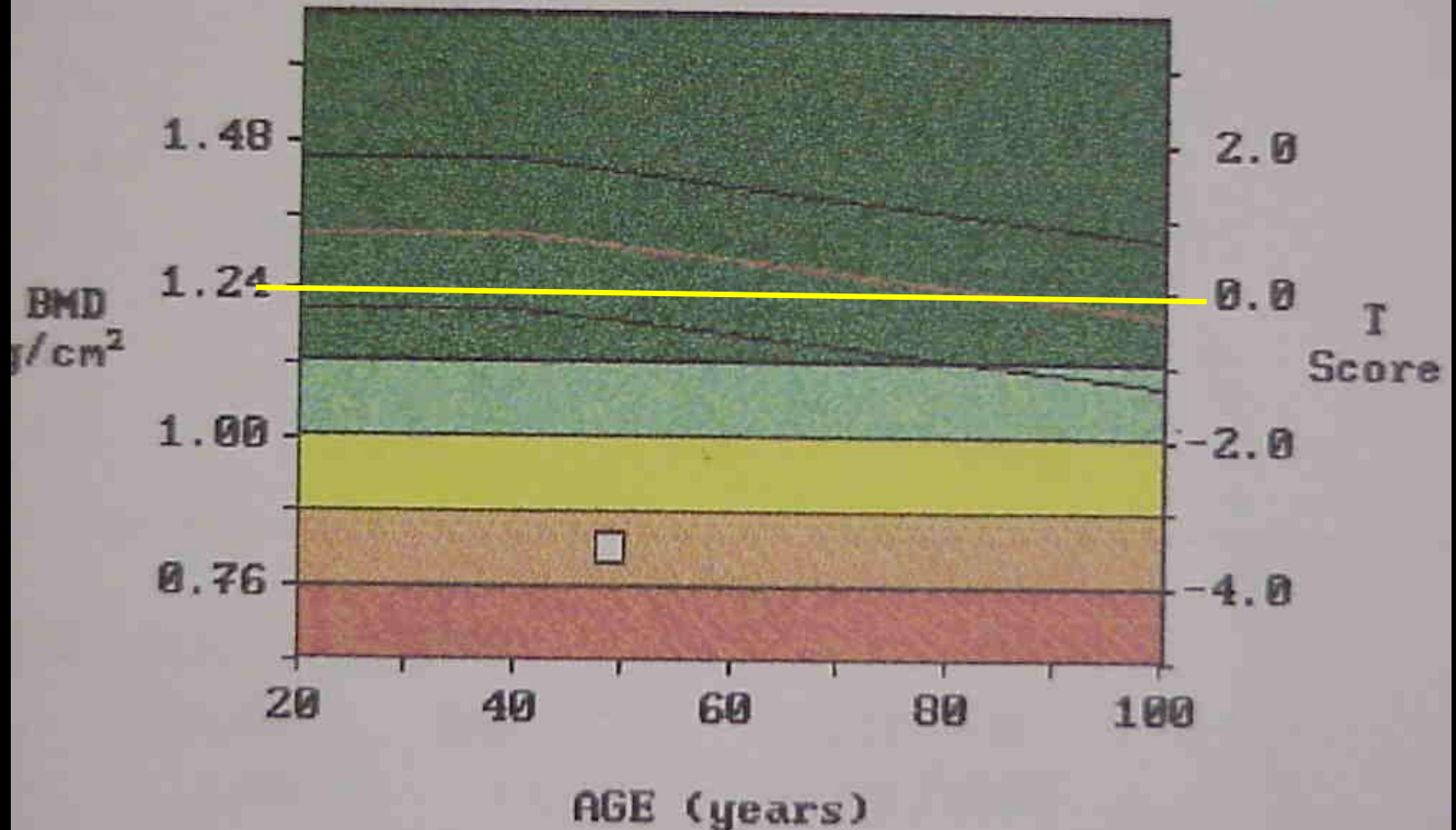
Obesity and race

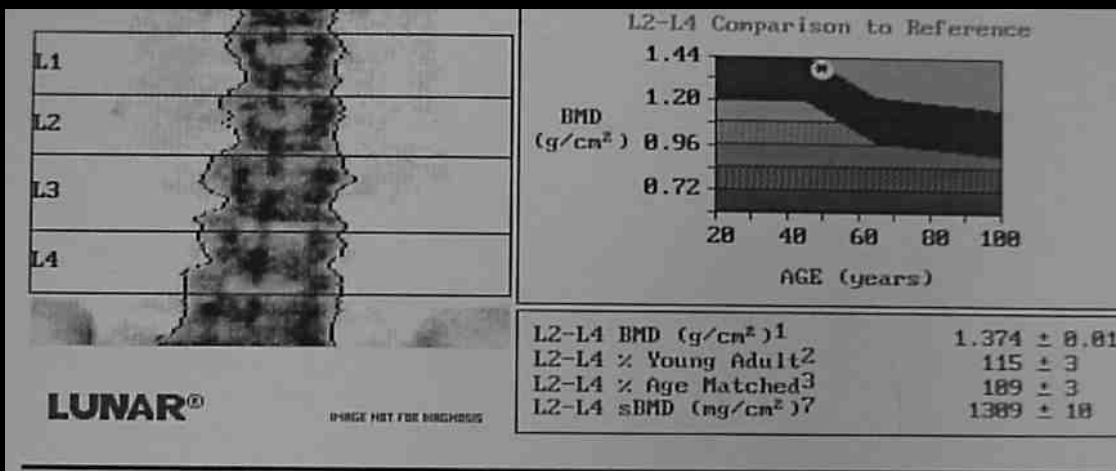
The **T score** is based on a white, same sex, age 20-29 population. The patient's BMD is compared to this population's BMD. A lower T score means that the patient BMD is low compared to this young, healthy normal weight population.

The **Z score** compares the patient to an adjusted population, it adjusts for sex, age, weight, and ethnic background. The Z score can be lower than the T score for the patient, if the average patient in this population has a higher BMD than the average in the T score population. This can be seen in patients with higher weights, (which increases bone density), and in African American groups, (which show increased bone density).

If the patients comparison group has a generally higher bone density, then it is possible to have a poorer comparison to others of same age, than to younger comparisons in generally lower density group.

L2-L4 Comparison to Reference



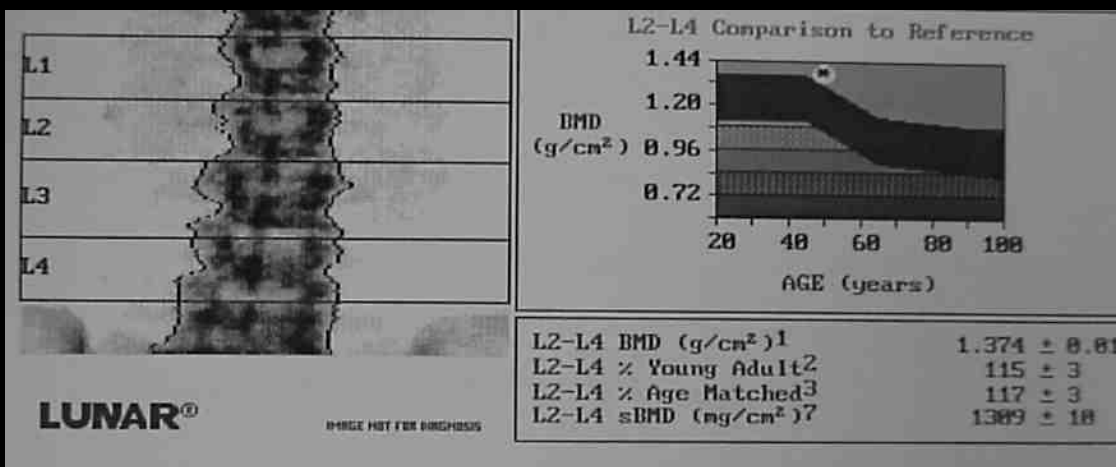


Age (years).....	50	Large Standard.....	277.15	Scan Mode.....	Med
Sex.....	Female	Medium Standard.....	206.94	Scan Type.....	0
Weight (lb).....	159.0	Small Standard.....	147.06	Collimation (mm).....	1
Height (in).....	64	Low keV Air (cps)...	732564	Sample Size (mm).....	1.2x 1
Ethnic.....	Black	High keV Air (cps)...	434332	Current (uA).....	7
System.....	6116	Rvalue (VFat).....	1.349(21.6)		

AA

as

AA



Age (years).....	50	Large Standard.....	277.15	Scan Mode.....	Med
Sex.....	Female	Medium Standard.....	206.94	Scan Type.....	0
Weight (lb).....	159.0	Small Standard.....	147.06	Collimation (mm).....	1
Height (in).....	64	Low keV Air (cps)...	732564	Sample Size (mm).....	1.2x 1
Ethnic.....	White	High keV Air (cps)...	434332	Current (uA).....	7
System.....	6116	Rvalue (VFat).....	1.349(21.6)		

AA

as

Caucasian

REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	1.389	123	2.16	117	1.71
L2	1.362	114	1.35	108	0.87
L3	1.421	118	1.85	113	1.36
L4	1.332	111	1.10	106	0.61
L1-L2	1.375	120	1.88	114	1.42
L1-L3	1.395	119	1.88	114	1.41
L1-L4	1.377	117	1.64	111	1.17
L2-L3	1.398	116	1.65	111	1.16
L2-L4	1.374	115	1.45	109	0.97
L3-L4	1.379	115	1.49	110	1.01

AA

as

AA

REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	1.389	123	2.16	126	2.37
L2	1.362	114	1.35	116	1.57
L3	1.421	118	1.85	121	2.06
L4	1.332	111	1.10	113	1.31
L1-L2	1.375	120	1.88	122	2.09
L1-L3	1.395	119	1.88	122	2.09
L1-L4	1.377	117	1.64	119	1.86
L2-L3	1.398	116	1.65	119	1.86
L2-L4	1.374	115	1.45	117	1.67
L3-L4	1.379	115	1.49	117	1.71

AA

as

White
T same

Z up

Bone Densitometry

Weight gain/loss and T

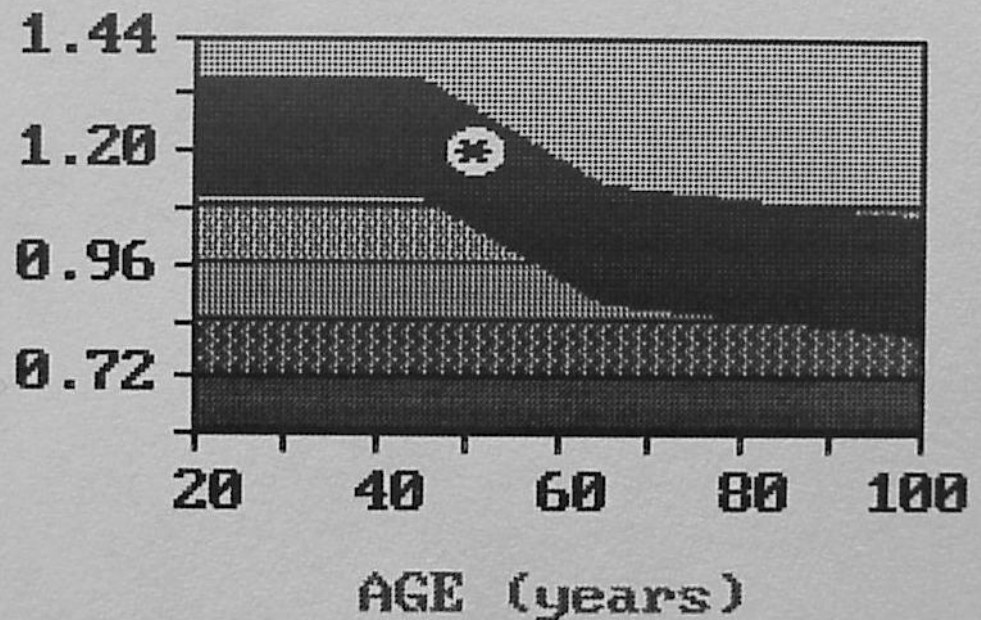
- Weight gain (loss) should cause an increase (decrease) in absolute BMD.
- Weight gain (or loss) will affect T score comparison, since reference range will not have changed.
- Hence an increase in weight with a corresponding increase in bone density, will look like a good improvement in T score, but fracture risk is unchanged.

Bone Densitometry

Weight gain/loss and Z

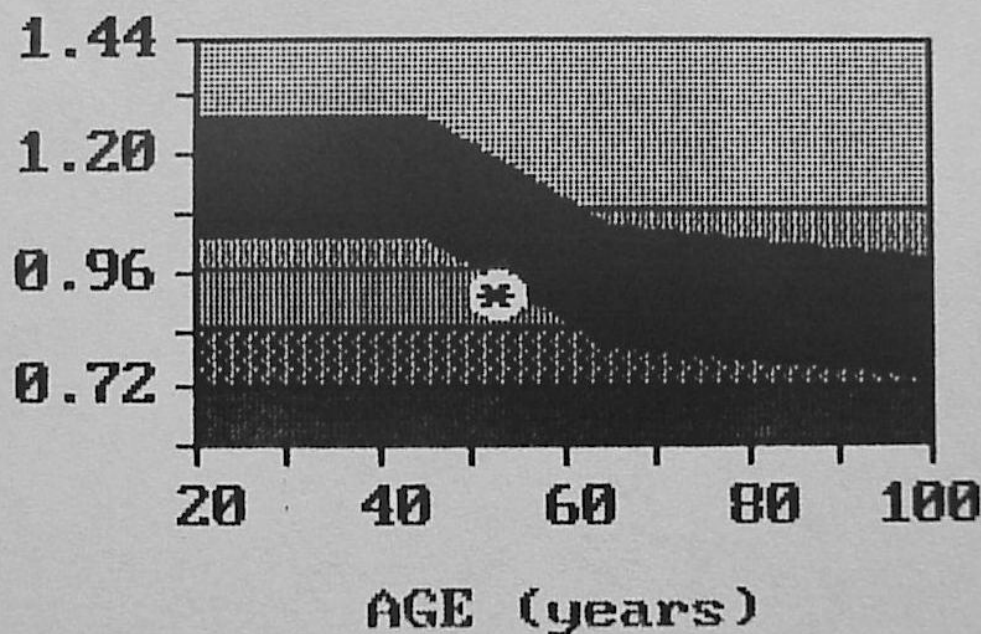
- Weight gain (or loss) will not affect Z score comparison, since Z scores are weight matched, but should cause an increase (or decrease) in absolute BMD.
- An increase in weight, pushes up the reference range, and therefore the Z score may seem reduced, and vice versa.

L2-L4 Comparison to Reference



51F
90Kg

L2-L4 Comparison to Reference



53F
51Kg

Age (years)..... 16 Large Stand
 Sex..... Female Medium Stan
 Weight (lb)..... 93.0 Small Stand
 Height (in)..... 64 Low keV Air
 Ethnic..... White High keV Air
 System..... 6116 Rvalue (%Fat

Age (years)..... 17 Large Standar
 Sex..... Female Medium Standa
 Weight (lb)..... 109.0 Small Standar
 Height (in)..... 64 Low keV Air (
 Ethnic..... White High keV Air
 System..... 6116 Rvalue (%Fat)

REGION	BMD ¹ g/cm ²
L1	0.736
L2	0.883
L3	0.932
L4	0.907
L1-L2	0.812
L1-L3	0.857
L1-L4	0.872
L2-L3	0.909
L2-L4	1.176 0.908
L3-L4	0.919

REGION	BMD ¹ g/cm ²
L1	0.683
L2	0.830
L3	0.894
L4	0.864
L1-L2	0.760
L1-L3	0.811
L1-L4	0.826
L2-L3	0.864
L2-L4	1.172 0.864
L3-L4	0.879

SD = 0.1

Both between -2 and -3 SD below mean for age

1Y, 16lb gain, 5% BMD loss

= significant increase in fracture risk

Cases

63 Post menopausal female

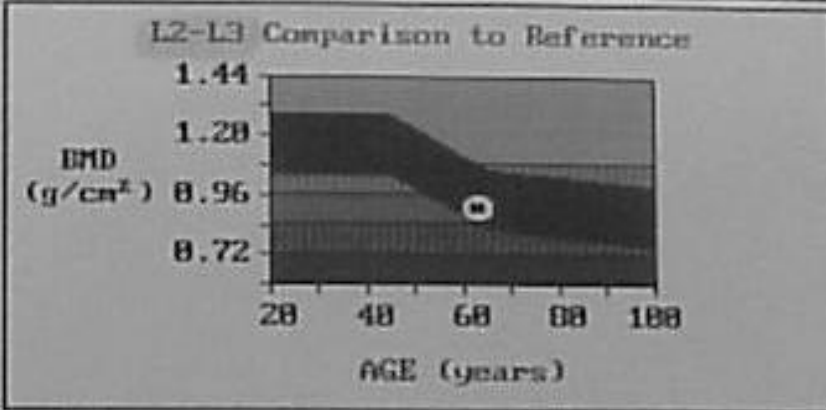
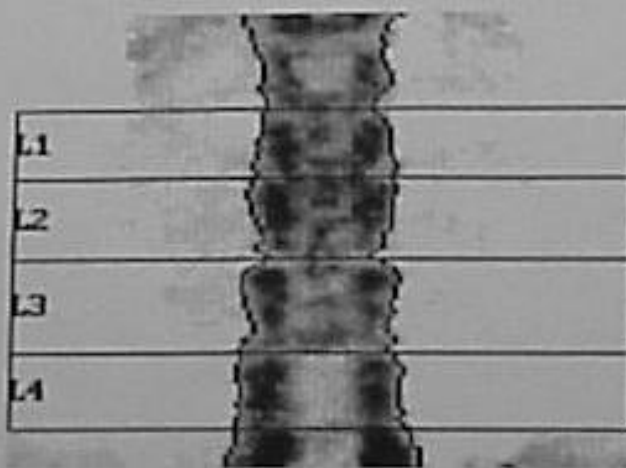
REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	0.935	83	-1.63	105	0.39
L2	0.951	79	-2.07	99	-0.06
L3	0.877	73	-2.69	92	-0.68
L4	0.801	67	-3.33	84	-1.31
L1-L2	0.944	82	-1.72	104	0.30
L1-L3	0.917	78	-2.11	99	-0.09
L1-L4	0.887	75	-2.44	95	-0.43
L2-L3	0.911	76	-2.41	95	-0.39
L2-L4	0.875	73	-2.71	91	-0.69
L3-L4	0.841	70	-2.99	88	-0.97

63 Post menopausal female

Region of Interest	ANCILLARY SPINE RESULTS**			
	BMC (grams)	Area (cm ²)	Width (cm)	Height (cm)
L1	8.66	9.26	3.51	2.64
L2	10.82	11.38	3.65	3.12
L3	11.93	13.61	3.91	3.48
L4	9.69	12.10	4.38	2.76
L1-L2	19.48	20.64	3.58	5.76
L1-L3	31.41	34.24	3.71	9.24
L1-L4	41.10	46.34	3.86	12.00
L2-L3	22.75	24.98	3.79	6.60
L2-L4	32.44	37.08	3.96	9.36
L3-L4	21.62	25.70	4.12	6.24

63 Post menopausal female

REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
NECK	0.756	77	-1.87	98	-0.15
WARDS	0.620	68	-2.23	97	-0.13
TROCH	0.672	85	-1.07	101	0.05



L2-L3 BMD (g/cm ²) ¹	0.911 ± 0.02
L2-L3 × Young Adult ²	76 ± 3
L2-L3 × Age Matched ³	95 ± 3

LUNAR®

IMAGE NET FOR SURGISTS

Age (years).....	63	Large Standard.....	277.12	Scan Mode.....	Medium
Sex.....	Female	Medium Standard.....	204.81	Scan Type.....	DXI
Weight (kg).....	54.0	Small Standard.....	147.83	Collimation (mm).....	1.48
Height (cm).....	147	Low keV Air (cps)...	85548	Sample Size (mm).....	1.2x 1.2
Ethnic.....	White	High keV Air (cps)...	529265	Current (uA).....	750
System.....	6550	Rvalue (%Fat).....	1.350(21.2)		

REGION	BMD ¹ g/cm ²	Young Adult ²		Age Matched ³	
		%	T	%	Z
L1	0.935	83	-1.63	105	0.39
L2	0.951	79	-2.07	99	-0.06
L3	0.877	73	-2.69	92	-0.68
L4	0.801	67	-3.33	84	-1.31
L1-L2	0.944	82	-1.72	104	0.30
L1-L3	0.917	78	-2.11	99	-0.09
L1-L4	0.887	75	-2.44	95	-0.43
L2-L3	0.911	76	-2.41	95	-0.39
L2-L4	0.875	73	-2.71	91	-0.69
L3-L4	0.841	70	-2.99	88	-0.97



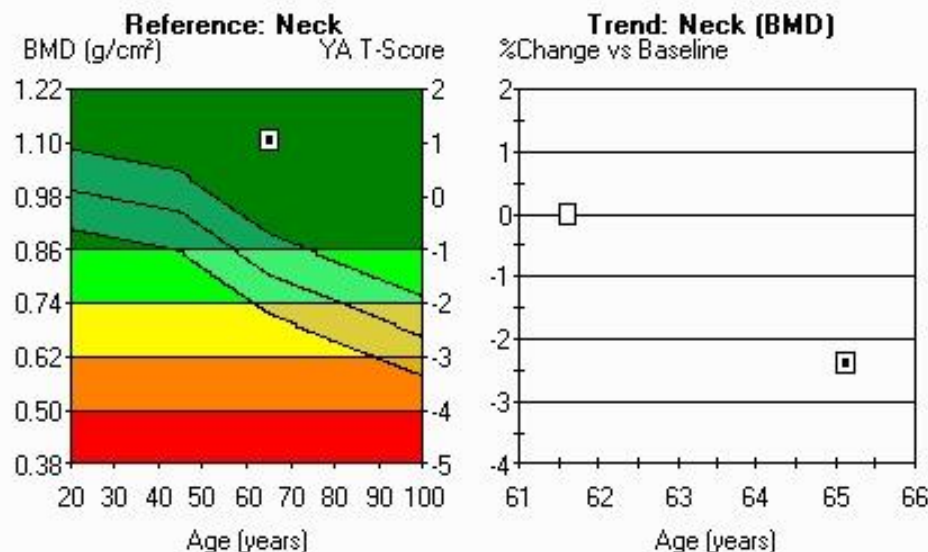
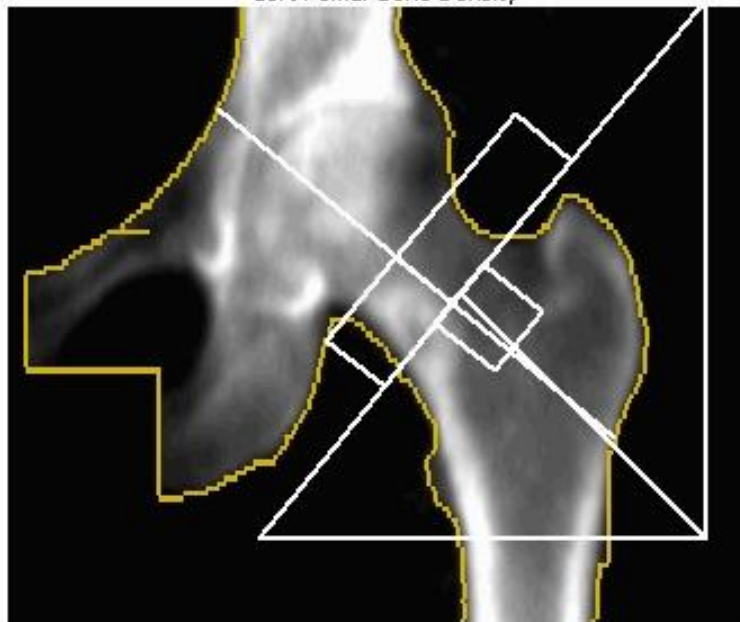
Report

- Because of the previous laminectomy at L4, which may also be affecting the reading on the inferior aspect of L3, the BMD is averaged at L1-2. Note is also made of mild decrease in the L4 vertebral height.

Height / Weight: 61.5 in. 140.0 lbs.
 Sex / Ethnic: Female White

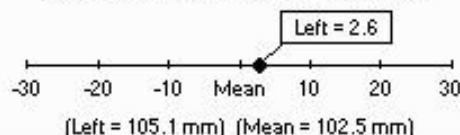
Measured: 11/24/2008 2:17:21 PM (10.51)
 Analyzed: 11/24/2008 2:17:22 PM (10.51)

Left Femur Bone Density



Region	^{1,6} BMD (g/cm ²)	² Young-Adult T-Score	³ Age-Matched Z-Score
Neck	1.104	1.0	2.5

Hip Axis Length Comparison (mm)

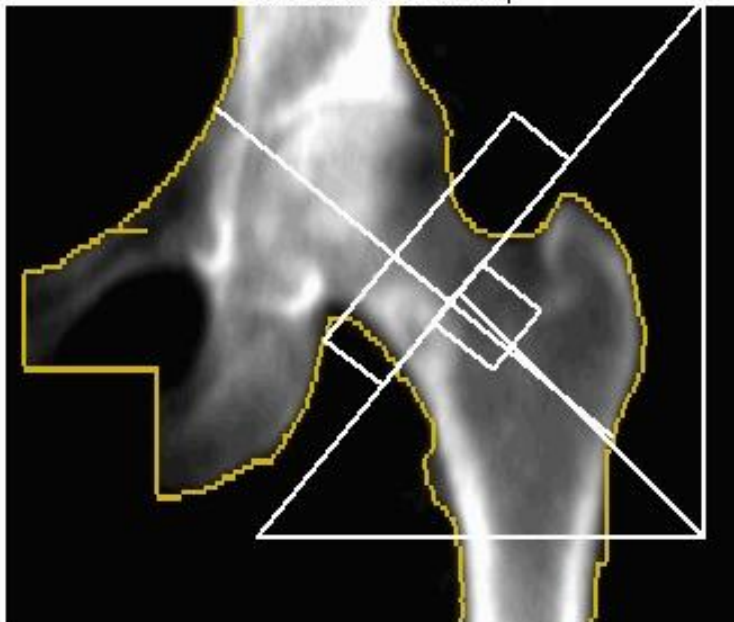


COMMENTS:

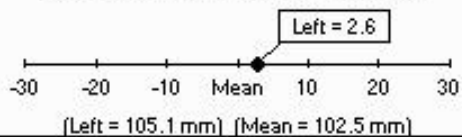
Measured Date	Age (years)	Trend: Neck ^{1,6}		
		BMD (g/cm ²)	Baseline (%)	Change vs Baseline (%/yr)
11/24/2008	65.1	1.104	-2.4	-0.7
5/13/2005	61.6	1.132	baseline	baseline

Height / Weight: 61.5 in. 140.0 lbs.
Sex / Ethnic: Female White

Left Femur Bone Density



Hip Axis Length Comparison (mm)



COMMENTS:

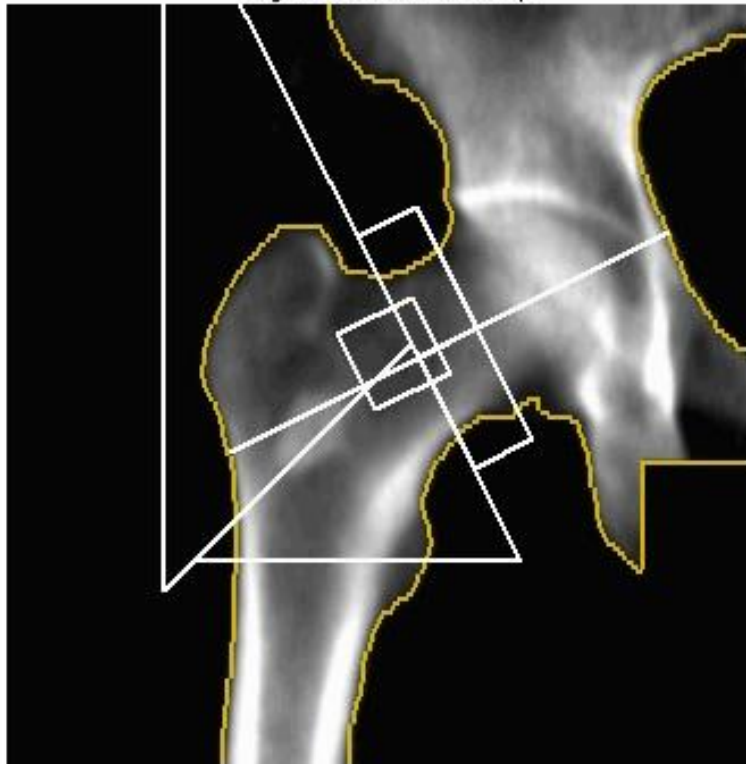
Report

- An area of increased density is noted within the measured area of the left femoral neck. This makes the DEXA reading non-diagnostic. An X-ray of the left hip is recommended for further assessment.

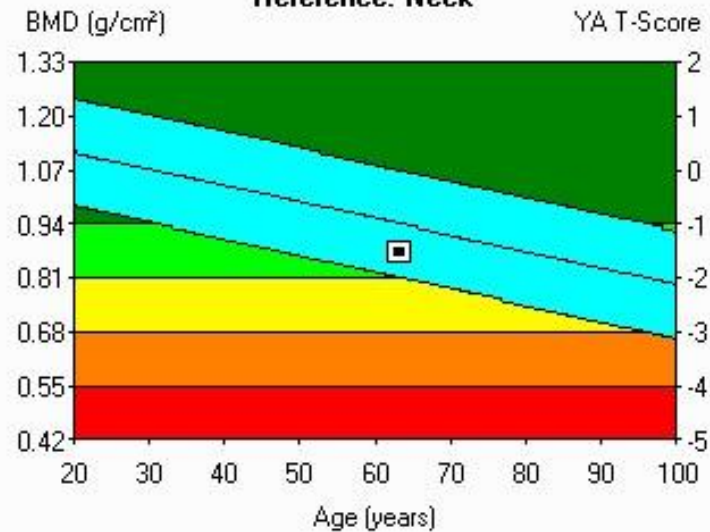
Height / Weight: 69.0 in. 175.0 lbs.
 Sex / Ethnic: Male Hispanic

Measured: 5/12/2009 11:22:23 AM (9.30)
 Analyzed: 5/12/2009 11:22:27 AM (9.30)

Right Femur Bone Density



Reference: Neck

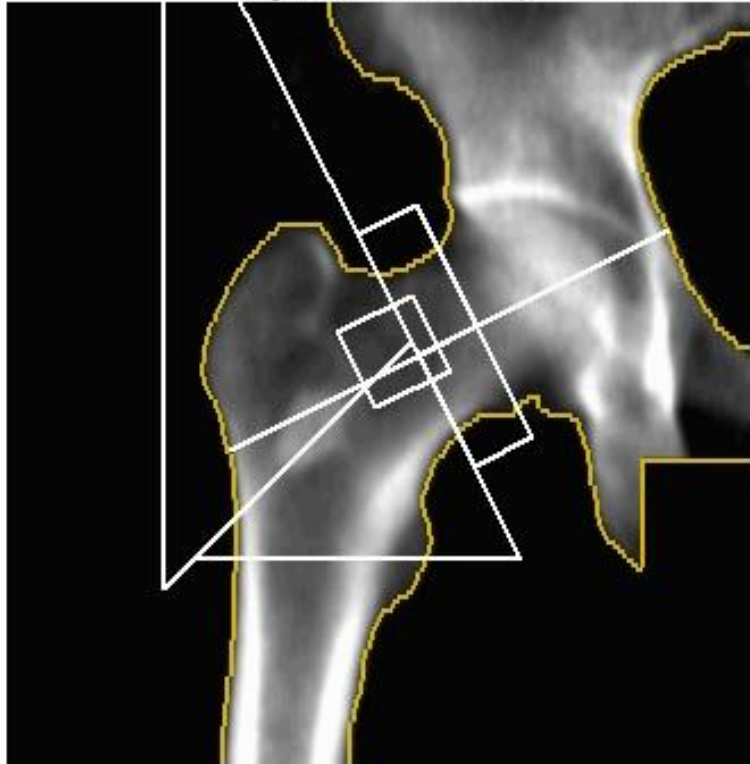


Region	¹ BMD (g/cm ²)	² Young-Adult T-Score	³ Age-Matched Z-Score
Neck	0.872	-1.5	-0.5
Upper Neck	0.704	-1.6	-0.6
Troch	0.884	-0.4	0.0
Shaft	1.291	-	-
Total	1.037	-0.4	0.0

Going to use the lower of neck or total, so not an issue

Height / Weight: 69.0 in. 175.0 lbs.
Sex / Ethnic: Male Hispanic

Right Femur Bone Density



Sclerotic lesion right femur DEXA 63M

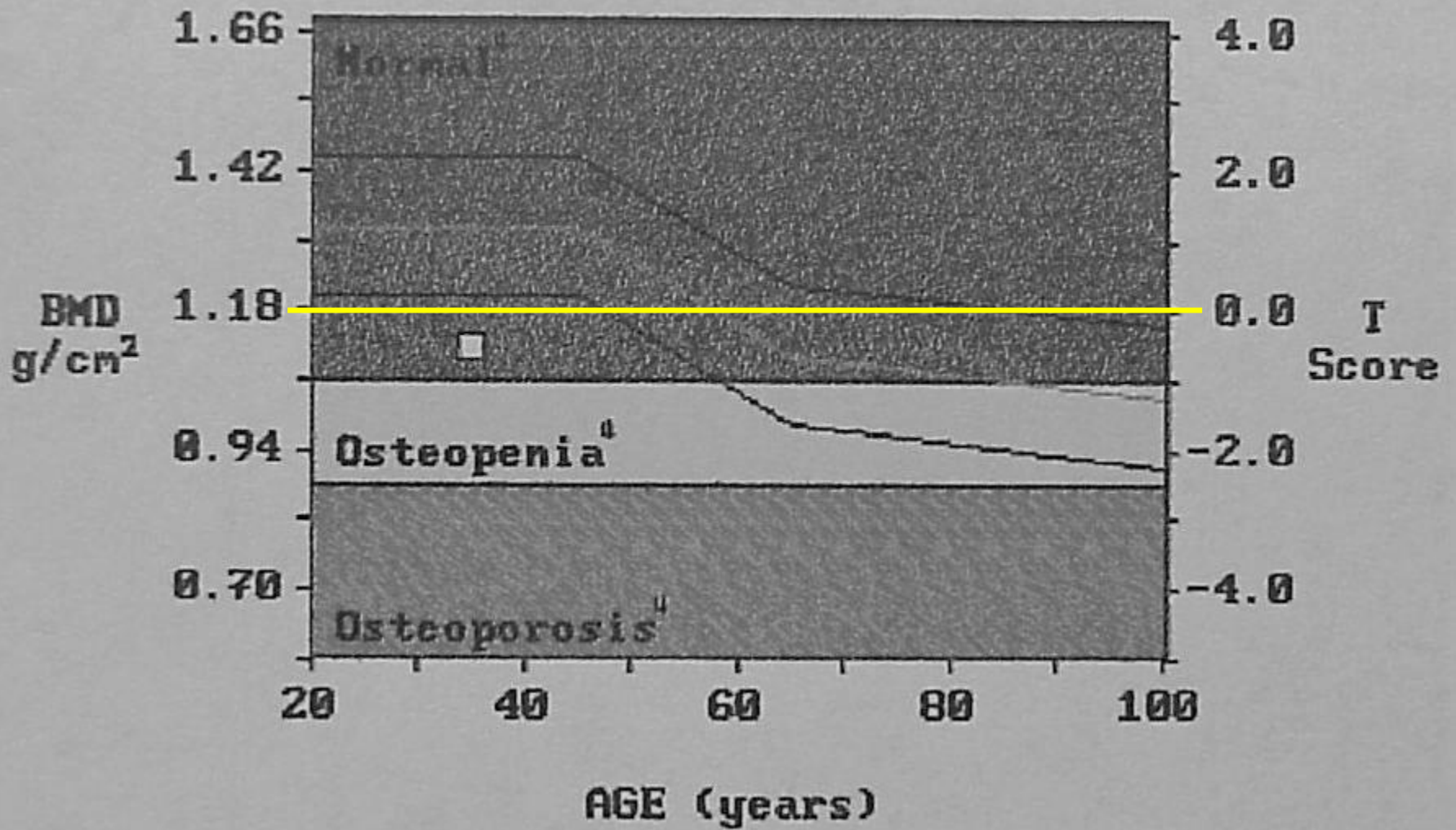
Report

- A focal area of increased density is noted within the right intertrochanteric region. This is outside the measured region of the femoral neck and should not affect the DEXA reading. However, X-ray of the right hip is recommended for further assessment.

New Case

Region	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	1.066	94	-0.5	84	-1.7
L2	1.166	97	-0.3	87	-1.4
L3	1.107	92	-0.8	83	-1.9
L4	1.128	94	-0.6	84	-1.8
L1-L2	1.116	97	-0.3	86	-1.5
L1-L3	1.113	95	-0.5	85	-1.6
L1-L4	1.117	95	-0.5	85	-1.7
L2-L3	1.136	95	-0.5	85	-1.7
L2-L4	1.132	94	-0.6	85	-1.7
L3-L4	1.118	93	-0.7	83	-1.8

L1-L4 Comparison to Reference



Report

- Because of the patients age, the T score cannot be used to assess the WHO criteria. Because of the patients weight, the T score may not fully represent the fracture risk, and note should be made that the Z score is 1.7 SD below age and weight matched.

New Case

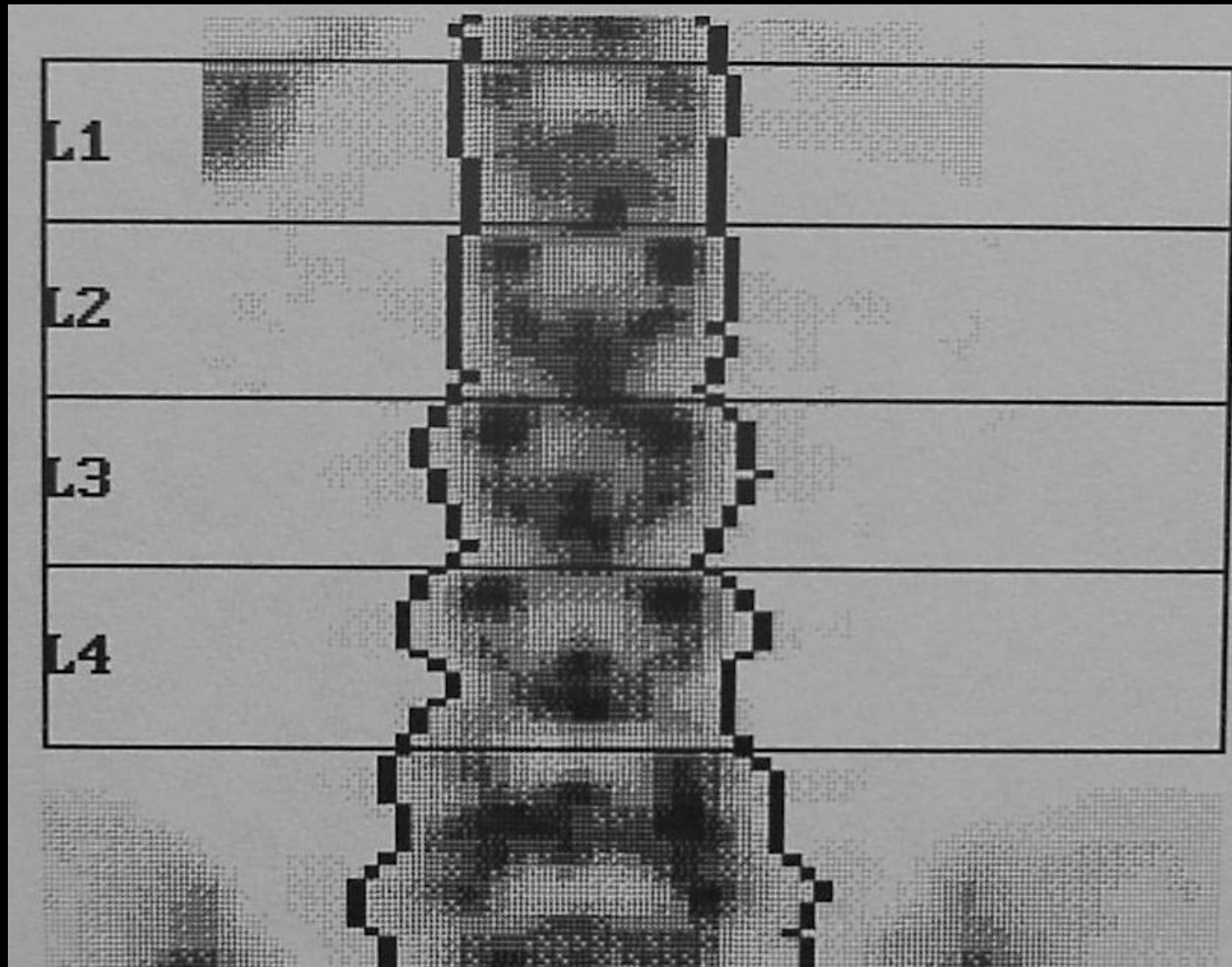
REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
NECK	0.702	66	-3.07	67	-2.84
WARDS	0.736	77	-1.73	80	-1.43
TROCH	0.598	64	-3.02	65	-2.91

REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	0.537	46	-5.19	48	-4.92
L2	0.704	57	-4.47	58	-4.20
L3	0.640	52	-5.00	53	-4.74
L4	0.653	53	-4.89	54	-4.62
L1-L2	0.627	52	-4.77	54	-4.50
L1-L3	0.632	52	-4.82	54	-4.55
L1-L4	0.637	52	-4.86	54	-4.59
L2-L3	0.673	54	-4.73	56	-4.46
L2-L4	0.666	54	-4.78	55	-4.52
L3-L4	0.647	52	-4.95	54	-4.68

Report

- The very low bone density is compatible with the known diagnosis of osteogenesis imperfecta.

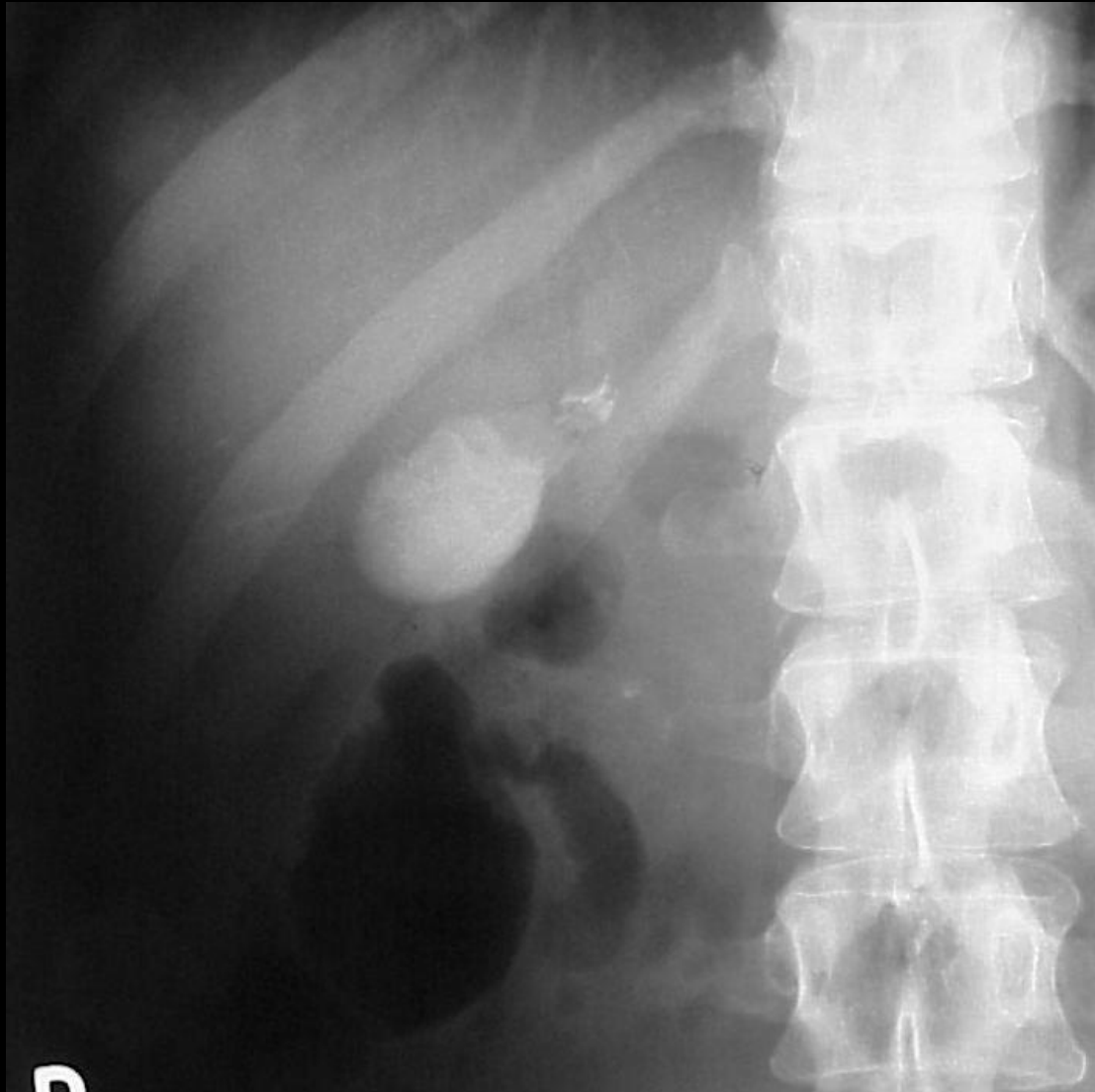
46 Premenopausal female



46 Premenopausal female

REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	1.421	126	2.42	131	2.81
L2	1.490	124	2.41	129	2.81
L3	1.520	127	2.67	132	3.06
L4	1.481	123	2.35	128	2.74
L1-L2	1.457	127	2.56	132	2.95
L1-L3	1.480	126	2.58	132	2.98
L1-L4	1.480	125	2.50	131	2.90
L2-L3	1.506	125	2.55	131	2.94
L2-L4	1.496	125	2.47	130	2.86
L3-L4	1.499	125	2.49	130	2.89

46 Premenopausal female



46 Premenopausal female

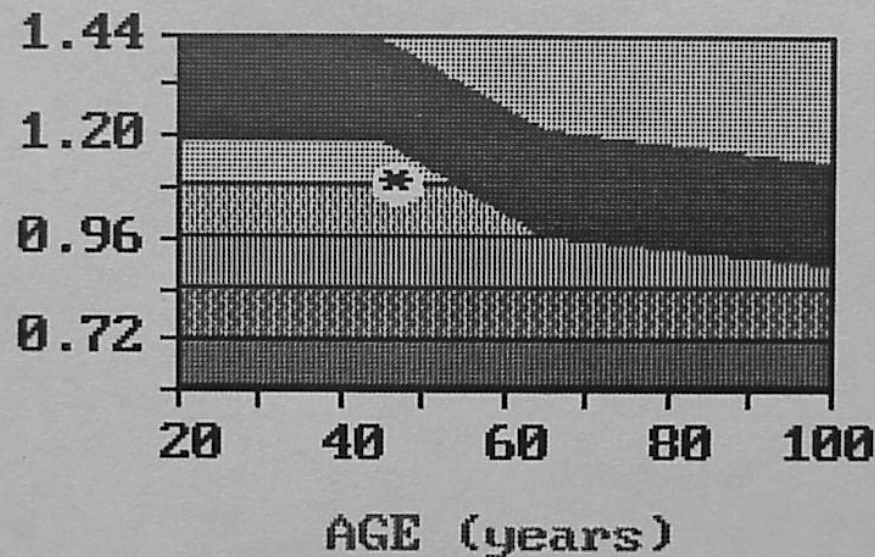
Report

- Although the calcified bile is seen on the DEXA scan, it is outside the measured region and will not affect the reading, on this occasion.

New Case

REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	0.954	84	-1.47	79	-2.08
L2	0.997	83	-1.69	78	-2.35
L3	1.166	97	-0.28	91	-0.93
L4	1.112	93	-0.73	87	-1.38
L1-L2	0.977	85	-1.44	80	-2.07
L1-L3	1.045	89	-1.04	84	-1.68
L1-L4	1.064	90	-0.96	85	-1.60

L2-L4 Comparison to Reference



AA

Report

- The Z score is worse than the T score at all levels because the the Z score is compared to weight and ethnicity and African American females naturally have a higher bone density than the standard Caucasian used for the T score, even at the age of 47.

New Case

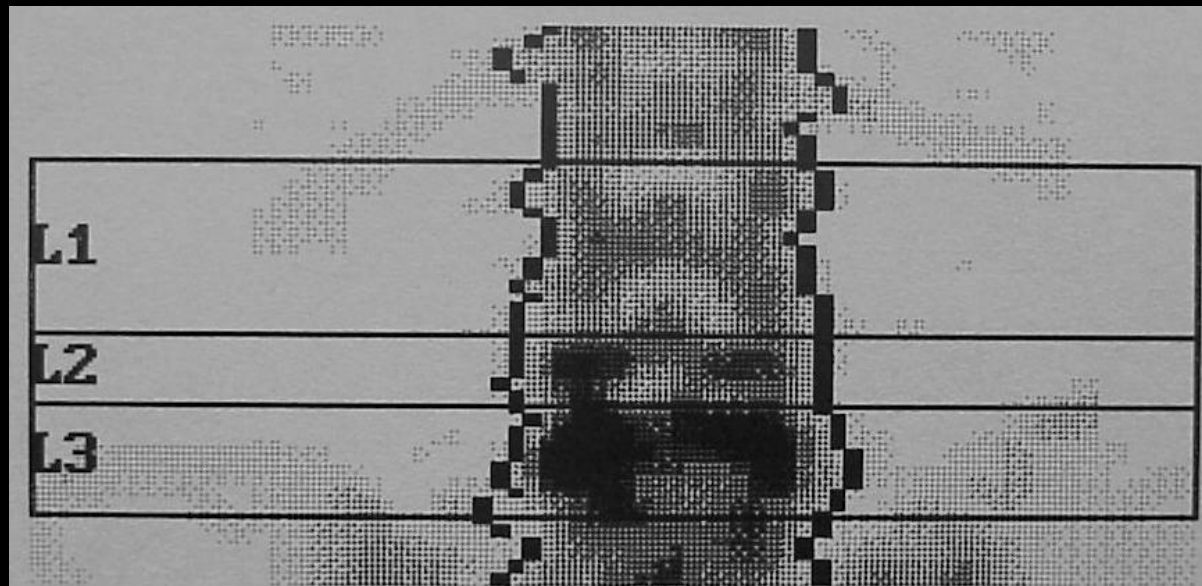
SCAN DATE	REGION	BMD g/cm ²	% YOUNG ADULT	% AGE MATCHED
13.02.1996	L2-L4	1.279	107	112
08.10.1998	L2-L4	1.307	109	118
13.02.1996	NECK	0.842	86	93
08.10.1998	NECK	0.788	80	89

Report

- A common cause for the bone density of the lumbar spine to increase whilst that of the femoral neck decreases over time is, the development of lower lumbar spine end plate sclerosis and facet osteophytes.

New Case

REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	1.168	103	0.32	118	1.48
L2	1.574	131	3.12	149	4.28
L3	2.096	175	7.46	198	8.63
L1-L2	1.299	113	1.24	129	2.41
L1-L3	1.571	134	3.35	153	4.51
L2-L3	1.896	158	5.80	179	6.97



Report

- It is likely that only L1 represents close to true bone density and use of femoral neck measurements alone is recommended.

New Case

REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	1.075	95	-0.45	99	-0.10
L2	1.247	104	0.39	108	0.75
L3	1.235	103	0.29	107	0.65
L4	1.132	94	-0.57	98	-0.21
L1-L2	1.162	101	0.10	105	0.46
L1-L3	1.192	102	0.19	106	0.55
L1-L4	1.175	100	-0.04	103	0.32
L2-L3	1.240	103	0.33	107	0.69
L2-L4	1.201	100	0.01	104	0.37
L3-L4	1.185	99	-0.13	102	0.23

REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
NECK	1.685	172	5.87	183	6.38
WARDS	1.973	217	8.18	244	8.95
TROCH	1.286	163	4.51	166	4.65



R

Report

- In view of the significant discrepancy between the right femoral neck and lumbar spine measurements , radiographs of the right hip/pelvis are recommended.

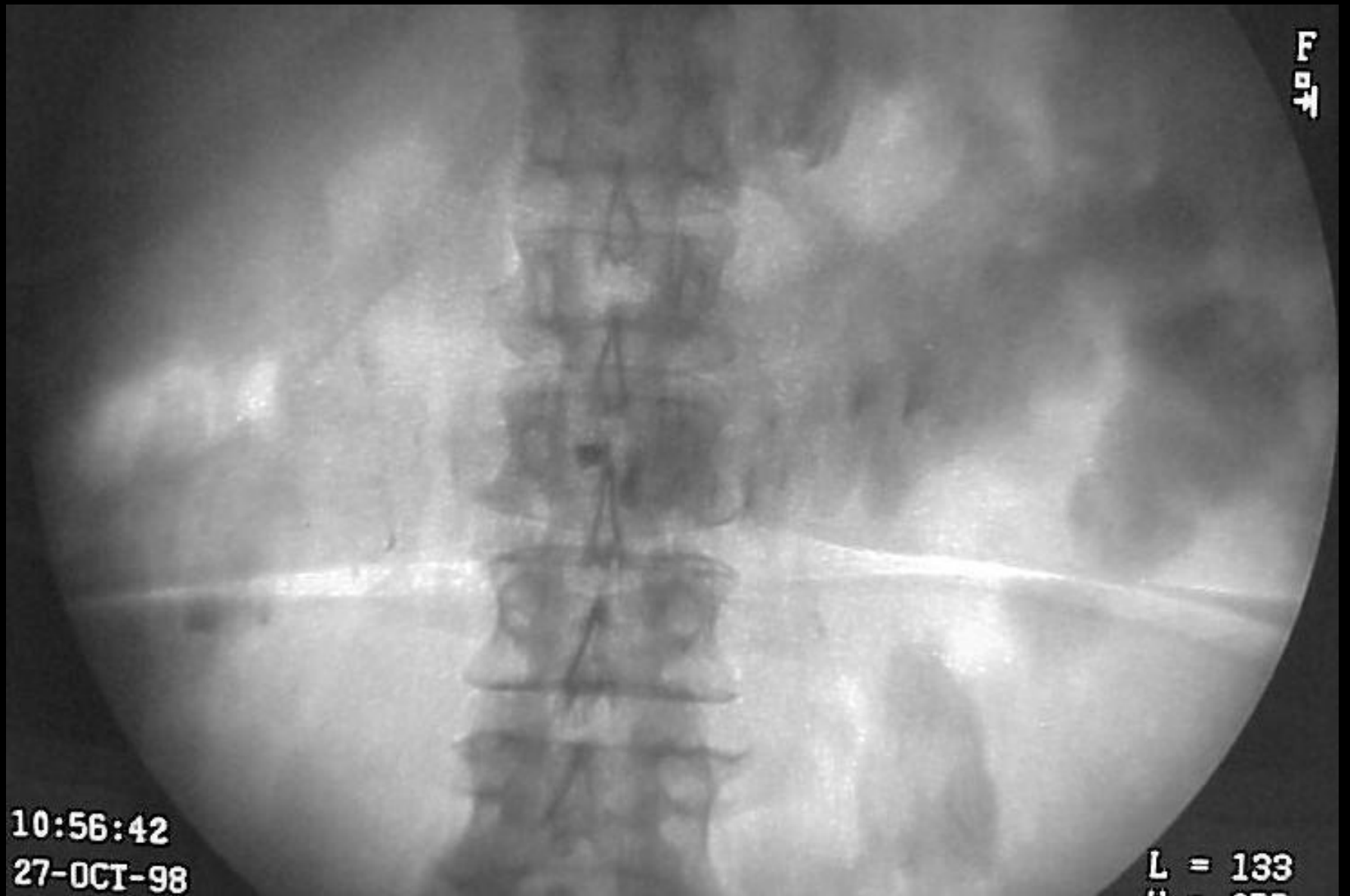
New Case

2d earlier

REGION	BMD ¹ g/cm ²	Young Adult ² %	Z	Age Matched ³ %	Z
L1	1.148	102	0.15	106	0.53
L2	1.299	108	0.82	113	1.21
L3	1.233	103	0.27	107	0.65
L4	1.099	92	-0.84	95	-0.46
L1-L2	1.225	106	0.62	111	1.00
L1-L3	1.227	105	0.48	109	0.86
L1-L4	1.191	101	0.09	105	0.48
L2-L3	1.264	105	0.53	110	0.92
L2-L4	1.204	100	0.03	104	0.41
L3-L4	1.162	97	-0.31	101	0.07

2d later

REGION	BMD ¹ g/cm ²	Young Adult ² %	Z	Age Matched ³ %	Z
L1	1.132	100	0.02	104	0.40
L2	1.243	104	0.35	108	0.74
L3	1.253	104	0.44	109	0.83
L4	1.109	92	-0.76	96	-0.37
L1-L2	1.190	103	0.33	108	0.71
L1-L3	1.213	104	0.36	108	0.74
L1-L4	1.183	100	0.02	104	0.41
L2-L3	1.248	104	0.40	108	0.78
L2-L4	1.197	100	-0.03	104	0.36
L3-L4	1.178	98	-0.19	102	0.20



Report

- It was noticed that the patient has had a recent barium study and that barium may therefore falsely elevate the bone density. A repeat study is therefore recommended.

New Case

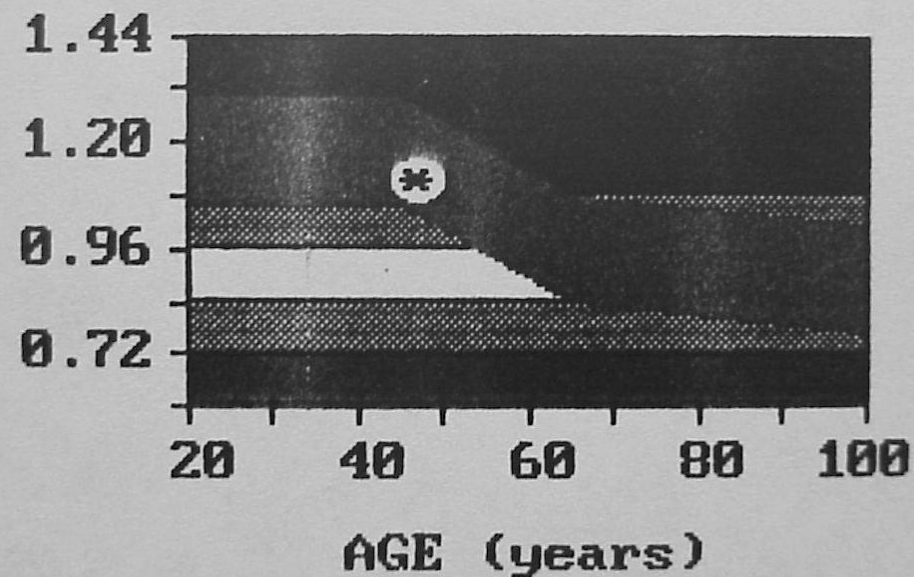
53F
51Kg
6 yr later, 8Kg wt loss

REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	0.877	78	-2.11	89	-0.91
L2	0.945	79	-2.12	90	-0.92
L3	0.968	81	-1.93	92	-0.73
L4	0.818	68	-3.19	77	-1.99
L1-L2	0.914	79	-1.97	91	-0.77
L1-L3	0.935	80	-1.96	91	-0.76
L1-L4	0.903	77	-2.30	87	-1.10
L2-L3	0.958	80	-2.02	91	-0.82
L2-L4	0.911	76	-2.41	86	-1.21
L3-L4	0.895	75	-2.54	85	-1.34

47F
59Kg

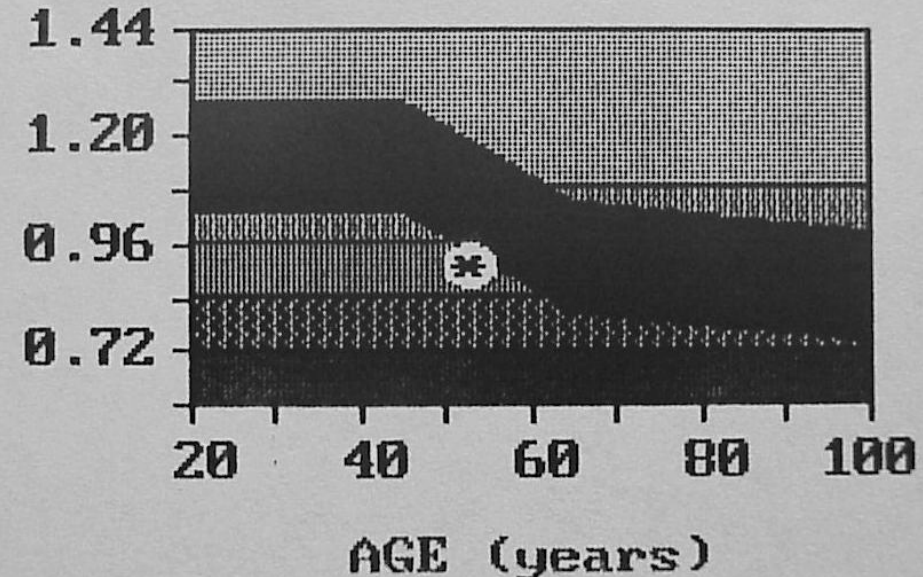
REGION	BMD ¹ g/cm ²	Young Adult ² %	T	Age Matched ³ %	Z
L1	1.085	96	-0.38	100	0.00
L2	1.165	97	-0.29	101	0.09
L3	1.194	100	-0.05	103	0.33
L4	0.993	83	-1.72	86	-1.34
L1-L2	1.125	98	-0.20	102	0.18
L1-L3	1.150	98	-0.16	102	0.22
L1-L4	1.109	94	-0.59	98	-0.21
L2-L3	1.180	98	-0.16	102	0.22
L2-L4	1.116	93	-0.70	97	-0.32
L3-L4	1.094	91	-0.88	95	-0.50

L2-L4 Comparison to Reference



47F
59Kg

L2-L4 Comparison to Reference



53F
51Kg

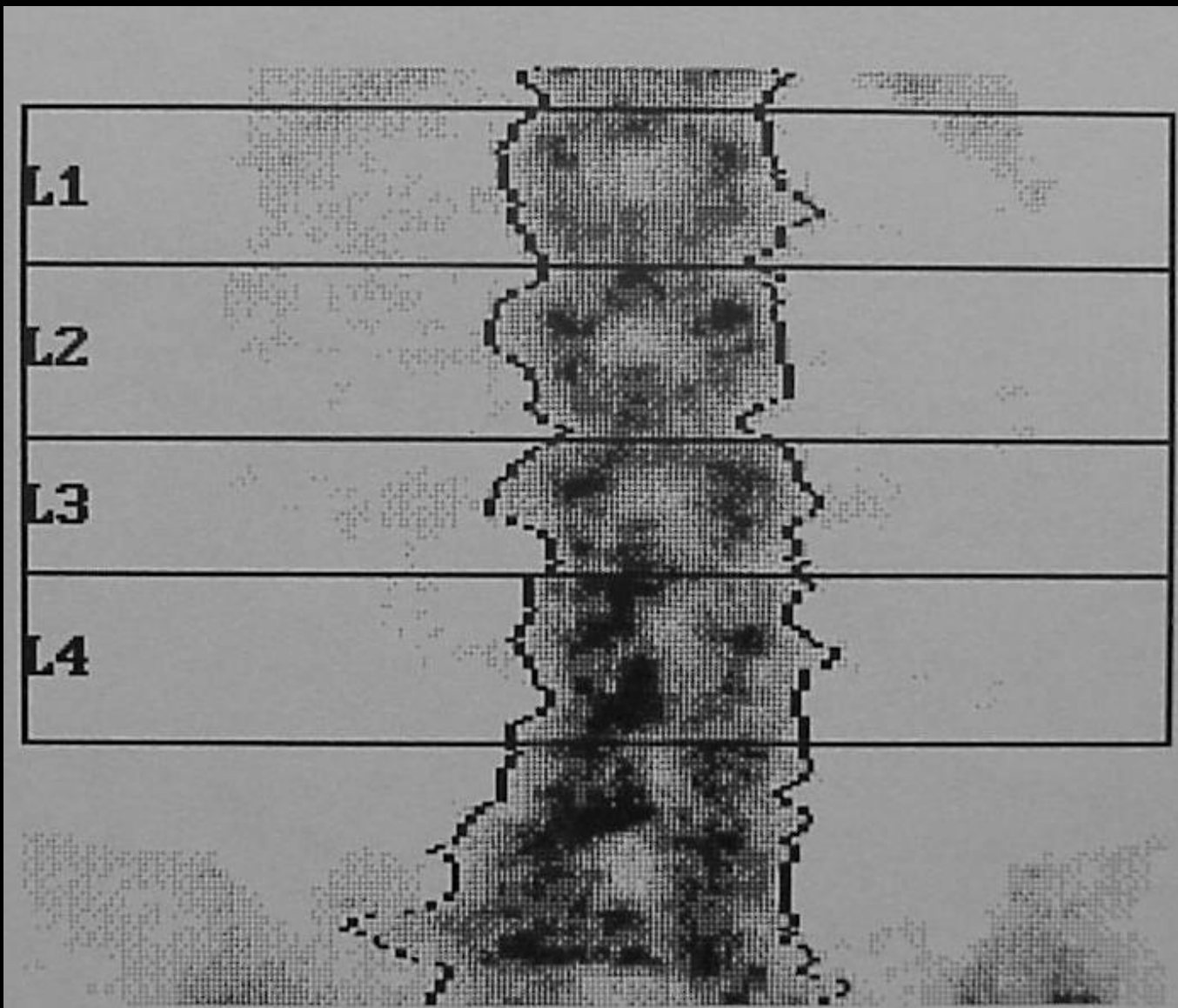
Report

- As the patient loses weight the T score worsens at a faster rate than the Z score because the reference range for the Z score also is lowered.
- However with the loss of weight the fracture risk does not increase as much as the T score worsens.

New Case

REGION	BMD ¹	Young Adult ²		Age Matched ³	
	g/cm ²	%	T	%	Z
L1	1.314	116	1.53	133	2.74
L2	1.521	127	2.68	144	3.89
L3	1.525	127	2.71	145	3.91
L4	1.771	148	4.76	168	5.96
L1-L2	1.421	124	2.26	141	3.47
L1-L3	1.453	124	2.36	142	3.57
L1-L4	1.540	131	3.00	149	4.21
L2-L3	1.523	127	2.69	144	3.90
L2-L4	1.613	134	3.44	153	4.65
L3-L4	1.660	138	3.84	157	5.04

REGION	BMD ¹	Young Adult ²		Age Matched ³	
	g/cm ²	%	T	%	Z
NECK	1.195	122	1.79	138	2.74
WARDS	1.003	110	0.71	136	2.05
TROCH	0.878	111	0.80	117	1.16



L1

L2

L3

L4

Report

- Because of lower lumbar spine degenerative changes the lumbar spine should not be included in the study.

70 yo Man for DEXA follow up



Sex:	Male
Ethnicity:	Black
Height:	69.0 in
Weight:	186.0 lb
DOB:	01/22/1939
Age:	66
Menopause Age:	
Referring Physician:	JUNG, A. SCOTT

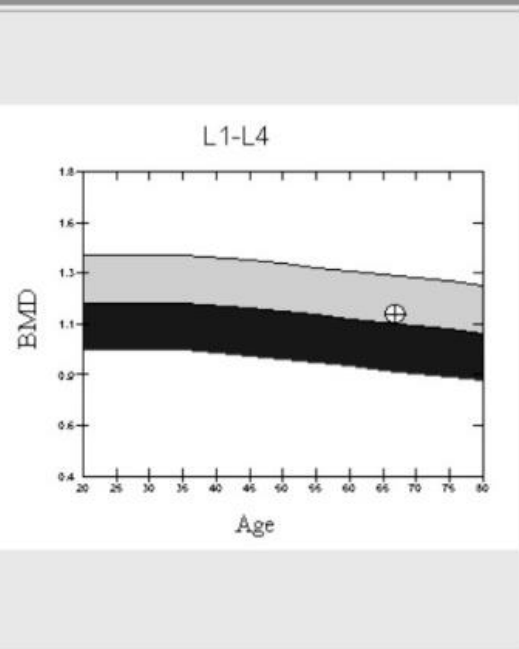
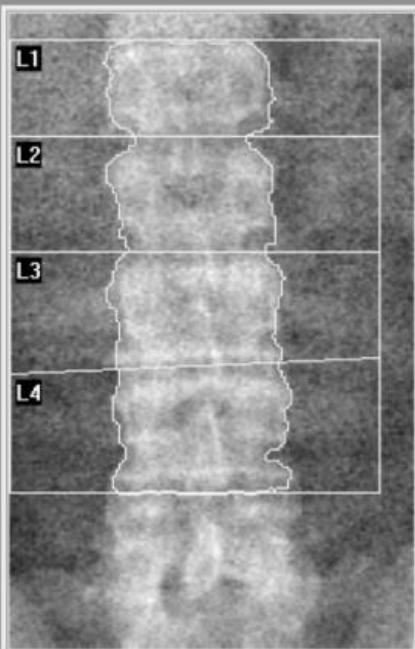


Image not for diagnostic use
k = 1.134, d0 = 41.0

Reference curve and scores matched to Black Male

Scan Information:

Scan Date:	December 01, 2005 - A1201050H
Scan Type	f Lumbar Spine
Analysis Date	12/01/2005 10:43
Report Date	12/01/2005 10:43
Institution	VA MEDICAL CENTER
Operator:	FA/MM
Model:	Delphi W (S/N 70872)
Comment:	
Software version	11.2

Results Summary:

Region	Area [cm²]	BMC [(g)]	BMD [g/cm²]	T - Score	PR (Peak Reference)	Z - Score	AM (Age Matched)
L1	14.45	14.28	0.988	-1.1	89	-0.3	97
L2	16.93	16.48	0.974	-2.1	81	-1.2	88
L3	18.37	22.63	1.232	0.2	102	1.1	111
L4	20.78	27.11	1.305	0.4	104	1.4	113
Total	70.53	80.50	1.141	-0.5	95	0.4	104

Total BMD CV 1.0%, ACF = 1.017, BCF = 0.993

Fracture Risk: Not Increased; WHO Classification: Normal

Ethnicity:	Black
Height:	69.0 in
Weight:	170.0 lb
DOB:	01/22/1939
Age:	70
Menopause Age:	
Referring Physician:	JUNG, A. SCOTT

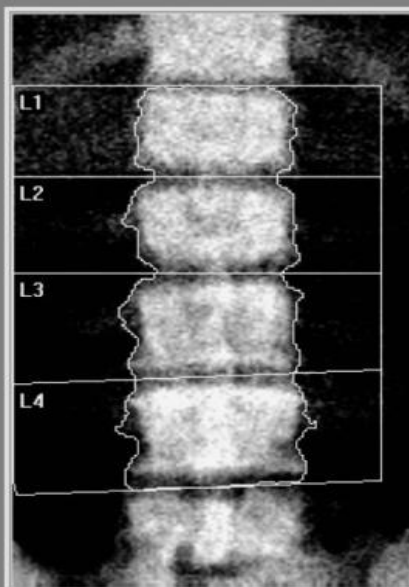
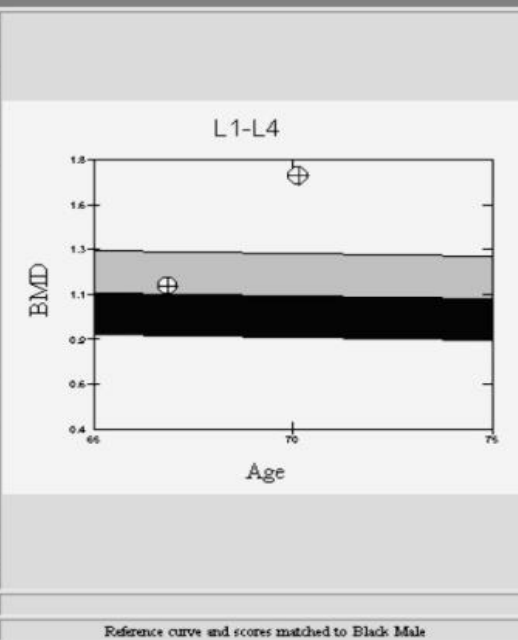


Image not for diagnostic use
k = 1.125, d0 = 39.3



Reference curve and scores matched to Black Male

Scan Information

Scan Date:	March 11, 2009 - A0311090P
Scan Type	f Lumbar Spine
Analysis Date	03/11/2009 09:58
Report Date	03/11/2009 10:00
Institution	VA MEDICAL CENTER
Operator:	FRED
Model:	Delphi W (S/N 70872)
Comment:	F/U 12/1/05
Software version	11.2

Results Summary:

Region	Area [cm ²]	BMC [(g)]	BMD [g/cm ²]	T - Score	PR (Peak Reference)	Z - Score	AM (Age Matched)
L1	14.98	23.31	1.556	4.1	141	5.0	154
L2	16.53	27.54	1.666	4.2	139	5.2	153
L3	18.95	32.43	1.711	4.5	141	5.5	155
L4	21.20	39.74	1.875	5.6	149	6.6	164
Total	71.67	123.03	1.717	4.7	143	5.7	158

Total BMD CV 1.0%, ACF = 1.012, BCF = 0.986

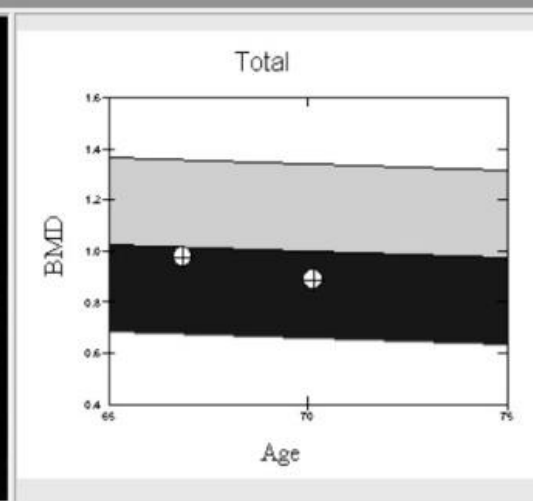
Results History:

Scan Date	Age	BMD	T - Score	BMD Change vs Baseline	BMD Change vs Previous
03/11/2009	70	1.717	4.7	50.4%*	50.4%*
12/01/2005	66	1.141	-0.5		

Ethnicity:	Black
Height:	69.0 in
Weight:	170.0 lb
DOB:	01/22/1939
Age:	70
Menopause Age:	
Referring Physician:	JUNG, A. SCOTT



Image not for diagnostic use
k = 1.129, d0 = 46.4



Reference curve and scores matched to Black Male

Results Summary:

Region	Area [cm ²]	BMC [(g)]	BMD [g/cm ²]	T - Score	PR (Peak Reference)	Z - Score	AM (Age Matched)
Neck	4.04	3.03	0.750	-2.1	70	-0.6	89
Troch	14.43	8.97	0.621	-1.9	71	-0.9	83
Inter	29.64	30.67	1.035	-1.6	76	-0.7	88
Total	48.11	42.66	0.887	-1.7	75	-0.6	89
Ward's	1.06	0.59	0.557	-2.1	60	-0.2	95

Total BMD CV 1.0%, ACF = 1.012, BCF = 0.986

Results History:

Scan Date	Age	BMD	T - Score	BMD Change vs Baseline	BMD Change vs Previous
03/11/2009	70	0.887	-1.7	-9.1%*	-9.1%*
12/01/2005	66	0.975	-1.2		

Scan Information

Scan Date:	March 11, 2009 - A03110900
Scan Type	f Left Hip
Analysis Date	03/11/2009 09:59
Report Date	03/11/2009 10:00
Institution	VA MEDICAL CENTER
Operator:	FRED
Model:	Delphi W (S/N 70872)
Comment:	F/U 12/1/05
Software version	11.2





2009

70 yo Man for DEXA follow up

Prostate Metastases



70 yo Man for DEXA follow up



Comment.js // Written By Hologic DICOM Cont
For Vertebral Deformity Evaluation Only

70 yo Man for DEXA follow up

DualFemur Bone Density

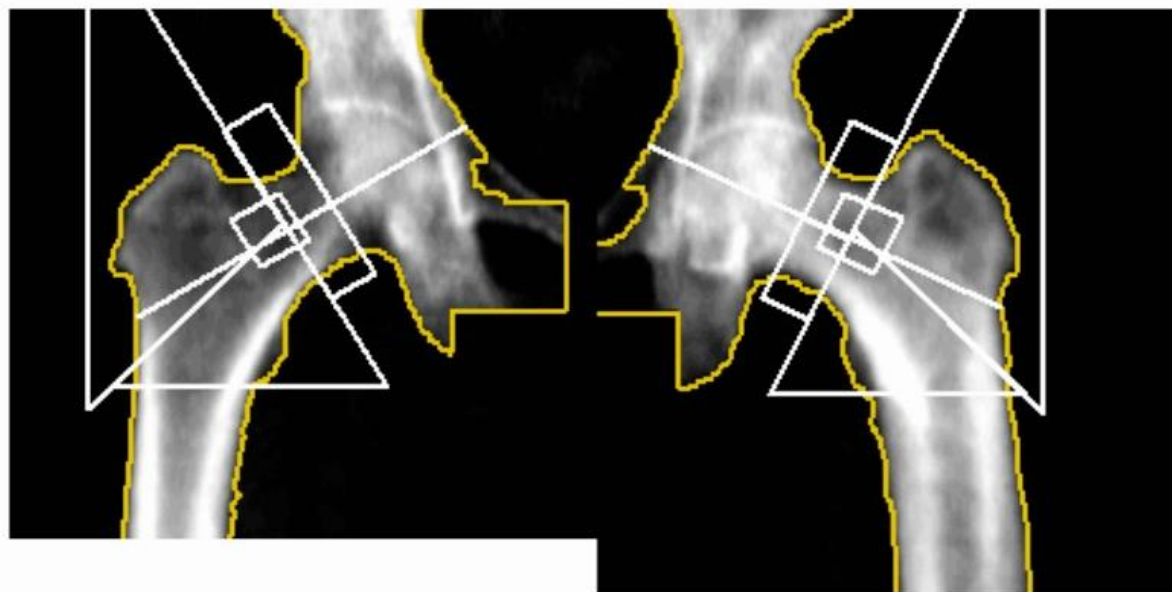
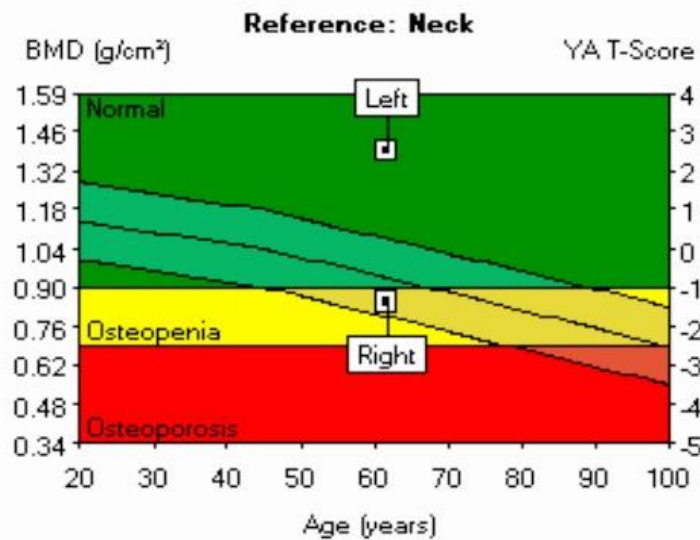


Image not for diagnosis



Region	¹ BMD (g/cm ²)	^{2,7} Young-Adult T-Score	³ Age-Matched Z-Score
Neck			
Neck Left	1.388	2.5	3.3
Neck Right	0.845	-1.4	-0.6
Neck Mean	1.116	0.6	1.3
Neck Diff.	0.543	3.9	3.9
Total			
Total Left	1.508	4.0	4.4
Total Right	0.980	-0.2	0.2
Total Mean	1.244	1.9	2.3
Total Diff.	0.529	4.2	4.2



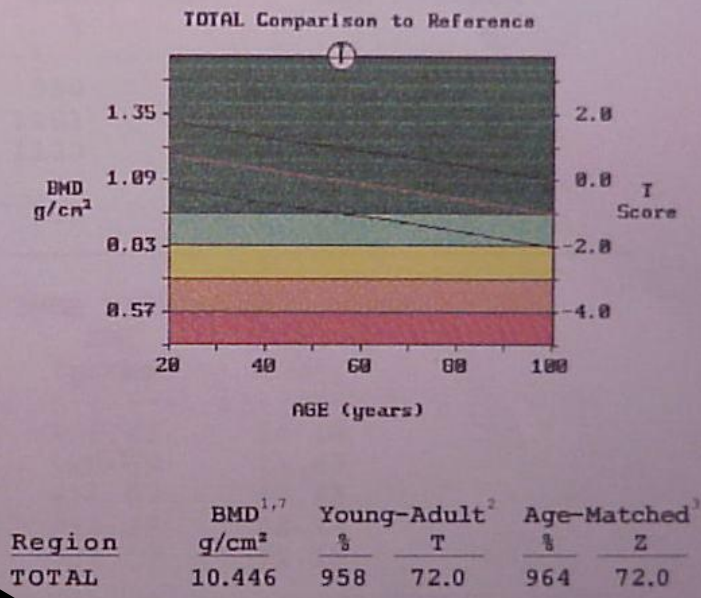
SUPINE

R
SN
⊙

1.867 : L 1.793

New Case

Trochanteric area 8-14cm² in women, 10-16cm² in men



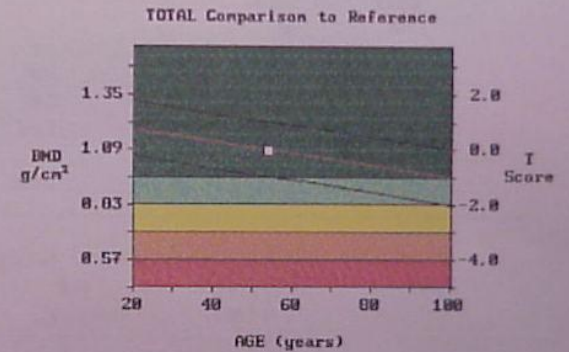
ANCILLARY FEMUR RESULTS**

Region	BMC (grams)	Area (cm ²)
NECK	106.33	10.14
WARDS	126.59	11.43
TROCH	415.57	39.91
SHAFT	232.23	22.14
TOTAL	754.13	72.19

New Case

ANCILLARY FEMUR RESULTS**

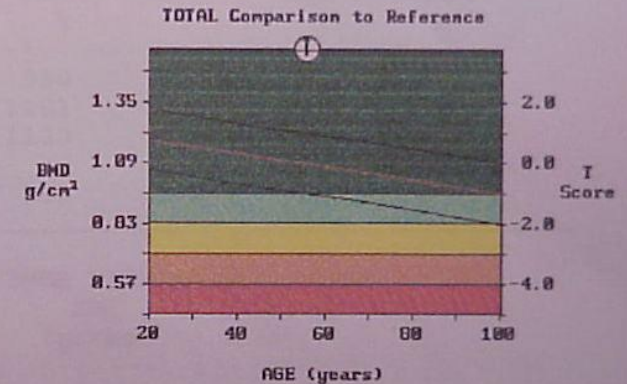
Region	BMC (grams)	Area (cm ²)
NECK	5.42	5.34
WARDS	2.60	3.16
TROCH	18.21	18.35
SHAFT	18.64	15.28
TOTAL	42.27	38.97



Region	BMD ^{1,7} g/cm ²	Young-Adult ² %	T	Age-Matched ³ %	Z
TOTAL	1.085	100	0.0	100	0.0

ANCILLARY FEMUR RESULTS**

Region	BMC (grams)	Area (cm ²)
NECK	106.33	10.14
WARDS	126.59	11.43
TROCH	415.57	39.91
SHAFT	232.23	22.14
TOTAL	754.13	72.19



Region	BMD ^{1,7} g/cm ²	Young-Adult ² %	T	Age-Matched ³ %	Z
TOTAL	10.446	958	72.0	964	72.0

Report

- Only technical error could account for such a finding and therefore repeat study is recommended.

New Case

15m earlier

REGION	BMD ¹ g/cm ²	Young Adult ² %	T
L1	0.703	62	-3.56
L2	0.735	61	-3.87
L3	0.797	66	-3.36
L4	0.788	66	-3.43
L1-L2	0.721	63	-3.58
L1-L3	0.748	64	-3.52
L1-L4	0.760	64	-3.50
L2-L3	0.767	64	-3.61
L2-L4	0.775	65	-3.55
L3-L4	0.792	66	-3.40

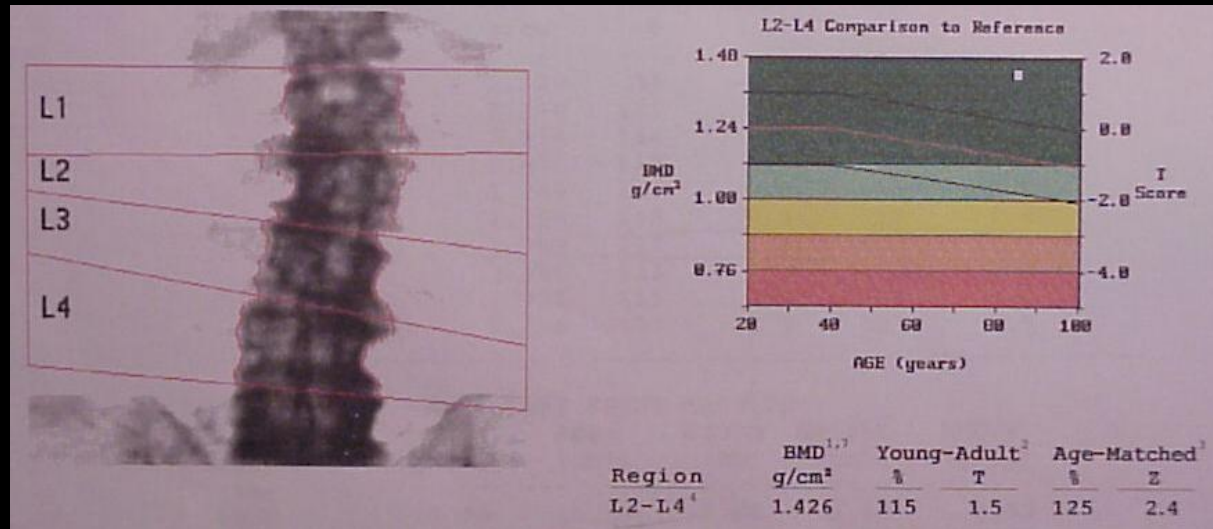
15m later

REGION	BMD ¹ g/cm ²	Young Adult ² %	T
L1	0.716	63	-3.45
L2	0.790	66	-3.42
L3	0.836	70	-3.03
L4	0.875	73	-2.71
L1-L2	0.755	66	-3.29
L1-L3	0.784	67	-3.22
L1-L4	0.811	69	-3.08
L2-L3	0.813	68	-3.22
L2-L4	0.837	70	-3.03
L3-L4	0.857	71	-2.86

Report

- If all levels increase in bone density over time, it is likely a response to treatment.

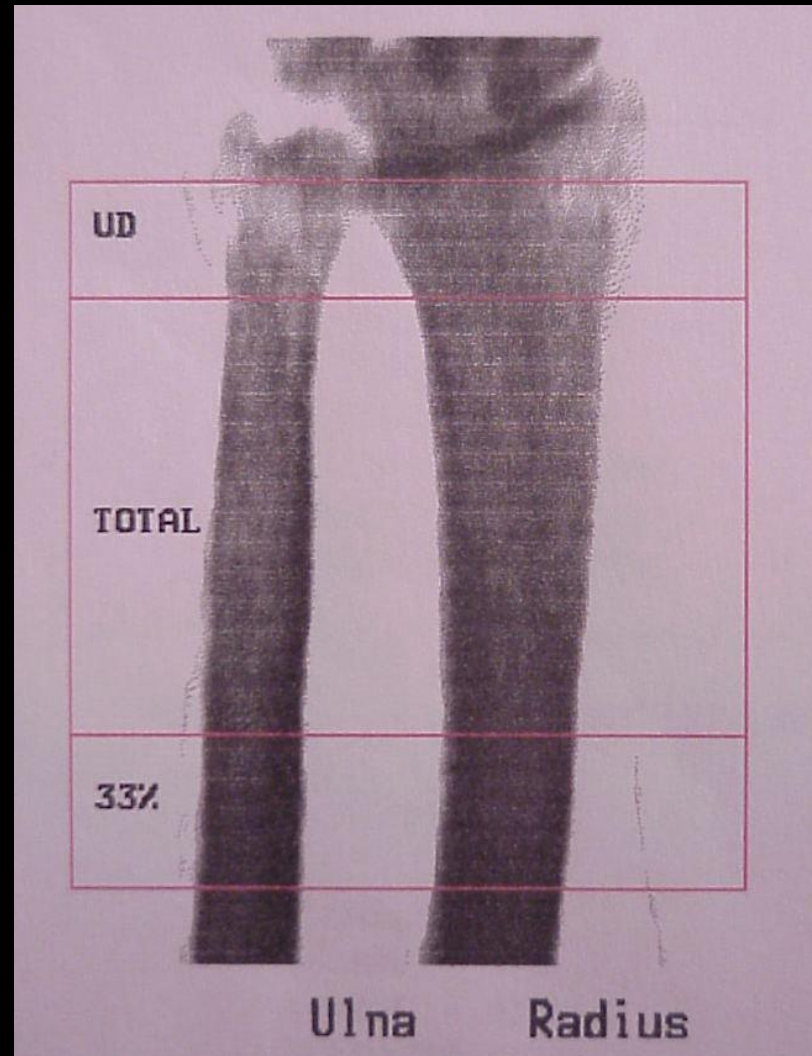
New Case



Region	BMD ¹ g/cm ²	Young Adult ² %	T
L1	1.129	97	-0.3
L2	1.380	111	1.2
L3	1.414	114	1.5
L4	1.471	119	1.9
L1-L2	1.249	104	0.4
L1-L3	1.304	108	0.8
L1-L4	1.353	111	1.1
L2-L3	1.398	113	1.3
L2-L4	1.426	115	1.5
L3-L4	1.446	117	1.7

Height (cm)	BMC/W (g/cm)
3.48	3.93
2.76	3.81
3.12	4.41
3.60	5.30

Region		BMD ^{1,6} g/cm ²	Young Adult ² %	T
RADIUS	UD	0.317	75	-2.6
ULNA	UD	0.234	-	-
BOTH	UD	0.294	-	-
RADIUS	33%	0.608	75	-2.5
ULNA	33%	0.640	-	-
BOTH	33%	0.622	-	-
RADIUS	TOTAL	0.440	72	-3.1
ULNA	TOTAL	0.440	-	-
BOTH	TOTAL	0.440	-	-

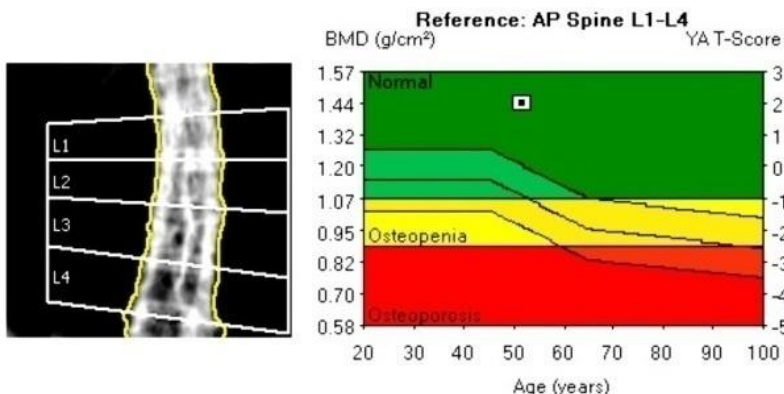


Report

- When the lumbar spine and hips cannot be used we turn to the distal radius and use the 33% measurement.

New Case

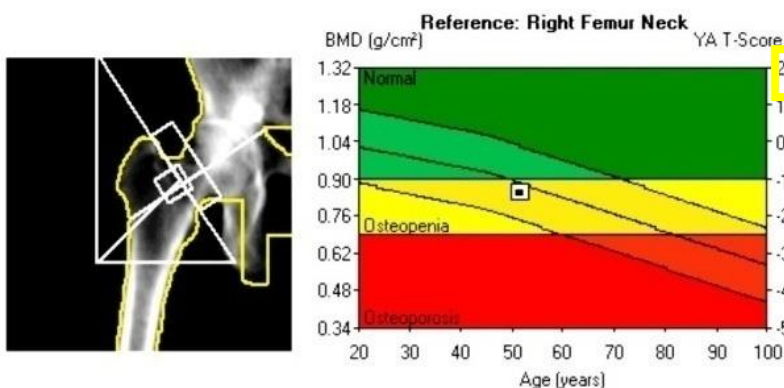
Height / Weight: 59.0 in. 117.0 lbs. Measured: 10/4/2006 2:33:29 PM (9.30)
 Sex / Ethnic: Female Asian Analyzed: 10/4/2006 2:42:38 PM (9.30)



Region	BMD (g/cm ²)	Young-Adult T-Score	Age-Matched Z-Score
L1	1.543	3.3	4.2
L2	1.585	3.1	4.0
L3	1.469	2.0	2.9
L4	1.266	0.1	1.2
L1-L4	1.446	2.0	2.9

Matched for Age, Weight (Females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for AP Spine L1-L4)

Image not for diagnosis



Region	BMD (g/cm ²)	Young-Adult T-Score	Age-Matched Z-Score
Neck	0.846	-1.4	-0.3
Troch	0.630	-1.9	-1.0
Total	0.822	-1.5	-0.7

Matched for Age, Weight (Females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm² for Right Femur Neck)

Height / Weight:	59.0 in.	117.0 lbs.	Measured:	10/4/2006	2:33:29 PM	(9.30)
Sex / Ethnic:	Female	Asian	Analyzed:	10/4/2006	2:42:38 PM	(9.30)

ANCILLARY RESULTS [AP Spine]

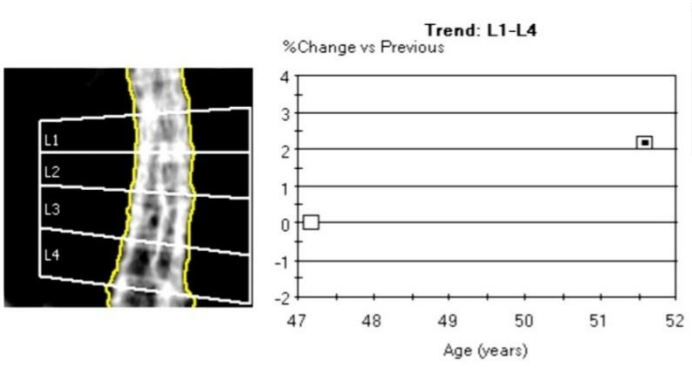
Region	¹ BMD (g/cm ²)	² Young-Adult (%) T-Score		³ Age-Matched (%) Z-Score		BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.543	135	3.3	150	4.2	17.95	11.63	4.1	2.86
L2	1.585	131	3.1	144	4.0	18.62	11.75	4.3	2.74
L3	1.469	120	2.0	132	2.9	24.73	16.83	4.6	3.67
L4	1.266	104	0.4	114	1.3	22.29	17.61	5.1	3.49
L1-L2	1.565	133	3.2	147	4.1	36.57	23.38	4.2	5.60
L1-L3	1.525	129	2.8	142	3.7	61.30	40.21	4.3	9.26
L1-L4	1.446	121	2.0	133	2.9	83.59	57.82	4.5	12.75
L2-L3	1.517	125	2.5	137	3.4	43.35	28.58	4.4	6.41
L2-L4	1.421	116	1.6	128	2.6	65.64	46.19	4.6	9.89
L3-L4	1.365	112	1.2	123	2.1	47.02	34.44	4.8	7.15

Height / Weight:	59.0 in.	117.0 lbs.	Measured:	10/4/2006	2:35:41 PM	(9.30)
Sex / Ethnic:	Female	Asian	Analyzed:	10/4/2006	2:42:39 PM	(9.30)

ANCILLARY RESULTS [Right Femur]

Region	¹ BMD (g/cm ²)	² Young-Adult (%) T-Score		³ Age-Matched (%) Z-Score		BMC (g)	Area (cm ²)
Neck	0.846	81	-1.4	96	-0.3	4.26	5.03
Upper Neck	0.684	83	-1.1	96	-0.2	1.72	2.51
Wards	0.633	70	-2.1	85	-0.9	1.78	2.81
Troch	0.630	74	-1.9	84	-1.0	7.27	11.54
Shaft	0.976	-	-	-	-	13.35	13.67
Total	0.822	82	-1.5	91	-0.7	24.87	30.24

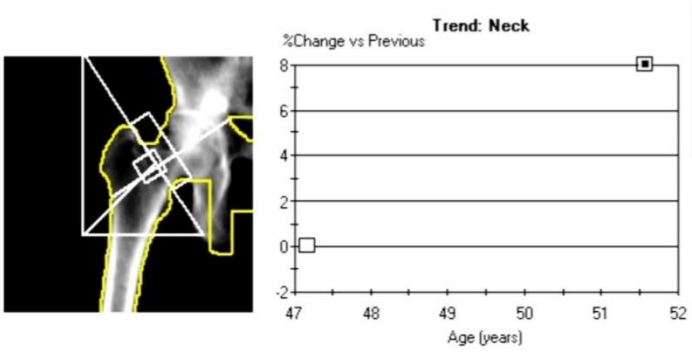
Height / Weight: 59.0 in. 117.0 lbs. Measured: 10/4/2006 2:33:29 PM (9.30)
 Sex / Ethnic: Female Asian Analyzed: 10/4/2006 2:42:38 PM (9.30)



Trend: L1-L4				
Measured Date	Age (years)	BMD (g/cm ²)	Change vs Previous	
			Previous (g/cm ²)	Previous (%)
10/4/2006	51.5	1.446	0.031	2.2
5/2/2002	47.1	1.415	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for AP Spine L1-L4)

Image not for diagnosis



Trend: Neck				
Measured Date	Age (years)	BMD (g/cm ²)	Change vs Previous	
			Previous (g/cm ²)	Previous (%)
10/4/2006	51.5	0.846	0.063	8.0
5/2/2002	47.1	0.783	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm² for Right Femur Neck)

Report

- Increase in lumbar spine bone density is due to syndesmophytes and ligament ossification.

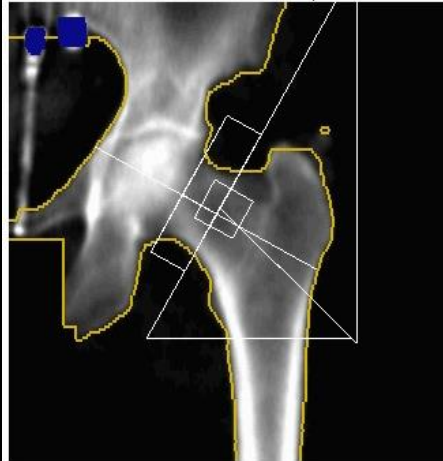
HADD and zipper



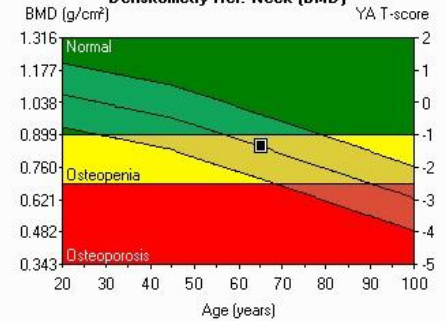
Birth Date: 11/22/1946 65.3 years
Height / Weight: 64.0 in. 153.0 lbs.
Sex / Ethnic: Female White

Referring Physician: LILLIE, DUSTIN
Measured: 03/27/2012 3:49:02 PM (13.60)
Analyzed: 03/27/2012 3:55:01 PM (13.60)

Left Femur Bone Density



Densitometry Ref: Neck (BMD)



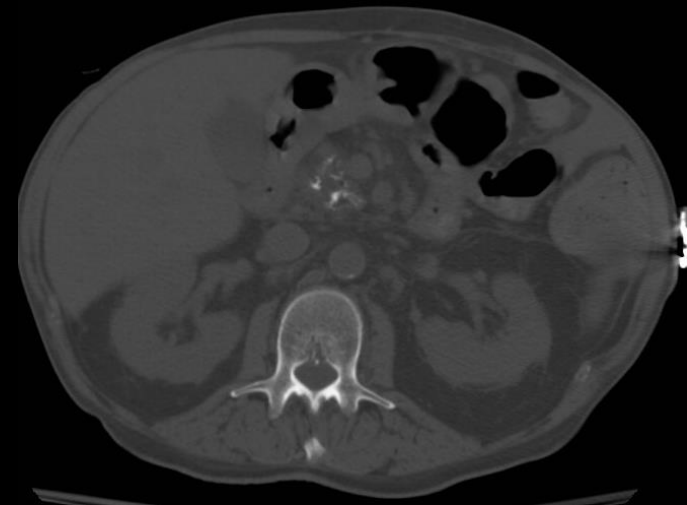
Region	¹ BMD (g/cm ²)	² Young-Adult T-score	³ Age-Matched Z-score
Neck	0.849	-1.4	0.0
Upper Neck	0.701	-1.0	0.3
Troch	0.738	-1.0	0.1
Shaft	1.110	-	-
Total	0.906	-0.8	0.3

New Case

Height / Weight: 68.0 in. 135.0 lbs. Measured: 11/28/2006 10:42:51 AM (9.30)
 Sex / Ethnic: Male White Analyzed: 11/28/2006 10:51:05 AM (9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult ²		Age-Matched ³		BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
		(%)	T-Score	(%)	Z-Score				
L1	1.250	108	0.8	119	1.6	18.41	14.72	4.2	3.47
L2	1.393	112	1.3	123	2.2	20.17	14.48	4.3	3.36
L3	1.373	111	1.1	121	2.0	21.67	15.79	4.4	3.57
L4	1.201	97	-0.3	106	0.6	23.48	19.55	4.9	3.99
L1-L2	1.321	110	1.0	121	1.9	38.58	29.20	4.3	6.83
L1-L3	1.339	111	1.1	121	2.0	60.25	44.99	4.3	10.40
L1-L4	1.297	106	0.6	117	1.5	83.73	64.54	4.5	14.39
L2-L3	1.382	111	1.2	122	2.1	41.84	30.27	4.4	6.93
L2-L4	1.311	106	0.6	116	1.5	65.32	49.81	4.5	10.92
L3-L4	1.278	103	0.3	113	1.2	45.15	35.34	4.7	7.56



Report

- Calcium anterior to the spine can increase apparent BMD.

New Case

Height / Weight:	69.0 in. 174.0 lbs.	Measured:	7/12/2006 1:57:26 PM (9.30)
Sex / Ethnic:	Male Other	Analyzed:	7/12/2006 2:03:57 PM (9.30)

Height / Weight:	69.0 in. 174.0 lbs.	Measured:	7/12/2006 1:57:26 PM (9.30)
Sex / Ethnic:	Male Other	Analyzed:	7/12/2006 2:03:57 PM (9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)		Young-Adult ² (%)		Age-Matched (%)		BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
			T-Score	Z-Score		Z-Score				
L1	0.856	73	-2.6	-	-	-	11.68	13.63	3.8	3.57
L2	0.938	75	-2.6	-	-	-	14.77	15.74	4.2	3.78
L3	0.995	80	-2.1	-	-	-	18.37	18.47	4.8	3.89
L4	1.027	82	-1.8	-	-	-	20.46	19.93	5.1	3.89
L1-L2	0.900	74	-2.6	-	-	-	26.44	29.38	4.0	7.35
L1-L3	0.937	77	-2.3	-	-	-	44.81	47.84	4.2	11.24
L1-L4	0.963	78	-2.2	-	-	-	65.27	67.77	4.5	15.12
L2-L3	0.969	77	-2.3	-	-	-	33.14	34.21	4.5	7.67
L2-L4	0.990	79	-2.1	-	-	-	53.59	54.14	4.7	11.55
L3-L4	1.011	81	-2.0	-	-	-	38.83	38.39	4.9	7.77

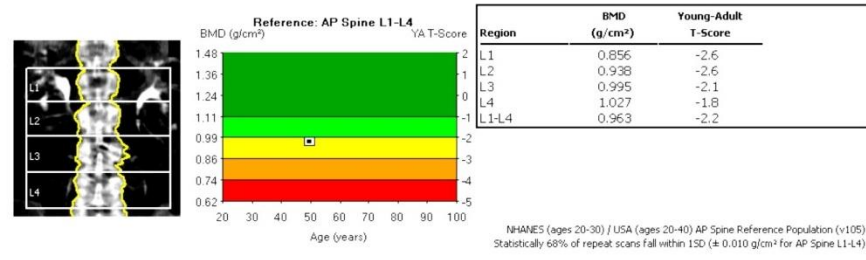


Image not for diagnosis

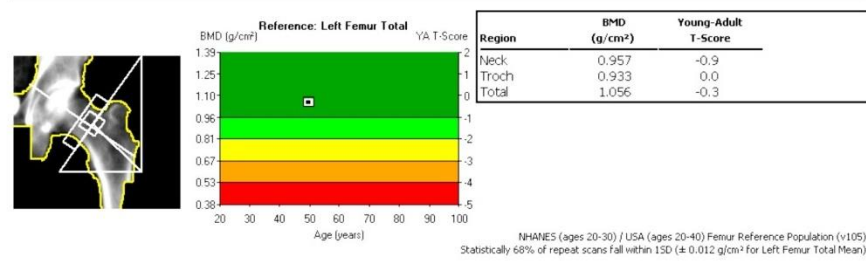


Image not for diagnosis

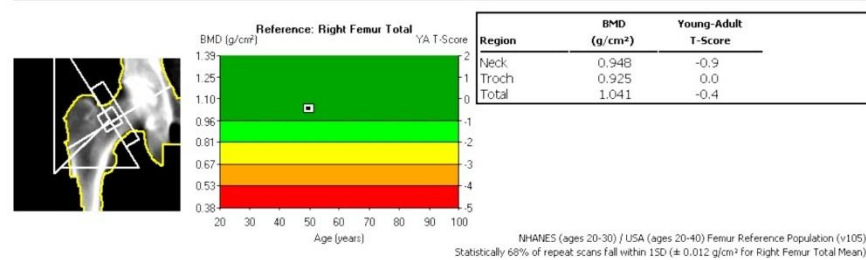


Image not for diagnosis

Report

- If the patient does not wish to divulge their personal details, only T score and not Z score can be produced.

New Case

Height / Weight: 67.0 in. 180.0 lbs. Measured: 4/18/2006 1:49:06 PM (9.30)
 Sex / Ethnic: Female White Analyzed: 4/18/2006 1:53:06 PM (9.30)

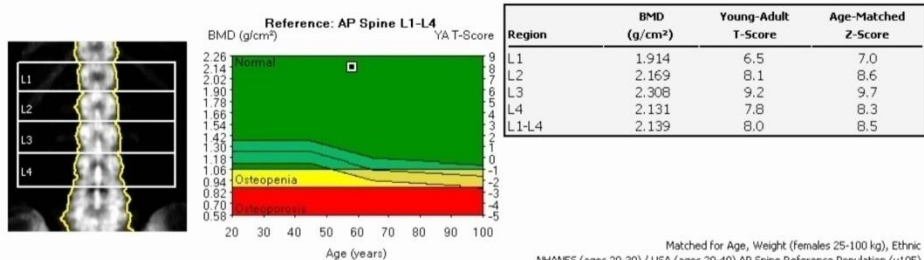


Image not for diagnosis

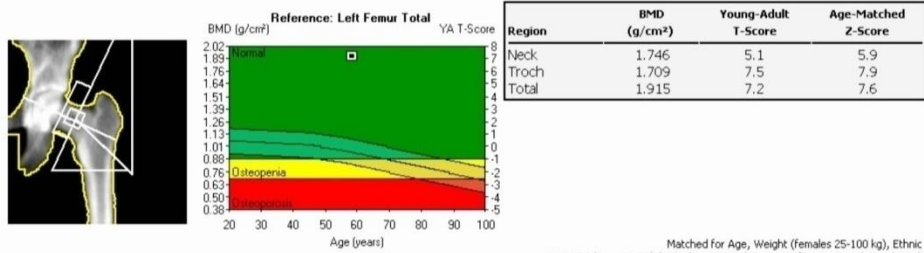
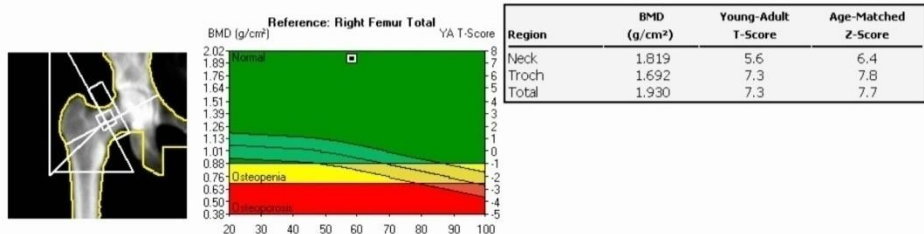


Image not for diagnosis



Height / Weight: 67.0 in. 180.0 lbs. Measured: 4/18/2006 1:49:06 PM (9.30)
 Sex / Ethnic: Female White Analyzed: 4/18/2006 1:53:06 PM (9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult (%) ² T-Score	Age-Matched (%) ³ Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.914	169 6.5	179 7.0	20.80	10.87	3.7	2.94
L2	2.169	181 8.1	190 8.6	25.52	11.77	3.9	3.05
L3	2.308	192 9.2	203 9.7	30.06	13.02	4.1	3.15
L4	2.131	178 7.8	187 8.3	34.26	16.07	4.6	3.47
L1-L2	2.047	176 7.3	185 7.9	46.33	22.64	3.8	5.99
L1-L3	2.142	183 8.1	193 8.6	76.39	35.66	3.9	9.14
L1-L4	2.139	181 8.0	191 8.5	110.64	51.73	4.1	12.60
L2-L3	2.242	187 8.7	197 9.2	55.58	24.79	4.0	6.20
L2-L4	2.199	183 8.3	193 8.8	89.84	40.86	4.2	9.66
L3-L4	2.211	184 8.4	194 8.9	64.31	29.09	4.4	6.62





Report

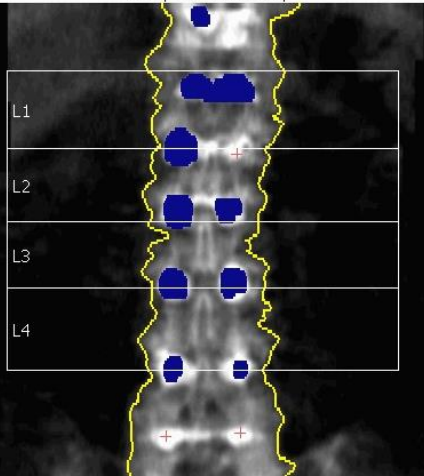
- Benign bone sclerosis such as Worth's disease or Van Buchem's, or a variant of osteopetrosis.
- Recommend repeat DEXA to check for spurious result.

64M

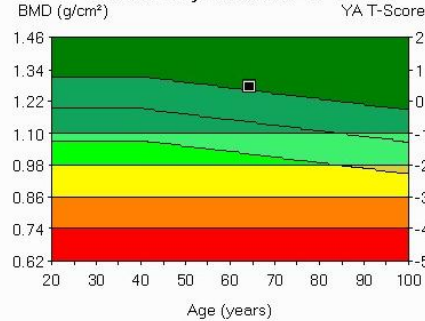
Birth Date: 1/8/1945 64.5 years
Height / Weight: 68.0 in. 157.0 lbs.
Sex / Ethnic: Male Hispanic

Referring Physician: KUO, ALEXANDER
Measured: 8/11/2009 9:38:21 AM (12.20)
Analyzed: 8/11/2009 9:43:15 AM (12.20)

AP Spine Bone Density



Densitometry Reference: L1-L4

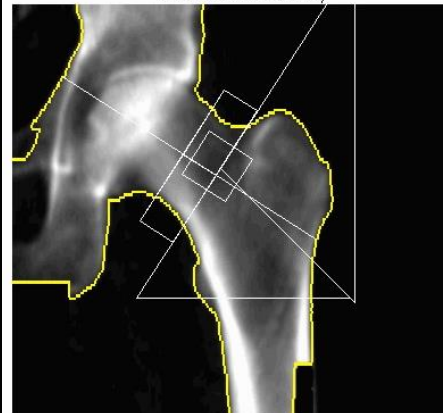


Region	¹ BMD (g/cm ²)	² Young-Adult T-Score	³ Age-Matched Z-Score
L1	1.212	0.4	1.1
L2	1.309	0.6	1.2
L3	1.253	0.1	0.8
L4	1.306	0.6	1.2
L1-L4	1.273	0.4	1.1

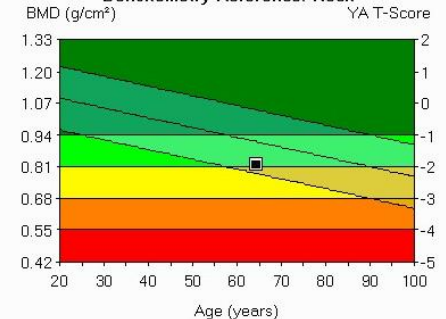
Birth Date: 1/8/1945 64.5 years
Height / Weight: 68.0 in. 157.0 lbs.
Sex / Ethnic: Male Hispanic

Referring Physician: KUO, ALEXANDER
Measured: 8/11/2009 9:40:26 AM (12.20)
Analyzed: 8/11/2009 9:44:59 AM (12.20)

Left Femur Bone Density



Densitometry Reference: Neck

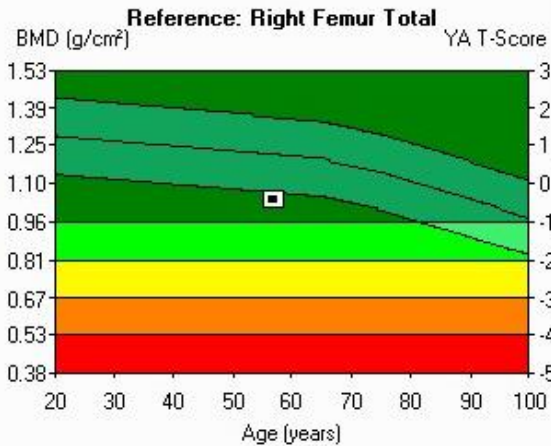
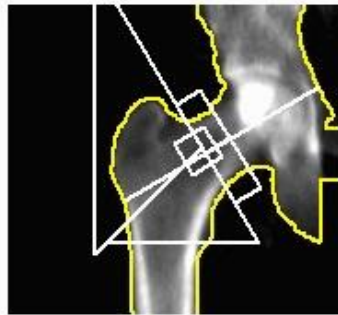


Region	¹ BMD (g/cm ²)	² Young-Adult T-Score	³ Age-Matched Z-Score
Neck	0.818	-1.9	-0.7
Total	0.830	-1.9	-1.2

Kyphoplasties

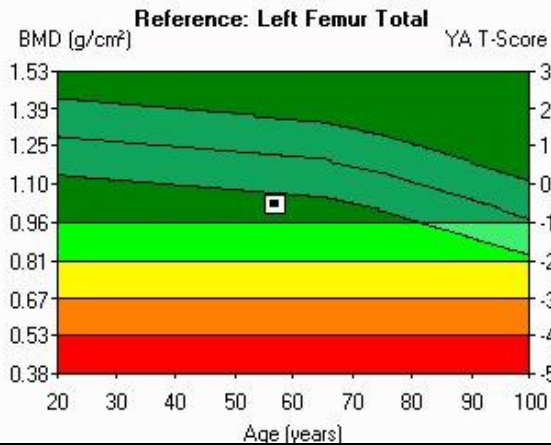
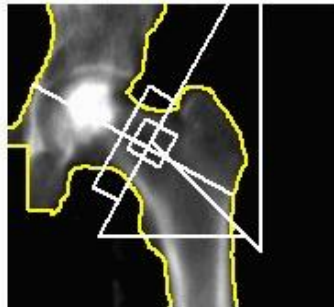


60M



Region	BMD (g/cm ²)	Young-Adult T-Score	Age-Matched Z-Score
Neck	0.983	-0.7	-1.2
Troch	0.881	-0.4	-1.1
Total	1.038	-0.4	-1.2

Matched for Age, Weight (males 25-100 kg), Ethnic



Region	BMD (g/cm ²)	Young-Adult T-Score	Age-Matched Z-Score
Neck	0.939	-1.0	-1.5
Troch	0.892	-0.3	-1.0
Total	1.020	-0.6	-1.3

Matched for Age, Weight (males 25-100 kg), Ethnic

Bilateral AVN hips

ANCILLARY RESULTS [Left Femur]

Region	BMD ¹ (g/cm ²)	Young-Adult ²		Age-Matched ³		BMC (g)	Area (cm ²)
		(%)	T-Score	(%)	Z-Score		
Neck	0.939	88	-1.0	83	-1.5	5.20	5.54
Upper Neck	0.782	86	-1.0	82	-1.3	2.13	2.73
Wards	0.694	72	-2.0	72	-2.0	2.36	3.40
Troch	0.892	96	-0.3	89	-1.0	16.88	18.91
Shaft	1.205	-	-	-	-	18.53	15.37
Total	1.020	93	-0.6	84	-1.3	40.61	39.82

ANCILLARY RESULTS [Right Femur]

Region	BMD ¹ (g/cm ²)	Young-Adult ²		Age-Matched ³		BMC (g)	Area (cm ²)
		(%)	T-Score	(%)	Z-Score		
Neck	0.983	92	-0.7	87	-1.2	5.38	5.47
Upper Neck	0.879	96	-0.3	92	-0.6	2.36	2.68
Wards	0.761	79	-1.5	79	-1.5	2.53	3.33
Troch	0.881	95	-0.4	88	-1.1	15.29	17.35
Shaft	1.239	-	-	-	-	18.61	15.02
Total	1.038	94	-0.4	86	-1.2	39.29	37.85

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult ²		Age-Matched ³		BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
		(%)	T-Score	(%)	Z-Score				
L1	0.891	77	-2.2	71	-3.0	12.90	14.47	4.5	3.19
L2	0.851	69	-3.2	63	-4.1	13.07	15.35	4.5	3.39
L3	1.056	85	-1.5	79	-2.4	18.17	17.21	5.0	3.41
L4	0.905	73	-2.8	67	-3.6	14.98	16.55	5.5	3.00
L1-L2	0.871	73	-2.7	67	-3.6	25.96	29.83	4.5	6.57
L1-L3	0.938	78	-2.3	72	-3.1	44.14	47.03	4.7	9.98
L1-L4	0.930	76	-2.4	70	-3.3	59.12	63.58	4.9	12.98
L2-L3	0.959	77	-2.3	72	-3.2	31.24	32.56	4.8	6.80
L2-L4	0.941	76	-2.5	70	-3.3	46.22	49.11	5.0	9.79
L3-L4	0.982	79	-2.1	73	-3.0	33.15	33.75	5.3	6.41

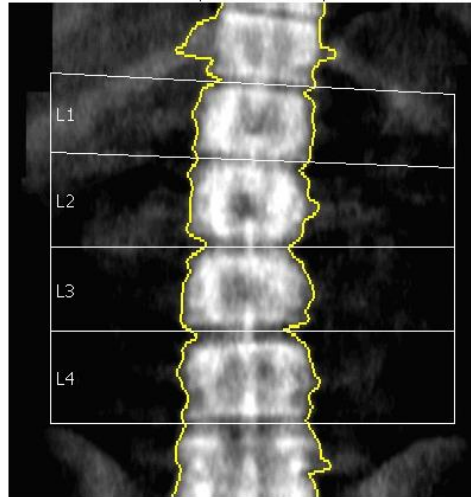
Bilateral AVN hips



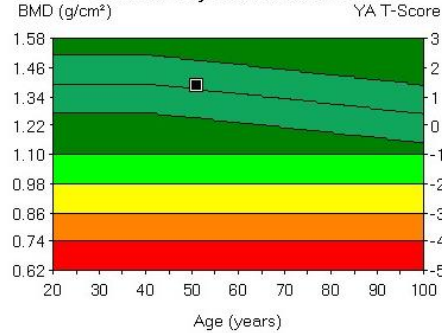
51M

Birth Date: 6/7/1958 51.1 years
Height / Weight: 69.0 in. 268.0 lbs.
Sex / Ethnic: Male Black
Referring Physician: WILKINSON, JOHN
Measured: 8/12/2009 11:28:59 AM (12.20)
Analyzed: 8/12/2009 11:34:47 AM (12.20)

AP Spine Bone Density



Densitometry Reference: L1-L4



Region	¹ BMD (g/cm ²)	² Young-Adult T-Score	³ Age-Matched Z-Score
L1	1.415	2.1	0.9
L2	1.422	1.5	0.3
L3	1.397	1.3	0.0
L4	1.315	0.6	-0.6
L1-L4	1.383	1.4	0.1

Birth Date: 6/7/1958 51.1 years
Height / Weight: 69.0 in. 268.0 lbs.
Sex / Ethnic: Male Black
Referring Physician: WILKINSON, JOHN
Measured: 8/12/2009 11:28:59 AM (12.20)
Analyzed: 8/12/2009 11:34:47 AM (12.20)

ANCILLARY RESULTS [AP Spine]

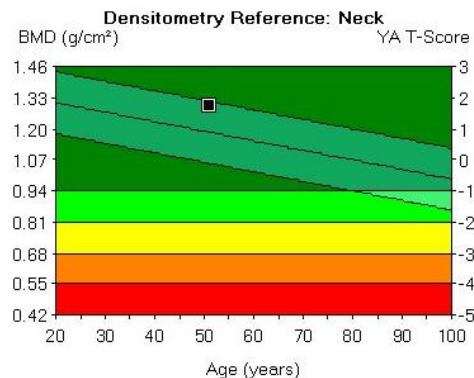
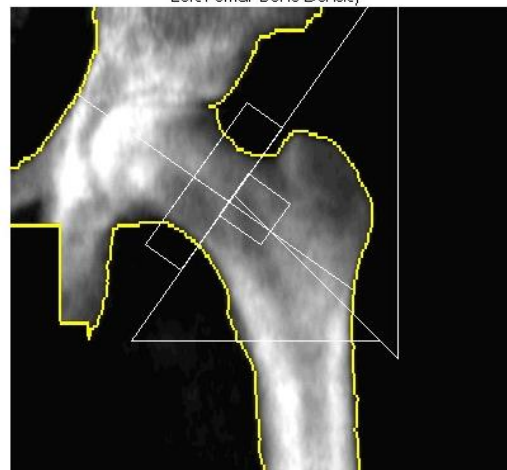
Region	¹ BMD (g/cm ²)	² Young-Adult (%) T-Score	³ Age-Matched (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.415	122 2.1	108 0.9	18.47	13.06	4.3	3.01
L2	1.422	115 1.5	102 0.3	21.10	14.84	4.4	3.41
L3	1.397	113 1.3	100 0.0	20.66	14.79	4.5	3.28
L4	1.315	106 0.6	95 -0.6	22.68	17.25	4.8	3.61
L1-L2	1.419	118 1.8	105 0.6	39.57	27.89	4.3	6.42
L1-L3	1.411	117 1.7	104 0.4	60.23	42.69	4.4	9.70
L1-L4	1.383	113 1.4	101 0.1	82.92	59.94	4.5	13.31
L2-L3	1.409	114 1.4	101 0.2	41.76	29.63	4.4	6.69
L2-L4	1.375	111 1.1	99 -0.1	64.45	46.88	4.5	10.30
L3-L4	1.353	109 0.9	97 -0.3	43.35	32.04	4.6	6.89

51M

Birth Date: 6/7/1958 51.1 years
 Height / Weight: 69.0 in. 268.0 lbs.
 Sex / Ethnic: Male Black

Referring Physician: WILKINSON, JOHN
 Measured: 8/12/2009 11:30:47 AM (12.20)
 Analyzed: 8/12/2009 11:34:48 AM (12.20)

Left Femur Bone Density

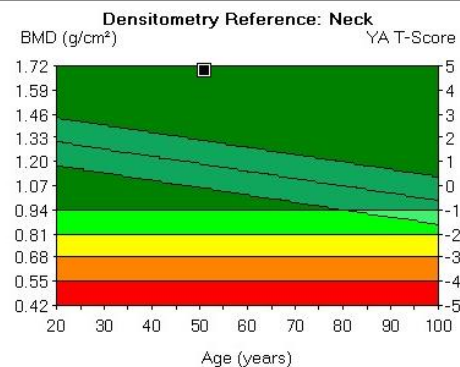
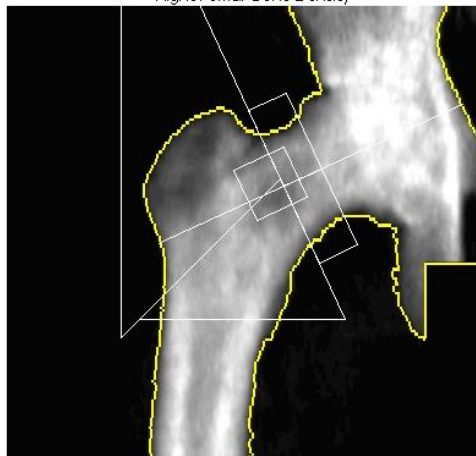


Region	¹ BMD (g/cm ²)	² Young-Adult T-Score	³ Age-Matched Z-Score
Neck	1.296	1.7	0.9
Total	1.546	2.1	2.1

Birth Date: 6/7/1958 51.1 years
 Height / Weight: 69.0 in. 268.0 lbs.
 Sex / Ethnic: Male Black

Referring Physician: WILKINSON, JOHN
 Measured: 8/12/2009 11:33:05 AM (12.20)
 Analyzed: 8/12/2009 11:34:49 AM (12.20)

Right Femur Bone Density



Region	¹ BMD (g/cm ²)	² Young-Adult T-Score	³ Age-Matched Z-Score
Neck	1.692	4.8	3.9
Total	1.717	4.3	3.2

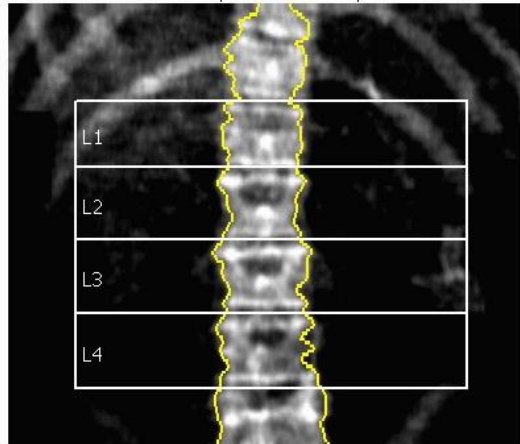
51M

- Sickle cell disease

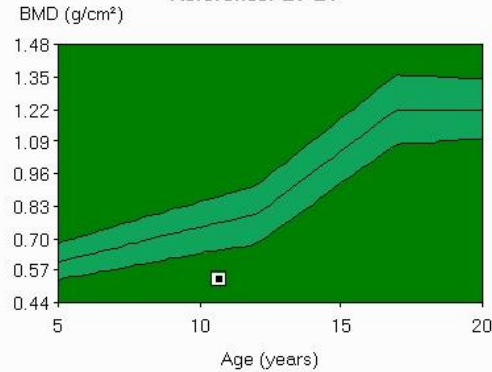
13M - 2007

Birth Date: 8/28/1996 10.7 years
Height / Weight: 50.0 in. 54.0 lbs.
Sex / Ethnic: Male White
Referring Physician: NEWFIELD, RON
Measured: 5/24/2007 8:59:43 AM (9.30)
Analyzed: 5/24/2007 9:02:44 AM (9.30)

AP Spine Bone Density



Reference: L1-L4



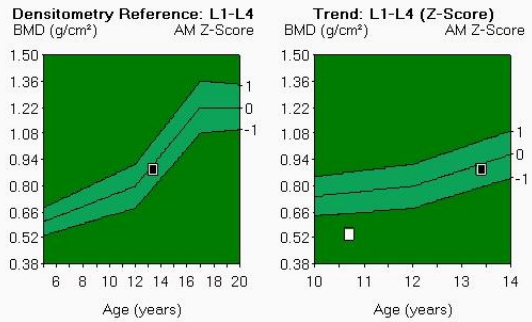
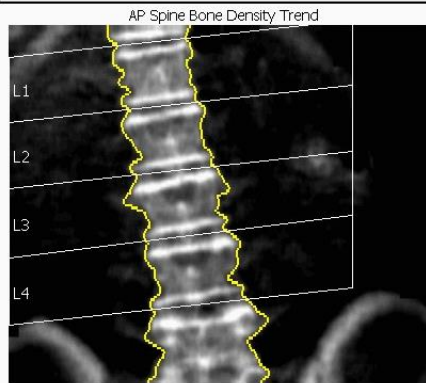
Region	¹ BMD (g/cm ²)	² Young-Adult T-Score	³ Age-Matched Z-Score
L1	0.522	-	-1.7
L2	0.518	-	-2.4
L3	0.577	-	-1.9
L4	0.515	-	-2.5
L1-L4	0.534	-	-2.1

ANCILLARY RESULTS [AP Spine]

Region	¹ BMD (g/cm ²)	² Young-Adult (%) T-Score	³ Age-Matched (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	0.522	- -	74 -1.7	3.01	5.77	2.5	2.34
L2	0.518	- -	66 -2.4	3.26	6.28	2.5	2.53
L3	0.577	- -	74 -1.9	4.19	7.26	2.8	2.59
L4	0.515	- -	66 -2.5	4.13	8.03	3.0	2.66
L1-L2	0.520	- -	70 -2.1	6.27	12.05	2.5	4.87
L1-L3	0.542	- -	72 -1.9	10.46	19.31	2.6	7.46
L1-L4	0.534	- -	70 -2.1	14.59	27.34	2.7	10.12
L2-L3	0.550	- -	70 -2.1	7.44	13.54	2.6	5.12
L2-L4	0.537	- -	69 -2.3	11.58	21.57	2.8	7.78
L3-L4	0.544	- -	70 -2.2	8.32	15.29	2.9	5.25

13M - 2010

Birth Date: 8/28/1996 13 years 5 months
Height / Weight: 54.0 in. 66.0 lbs.
Sex / Ethnic: Male White
Referring Physician: NEWFIELD, RON
Measured: 2/10/2010 8:46:55 AM (12.20)
Analyzed: 2/10/2010 8:52:27 AM (12.20)



Region	¹ BMD (g/cm ²)	^{2,3} Age-Matched Z-Score
L1	0.900	0.3
L2	0.857	-0.6
L3	0.894	-0.3
L4	0.889	-0.4
L1-L4	0.885	-0.3

Measured Date	Trend: L1-L4		Change vs	
	Age (years)	Z-Score ^{2,3}	Previous	Previous (%)
2/10/2010	13.4	-0.3	1.8	85.7
5/24/2007	10.7	-2.1	-	-

COMMENTS: COMPARE TO PREVIOUS. THIS WAS THE THIRD ATTEMPT TO SCAN THIS PATIENT, MOTION ON THE FIRST TWO SCANS.

ANCILLARY RESULTS [AP Spine]

Region	¹ BMD (g/cm ²)	² Young-Adult (%) T-Score	³ Age-Matched (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	0.900	- -	105 0.3	7.58	8.42	3.0	2.83
L2	0.857	- -	91 -0.6	7.85	9.16	3.2	2.91
L3	0.894	- -	95 -0.3	9.13	10.21	3.5	2.88
L4	0.889	- -	95 -0.4	9.74	10.95	3.6	3.04
L1-L2	0.877	- -	98 -0.2	15.43	17.59	3.1	5.73
L1-L3	0.884	- -	97 -0.2	24.56	27.79	3.2	8.62
L1-L4	0.885	- -	96 -0.3	34.29	38.74	3.3	11.66
L2-L3	0.877	- -	93 -0.5	16.98	19.37	3.3	5.79
L2-L4	0.881	- -	94 -0.4	26.72	30.32	3.4	8.83
L3-L4	0.891	- -	95 -0.4	18.86	21.16	3.6	5.93

13M

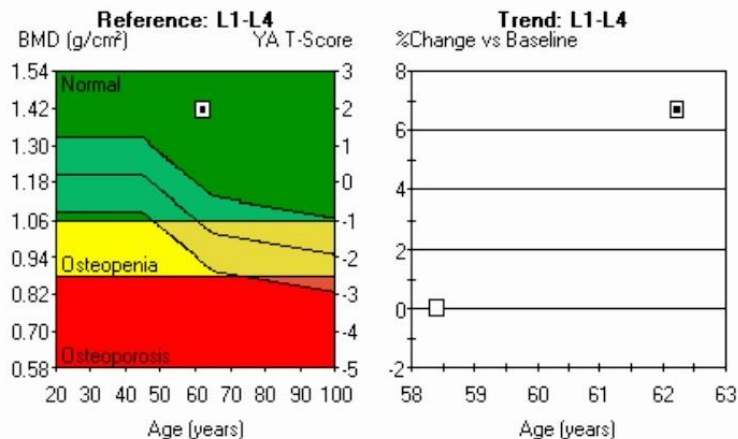
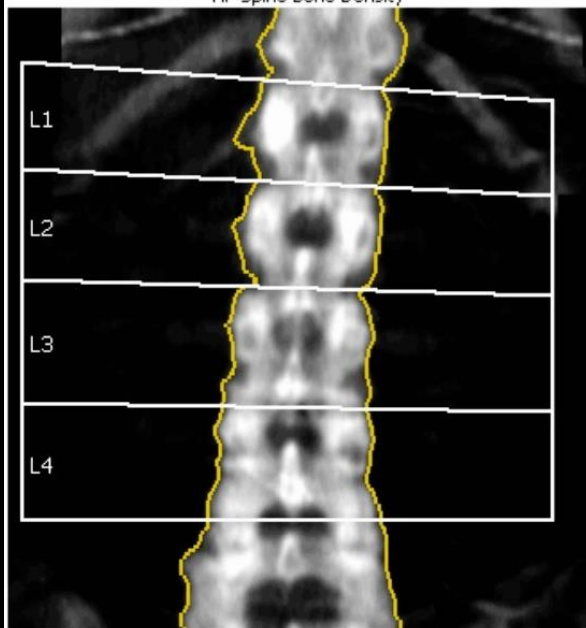
-
- Unknown neurologic disorder DEXA
13M

New Case

Height / Weight: 66.1 in. 157.0 lbs.
 Sex / Ethnic: Female White

Measured: 2/9/2007 1:11:43 PM (9.30)
 Analyzed: 2/9/2007 1:16:17 PM (9.30)

AP Spine Bone Density



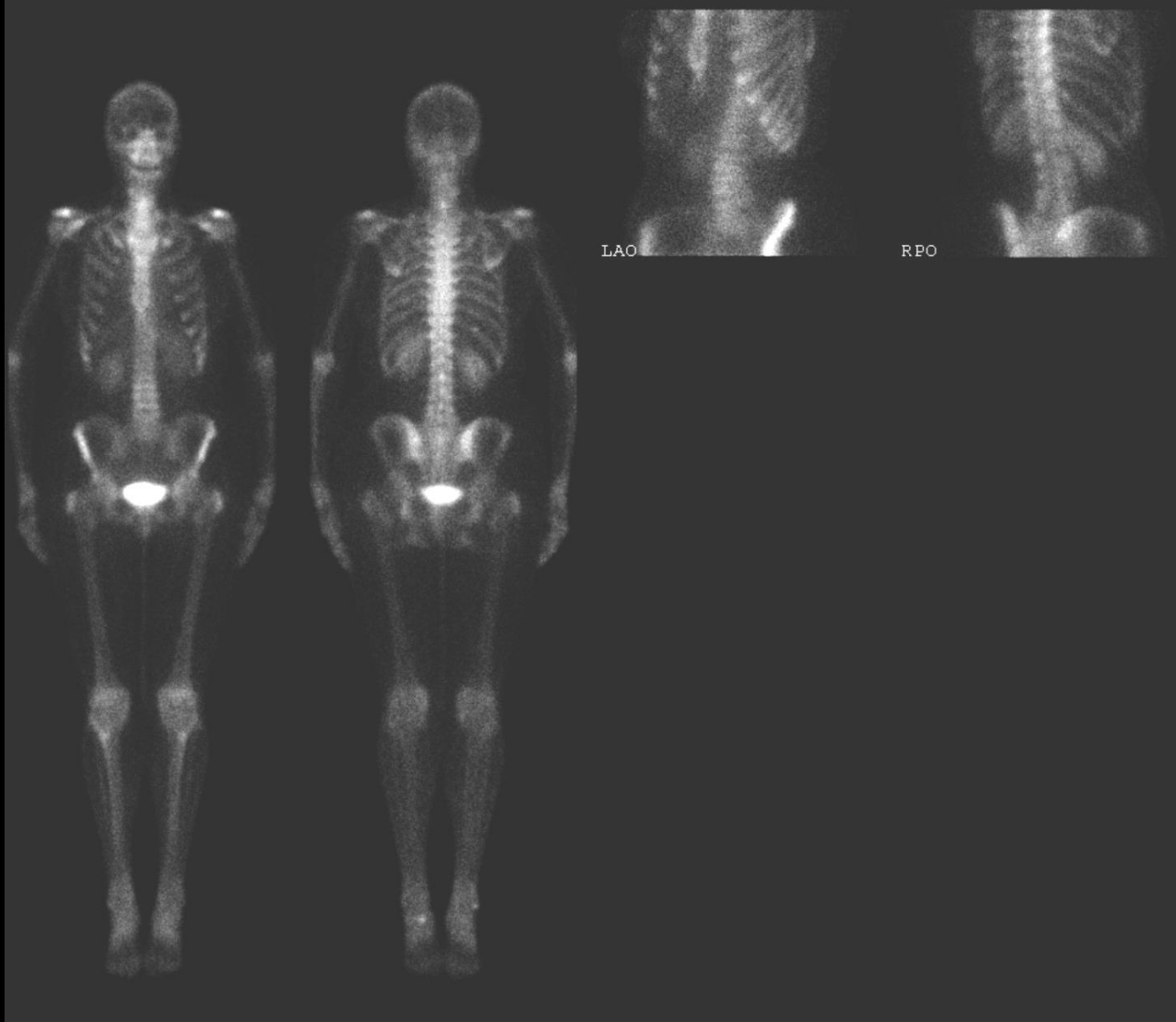
Region	BMD ¹ (g/cm ²)	Young-Adult ² T-Score	Age-Matched ³ Z-Score
L1	1.367	2.0	3.1
L2	1.386	1.5	2.7
L3	1.405	1.7	2.9
L4	1.481	2.3	3.5
L1-L2	1.377	1.8	2.9
L1-L3	1.387	1.8	3.0
L1-L4	1.415	2.0	3.1
L2-L3	1.396	1.6	2.8
L2-L4	1.428	1.9	3.1
L3-L4	1.445	2.0	3.2

Measured Date	Age (years)	Trend: L1-L4		
		BMD ¹ (g/cm ²)	Change vs Baseline (%)	Change vs Baseline (%/yr)
2/9/2007	62.2	1.415	6.7 *	1.7 *
4/16/2003	58.4	1.326	baseline	baseline

COMMENTS: f/u 4/03/ESTROGEN/hs



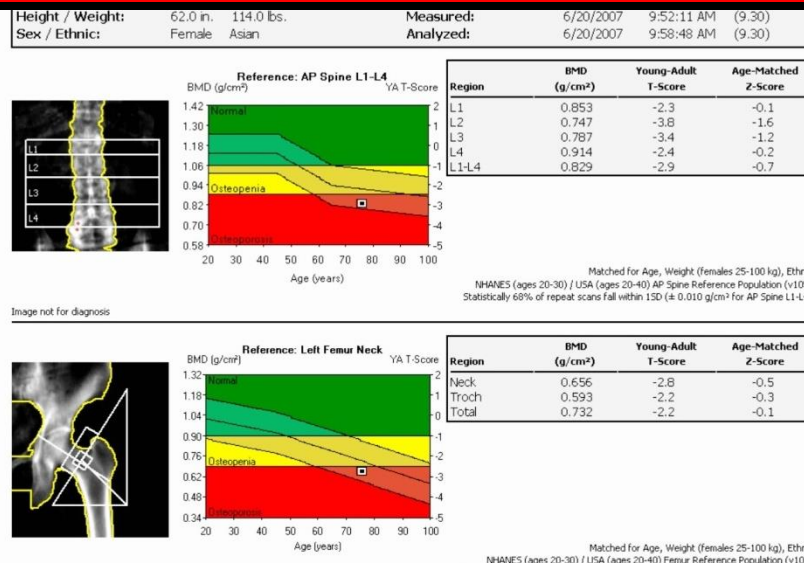
MDP



Report

- Benign sclerotic lesion L1
- Levels may be incorrect.

New Case

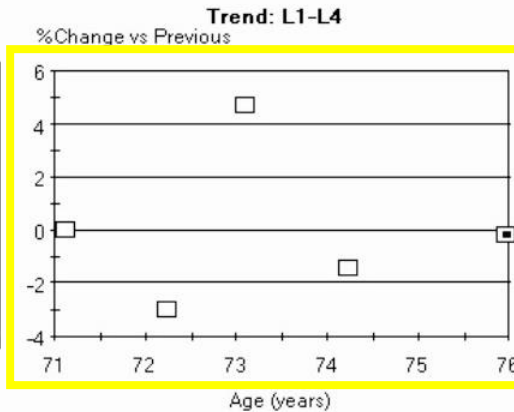
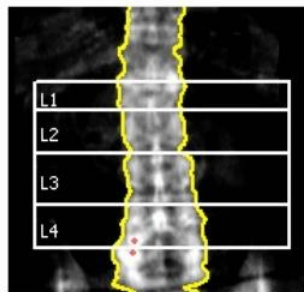


Height / Weight:	62.0 in. 114.0 lbs.	Measured:	6/20/2007 9:52:11 AM (9.30)
Sex / Ethnic:	Female Asian	Analyzed:	6/20/2007 9:58:48 AM (9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%)	T-Score	Age-Matched ³ (%)	Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	0.853	75	-2.3	99	-0.1	5.35	6.28	3.8	1.67
L2	0.747	62	-3.8	80	-1.6	6.75	9.04	3.4	2.63
L3	0.787	66	-3.4	84	-1.2	9.74	12.38	3.9	3.14
L4	0.914	76	-2.4	98	-0.2	11.82	12.92	4.8	2.68
L1-L2	0.790	68	-3.1	88	-0.9	12.10	15.32	3.6	4.30
L1-L3	0.789	67	-3.2	87	-1.0	21.85	27.69	3.7	7.44
L1-L4	0.829	70	-2.9	91	-0.7	33.66	40.62	4.0	10.12
L2-L3	0.770	64	-3.6	82	-1.4	16.49	21.42	3.7	5.77
L2-L4	0.824	69	-3.1	88	-0.9	28.31	34.34	4.1	8.44
L3-L4	0.852	71	-2.9	91	-0.7	21.56	25.30	4.4	5.82

Height / Weight: 62.0 in. 114.0 lbs. Measured: 6/20/2007 9:52:11 AM (9.30)
 Sex / Ethnic: Female Asian Analyzed: 6/20/2007 9:58:48 AM (9.30)

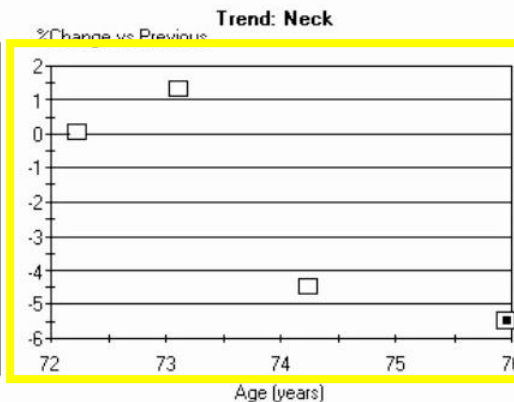
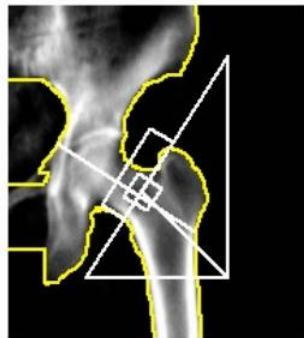


Trend: L1-L4

Measured Date	Age (years)	BMD (g/cm ²)	Change vs Previous	
			(g/cm ²)	(%)
6/20/2007	75.9	0.829	-0.002	-0.2
9/27/2005	74.2	0.830	-0.012	-1.5
8/12/2004	73.1	0.843	0.038	4.7
9/30/2003	72.2	0.805	-0.025	-3.0
8/20/2002	71.1	0.830	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for AP Spine L1-L4)

Image not for diagnosis



Trend: Neck

Measured Date	Age (years)	BMD (g/cm ²)	Change vs Previous	
			(g/cm ²)	(%)
6/20/2007	75.9	0.656	-0.038	-5.5
9/27/2005	74.2	0.694	-0.033	-4.5
8/12/2004	73.1	0.726	0.009	1.3
9/30/2003	72.2	0.717	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm² for Left Femur Neck)

Image not for diagnosis

Report

- When a vertebrae collapses, initially it will be of higher density.

New Case

Height / Weight: 66.0 in. 137.0 lbs. Measured: 11/21/2006 4:19:22 PM (9.30)
 Sex / Ethnic: Female White Analyzed: 11/21/2006 4:35:45 PM (9.30)

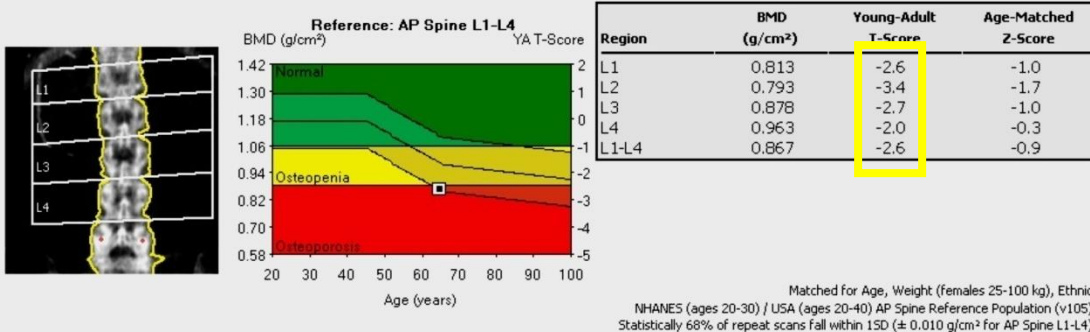
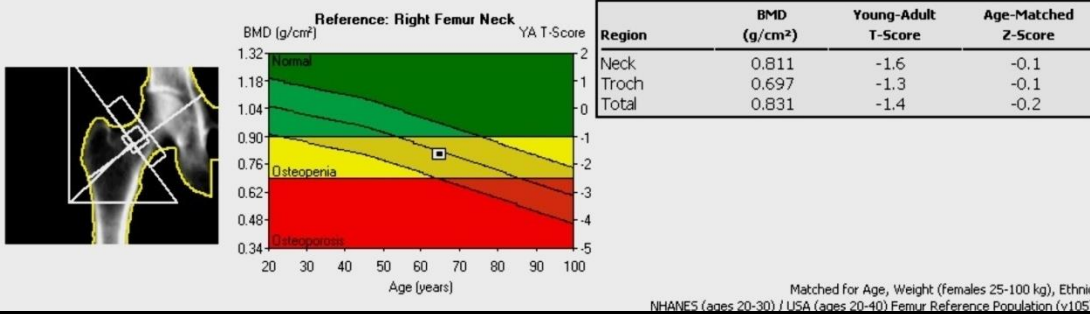


Image not for diagnosis

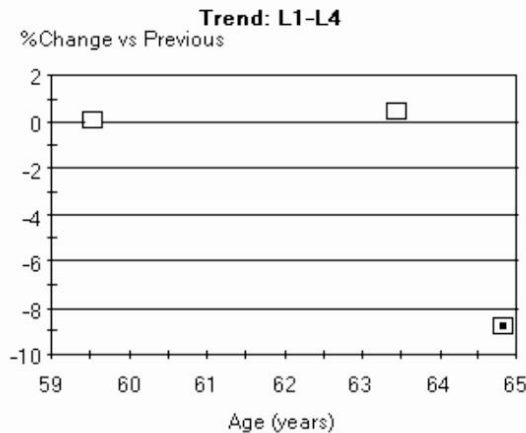
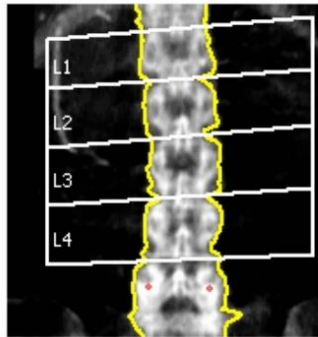


Height / Weight: 66.0 in. 137.0 lbs. Measured: 11/21/2006 4:19:22 PM (9.30)
 Sex / Ethnic: Female White Analyzed: 11/21/2006 4:35:45 PM (9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult (%) ² T-Score	Age-Matched (%) ³ Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)		
L1	0.813	72	-2.6	87	-1.0	9.21	11.34	3.9	2.93
L2	0.793	66	-3.4	79	-1.7	9.86	12.42	3.8	3.30
L3	0.878	73	-2.7	88	-1.0	11.56	13.17	3.8	3.47
L4	0.963	80	-2.0	96	-0.3	14.14	14.69	4.0	3.65
L1-L2	0.803	69	-3.0	83	-1.4	19.07	23.76	3.8	6.24
L1-L3	0.829	71	-2.8	85	-1.2	30.63	36.93	3.8	9.71
L1-L4	0.867	73	-2.6	88	-0.9	44.77	51.63	3.9	13.36
L2-L3	0.837	70	-3.0	84	-1.4	21.42	25.59	3.8	6.77
L2-L4	0.883	74	-2.6	88	-1.0	35.56	40.29	3.9	10.43
L3-L4	0.923	77	-2.3	92	-0.6	25.70	27.86	3.9	7.13

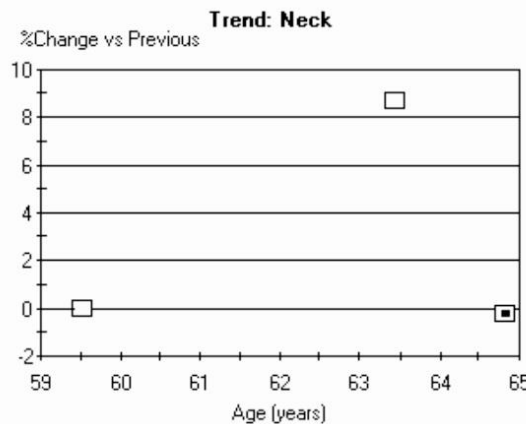
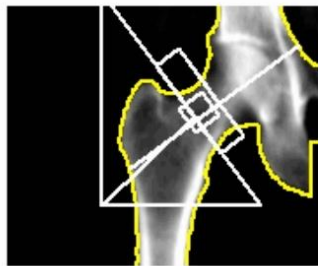
Height / Weight:	66.0 in. 137.0 lbs.	Measured:	11/21/2006 4:19:22 PM (9.30)
Sex / Ethnic:	Female White	Analyzed:	11/21/2006 4:35:45 PM (9.30)



Trend: L1-L4				
Measured Date	Age (years)	BMD (g/cm ²)	Change vs Previous	
			Previous (g/cm ²)	Previous (%)
11/21/2006	64.8	0.867	-0.084	-8.8
7/6/2005	63.4	0.951	0.004	0.4
8/2/2001	59.5	0.947	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for AP Spine L1-L4)

Image not for diagnosis

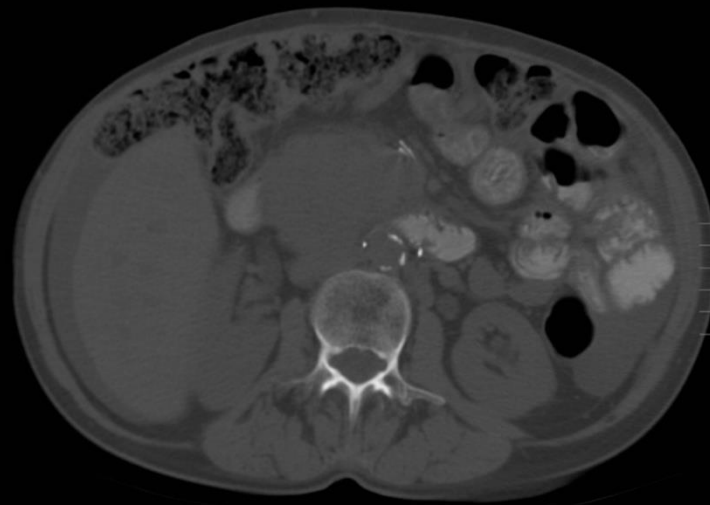


Trend: Neck				
Measured Date	Age (years)	BMD (g/cm ²)	Change vs Previous	
			Previous (g/cm ²)	Previous (%)
11/21/2006	64.8	0.811	-0.002	-0.2
7/6/2005	63.4	0.813	0.065	8.7
8/2/2001	59.5	0.748	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic



1Y prior



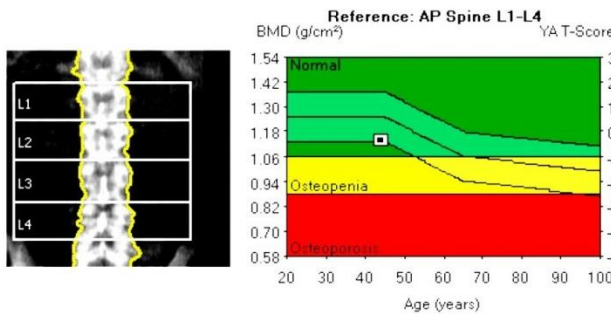
2m prior

Report

- Look out for vertebrae with a different and unaccountable bone density, either higher or lower.

New Case

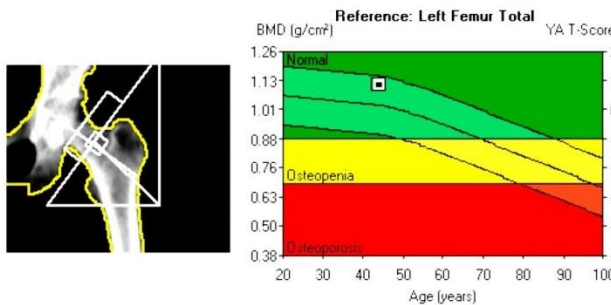
Height / Weight: 62.0 in. 182.0 lbs. Measured: 7/5/2006 1:54:04 PM (9.30)
 Sex / Ethnic: Female Hispanic Analyzed: 7/5/2006 1:59:06 PM (9.30)



Region	BMD (g/cm ²)	Young-Adult T-Score	Age-Matched Z-Score
L1	1.118	-0.1	-0.7
L2	1.203	0.0	-0.6
L3	1.088	-0.9	-1.5
L4	1.157	-0.4	-0.9
L1-L4	1.141	-0.3	-0.9

Matched for Age, Weight (females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for AP Spine L1-L4)

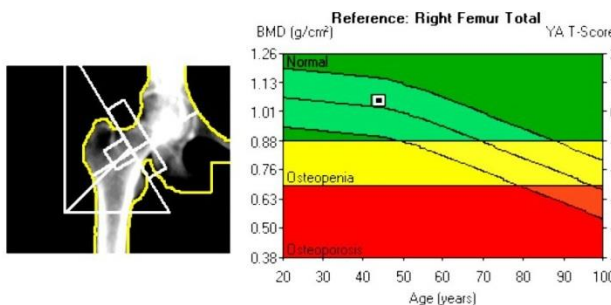
Image not for diagnosis



Region	BMD (g/cm ²)	Young-Adult T-Score	Age-Matched Z-Score
Neck	1.045	0.1	0.2
Troch	0.882	0.3	0.1
Total	1.113	0.8	0.7

Matched for Age, Weight (females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.012 g/cm² for Left Femur Total Mean)

Image not for diagnosis



Region	BMD (g/cm ²)	Young-Adult T-Score	Age-Matched Z-Score
Neck	0.973	-0.5	-0.3
Troch	0.801	-0.4	-0.6
Total	1.055	0.4	0.2

Matched for Age, Weight (females 25-100 kg), Ethnic

Height / Weight:	62.0 in.	182.0 lbs.	Measured:	7/5/2006	1:54:04 PM	(9.30)
Sex / Ethnic:	Female	Hispanic	Analyzed:	7/5/2006	1:59:06 PM	(9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.118	99 -0.1	93 -0.7	12.24	10.94	3.7	2.97
L2	1.203	100 0.0	95 -0.6	14.42	11.99	3.7	3.26
L3	1.088	91 -0.9	86 -1.5	14.02	12.88	3.7	3.44
L4	1.157	96 -0.4	91 -0.9	14.55	12.57	4.1	3.05
L1-L2	1.162	100 0.0	94 -0.6	26.66	22.93	3.7	6.22
L1-L3	1.126	97 0.2	92 0.0	40.68	35.82	3.7	9.66
L1-L4	1.141	97 -0.3	91 -0.9	55.23	48.39	3.8	12.71
L2-L3	1.144	95 -0.5	90 -1.1	28.44	24.87	3.7	6.69
L2-L4	1.148	96 -0.4	90 -1.0	42.99	37.45	3.9	9.74
L3-L4	1.122	94 -0.6	88 -1.2	28.57	25.46	3.9	6.48

Height / Weight:	62.0 in.	182.0 lbs.	Measured:	7/5/2006	1:57:23 PM	(9.30)
Sex / Ethnic:	Female	Hispanic	Analyzed:	7/5/2006	1:58:45 PM	(9.30)

ANCILLARY RESULTS [Left Femur]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)
Neck	1.045	101 0.1	103 0.2	3.96	3.79
Upper Neck	0.883	100 0.0	103 0.1	1.65	1.86
Wards	0.890	98 -0.2	98 -0.1	1.42	1.60
Troch	0.882	104 0.3	102 0.1	9.66	10.95
Shaft	1.321	- -	- -	17.67	13.37
Total	1.113	110 0.8	108 0.7	31.30	28.12

Height / Weight:	62.0 in.	182.0 lbs.	Measured:	7/5/2006	1:58:07 PM	(9.30)
Sex / Ethnic:	Female	Hispanic	Analyzed:	7/5/2006	1:58:48 PM	(9.30)

ANCILLARY RESULTS [Right Femur]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)
Neck	0.973	94 -0.5	96 -0.3	5.20	5.34
Upper Neck	0.882	107 0.3	104 0.3	2.31	2.62
Wards	0.990	109 0.6	109 0.6	3.14	3.17
Troch	0.801	94 -0.4	92 -0.6	8.35	10.43
Shaft	1.284	- -	- -	17.35	13.51
Total	1.055	105 0.4	103 0.2	30.90	29.28

Report

- 5'2", 182lbs

New Case

Height / Weight: 65.0 in. 125.0 lbs. Measured: 7/5/2006 11:21:26 AM (9.30)
 Sex / Ethnic: Female Asian Analyzed: 7/5/2006 11:29:36 AM (9.30)

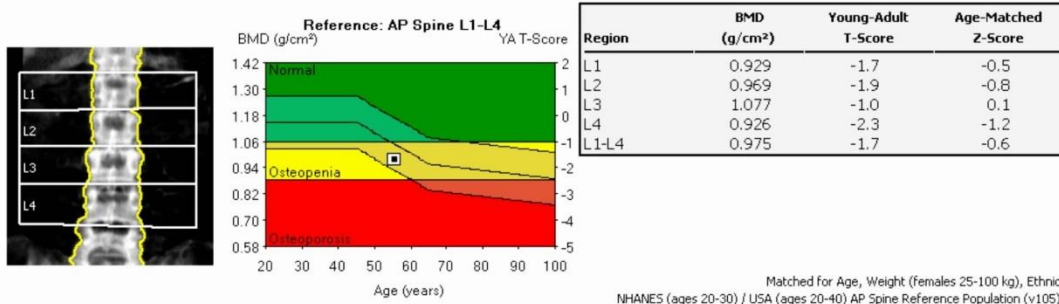


Image not for diagnosis

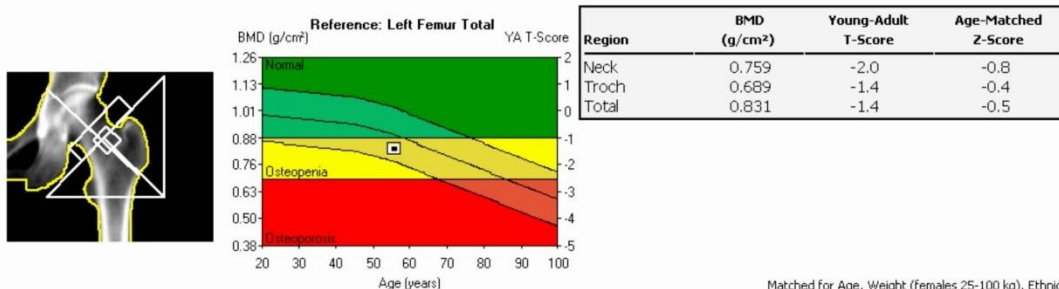
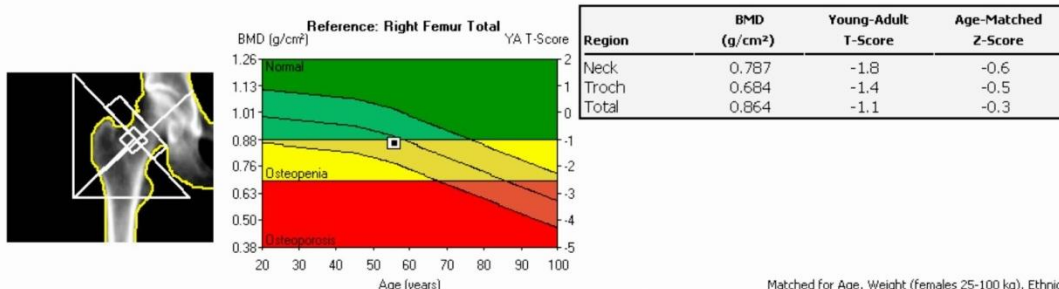


Image not for diagnosis



Report

Height / Weight:	65.0 in.	125.0 lbs.	Measured:	7/5/2006	11:21:26 AM (9.30)
Sex / Ethnic:	Female	Asian	Analyzed:	7/5/2006	11:29:36 AM (9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	0.929	82 -1.7	93 -0.5	11.34	12.21	3.9	3.16
L2	0.969	81 -1.9	91 -0.8	12.51	12.90	3.9	3.28
L3	1.077	90 -1.0	101 0.1	15.96	14.81	4.5	3.28
L4	0.926	77 -2.3	87 -1.2	16.67	18.00	4.9	3.68
L1-L2	0.950	82 -1.8	92 -0.7	23.85	25.11	3.9	6.44
L1-L3	0.997	85 -1.4	96 -0.3	39.81	39.92	4.1	9.72
L1-L4	0.975	83 -1.7	93 -0.6	56.48	57.93	4.3	13.40
L2-L3	1.027	86 -1.4	96 -0.3	28.47	27.72	4.2	6.56
L2-L4	0.987	82 -1.8	93 -0.6	45.13	45.72	4.4	10.24
L3-L4	0.994	83 -1.7	93 -0.6	32.63	32.82	4.7	6.96

Height / Weight:	65.0 in.	125.0 lbs.	Measured:	7/5/2006	11:23:10 AM (9.30)
Sex / Ethnic:	Female	Asian	Analyzed:	7/5/2006	11:26:42 AM (9.30)

ANCILLARY RESULTS [Left Femur]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)
Neck	0.759	73 -2.0	87 -0.8	3.70	4.87
Upper Neck	0.581	71 -2.0	84 -0.9	1.41	2.42
Wards	0.659	72 -1.9	92 -0.5	1.74	2.63
Troch	0.689	81 -1.4	93 -0.4	6.61	9.60
Shaft	0.941	- -	- -	14.61	15.52
Total	0.831	82 -1.4	93 -0.5	24.91	29.98

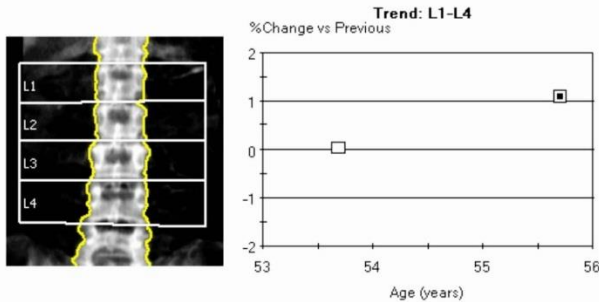
Height / Weight:	65.0 in.	125.0 lbs.	Measured:	7/5/2006	11:24:05 AM (9.30)
Sex / Ethnic:	Female	Asian	Analyzed:	7/5/2006	11:26:44 AM (9.30)

ANCILLARY RESULTS [Right Femur]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)
Neck	0.787	76 -1.8	91 -0.6	3.74	4.75
Upper Neck	0.636	77 -1.5	92 -0.5	1.49	2.35
Wards	0.706	78 -1.6	98 -0.1	1.77	2.51
Troch	0.684	80 -1.4	93 -0.5	6.58	9.62
Shaft	1.003	- -	- -	15.16	15.11
Total	0.864	86 -1.1	96 -0.3	25.47	29.48

Height / Weight: 65.0 in. 125.0 lbs.
 Sex / Ethnic: Female Asian

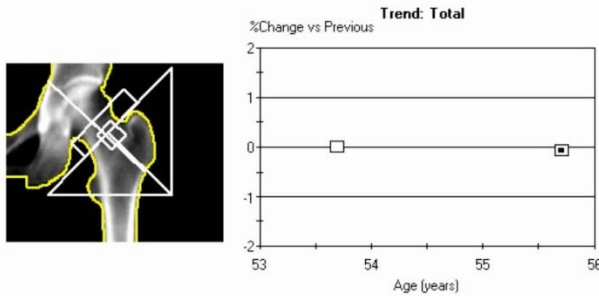
Measured: 7/5/2006 11:21:26 AM (9.30)
 Analyzed: 7/5/2006 11:29:36 AM (9.30)



Measured Date	Age (years)	BMD (g/cm ²)	Change vs Previous	
			Previous (g/cm ²)	Previous (%)
7/5/2006	55.7	0.975	0.011	1.1
6/28/2004	53.6	0.964	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for AP Spine L1-L4)

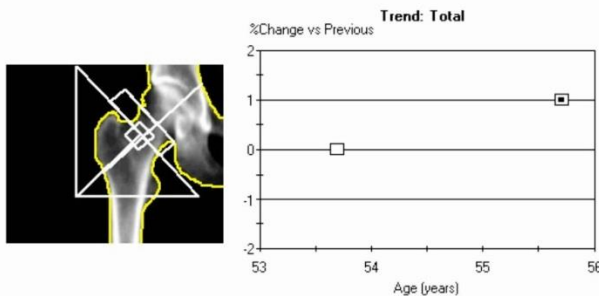
Image not for diagnosis



Measured Date	Age (years)	BMD (g/cm ²)	Change vs Previous	
			Previous (g/cm ²)	Previous (%)
7/5/2006	55.7	0.831	-0.001	-0.1
6/28/2004	53.6	0.832	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.012 g/cm² for Left Femur Total Mean)

Image not for diagnosis



Measured Date	Age (years)	BMD (g/cm ²)	Change vs Previous	
			Previous (g/cm ²)	Previous (%)
7/5/2006	55.7	0.864	0.008	1.0
6/28/2004	53.6	0.856	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.012 g/cm² for Right Femur Total Mean)

Report

- Good response to Rx

Height 5'0 Weight 120
 Current Medical Problems: Cerebral Palsy
Spine Scoliosis

Reason for Bone Density Assessment?
 Current Medications: Reglan - NEUTRIN
COLICOLAX

* Do you smoke? Y N For how long? _____ How many per day? _____

* Do you drink alcohol regularly? Y N If yes, drinks per day? _____

* Dietary Calcium? High Low
 * Supplemental Calcium? Y N 4mg / twice a day mg/day

FOR WOMEN ONLY: Premenopausal Perimenopausal Postmenopausal
 * Irregular periods? Y N
 * Hysterectomy? Y N
 * Ovaries removed? Y N
 * Are you taking: Birth control pills? Y N Hormone replacement? Y N

FOR ALL: HAVE YOU HAD Birth Fracture Occult Fx.

Any non-trauma related fractures? Hip Spine Wrist/Forearm Humerus
 Abnormal Blood calcium levels? Y N When? _____
 History of blood clots? Y N When? _____
 Diabetes? Y N When? _____
 Kidney stones? Y N When? _____
 Known Bowel disease? Y N When? _____
 Other major diseases? Y N When? _____

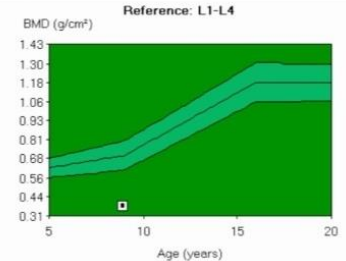
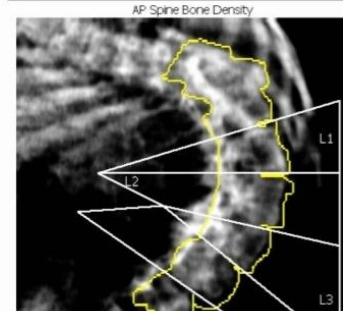
Do you have any of the following?
 Heart disease? Y N
 Hypertension? Y N
 Hyperthyroidism? Y N
 Hypothyroidism? Y N

Have you taken?
 Thyroid hormones? Y N How long? _____
 Cortisone or prednisone? Y N How long? _____
 Any seizure medications? Y N How long? _____
 Diuretics? Y N How long? _____
 Miacalcin Calcimar Fosamax Raloxifene (Evista) Other _____

HAVE OTHERS IN YOUR FAMILY HAD: Alias Name: _____

Birth Date: 9/13/1997 8.9 years
 Height / Weight: 48.0 in. 53.0 lbs.
 Sex / Ethnic: Female Hispanic

Referring Physician: SIMONE, ERIC
 Measured: 8/22/2006 2:59:12 PM (9.30)
 Analyzed: 8/22/2006 3:31:58 PM (9.30)



Region	¹ BMD (g/cm ³)	² Young-Adult T-Score	³ Age-Matched Z-Score
L1	0.357	-	-3.1
L2	0.408	-	-3.3
L3	0.418	-	-3.2
L4	0.322	-	-4.3
L1-L4	0.375	-	-3.5

COMMENTS:

Image not for diagnosis
 Printed: 8/22/2006 3:32:12 PM (9.30) 76:0.75:50.00:12.0:0.00:5.82 0.60:1.05
 13.0% Fat=25.2%
 0.00:0.00 0.00:0.00
 Filename: waef4jcc63.dfs
 Scan Mode: Thin 9.0 µgy

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4
 2 - NHANES/USA AP Spine Reference Population (v1.05)
 3 - Matched for Age, Ethnic

LEON, VALERIA MELLISA, 0087 F
2228375
ACC#2731584

Bone Density Diagnostic Center
MIXEDDX
08/22/2006
14:59:12

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	LEON, VALERIA M	Patient ID:	2228375
Birth Date:	9/13/1997 8.9 years	Referring Physician:	SIMONE, ERIC
Height / Weight:	48.0 in. 53.0 lbs.	Measured:	8/22/2006 2:59:12 PM (9.30)
Sex / Ethnic:	Female Hispanic	Analyzed:	8/22/2006 3:31:58 PM (9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ³)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	0.357	-	55 -3.1	2.85	7.99	4.1	1.94
L2	0.408	-	56 -3.3	3.96	9.71	2.5	3.83
L3	0.418	-	58 -3.2	2.66	6.37	2.3	2.73
L4	0.322	-	44 -4.3	2.65	8.24	2.4	3.38
L1-L2	0.385	-	57 -3.1	6.81	17.70	3.3	5.77
L1-L3	0.394	-	57 -3.2	9.47	24.07	3.0	8.50
L1-L4	0.375	-	53 -3.5	12.12	32.30	2.9	11.88
L2-L3	0.412	-	57 -3.3	6.62	16.08	2.4	6.56
L2-L4	0.381	-	53 -3.6	9.27	24.32	2.4	9.95
L3-L4	0.363	-	50 -3.8	5.31	14.60	2.4	6.11

1 -Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4)
2 -NHANES/USA AP Spine Reference Population (v105)
3 -Matched for Age, Ethnic
Filename: waef-1933.dfs

Gender: Male Female

HEIGHT: 4-0 WEIGHT: 5216

Have you ever had a Bone Density Scan?

If yes, when? 5/11/05

Where? Yes No
UCSD

PATIENT RISK FACTORS:

Is there any family history of Osteoporosis?

Yes No

Do you smoke now or have you in the past?

Yes No

Have you had any fractured bones as an adult?

Yes No

If yes, when? / /

Which bone(s)?

Do you consume 3 or more dairy servings per day?

Yes No

Do you take calcium supplements?

Yes No

Do you exercise at least 3 times per week?

Yes No

Do you drink more than 2 alcoholic drinks per day?

Yes No

Do you drink 5 or more cups of coffee or soft drink per day?

Yes No

If Female:

Have you gone through menopause?

Yes No

Have you had a hysterectomy?

Yes No

If so, were your ovaries removed?

Yes No

Do you take estrogen?

Yes No

If yes, for how many years?

Do you take medication for Osteoporosis?

Yes No

If yes, what kind? FOSAMAX

For how long? 6 mos

Are you taking seizure medication?

Yes No

Do you take oral prednisone or cortisone medications?

Yes No

Have you had surgery on your spine?

Yes No

What kind? Fused spine

Have you had surgery on your hips?

Yes No

If yes:

LEFT RIGHT BOTH

Do you any of the following?: Please circle if yes.

Thyroid condition

Bowel Disease

Cancer

Kidney Disease

Diabetes

Arthritis

Asthma

COMMENTS: F.U. OSTEOPOROSIS

MEDICATIONS: Reglan, prevacid, calcuim, Gycolax

Multivitamin, FASAMAX

Technologist: dk

Date: 8-21-07

Birth Date: 9/13/1997 9.9 years

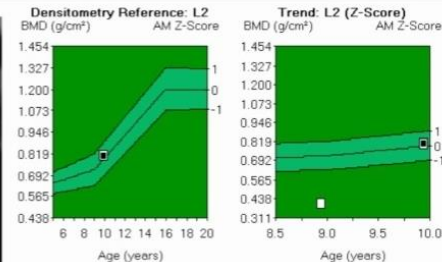
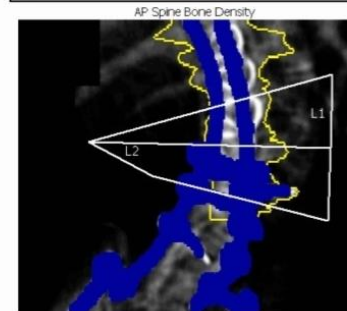
Height / Weight: 48.0 in. 53.0 lbs.

Sex / Ethnic: Female Hispanic

Referring Physician: SIMONE, ERIC

Measured: 8/21/2007 1:51:41 PM (11.40)

Analyzed: 8/21/2007 2:00:00 PM (11.40)



Region	Age-Matched Z-Score	
	1	3
L1	1.136	4.1
L2	0.804	0.2

Measured Date	Trend: L2			Change vs Previous (%)
	Age (years)	Z-Score	Previous	
8/21/2007	9.9	0.2	3.5	-104.9
8/22/2006	8.9	-3.3	-	-

COMMENTS:

Image not for diagnosis

Printed: 8/21/2007 2:00:35 PM (11.40) 76:0.75:50:00:12:0 0.00:6.42 0.60:1.05
11.7% Fat=30.6%
0.00:0.00 0.00:0.00
Filename: b255nc63.dfs
Scan Mode: Thin 9.0 µgy

1 - Statistically 68% of repeat scans fall within 1SD (± 0.030 g/cm²) for AP Spine L2
2 - NHANES/USA AP Spine Reference Population (v1.05)
3 - Matched for Age, Ethnic

GE Healthcare

Lunar Prodigy
DF-15771

W1255 : L 127

W1255 : L 127

Birth Date:	9/13/1997	9.9 years	Referring Physician:	SIMONE,ERIC		
Height / Weight:	48.0 in.	53.0 lbs.	Measured:	8/21/2007	1:51:41 PM	(11.40)
Sex / Ethnic:	Female	Hispanic	Analyzed:	8/21/2007	2:00:00 PM	(11.40)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.136	- -	158 4.1	4.88	4.30	2.2	1.94
L2	0.804	- -	102 0.2	2.31	2.87	0.7	3.83
L1-L2	1.003	- -	136 2.6	7.18	7.16	1.5	5.77

1 -Statistically 68% of repeat scans fall within 1SD (± 0.030 g/cm² for AP Spine L2)
 2 -NHANES/USA AP Spine Reference Population (v105)
 3 -Matched for Age, Ethnic
 Filename: bt55njc63.dfs

Birth Date: 6/13/1995 12.9 years Referring Physician: GOTTSCHALK, MICHAEL
 Height / Weight: 45.0 in. 55.0 lbs. Measured: 5/13/2008 3:58:06 PM (11.40)
 Sex / Ethnic: Male Hispanic Analyzed: 5/13/2008 4:06:02 PM (11.40)

ANCILLARY RESULTS [Total Body]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)
Head	1.571	-	-	274.5	175
Left Arm	0.633	-	-	55.3	87
Left Leg	0.729	-	-	332.3	456
Left Trunk	0.657	-	-	124.2	189
Left Total	0.796	-	-	654.3	822
Right Arm	0.759	-	-	38.3	50
Right Leg	0.639	-	-	61.2	96
Right Trunk	0.634	-	-	95.8	151
Right Total	0.856	-	-	327.2	382
Arms	0.679	-	-	93.6	138
Legs	0.713	-	-	393.5	552
Trunk	0.647	-	-	220.0	340
Ribs	0.591	-	-	84.9	144
Pelvis	0.640	-	-	54.5	85
Spine	0.725	-	-	80.6	111
Total	0.815	-	84 -1.9	981.6	1,204

Pediatric Information¹⁴

Skeletal Age (not specified)
 Technique (not specified)
 Pubertal Stage (not specified)
 Technique (not specified)

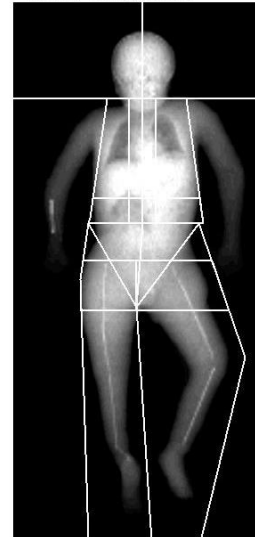
Bone Size Assessment:

Lean Mass Assessment:

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for Total Body Total)
 2 - NHANES/USA Total Body Reference Population (v105)
 3 - Matched for Age, Ethnic
 14 - Results for research purposes, not clinical use.
 Filename: 9vwt0kc63.dfb

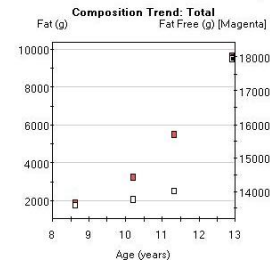
Birth Date: 6/13/1995 12.9 years Referring Physician: GOTTSCHALK, MICHAEL
 Height / Weight: 45.0 in. 55.0 lbs. Measured: 5/13/2008 3:58:06 PM (11.40)
 Sex / Ethnic: Male Hispanic Analyzed: 5/13/2008 4:06:02 PM (11.40)

Total Body Tissue Quantitation



COMMENTS: L-med

Reference Chart: No reference data for Total Body [Total] region. NHANES/USA Reference Population did not support Pediatric Total Body Composition.



Region	Tissue ¹ (%Fat)	Centile ^{2,3}	Total Mass (kg)	Fat ¹ (g)	Lean ¹ (g)	BMC (g)
Legs	46.4	-	9.25	4,108	4,744	393.5
Trunk	31.0	-	12.78	3,890	8,670	220.0
Total	35.8	-	27.56	9,514	17,061	981.6

Measured Date	Trend: Total					
	Age (years)	Tissue ¹ (%Fat)	Centile ^{2,3}	Total Mass (kg)	Fat ¹ (g)	Lean ¹ (g)
5/13/2008	12.9	35.8	-	27.56	9,514	17,061
10/10/2006	11.3	14.5	-	18.25	2,541	15,043
8/31/2005	10.2	13.0	-	16.49	2,066	13,834
2/2/2004	8.6	11.7	-	15.42	1,743	13,164

Image not for diagnosis
 Printed: 5/13/2008 4:17:33 PM (11.40)76:0:15:153.85:31:2 0.00:-1.00 4.80x6.50
 11.0:%Fat=35.8%
 0.00:0.00 0.00:0.00
 Filename: 9vwt0kc63.dfb
 Scan Mode: Thin 0.4 μy

1 - Statistically 68% of repeat scans fall within 1SD (± 0.8 % Fat, ± 210 g Tissue Mass, ± 520 g Fat Mass, ± 610 g Lean Mass for Total Body Total)
 2 - USA Total Body Composition Reference Population (v105)
 3 - Composition Matched for Age

Birth Date: 6/13/1995 12.9 years
Height / Weight: 45.0 in. 55.0 lbs.
Sex / Ethnic: Male Hispanic
Referring Physician: GOTTSCHALK, MICHAEL
Measured: 5/13/2008 3:58:06 PM (11.40)
Analyzed: 5/13/2008 4:06:02 PM (11.40)

BODY COMPOSITION

Region	Tissue ¹ (%Fat)	Region ¹ (%Fat)	Tissue ¹ (g)	Fat ¹ (g)	Lean ¹ (g)	BMC (g)	Total Mass (kg)
Left Arm	38.1	36.6	1,348	514	834	55.3	1.40
Left Leg	46.5	43.4	4,735	2,199	2,535	332.3	5.07
Left Trunk	30.9	30.4	6,919	2,139	4,780	124.2	7.04
Left Total	35.8	34.2	14,365	5,140	9,225	654.3	15.02
Right Arm	38.1	36.9	1,171	446	725	38.3	1.21
Right Leg	46.4	45.7	4,118	1,909	2,209	61.2	4.18
Right Trunk	31.1	30.5	5,641	1,752	3,889	95.8	5.74
Right Total	35.8	34.9	12,211	4,375	7,836	327.2	12.54
Arms	38.1	36.7	2,519	960	1,559	93.6	2.61
Legs	46.4	44.4	8,852	4,108	4,744	393.5	9.25
Trunk	31.0	30.4	12,560	3,890	8,670	220.0	12.78
Android	30.8	30.6	1,935	595	1,340	8.5	1.94
Gynoid	48.1	47.5	4,115	1,981	2,135	54.8	4.17
Total	35.8	34.5	26,576	9,514	17,061	981.6	27.56

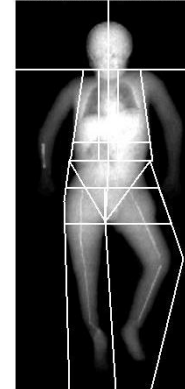
FAT MASS RATIOS

Trunk/ Total	Legs/ Total	(Arms+Legs)/ Trunk
0.41	0.43	1.30

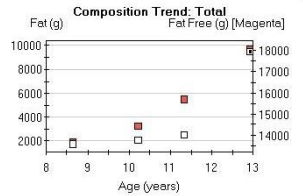
¹ -Statistically 66% of repeat scans fall within 1SD ($\pm 0.8\%$ Fat, ± 210 g Tissue Mass, ± 520 g Fat Mass, ± 610 g Lean Mass for Total Body Total)
 Filename: 9wvt0kz63.dfb

Birth Date: 6/13/1995 12.9 years
Height / Weight: 45.0 in. 55.0 lbs.
Sex / Ethnic: Male Hispanic
Referring Physician: GOTTSCHALK, MICHAEL
Measured: 5/13/2008 3:58:06 PM (11.40)
Analyzed: 5/13/2008 4:06:02 PM (11.40)

Total Body Tissue Quantitation



Reference Chart: No reference data for Total Body [Total] region.
 NHANES/USA Reference Population did not support Pediatric Total Body Composition.



Trend: Total										
Measured Date	Age (years)	Tissue ¹ (%Fat)	Centile ^{2,3}	Total Mass (kg)	Region (%Fat)	Tissue ¹ (g)	Fat ¹ (g)	Lean ¹ (g)	BMC (g)	Fat Free (g)
5/13/2008	12.9	35.8	-	27.56	34.5	26,576	9,514	17,061	981.6	18,043
10/10/2006	11.3	14.5	-	18.25	13.9	17,584	2,541	15,043	667.4	15,710
8/31/2005	10.2	13.0	-	16.49	12.5	15,899	2,066	13,834	591.0	14,425
2/2/2004	8.6	11.7	-	15.42	11.3	14,906	1,743	13,164	513.0	13,677

Trend: Fat Distribution					
Measured Date	Age (years)	Android (%Fat)	Gynoid (%Fat)	A/G Ratio	Total Body (%Fat) ¹
5/13/2008	12.9	30.8	48.1	0.64	35.8
10/10/2006	11.3	5.1	30.2	0.17	14.5
8/31/2005	10.2	4.1	27.9	0.15	13.0
2/2/2004	8.6	-	-	-	11.7

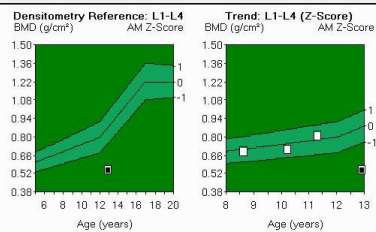
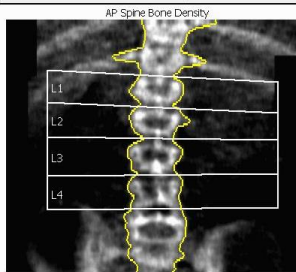
COMMENTS: L-med

Image not for diagnosis
 Printed: 5/13/2008 4:17:44 PM (11.40)76:0.15:153:85:31.2 0.00:-1.00 4.80x6.50
 11.0:%Fat=35.8%
 0.00:0.00 0.00:0.00
 Filename: 9wvt0kz63.dfb
 Scan Mode: Thin 0.4 µgy

¹ -Statistically 68% of repeat scans fall within 1SD ($\pm 0.8\%$ Fat, ± 210 g Tissue Mass, ± 520 g Fat Mass, ± 610 g Lean Mass for Total Body Total)
² -USA Total Body Composition Reference Population ($n=105$)
³ -Composition Matched for Age

Birth Date: 6/13/1995 12.9 years
 Height / Weight: 45.0 in. 55.0 lbs.
 Sex / Ethnic: Male Hispanic

Referring Physician: GOTTSCHALK, MICHAEL
 Measured: 5/13/2008 3:51:27 PM (11.40)
 Analyzed: 5/13/2008 4:11:03 PM (11.40)



Region	¹ BMD (g/cm ³)	³ Age-Matched Z-Score
L1	0.582	-1.9
L2	0.538	-2.8
L3	0.557	-2.7
L4	0.513	-3.0
L1-L4	0.546	-2.6

Measured Date	Trend: L1-L4		Change vs Previous (%)	
	Age (years)	Z-Score	Previous	Previous (%)
5/13/2008	12.9	-2.6	-2.9	-1,182.4
10/10/2006	11.3	0.2	0.7	-155.2
5/31/2005	10.2	-0.4	-0.3	152.6
2/2/2004	8.6	-0.2	-0.2	0.0
5/19/2000	4.9	-	-	-

COMMENTS: L-med

Image not for diagnosis
 Pread: 5/13/2008 4:11:37 PM (11.40) 76:0.75:50.00:12.0 0.00:8.10 0.60:1.05
 16.6% Fat=21.2%
 0.00:0.00 0.00:0.00
 Filename: rmt0k63.dfs
 Scan Mode: Thin 9.0µCy

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4)
 2 - NHANES/USA AP Spine Reference Population (v105)
 3 - Matched for Age, Ethnic

Birth Date: 6/13/1995 12.9 years
 Height / Weight: 45.0 in. 55.0 lbs.
 Sex / Ethnic: Male Hispanic

Referring Physician: GOTTSCHALK, MICHAEL
 Measured: 5/13/2008 3:51:27 PM (11.40)
 Analyzed: 5/13/2008 4:11:03 PM (11.40)

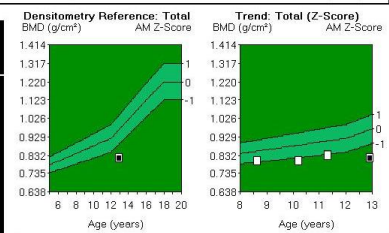
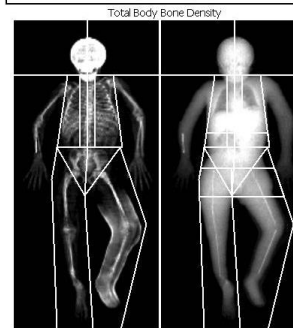
ANCILLARY RESULTS [AP Spine]

Region	¹ BMD (g/cm ³)	² Young-Adult (%) T-Score	³ Age-Matched (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	0.582	-	72 -1.9	3.03	5.20	2.7	1.95
L2	0.538	-	60 -2.8	2.87	5.33	2.8	1.89
L3	0.557	-	62 -2.7	3.44	6.18	2.7	2.27
L4	0.513	-	57 -3.0	3.20	6.23	3.0	2.08
L1-L2	0.559	-	66 -2.4	5.90	10.54	2.7	3.84
L1-L3	0.558	-	65 -2.4	9.34	16.72	2.7	6.11
L1-L4	0.546	-	63 -2.6	12.54	22.96	2.8	8.18
L2-L3	0.548	-	61 -2.8	6.31	11.52	2.8	4.16
L2-L4	0.536	-	60 -2.9	9.51	17.75	2.9	6.23
L3-L4	0.535	-	60 -2.9	6.64	12.42	2.9	4.35

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4)
 2 - NHANES/USA AP Spine Reference Population (v105)
 3 - Matched for Age, Ethnic
 Filename: rmt0k63.dfs

Gender: Male Female HEIGHT: 7 WEIGHT: 55 **SPINE**
 Have you ever had a Bone Density Scan? 1/10/06 **✓ TOTAL BODY**
 If yes, when? 1/10/06 Where? Yes No **✓ BODY DONE**
PATIENT RISK FACTORS:
 Is there any family history of Osteoporosis? Yes No
 Do you smoke now or have you in the past? Yes No
 Have you had any fractured bones as an adult? Yes No
 If yes, when? 1/1/06 Which bone(s)?
 Do you consume 3 or more dairy servings per day? Yes No **Occasionally**
 Do you take calcium supplements? Yes No **Occasionally**
 Do you exercise at least 3 times per week? Yes No **Occasionally**
 Do you drink more than 2 alcoholic drinks per day? Yes No **Occasionally**
 Do you drink 5 or more cups of coffee or soft drink per day? Yes No **Occasionally**
 If Female:
 Have you gone through menopause? Yes No
 Have you had a hysterectomy? Yes No
 If so, were your ovaries removed? Yes No
 Do you take estrogen? Yes No
 If yes, for how many years? _____
 Do you take medication for Osteoporosis? Yes No
 If yes, what kind? _____
 For how long? _____
 Are you taking seizure medication? Yes No
 Do you take oral prednisone or cortisone medications? Yes No
 Have you had surgery on your spine? Yes No
 What kind? _____
 Have you had surgery on your hips? Yes No
 If yes: LEFT RIGHT BOTH
 Do you any of the following?: Please circle if yes.
 Thyroid condition Bowel Disease Cancer
 Kidney Disease Diabetes
 Arthritis Asthma
COMMENTS: _____
MEDICATIONS: Rulmoco, Abulterol, claritin, Miralax
when he need
sla
 _____ 5-13-08
 Technologist Date

Birth Date: 6/13/1995 12.9 years Referring Physician: GOTTSCHALK, MICHAEL
 Height / Weight: 45.0 in. 55.0 lbs. Measured: 5/13/2008 3:58:06 PM (11.40)
 Sex / Ethnic: Male Hispanic Analyzed: 5/13/2008 4:06:02 PM (11.40)



Region	BMD (g/cm ³) ¹	Age-Matched z-score ³
Head	1.571	-
Arms	0.679	-
Legs	0.713	-
Trunk	0.643	-
Ribs	0.591	-
Pelvis	0.640	-
Spine	0.725	-
Total	0.815	-1.9

Measured Date	Trend: Total		Change vs Previous (%)	
	Age (years)	Z-Score	Previous	Previous (%)
5/13/2008	12.9	-1.9	-0.8	70.2
10/10/2006	11.3	-1.1	0.2	-17.2
5/31/2005	10.2	-1.4	-0.4	-44.7
2/2/2004	8.6	-0.9	-	-

COMMENTS: L-med

Image not for diagnosis
 Pinned: 5/13/2008 4:17:20 PM (11.40) 76:0.15:153.85:31.2 0.00:1.00
 4.20x5.50 11.01x6.64=35.6%
 0.00:0.00:0.00
 Filename: 9m00k63.dfb
 Scan Mode: Thin 0.4μcy

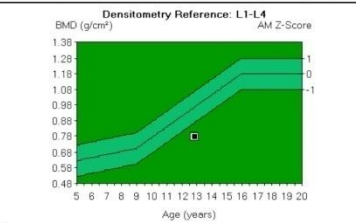
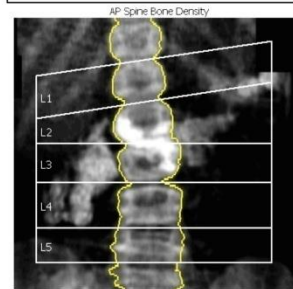
1 - Statistically 66% of repeat scans fall within 1SD (± 0.010 g/cm³ for Total Body Total)
 2 - NHANES III USA Total Body Reference Population (v1105)
 3 - Matched for Age, Ethnic

ME IDELEVITCH,RAVID 0127 F
2105526
AC#2281018

Bone Density Diagnostic Center
ENCORE-XP
10/21/2004
09:39:29

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MENDELVITCH, RAZID Patient ID: 2105526
Birth Date: 12/6/1991 12.8 years Referring Physician: WALLS,RICHARD P.
Height / Weight: 55.0 in. 65.0 lbs. Measured: 10/21/2004 9:39:29 AM (7.53)
Sex / Ethnic: Female White Analyzed: 10/21/2004 9:44:46 AM (7.53)



Region	BMD (g/cm ²)	Age-Matched Z-Score
L1	0.645	-2.7
L2	0.953	-0.3
L3	0.918	-0.7
L4	0.603	-3.8
L1-L4	0.775	-1.9

COMMENTS:

Image not for diagnosis
Printed: 11/21/2007 1:47:51 PM (11.4076:0.75:50.00:12.0:0.00:10.74
0.60:1.05:13.3%:Fat=7.1%
0.00:0.00:0.00:0.00
Filename: mender_sivirec3.dfs
Scan Mode: Thin 9.0 µdy

1 -Statistically 68% of repeat scans fall within 1SD (± 0.019 g/cm²) for AP Spine L1-L4)
2 -MANNESUSA AP Spine Reference Population (v97)
3 -Matched for Age, Ethnic



Prody
DF+15771

W 254 : L 120

ME IDELEVITCH,RAVID 0127 F
2105526
AC#2281018

Bone Density Diagnostic Center
ENCORE-XP
10/21/2004
09:39:29

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MENDELVITCH, RAZID Patient ID: 2105526
Birth Date: 12/6/1991 12.8 years Referring Physician: WALLS,RICHARD P.
Height / Weight: 55.0 in. 65.0 lbs. Measured: 10/21/2004 9:39:29 AM (7.53)
Sex / Ethnic: Female White Analyzed: 10/21/2004 9:44:46 AM (7.53)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	0.645	-	70 -2.7	4.88	7.57	2.8	2.67
L2	0.953	-	97 -0.3	8.60	9.02	3.3	2.77
L3	0.918	-	98 -0.7	7.94	8.65	3.4	2.53
L4	0.603	-	61 -3.8	6.48	10.74	3.7	2.90
L5	0.559	-	-	5.32	9.51	4.2	2.26
L1-L2	0.813	-	87 -1.2	13.49	16.60	3.0	5.44
L1-L3	0.849	-	89 -1.1	21.43	25.25	3.2	7.97
L1-L4	0.775	-	80 -1.9	27.91	35.99	3.3	10.87
L2-L3	0.936	-	95 -0.5	16.54	17.68	3.3	5.29
L2-L4	0.810	-	82 -1.8	23.02	28.42	3.5	8.20
L3-L4	0.744	-	75 -2.4	14.42	19.39	3.6	5.43

1 -Statistically 68% of repeat scans fall within 1SD (± 0.019 g/cm²) for AP Spine L1-L4)
2 -MANNESUSA AP Spine Reference Population (v97)
3 -Matched for Age, Ethnic
Filename: mender_sivirec3.dfs



Prody
DF+15771

W 254 : L 120

ME IDELEVITCH,RAVID 0157 F
2105526
ACC#3131278

Bone Density Diagnostic Center
ML/EDDX
11/21/2007
13:43:37

University of California San Diego
Lewis Street Radiology
Bone Density Risk Factor Information

DEXA (BONE DENSITY) PERIPHERAL

11/21/2007 13:40 Status: 0



E-3131278

ME IDELEVITCH, RAVID

WR# 2105526

Alias Name: MENDELEVITCH, RAZID
Scan: (LS)197/031 Age: 15 Years
History: RILEY DAY SYNDROME
Diagnosis: RILEY DAY SYNDROME
Requesting MD: WALLS, RICHARD P, M.D.
Comments: PT ROTHER

Gender: Male Female HEIGHT: 5-1 WEIGHT: 86

Have you ever had a Bone Density Scan?
If yes, when? _____

Where? Yes No (B3D)

PATIENT RISK FACTORS:

Is there any family history of Osteoporosis?
Do you smoke now or have you in the past?
Have you had any fractured bones as an adult?
If yes, when? _____

Which bone(s)?
 Yes No
 Yes No
 Yes No
child

Do you consume 3 or more dairy servings per day?
Do you take calcium supplements?
Do you exercise at least 3 times per week?
Do you drink more than 2 alcoholic drinks per day?
Do you drink 5 or more cups of coffee or soft drink per day?

Yes No Occasionally
 Yes No Occasionally
 Yes No Occasionally
 Yes No Occasionally
 Yes No Occasionally

If Female:
Have you gone through menopause?
Have you had a hysterectomy?
If so, were your ovaries removed?
Do you take estrogen?
If yes, for how many years? _____

Yes No
 Yes No
 Yes No
 Yes No
 Yes No

10 years old

Do you take medication for Osteoporosis?
If yes, what kind? _____
For how long? _____

Yes No
 Yes No
 Yes No

Are you taking seizure medication?
Do you take oral prednisone or cortisone medications?
Have you had surgery on your spine?
What kind? _____

Yes No
 Yes No
 Yes No
 Yes No

Have you had surgery on your hips?
If yes: _____

Yes No
LEFT RIGHT BOTH

Do you any of the following?: Please circle if yes.
Thyroid condition
Kidney Disease
Arthritis

Cancer

Rod/
 Screws

COMMENTS:

Surgery for scoliosis screws

MEDICATIONS:

(prior dexa done before back surgery)
midrodax, flornif, iron, adevax, growth hormone shots
L. (Lilly)
Technologist

11/21/07
Date

folie acid

W 255 : L 127

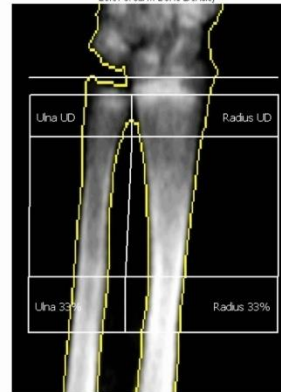
ME IDELEVITCH,RAVID 0157 F
2105526
ACC#3131278

Bone Density Diagnostic Center
ML/EDDX
11/21/2007
13:43:37

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MENDELEVITCH, RAZID Patient ID: 2105526
Birth Date: 12/6/1991 15.9 years Referring Physician: WALLS, RICHARD P.
Height / Weight: 61.0 in. 96.0 lbs. Measured: 11/21/2007 1:43:37 PM (11:40)
Sex / Ethnic: Female White Analyzed: 11/21/2007 1:45:27 PM (11:40)

Left Forearm Bone Density



Reference Chart: No reference data for Left Forearm [Radius UD] region.
NHANES/USA Reference Population did not support the patient's Age for Left Forearm Densitometry.

Region	BMD (g/cm ³)
Radius UD	0.248
Ulna UD	0.200
Radius 33%	0.489
Ulna 33%	0.391
Both UD	0.229
Both 33%	0.441
Radius Total	0.343
Ulna Total	0.290
Both Total	0.321

COMMENTS:

Image not for diagnosis
Printed: 11/21/2007 1:45:59 PM (11.40)76-0.15-50.00:12.0.0.00:6.20.0.60:1.05
4.5% Fat=19.0%
0.00:0.00:0.00:0.00
Forearm Length: 24.5 cm
File Name: s111150.dia
Scan Mode: Standard 2.0 µgY

1 - Statistically 68% of repeat scans fall within 1SD (± 0.016 g/cm³) for Left Forearm Radius UD
2 - NHANES (ages 20-30) / USA (ages 20-40) Forearm Reference Population (v105)
3 - 95% Fat=19.0%
4 - 95% Fat=19.0%
5 - 95% Fat=19.0%
6 - 95% Fat=19.0%
7 - 95% Fat=19.0%
8 - 95% Fat=19.0%
9 - 95% Fat=19.0%
10 - 95% Fat=19.0%
11 - World Health Organization Definition of Osteoporosis and Osteopenia for Caucasian Women:
Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
Osteoporosis = T-Score at or below -2.5 SD. (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

GE Healthcare

Lunar Prodigy
DF415771

W 254 : L 128

ME IDELEVITCH,RAVID 0157 F
2105526
ACC#3131273

Bone Density Diagnostic Center
MIMEDDX
11/21/2007
13:43:37

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	MENDELEVITCH, RAZID	Patient ID:	2105526
Birth Date:	12/6/1991 15.9 years	Referring Physician:	WALLS,RICHARD P.
Height / Weight:	61.0 in. 96.0 lbs.	Measured:	11/21/2007 1:43:37 PM (11:40)
Sex / Ethnic:	Female White	Analyzed:	11/21/2007 1:45:27 PM (11:40)

ANCILLARY RESULTS [Left Forearm]

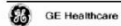
Region	BMD ^{1,9} (g/cm ³)	Young-Adult ²		Age-Matched		BMC ⁹ (g)	Area (cm ²)
		(%)	T-Score	(%)	Z-Score		
Radius UD	0.248	-	-	-	-	0.93	3.77
Ulna UD	0.200	-	-	-	-	0.47	2.33
Radius 33%	0.489	-	-	-	-	1.18	2.42
Ulna 33%	0.391	-	-	-	-	0.90	2.30
Both UD	0.229	-	-	-	-	1.40	6.10
Both 33%	0.441	-	-	-	-	2.08	4.72
Radius Total	0.343	-	-	-	-	4.82	14.05
Ulna Total	0.290	-	-	-	-	2.94	10.14
Both Total	0.321	-	-	-	-	7.76	24.19

1 - Statistically 66% of repeat scans fall within 1SD (± 0.016 g/cm³ for Left Forearm Radius UD)

2 - NHANES (ages 20-30) / USA (ages 20-40) Forearm Reference Population (n=105)

9 - SPA calibration in use: (SPA values are 10% lower than Comac values.)

Filename: ablrj553.dfa

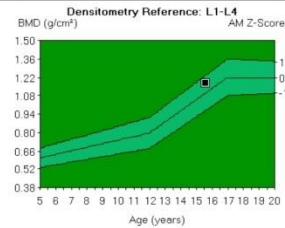
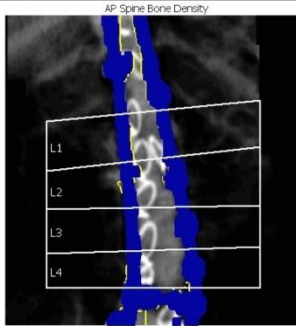


Lunar Prodigy
DF415771

W 254 : L 128

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FIGUEROA, URJEL J	Patient ID:	2129436
Birth Date:	8/16/1989 15.5 years	Referring Physician:	GOTTSCHALK, MICHAEL
Height / Weight:	66.0 in. 115.0 lbs.	Measured:	3/18/2005 4:20:01 PM (7.53)
Sex / Ethnic:	Male Hispanic	Analyzed:	8/10/2007 3:35:10 PM (11.40)



Region	¹ BMD (g/cm ²)	³ Age-Matched Z-Score
L1	1.230	1.4
L2	1.231	0.8
L3	1.095	-0.2
L4	1.160	0.3
L1-L4	1.176	0.5

COMMENTS:

Image not for diagnosis
 Printed: 8/10/2007 3:43:33 PM (11,40)76:3.00:50.00:12.0 0.00:9.30 0.60:1.05
 19.6:16:fat=55.3%
 0.00:0.00:0.00:0.00
 Filename: Figueu_jd_korec63.dfx
 Scan Mode: Standard 37.0 yuy

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FIGUEROA, URJEL J	Patient ID:	2129436
Birth Date:	8/16/1989 15.5 years	Referring Physician:	GOTTSCHALK, MICHAEL
Height / Weight:	66.0 in. 115.0 lbs.	Measured:	3/18/2005 4:20:01 PM (7.53)
Sex / Ethnic:	Male Hispanic	Analyzed:	8/10/2007 3:35:10 PM (11.40)

ANCILLARY RESULTS [AP Spine]

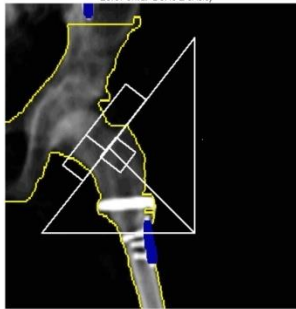
Region	¹ BMD (g/cm ²)	Young-Adult (%)	² T-Score	³ Age-Matched (%)	Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.230	-	-	118	1.4	6.39	5.20	1.8	2.95
L2	1.231	-	-	110	0.8	7.04	5.72	1.9	2.98
L3	1.095	-	-	98	-0.2	6.79	6.20	2.4	2.63
L4	1.160	-	-	104	0.3	7.13	6.15	2.6	2.33
L1-L2	1.231	-	-	114	1.1	13.43	10.92	1.8	5.93
L1-L3	1.182	-	-	108	0.7	20.22	17.12	2.0	8.56
L1-L4	1.176	-	-	107	0.5	27.35	23.27	2.2	10.89
L2-L3	1.160	-	-	104	0.3	13.84	11.92	2.1	5.62
L2-L4	1.160	-	-	104	0.3	20.96	18.07	2.3	7.95
L3-L4	1.127	-	-	101	0.1	13.92	12.35	2.5	4.96

¹ -Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm²) for AP Spine L1-L4)
² -NHANES/USA AP Spine Reference Population (v105)
³ -Matched for Age, Ethnic
 Filename: Figueu_jd_korec63.dfx

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FIGUEROA, URJEL J	Patient ID:	2129436
Birth Date:	8/16/1989 15.5 years	Referring Physician:	GOTTSCHALK, MICHAEL
Height / Weight:	66.0 in. 115.0 lbs.	Measured:	3/18/2005 4:21:38 PM (7.53)
Sex / Ethnic:	Male Hispanic	Analyzed:	3/18/2005 4:29:31 PM (7.53)

Left Femur Bone Density



Reference Chart: No reference data for Pediatric Left Femur [Neck] region.

Region	¹ BMD (g/cm ³)
Neck	0.509
Total	0.808

HAL chart results unavailable

COMMENTS:

Image not for diagnosis
 Printed: 8/10/2007 3:43:48 PM (11,40)76:3.00:50.00:12.0 0.00:13.44 0.60:L,05
 15.4:16:60:50.3%
 0.00:0.00 0.00:0.00
 Neck Angle (deg)= 52
 Filename: figuru_dkorec63.dfx
 Scan Mode: Standard 37.0 µGy

¹ - Statistically 69% of repeat scans fall within 1SD (± 0.014 g/cm³ for Left Femur Neck)
² - NHANES/USA Femur Reference Population (v96)

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FIGUEROA, URJEL J	Patient ID:	2129436
Birth Date:	8/16/1989 15.5 years	Referring Physician:	GOTTSCHALK, MICHAEL
Height / Weight:	66.0 in. 115.0 lbs.	Measured:	3/18/2005 4:21:38 PM (7.53)
Sex / Ethnic:	Male Hispanic	Analyzed:	3/18/2005 4:29:31 PM (7.53)

ANCILLARY RESULTS [Left Femur]

Region	¹ BMD (g/cm ³)	Young-Adult (%)	² T-Score	Age-Matched (%)	Z-Score	BMC (g)	Area (cm ²)
Neck	0.509	-	-	-	-	2.24	4.40
Upper Neck	0.451	-	-	-	-	0.97	2.15
Wards	0.500	-	-	-	-	1.07	2.15
Troch	0.425	-	-	-	-	1.40	3.30
Shaft	1.039	-	-	-	-	11.61	11.18
Total	0.808	-	-	-	-	15.26	18.87

¹ - Statistically 69% of repeat scans fall within 1SD (± 0.014 g/cm³ for Left Femur Neck)
² - NHANES/USA Femur Reference Population (v96)
 Filename: figuru_dkorec63.dfx

Tanner 5

University of California San Diego
Lewis Street Radiology
Bone Density Risk Factor Information

DEXA (BONE DENSITY) SKELETA
08/10/2007 15:00



E-3862743

FIGUEROA, URIEL JOE

MR#: 2129436

Alias Name:

Sex: M (M) Age: 17 Years

History: WALKER-WORBRUG SYNDROME

Diagnosis: EVAL FOR OSTEOPOROSIS

Requesting MD: GOTTSCHALK, MICHAEL E, M.D.

Comments: ROTHER CAL LEG

Gender: Male Female HEIGHT: 5'6 WEIGHT: 100

Have you ever had a Bone Density Scan?
If yes, when? 1/05

Where? Yes No
here

PATIENT RISK FACTORS:

Is there any family history of Osteoporosis?

Do you smoke now or have you in the past?

Have you had any fractured bones as an adult?

If yes, when? 1/1

Which bone(s)? Yes No
No (No)
No (No)

Do you consume 3 or more dairy servings per day?

Do you take calcium supplements?

Do you exercise at least 3 times per week?

Do you drink more than 2 alcoholic drinks per day?

Do you drink 5 or more cups of coffee or soft drink per day?

If Female:

Have you gone through menopause?

Have you had a hysterectomy?

If so, were your ovaries removed?

Do you take estrogen?

If yes, for how many years?

Do you take medication for Osteoporosis?

If yes, what kind? Fosamax

For how long? 2 yrs

Are you taking seizure medication?

Do you take oral prednisone or cortisone medications?

Have you had surgery on your spine?

What kind?

Have you had surgery on your hips?

If yes:

Do you any of the following?: Please circle if yes.

Thyroid condition

Kidney Disease

Arthritis

Bowel Disease

Diabetes

Asthma

Cancer

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

COMMENTS: Tanner 5 walker-Worbrug Syndrome

MEDICATIONS: Dilantin / Phenobarbital / Topamax / Fosamax /

Distracynin

sls

Technologist

8-10-07

Date

unable to do forearm due to retraction of hands

Lewis St. Women's Center
Bone Densitometry

MRN: 2129436
FIGUEROA, URIEL JOE
DOB: 08/16/1989 Sex: M
Status: O Patient Loc:

Requested by: Michael E Gottschalk, M.D.
Attending Physician: Michael E Gottschalk, M.D.

ACC: 2383729 03/18/2005 16:25
DEXA SKELETAL-HIPS, PELV, SPINE

Procedure: DEXA, BONE DEN, SKEL

CLINICAL HISTORY:
Cerebral palsy. Seizure, on medication. 15-year-old male, Tanner Stage II, with recurrent fractures of both knees.

REFERENCE FILMS:
No previous studies are available for comparison.

FINDINGS:
The bone mineral density of the lumbar spine cannot be interpreted as useful due to the placement of bilateral posterior instrumentation.

Note, there has also been prior internal fixation of the left hip but this is likely a prior osteotomy and has migrated away from the area of interest and now only affects the shaft measurement which will, therefore, be ignored.

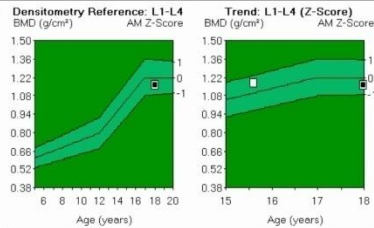
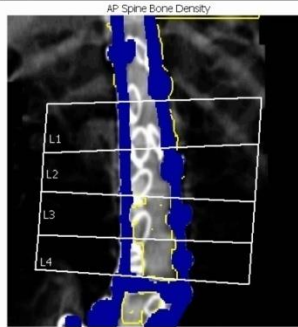
The bone mineral density of the left femoral neck is 0.509 gm/cm sq. Reference range for bone mineral density of the neck in a 15-year-old boy is 1.024, with a standard deviation of 0.1, indicating that the current bone mineral density is 5 standard deviations below the mean indicating osteoporosis. I do not have a Tanner reference range for comparison.

IMPRESSION:
1. Marked osteoporosis.

Approved by:
Tudor H Hughes, M.D. /signed by/ Tudor H Hughes, M.D., Staff Radiologist
Transcribed on: 04/08/2005 16:05 by Regina Pizarro 04/11/2005

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FIGUEROA, URJEL J	Patient ID:	2129436
Birth Date:	8/16/1989 17.9 years	Referring Physician:	GOTTSCHALK, MICHAEL
Height / Weight:	66.0 in. 115.0 lbs.	Measured:	8/10/2007 3:14:35 PM (11.40)
Sex / Ethnic:	Male Hispanic	Analyzed:	8/10/2007 3:36:27 PM (11.40)



Region	¹ BMD (g/cm ³)	³ Age-Matched Z-Score
L1	1.293	1.0
L2	1.307	0.5
L3	1.046	-1.4
L4	0.923	-2.3
L1-L4	1.158	-0.5

Measured Date	Trend: L1-L4		Change vs Previous (%)	
	Age (years)	Z-Score	Previous	Previous (%)
8/10/2007	17.9	-0.5	-1.0	-182.6
3/18/2005	15.5	0.5	-	-

COMMENTS:

Image not for diagnosis
 Printed: 8/10/2007 3:38:15 PM (11.40) 76:3.00:50.00:12.0 0.00:10.50 0.60:L1,05
 17.8:164:68.0%
 0.00:0.00 0.00:0.00
 Filename: 0d4wmpc53.dfx
 Scan Mode: Standard 37.0 µgY

¹ - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³ for AP Spine L1-L4)
² - NHANES/USA AP Spine Reference Population (v105)
³ - Matched for Age, Ethnic

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FIGUEROA, URJEL J	Patient ID:	2129436
Birth Date:	8/16/1989 17.9 years	Referring Physician:	GOTTSCHALK, MICHAEL
Height / Weight:	66.0 in. 115.0 lbs.	Measured:	8/10/2007 3:14:35 PM (11.40)
Sex / Ethnic:	Male Hispanic	Analyzed:	8/10/2007 3:36:27 PM (11.40)

ANCILLARY RESULTS [AP Spine]

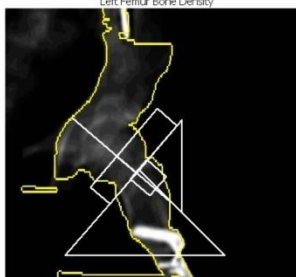
Region	¹ BMD (g/cm ³)	² Young-Adult (%) T-Score	³ Age-Matched (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.293	-	111 1.0	7.05	5.46	1.9	2.95
L2	1.307	-	105 0.5	8.07	6.17	2.1	2.98
L3	1.046	-	84 -1.4	5.77	5.52	2.1	2.63
L4	0.923	-	74 -2.3	4.08	4.41	1.9	2.33
L1-L2	1.301	-	108 0.7	15.12	11.63	2.0	5.93
L1-L3	1.218	-	101 0.1	20.89	17.15	2.0	8.56
L1-L4	1.158	-	95 -0.5	24.97	21.56	2.0	10.89
L2-L3	1.184	-	95 -0.4	13.84	11.69	2.1	5.62
L2-L4	1.112	-	90 -0.9	17.91	16.10	2.0	7.95
L3-L4	0.991	-	80 -1.8	9.84	9.93	2.0	4.96

¹ - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³ for AP Spine L1-L4)
² - NHANES/USA AP Spine Reference Population (v105)
³ - Matched for Age, Ethnic
 Filename: 0d4wmpc53.dfx

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FIGUEROA, URJEL J	Patient ID:	2129436
Birth Date:	8/16/1989 17.9 years	Referring Physician:	GOTTSCHALK, MICHAEL
Height / Weight:	66.0 in. 115.0 lbs.	Measured:	8/10/2007 3:15:59 PM (11.40)
Sex / Ethnic:	Male Hispanic	Analyzed:	8/10/2007 3:36:27 PM (11.40)

Left Femur Bone Density



Reference Chart: No reference data for Pediatric Left Femur [Neck] region. No patient or valid information available for display.

Region	¹ BMD (g/cm ³)
Neck	0.806
Total	1.122

HAL chart results unavailable

Measured Date	Trend: Neck			
	Age (years)	Z-Score	Change vs Previous	Change vs Previous (%)
8/10/2007	17.9	-	-	-
3/18/2005	15.5	-	-	-

COMMENTS:

Image not for diagnosis
 1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Left Femur Neck)
 Printed: 8/10/2007 3:38:34 PM (11.40) 76:3.00:50.00:12.0 0.00:10.86 0.60:1.05
 14.1:156:45.0%
 0.00:0.00 0.00:0.00
 Neck Angle (deg)= 49
 Filename: 0d4w1mj53.dfx
 Scan Mode: Standard 37.0 µGy

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FIGUEROA, URJEL J	Patient ID:	2129436
Birth Date:	8/16/1989 17.9 years	Referring Physician:	GOTTSCHALK, MICHAEL
Height / Weight:	66.0 in. 115.0 lbs.	Measured:	8/10/2007 3:15:59 PM (11.40)
Sex / Ethnic:	Male Hispanic	Analyzed:	8/10/2007 3:36:27 PM (11.40)

ANCILLARY RESULTS [Left Femur]

Region	¹ BMD (g/cm ³)	Young-Adult (%)	T-Score	Age-Matched (%)	Z-Score	BMC (g)	Area (cm ²)
Neck	0.806	-	-	-	-	3.59	4.45
Upper Neck	0.813	-	-	-	-	1.81	2.23
Lower Neck	0.799	-	-	-	-	1.78	2.23
Wards	0.735	-	-	-	-	1.58	2.15
Troch	0.590	-	-	-	-	1.07	1.82
Shaft	1.334	-	-	-	-	14.93	11.19
Total	1.122	-	-	-	-	19.60	17.47

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Left Femur Neck)
 Filename: 0d4w1mj53.dfx

MELERO, JESUS MIGUEL, 027 Y MBone Density Diagnostic Center
 1925997
 ACC#3108337

University of California San Diego
 Lewis Street Radiology
 Bone Density Risk Factor Information

MIXEDDX
 10/30/2007
 09:20:52

DEXA (BONE DENSITY) SKELETA
 10/30/2007 09:20 Status: 0



E-3108337

MELERO, JESUS MIGUEL

MR#: 1925997

Gender: Male Female HEIGHT: 4'10" WEIGHT: 130

Have you ever had a Bone Density Scan? Yes No
 If yes, when? 1/1 Where? _____

PATIENT RISK FACTORS:
 Is there any family history of Osteoporosis? Yes No
 Do you smoke now or have you in the past? Yes No
 Have you had any fractured bones as an adult? Yes No
 If yes, when? 02/2/01 Which bone(s)? LEFT WRIST

Do you consume 3 or more dairy servings per day? Yes No Occasionally
 Do you take calcium supplements? Yes No Occasionally
 Do you exercise at least 3 times per week? Yes No Occasionally
 Do you drink more than 2 alcoholic drinks per day? Yes No Occasionally
 Do you drink 5 or more cups of coffee or soft drink per day? Yes No Occasionally

If Female:
 Have you gone through menopause? Yes No
 Have you had a hysterectomy? Yes No
 If so, were your ovaries removed? Yes No
 Do you take estrogen? Yes No

If yes, for how many years? _____
 Do you take medication for Osteoporosis? Yes No
 If yes, what kind? _____
 For how long? _____

Are you taking seizure medication? Yes No
 Do you take oral prednisone or cortisone medications? Yes No Spurred taking them
 Have you had surgery on your spine? Yes No

What kind? _____
 Have you had surgery on your hips? Yes No
 If yes: LEFT RIGHT BOTH

Do you any of the following? Please circle if yes.
 Thyroid condition
 Bowel Disease
 Kidney Disease
 Diabetes
 Arthritis
 Asthma
 Cancer

COMMENTS: _____

MEDICATIONS: None

ic Miller

 Technologist

10/30/07

 Date

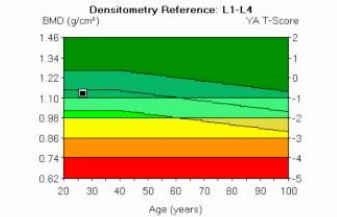
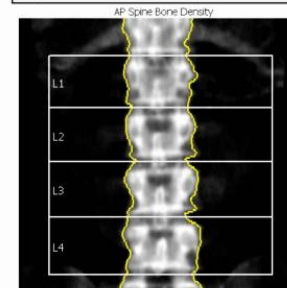
W 255 : L 127

MELERO, JESUS MIGUEL, 027 Y MBone Density Diagnostic Center
 1925997
 ACC#3108337

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

MIXEDDX
 10/30/2007
 09:20:52

Patient: MELERO, JESUS Patient ID: 1925997
 Birth Date: 10/17/1980 27.0 years Referring Physician: YUNG, GORDON
 Height / Weight: 58.0 in. 130.0 lbs. Measured: 10/30/2007 9:20:52 AM (11:40)
 Sex / Ethnic: Male Hispanic Analyzed: 10/30/2007 9:25:56 AM (11:40)



Region	BMD (g/cm²)	Young-Adult T-Score	Age-Matched z-Score
L1	1.067	-0.8	-0.1
L2	1.107	-1.1	-0.5
L3	1.173	-0.6	-0.1
L4	1.153	-0.7	-0.1
L1-L4	1.127	-0.8	-0.1

COMMENTS:

Image not for diagnosis
 Printed: 10/30/2007 9:26:26 AM (11:40) 763.00:50.00:12.0 0.00:9.78
 0.60:1.05 17.8:51:Fat=19.3%
 0.00:0.00 0.00:0.00
 Filename: s702033.d
 Scan Mode: Standard 37.0 p/s

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm²) for AP Spine L1-L4
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (105)
 3 - Matched for Age, Weight (males 25-100 kg), Ethnic
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score \geq or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score \leq or below -2.5 SD. (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

GE Healthcare

Lunar Prodigy
 DF415771

W 255 : L 127

DEXA inadequate femur 27M dwarf

MELERO, JESUS MIGUEL, 027 Y MBone Density Diagnostic Center
 1925997 Bone Density Diagnostic Center MIXEDDX
 Dept. of Radiology, UCSD Medical Center
 ACC#3108337 330 Lewis Street, Suite 202 San Diego, CA 92103 10/30/2007

Patient: MELERO, JESUS Patient ID: 1925997
 Birth Date: 10/17/1980 27.0 years Referring Physician: YUNG, GORDON
 Height / Weight: 58.0 in. 130.0 lbs. Measured: 10/30/2007 9:20:52 AM (11:40)
 Sex / Ethnic: Male Hispanic Analyzed: 10/30/2007 9:25:56 AM (11:40)

09:20:52

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ³)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.067	92 -0.8	98 -0.1	14.48	13.57	4.1	3.34
L2	1.107	89 -1.1	95 -0.5	15.29	13.82	4.0	3.47
L3	1.173	95 -0.6	101 0.1	16.88	14.39	4.0	3.56
L4	1.155	93 -0.7	99 -0.1	19.03	16.51	4.4	3.71
L1-L2	1.087	91 -0.9	97 -0.3	29.77	27.39	4.0	6.81
L1-L3	1.117	92 -0.8	98 -0.1	46.65	41.78	4.0	10.37
L1-L4	1.127	92 -0.8	99 -0.1	65.68	58.29	4.1	14.08
L2-L3	1.141	92 -0.8	98 -0.2	32.17	28.20	4.0	7.02
L2-L4	1.145	92 -0.8	98 -0.2	51.20	44.71	4.2	10.74
L3-L4	1.162	94 -0.6	100 0.0	35.91	30.90	4.2	7.27

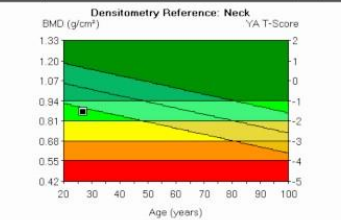
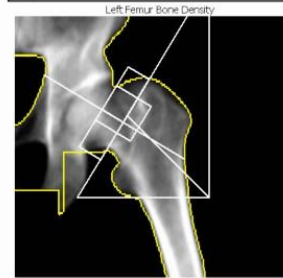
1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³ for AP Spine L1-L4)
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (n=105)
 3 - Matched for Age, Weight (males 25-100 kg), Ethnic
 File Name: scf09063.dfx

W 255 : L 127

MELERO, JESUS MIGUEL, 027 Y MBone Density Diagnostic Center
 1925997 Bone Density Diagnostic Center MIXEDDX
 Dept. of Radiology, UCSD Medical Center
 ACC#3108337 330 Lewis Street, Suite 202 San Diego, CA 92103 10/30/2007

Patient: MELERO, JESUS Patient ID: 1925997
 Birth Date: 10/17/1980 27.0 years Referring Physician: YUNG, GORDON
 Height / Weight: 58.0 in. 130.0 lbs. Measured: 10/30/2007 9:22:26 AM (11:40)
 Sex / Ethnic: Male Hispanic Analyzed: 10/30/2007 9:25:57 AM (11:40)

09:20:52



Region	BMD ¹ (g/cm ³)	Young-Adult ² T-Score	Age-Matched ³ Z-Score
Neck	0.867	-1.6	-1.2
Total	0.970	-0.9	-0.5

HAL chart results unavailable

COMMENTS:

Image not for diagnosis
 Printed: 10/30/2007 9:26:36 AM (11:40) 763.00:50.00:12.0 0.00:9.66
 0.60:1.05 15.0% Fat=15.5%
 0.00:0.00 0.00:0.00
 Neck Angle (deg)= 59
 File Name: scf09063.dfx
 Scan Mode: Standard 37.0 µm

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Left Femur Neck)
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (n=105)
 3 - Matched for Age, Weight (males 25-100 kg), Ethnic
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy
 Caucasian Women reference database is used to determine T-Scores.)

W 255 : L 127

DEXA inadequate femur 27M dwarf

MELERO, JESUS MIGUEL, 027 Y MBone Density Diagnostic Center
 1925997 Bone Density Diagnostic Center MIXEDDX
 Dept. of Radiology, UCSD Medical Center
 ACC#3108337 330 Lewis Street, Suite 202 San Diego, CA 92103 10/30/2007

Patient: MELERO, JESUS Patient ID: 1925997
 Birth Date: 10/17/1980 27.0 years Referring Physician: YUNG, GORDON
 Height / Weight: 58.0 in. 130.0 lbs. Measured: 10/30/2007 9:22:26 AM (11:40)
 Sex / Ethnic: Male Hispanic Analyzed: 10/30/2007 9:25:57 AM (11:40)

09:20:52

ANCILLARY RESULTS [Left Femur]

Region	BMD ¹ (g/cm ³)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)
Neck	0.957	81 -1.6	85 -1.2	6.38	7.35
Upper Neck	0.672	74 -1.9	77 -1.5	2.47	3.68
Lower Neck	1.052	- -	- -	3.90	3.68
Wards	0.377	102 0.1	106 0.4	5.96	6.00
Troch	0.883	95 -0.4	101 0.1	10.25	11.61
Shaft	1.087	- -	- -	16.25	14.95
Total	0.970	88 -0.9	93 -0.5	32.88	33.91

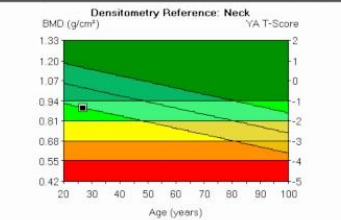
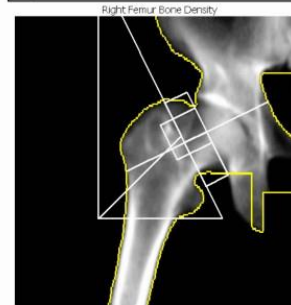
1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Left Femur Neck)
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (n=105)
 3 - Matched for Age, Weight (males 25-100 kg), Ethnic
 File Name: sfqg063.dfx

W 255 : L 127

MELERO, JESUS MIGUEL, 027 Y MBone Density Diagnostic Center
 1925997 Bone Density Diagnostic Center MIXEDDX
 Dept. of Radiology, UCSD Medical Center
 ACC#3108337 330 Lewis Street, Suite 202 San Diego, CA 92103 10/30/2007

Patient: MELERO, JESUS Patient ID: 1925997
 Birth Date: 10/17/1980 27.0 years Referring Physician: YUNG, GORDON
 Height / Weight: 58.0 in. 130.0 lbs. Measured: 10/30/2007 9:23:55 AM (11:40)
 Sex / Ethnic: Male Hispanic Analyzed: 10/30/2007 9:25:59 AM (11:40)

09:20:52



Region	BMD ¹ (g/cm ³)	Young-Adult ² T-Score	Age-Matched ³ Z-Score
Neck	0.890	-1.4	-1.0
Total	0.999	-0.7	-0.3

HAL chart results unavailable

COMMENTS:

Image not for diagnosis
 Printed: 10/30/2007 9:26:46 AM (11:40) 763.00:50.00:12.0 0.00:10.14
 0.60:1.05 14.8% Fat=16.6%
 0.00:0.00 0.00:0.00
 Neck Angle (deg)= 44
 File Name: sfqg063.dfx
 Scan Mode: Standard 37.0 mAs

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Right Femur Neck)
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (n=105)
 3 - Matched for Age, Weight (males 25-100 kg), Ethnic
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy
 Caucasian Women reference database is used to determine T-Scores.)

W 255 : L 127

DEXA inadequate femur 27M dwarf

MELERO, JESUS MIGUEL, 027 Y MBone Density Diagnostic Center
 1925997 Bone Density Diagnostic Center MIXEDDX
 Dept. of Radiology, UCSD Medical Center
 ACC#3108337 330 Lewis Street, Suite 202 San Diego, CA 92103 10/30/2007

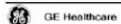
Patient: MELERO, JESUS Patient ID: 1925997
 Birth Date: 10/17/1980 27.0 years Referring Physician: YUNG, GORDON
 Height / Weight: 58.0 in. 130.0 lbs. Measured: 10/30/2007 9:23:55 AM (11:40)
 Sex / Ethnic: Male Hispanic Analyzed: 10/30/2007 9:25:59 AM (11:40)

09:20:52

ANCILLARY RESULTS [Right Femur]

Region	BMD ¹ (g/cm ³)	Young Adult ²		Age-Matched ³		BMC (g)	Area (cm ²)
		(%)	T-Score	(%)	Z-Score		
Neck	0.890	83	-1.4	87	-1.0	6.28	7.05
Upper Neck	0.676	74	-1.8	78	-1.5	2.37	3.50
Lower Neck	1.102	-	-	-	-	3.91	3.55
Wards	1.000	104	0.3	109	0.6	5.53	5.53
Troch	0.908	98	-0.2	104	0.3	9.68	10.65
Shaft	1.113	-	-	-	-	16.82	15.11
Total	0.999	91	-0.7	96	-0.3	32.77	32.81

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Right Femur Neck)
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 3 - Matched for Age, Weight (males 25-100 kg), Ethnic
 File name: sfqg063.dfx



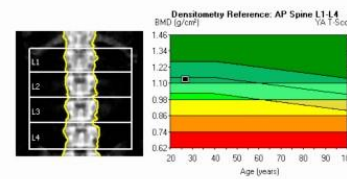
Lunar Prodigy
DF-15771

W 255 : L 127

MELERO, JESUS MIGUEL, 027 Y MBone Density Diagnostic Center
 1925997 Bone Density Diagnostic Center MIXEDDX
 Dept. of Radiology, UCSD Medical Center
 ACC#3108337 330 Lewis Street, Suite 202 San Diego, CA 92103 10/30/2007

Patient: MELERO, JESUS Patient ID: 1925997
 Birth Date: 10/17/1980 27.0 years Referring Physician: YUNG, GORDON
 Height / Weight: 58.0 in. 130.0 lbs. Measured: 10/30/2007 9:20:52 AM (11:40)
 Sex / Ethnic: Male Hispanic Analyzed: 10/30/2007 9:25:56 AM (11:40)

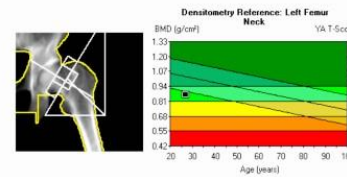
09:20:52



Region	BMD ¹ (g/cm ³)	Young Adult T-Score	Age-Matched Z-Score
L1	1.067	-0.8	-0.1
L2	1.107	-1.1	-0.5
L3	1.173	-0.6	0.1
L4	1.153	-0.7	-0.1
L1-L4	1.127	-0.8	-0.1

Matched for Age, Weight (males 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³ for AP Spine L1-L4)

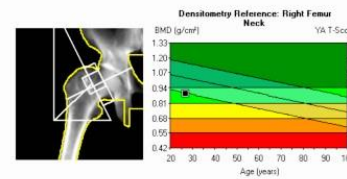
Image not for diagnosis



Region	BMD ¹ (g/cm ³)	Young Adult T-Score	Age-Matched Z-Score
Neck	0.867	-1.6	-1.2
Total	0.970	-0.9	-0.5

Matched for Age, Weight (males 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Left Femur Neck)

Image not for diagnosis



Region	BMD ¹ (g/cm ³)	Young Adult T-Score	Age-Matched Z-Score
Neck	0.890	-1.4	-1.0
Total	0.999	-0.7	-0.3

Matched for Age, Weight (males 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Right Femur Neck)

Image not for diagnosis



Lunar Prodigy
DF-15771

W 255 : L 127

MCCARTHY,PATRICK LYLE, 033Y M
1291116
A#3071934
Location

HADC1
08/21/2007
16:06:47

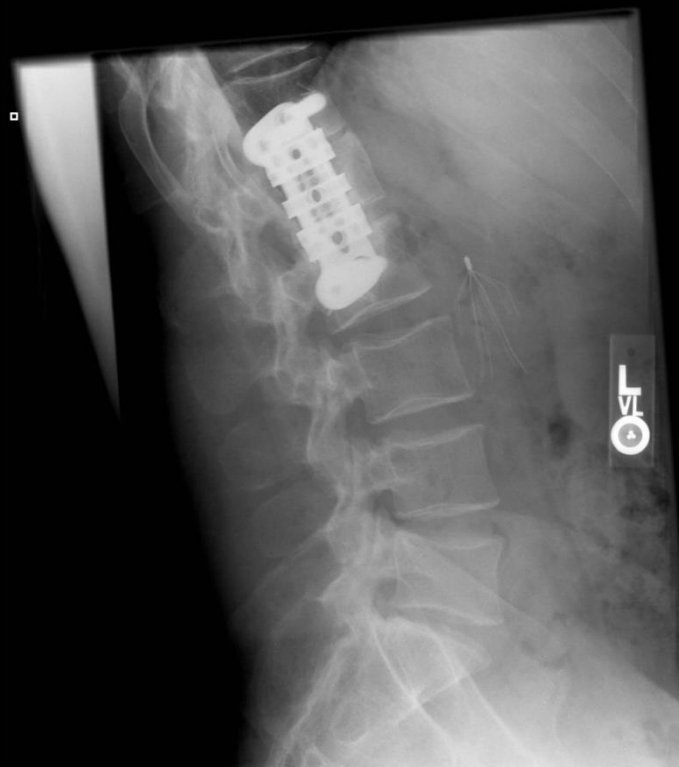
MCCARTHY,PATRICK LYLE, 033Y M
1291116
A#3071934
Location

HADC1
08/21/2007
16:06:47



remarks:
=LgM
W 1.763 : L 2.126

AP
Pelvis AP



remarks:
=LgM
W 1.215 : L 2.124

LL
Lumbar LAT

DEXA displaced Lx screw 33M

MCCARTHY, PATRICK LYLE, 033Y M
 1291116
 A#3071934
 Location

HADC1
 08/21/2007
 16:06:47

MCCARTHY, PATRICK LYLE, 032Y M
 1291116
 ACC#2895021

Bone Density Diagnostic Center
 MIXEDDX
 01/24/2007
 15:49:58

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	MCCARTHY, PATRICK L	Patient ID:	1291116
Birth Date:	5/17/1974 32.6 years	Referring Physician:	2895021
Height / Weight:	73.0 in. 190.0 lbs.	Measured:	1/24/2007 3:49:58 PM (9.30)
Sex / Ethnic:	Male White	Analyzed:	1/24/2007 3:55:52 PM (9.30)

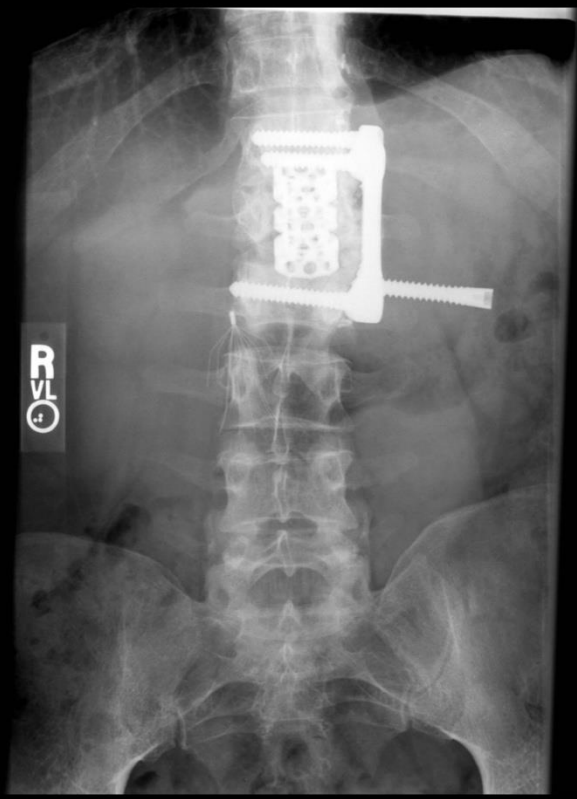
ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ³)	Young-Adult ² (%)	T-Score	Age-Matched ³ (%)	Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.434	124	2.3	120	2.0	8.92	6.22	2.2	2.79
L2	1.983	160	6.2	156	5.9	24.44	12.33	3.6	3.46
L3	1.001	81	-2.0	79	-2.3	15.04	15.03	4.1	3.66
L4	0.937	76	-2.5	74	-2.8	16.51	17.62	4.8	3.69
L3-4	0.966	78	-2.3	76	-2.6	31.55	32.65	4.4	7.35

1 - Statistically 68% of repeat scans fall within 1SD (± 0.020 g/cm³) for AP Spine L3-4
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (n=105)
 3 - Matched for Age, Weight (males 25-100 kg), Ethnic
 Filename: 30ccp03.dlx

GE Healthcare

Lunar Prodigy
 DF-15771



remarks:
 =LgM
 W 1.222 : L 2.076

AP
 Lumbar AP

W 255 : L 127

DEXA displaced Lx screw 33M

MCCARTHY, PATRICK LYLE, 092Y M
 1291116
 ACC#2895021

Bone Density Diagnostic Center
 MIXEDDX
 01/24/2007
 15:49:58

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	MCCARTHY, PATRICK L	Patient ID:	1291116
Birth Date:	5/17/1974 32.6 years	Referring Physician:	2895021
Height / Weight:	73.0 in. 190.0 lbs.	Measured:	1/24/2007 3:52:18 PM (9.30)
Sex / Ethnic:	Male White	Analyzed:	1/24/2007 3:55:54 PM (9.30)

ANCILLARY RESULTS [Left Femur]

Region	¹ BMD (g/cm ³)	² Young-Adult (%)	³ Age-Matched (%)	Z-Score	BMC (g)	Area (cm ²)	
Neck	0.922	86	-1.1	85	-1.2	4.71	5.11
Upper Neck	0.807	88	-0.8	87	-0.9	2.03	2.52
Wards	0.728	76	-1.8	75	-1.9	2.11	2.91
Troch	0.713	77	-2.0	75	-2.2	10.73	15.06
Shaft	1.138	-	-	-	17.29	15.20	
Total	0.926	84	-1.2	83	-1.3	32.74	35.37

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³) for Left Femur Neck
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 3 - Matched for Age, Weight (males 25-100 kg), Ethnic
 File name: 30ccp33.dlx

MCCARTHY, PATRICK LYLE, 092Y M
 1291116
 ACC#2895021

Bone Density Diagnostic Center
 MIXEDDX
 01/24/2007
 15:49:58

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	MCCARTHY, PATRICK L	Patient ID:	1291116
Birth Date:	5/17/1974 32.6 years	Referring Physician:	2895021
Height / Weight:	73.0 in. 190.0 lbs.	Measured:	1/24/2007 3:49:58 PM (9.30)
Sex / Ethnic:	Male White	Analyzed:	1/24/2007 3:55:52 PM (9.30)

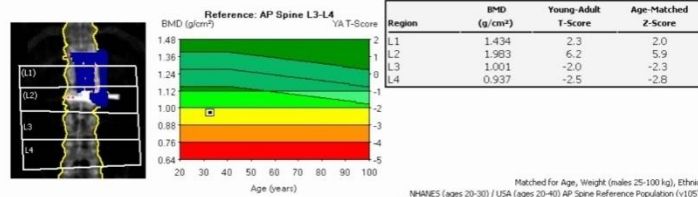


Image not for diagnosis

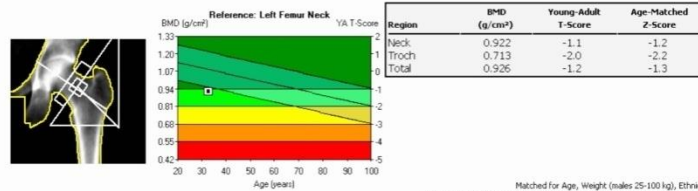


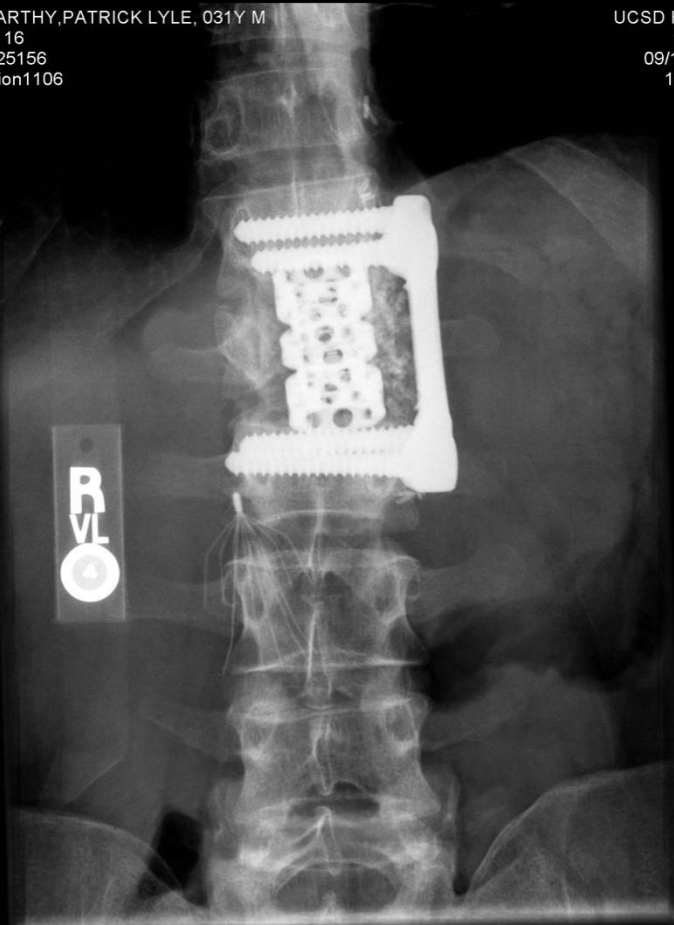
Image not for diagnosis

MCCARTHY,PATRICK LYLE, 031Y M
1291116
A#2525156
Location1106

UCSD Hillcrest
HADC1
09/12/2005
15:50:29

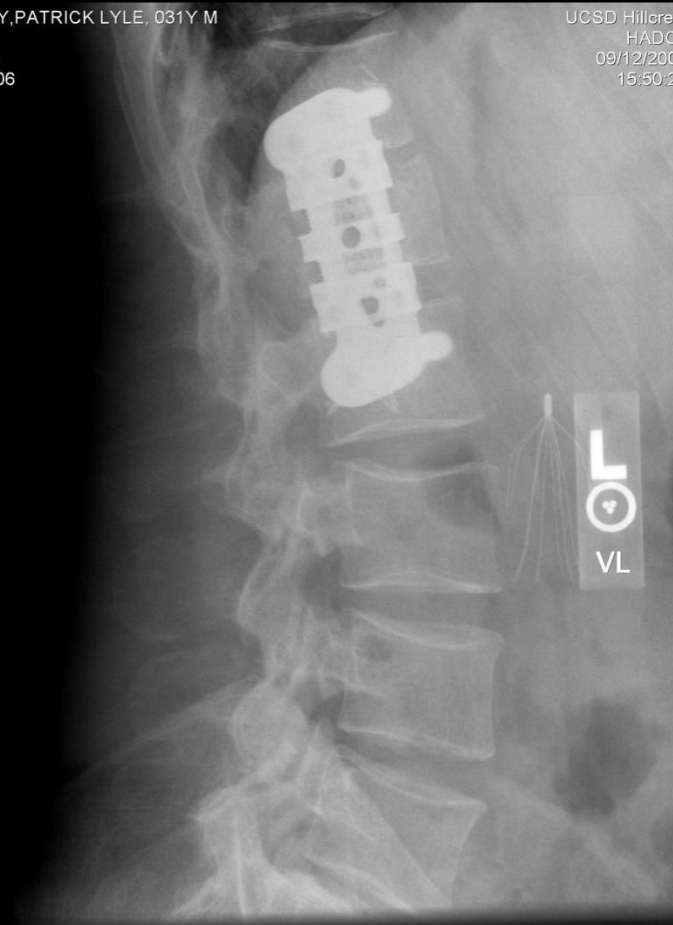
MCCARTHY,PATRICK LYLE, 031Y M
1291116
A#2525156
Location1106

UCSD Hillcrest
HADC1
09/12/2005
15:50:29



remarks:^^^
2,27734=LgM
W 1125 : L 2599

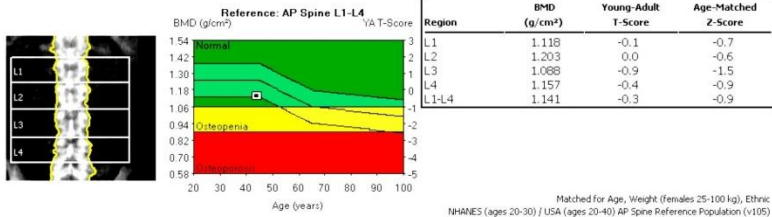
AP
Thoracolumbar AP



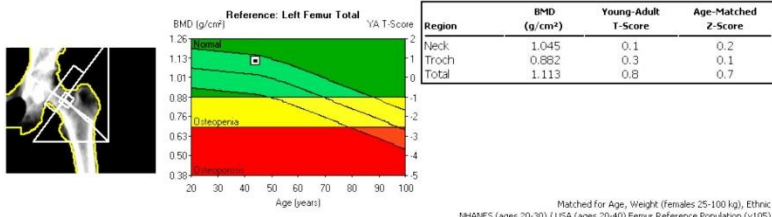
remarks:^^^
2,3429=LgM
W 1400 : L 2899

LL
Thoracolumbar LAT

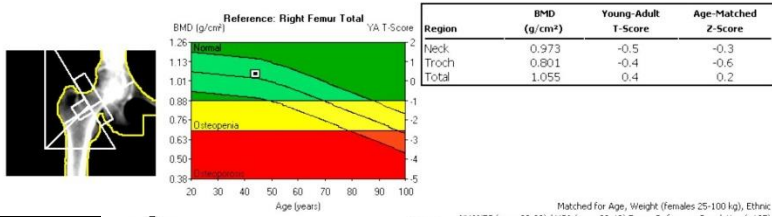
Height / Weight: 62.0 in. 182.0 lbs. Measured: 7/5/2006 1:54:04 PM (9.30)
 Sex / Ethnic: Female Hispanic Analyzed: 7/5/2006 1:59:06 PM (9.30)



Matched for Age, Weight (Females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105) Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for AP Spine L1-L4)



Matched for Age, Weight (Females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105) Statistically 68% of repeat scans fall within 1SD (± 0.012 g/cm² for Left Femur Total Mean)



Matched for Age, Weight (Females 25-100 kg), Ethnic NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105) Statistically 68% of repeat scans fall within 1SD (± 0.012 g/cm² for Right Femur Total Mean)

Measured: 7/5/2006 1:54:04 PM (9.30)
 Analyzed: 7/5/2006 1:59:06 PM (9.30)

Region	BMD (g/cm²)	YA T-Score	Age-Matched Z-Score	Matched Z-Score	3	atched Z-Score	BMC (g)	Area (cm²)	Width (cm)	Height (cm)
L1	1.118	99	-0.1	93	-0.7	12.24	10.94	3.7	2.97	
L2	1.203	100	0.0	95	-0.6	14.42	11.99	3.7	3.26	
L3	1.088	91	-0.9	86	-1.5	14.02	12.88	3.7	3.44	
L4	1.157	96	-0.4	91	-0.9	14.55	12.57	4.1	3.05	
L1-L2	1.162	100	0.0	94	-0.6	26.66	22.93	3.7	6.22	
L1-L3	1.136	97	-0.3	92	-0.9	40.68	35.82	3.7	9.66	
L1-L4	1.141	97	-0.3	91	-0.9	55.23	48.39	3.8	12.71	
L2-L3	1.144	95	-0.5	90	-1.1	28.44	24.87	3.7	6.69	
L2-L4	1.148	96	-0.4	90	-1.0	42.99	37.45	3.9	9.74	
L3-L4	1.122	94	-0.6	88	-1.2	28.57	25.46	3.9	6.48	

Height / Weight:	62.0 in.	182.0 lbs.	Measured:	7/5/2006	1:57:23 PM	(9.30)
Sex / Ethnic:	Female	Hispanic	Analyzed:	7/5/2006	1:58:45 PM	(9.30)

ANCILLARY RESULTS [Left Femur]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)
Neck	1.045	101 0.1	103 0.2	3.96	3.79
Upper Neck	0.889	108 0.6	105 0.4	1.65	1.86
Wards	0.890	98 -0.2	98 -0.1	1.42	1.60
Troch	0.882	104 0.3	102 0.1	9.66	10.95
Shaft	1.321	- -	- -	17.67	13.37
Total	1.113	110 0.8	108 0.7	31.30	28.12

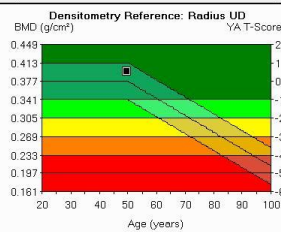
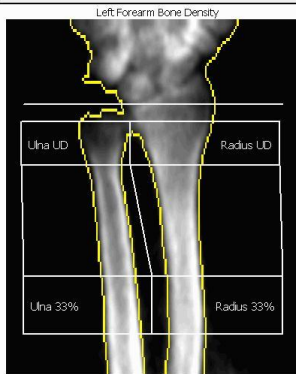
Height / Weight:	62.0 in.	182.0 lbs.	Measured:	7/5/2006	1:58:07 PM	(9.30)
Sex / Ethnic:	Female	Hispanic	Analyzed:	7/5/2006	1:58:48 PM	(9.30)

ANCILLARY RESULTS [Right Femur]

Region	BMD ¹ (g/cm ²)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)
Neck	0.973	94 -0.5	96 -0.3	5.20	5.34
Upper Neck	0.882	107 0.5	104 0.3	2.31	2.62
Wards	0.990	109 0.6	109 0.6	3.14	3.17
Troch	0.801	94 -0.4	92 -0.6	8.35	10.43
Shaft	1.284	- -	- -	17.35	13.51
Total	1.055	105 0.4	103 0.2	30.90	29.28

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	BROPHY, NANCY	Patient ID:	1341231
Birth Date:	5/2/1958 49.5 years	Referring Physician:	KELSO
Height / Weight:	53.0 in. 110.0 lbs.	Measured:	12/5/2007 9:18:10 AM (11.40)
Sex / Ethnic:	Female White	Analyzed:	12/10/2007 8:39:31 AM (11.40)



Region	^{1,9} BMD (g/cm ³)	² Young-Adult T-Score	³ Age-Matched z-Score
Radius UD	0.396	0.5	0.5
Ulna UD	0.232	-	-
Radius 33%	0.614	-1.4	-1.4
Ulna 33%	0.599	-	-
Both UD	0.330	-	-
Both 33%	0.607	-	-
Radius Total	0.518	-0.6	-0.6
Ulna Total	0.448	-	-
Both Total	0.487	-	-

COMMENTS:

Image not for diagnosis
 Performed: 12/10/2007 8:40:25 AM (11.40) 76:0.15:50.00:12.0.0.00:6.20
 0.60x1.55 5.1; 10:16:39.77%
 0.00:0.00 0.00:0.00
 Forearm Length: 20.8 cm
 Filename: Spdxj03.dfa
 Scan Mode: Standard 2.0 µGy

1 - Statistically 68% of repeat scans fall within 1SD (± 0.016 g/cm³ for Left Forearm Radius UD)
 2 - NHANES (ages 20-30) / USA (ages 20-40) Forearm Reference Population (v105)
 3 - Matched for Age, Ethnic
 9 - SPA calibration in use: (SPA values are 10% lower than Comac values.)
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above +1.0 SD; Osteopenia = T-Score between +1.0 and +2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	BROPHY, NANCY	Patient ID:	1341231
Birth Date:	5/2/1958 49.5 years	Referring Physician:	KELSO
Height / Weight:	53.0 in. 110.0 lbs.	Measured:	12/5/2007 9:18:10 AM (11.40)
Sex / Ethnic:	Female White	Analyzed:	12/10/2007 8:39:31 AM (11.40)

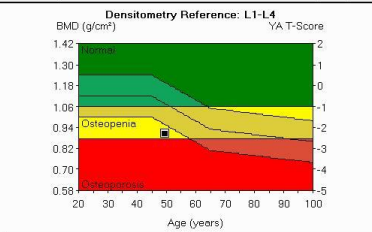
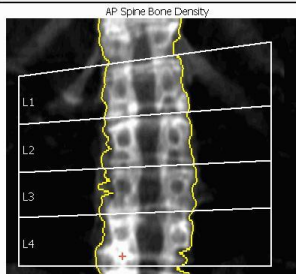
ANCILLARY RESULTS [Left Forearm]

Region	^{1,9} BMD (g/cm ³)	² Young-Adult (%)	³ Age-Matched T-Score	⁹ BMC (g)	Area (cm ²)
Radius UD	0.396	105	0.5	1.30	3.30
Ulna UD	0.232	-	-	0.51	2.19
Radius 33%	0.614	86	-1.4	1.46	2.37
Ulna 33%	0.599	-	-	1.37	2.29
Both UD	0.330	-	-	1.81	5.49
Both 33%	0.607	-	-	2.83	4.66
Radius Total	0.518	94	-0.6	5.50	10.62
Ulna Total	0.448	-	-	3.82	8.52
Both Total	0.487	-	-	9.32	19.14

1 - Statistically 68% of repeat scans fall within 1SD (± 0.016 g/cm³ for Left Forearm Radius UD)
 2 - NHANES (ages 20-30) / USA (ages 20-40) Forearm Reference Population (v105)
 3 - Matched for Age, Ethnic
 9 - SPA calibration in use: (SPA values are 10% lower than Comac values.)
 Filename: Spdxj03.dfa

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	BROPHY, NANCY	Patient ID:	1341231
Birth Date:	5/2/1958 49.5 years	Referring Physician:	KELSO
Height / Weight:	53.0 in. 110.0 lbs.	Measured:	12/5/2007 9:14:24 AM (11.40)
Sex / Ethnic:	Female White	Analyzed:	12/5/2007 9:21:52 AM (11.40)



Region	¹ BMD (g/cm ³)	² Young-Adult T-Score	³ Age-Matched z-Score
L1	0.927	-1.7	-0.8
L2	0.877	-2.7	-1.8
L3	0.796	-3.4	-2.5
L4	0.997	-1.7	-0.8
L1-L4	0.902	-2.3	-1.4

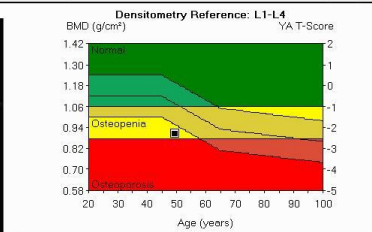
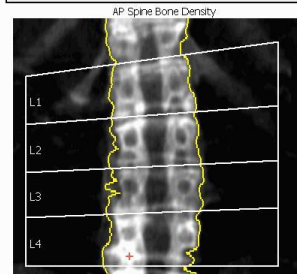
COMMENTS:

Image not for diagnosis
 Performed: 12/5/2007 9:22:07 AM (11.40) 76:3.00:50.00:12.0 0.00:10.56
 0.60x1.55 17.77%fat=15.9%
 0.00:0.00:0.00:0.00
 Filename: 1h69j6c3.dfs
 Scan Mode: Standard 37.0 µGy

¹ - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4)
² - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
³ - Matched for Age, Weight (Females ≥ 100 kg), Ethnicity
¹¹ - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	BROPHY, NANCY	Patient ID:	1341231
Birth Date:	5/2/1958 49.5 years	Referring Physician:	KELSO
Height / Weight:	53.0 in. 110.0 lbs.	Measured:	12/5/2007 9:14:24 AM (11.40)
Sex / Ethnic:	Female White	Analyzed:	12/5/2007 9:21:52 AM (11.40)



Region	¹ BMD (g/cm ³)	² Young-Adult T-Score	³ Age-Matched z-Score
L1	0.927	-1.7	-0.8
L2	0.877	-2.7	-1.8
L3	0.796	-3.4	-2.5
L4	0.997	-1.7	-0.8
L1-L4	0.902	-2.3	-1.4

COMMENTS:

Image not for diagnosis
 Performed: 12/5/2007 9:22:07 AM (11.40) 76:3.00:50.00:12.0 0.00:10.56
 0.60x1.55 17.77%fat=15.9%
 0.00:0.00:0.00:0.00
 Filename: 1h69j6c3.dfs
 Scan Mode: Standard 37.0 µGy

¹ - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4)
² - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
³ - Matched for Age, Weight (Females ≥ 100 kg), Ethnicity
¹¹ - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	BROPHY, NANCY	Patient ID:	1341231
Birth Date:	5/2/1958 49.5 years	Referring Physician:	KELSO
Height / Weight:	53.0 in. 110.0 lbs.	Measured:	12/5/2007 9:14:24 AM (11.40)
Sex / Ethnic:	Female White	Analyzed:	12/5/2007 9:21:52 AM (11.40)

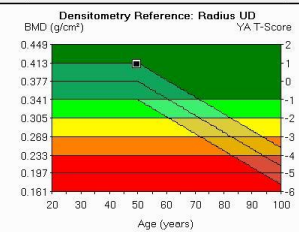
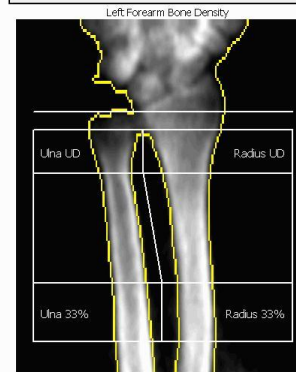
ANCILLARY RESULTS [AP Spine]

Region	¹ BMD (g/cm ³)	Young-Adult (%)	T-Score	³ Age-Matched (%)	Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	0.927	82	-1.7	90	-0.8	15.35	16.57	4.8	3.46
L2	0.877	73	-2.7	80	-1.8	14.52	16.57	5.2	3.18
L3	0.796	66	-3.4	73	-2.5	12.53	15.73	5.5	2.84
L4	0.997	83	-1.7	91	-0.8	17.84	17.89	5.4	3.32
L1-L2	0.902	77	-2.2	85	-1.3	29.88	33.14	5.0	6.63
L1-L3	0.868	74	-2.5	81	-1.7	42.41	48.87	5.2	9.48
L1-L4	0.902	76	-2.3	84	-1.4	60.24	66.76	5.2	12.80
L2-L3	0.838	70	-3.0	76	-2.2	27.05	32.30	5.4	6.02
L2-L4	0.894	75	-2.5	82	-1.7	44.89	50.19	5.4	9.34
L3-L4	0.903	75	-2.5	82	-1.6	30.36	33.62	5.5	6.17

¹ - Statistically 66% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine (L1-L4)
² - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
³ - Matched for Age, Weight (females 25-100 kg), Ethnic
 Filename: 1h69jx63.dfs

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	BROPHY, NANCY	Patient ID:	1341231
Birth Date:	5/2/1958 49.5 years	Referring Physician:	KELSO
Height / Weight:	53.0 in. 110.0 lbs.	Measured:	12/5/2007 9:18:10 AM (11.40)
Sex / Ethnic:	Female White	Analyzed:	12/5/2007 9:18:11 AM (11.40)



Region	^{1,9} BMD (g/cm ³)	² Young-Adult T-Score	³ Age-Matched Z-Score
Radius UD	0.410	0.9	0.9
Ulna UD	0.268	-	-
Radius 33%	0.607	-1.5	-1.5
Ulna 33%	0.608	-	-
Both UD	0.353	-	-
Both 33%	0.607	-	-
Radius Total	0.531	-0.4	-0.4
Ulna Total	0.470	-	-
Both Total	0.504	-	-

COMMENTS:

Image not for diagnosis
 Performed: 12/5/2007 9:23:11 AM (11.40)76:0.15:50:00:12:0 0.00:6.20 0.60:1.05
 S.I.P.#P#=#9.7%
 0.00:0.00:0.00:0.00
 Forearm Length: 20.9 cm
 Filename: 1h69jx63.dfs
 Scan Mode: Standard 2.0 µGy

¹ - Statistically 66% of repeat scans fall within 1SD (± 0.016 g/cm³) for Left Forearm Radius UD
² - NHANES (ages 20-30) / USA (ages 20-40) Forearm Reference Population (v105)
³ - Matched for Age, Ethnic
⁹ - SPA calibration in use. (SPA values are 10% lower than Comac values.)
¹¹ - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	BROPHY, NANCY	Patient ID:	1341231
Birth Date:	5/2/1958 49.5 years	Referring Physician:	KELSO
Height / Weight:	53.0 in. 110.0 lbs.	Measured:	12/5/2007 9:18:10 AM (11.40)
Sex / Ethnic:	Female White	Analyzed:	12/5/2007 9:18:11 AM (11.40)

ANCILLARY RESULTS [Left Forearm]

Region	BMD ^{1,9} (g/cm ³)		Young-Adult ² (%) T-Score		Age-Matched ³ (%) Z-Score		BMC ⁹ (g)	Area (cm ²)
	1,9	2	1	2	1	2		
Radius UD	0.410	109	0.9	109	0.9	1.22	2.98	
Ulna UD	0.268	-	-	-	-	0.54	2.02	
Radius 33%	0.607	85	-1.5	85	-1.5	1.45	2.39	
Ulna 33%	0.608	-	-	-	-	1.41	2.32	
Both UD	0.353	-	-	-	-	1.76	5.00	
Both 33%	0.607	-	-	-	-	2.86	4.71	
Radius Total	0.531	97	-0.4	97	-0.4	5.38	10.13	
Ulna Total	0.470	-	-	-	-	3.92	8.34	
Both Total	0.504	-	-	-	-	9.30	18.47	

1 - Statistically 68% of repeat scans fall within 1SD (± 0.016 g/cm³) for Left Forearm Radius UD
 2 - NHANES (ages 20-30) / USA (ages 20-40) Forearm Reference Population (v106)
 3 - Matched for Age, Ethnic
 9 - SPA calibration in use: (SPA values are 10% lower than Comac values.)
 Filename: Spdyx03.dfa

Spine + wrist done
 Please associate
 # 3152238 Spine
 # 3157224 forearm
 DEXA (BONE DENSITY) SKELTRA
 12/05/2007 09:00 Status: 0

University of California San Diego
 Lewis Street Radiology
 Bone Density Risk Factor Information

Alias Name: PETERSON, NANCY R
 Exam: 12/5/2007 Age: 49 Years
 History: OSTEOPENIA ON XRAY, EVAL ON DEXA
 Diagnosis: SPINAL STENOSIS IN CERVICAL REGION
 Requesting MD: KELSO, CHRISTINE G, M.D.
 Comment: PT. ON LED



E-3152238
 BROPHY, NANCY R MRR# 1341231

Gender: Male Female HEIGHT: 4'5" WEIGHT: 110

Have you ever had a Bone Density Scan? No
 If yes, when? _____
 Where? Yes No

PATIENT RISK FACTORS:
 Is there any family history of Osteoporosis? Yes No
 Do you smoke now or have you in the past? Yes No
 Have you had any fractured bones as an adult? Yes No

If yes, when? _____
 Which bone(s)?
 Do you consume 3 or more dairy servings per day? Yes No Occasionally
 Do you take calcium supplements? Yes No Occasionally
 Do you exercise at least 3 times per week? Yes No Occasionally
 Do you drink more than 2 alcoholic drinks per day? Yes No Occasionally
 Do you drink 5 or more cups of coffee or soft drink per day? Yes No Occasionally

If Female:
 Have you gone through menopause? Yes No
 Have you had a hysterectomy? Yes No
 If so, were your ovaries removed? Yes No
 Do you take estrogen? Yes No
 If yes, for how many years? _____
 Do you take medication for Osteoporosis? Yes No
 If yes, what kind? _____
 For how long? _____

Are you taking seizure medication? Yes No
 Do you take oral prednisone or cortisone medications? Yes No

Have you had surgery on your spine? Yes No
 What kind? *lumbar + cervical laminectomy + fusion*
 Have you had surgery on your hips? Yes No
 If yes: LEFT RIGHT BOTH

Do you any of the following?: Please circle if yes. Cancer
 Thyroid condition Bowel Disease
 Kidney Disease Diabetes
 Arthritis - *osteo* Asthma

COMMENTS: *bilat hip replacement*

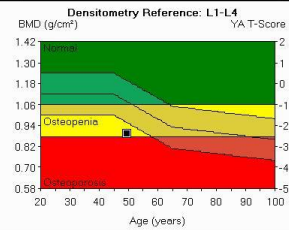
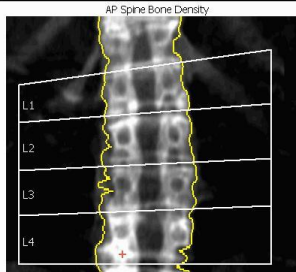
MEDICATIONS: _____

 Technologist

12/5/07
 Date

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	BROPHY, NANCY	Patient ID:	1341231
Birth Date:	5/2/1958 49.5 years	Referring Physician:	KELSO
Height / Weight:	53.0 in. 110.0 lbs.	Measured:	12/5/2007 9:14:24 AM (11.40)
Sex / Ethnic:	Female White	Analyzed:	12/10/2007 8:41:11 AM (11.40)



Region	¹ BMD (g/cm ²)	² Young-Adult T-Score	³ Age-Matched Z-Score
L1	0.900	-1.9	-1.1
L2	0.877	-2.7	-1.8
L3	0.796	-3.4	-2.5
L4	0.997	-1.7	-0.8
L1-L4	0.895	-2.4	-1.5

COMMENTS:

Image not for diagnosis
 Performed: 12/10/2007 8:41:43 AM (11.40) 76:3.00:50.00:12.0.0.00:10.56
 0.00:1.00 17.71% 92=18.9%
 0.00:0.00 0.00:0.00
 Filename: 1h69j63.dfs
 Scan Mode: Standard 37.0 µGy

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm²) for AP Spine L1-L4)
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 3 - Matched for Age, Weight (Females 25-100 kg), Ethnic
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy
 Caucasian Women reference database is used to determine T-Scores.)

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	BROPHY, NANCY	Patient ID:	1341231
Birth Date:	5/2/1958 49.5 years	Referring Physician:	KELSO
Height / Weight:	53.0 in. 110.0 lbs.	Measured:	12/5/2007 9:14:24 AM (11.40)
Sex / Ethnic:	Female White	Analyzed:	12/10/2007 8:41:11 AM (11.40)

ANCILLARY RESULTS [AP Spine]

Region	¹ BMD (g/cm ²)	² Young-Adult (%) T-Score	³ Age-Matched (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	0.900	80 -1.9	88 -1.1	12.43	13.81	4.9	2.84
L2	0.877	73 -2.7	80 -1.8	14.52	16.57	5.2	3.18
L3	0.796	66 -3.4	73 -2.5	12.53	15.73	5.5	2.84
L4	0.997	83 -1.7	91 -0.8	17.84	17.89	5.4	3.32
L1-L2	0.887	76 -2.3	84 -1.4	26.95	30.38	5.0	6.01
L1-L3	0.856	73 -2.6	80 -1.7	39.48	46.11	5.2	8.85
L1-L4	0.895	76 -2.4	83 -1.5	57.31	64.00	5.3	12.18
L2-L3	0.838	70 -3.0	76 -2.2	27.05	32.30	5.4	6.02
L2-L4	0.894	75 -2.5	82 -1.7	44.89	50.19	5.4	9.34
L3-L4	0.903	75 -2.5	82 -1.6	30.36	33.62	5.5	6.17

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm²) for AP Spine L1-L4)
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 3 - Matched for Age, Weight (Females 25-100 kg), Ethnic
 Filename: 1h69j63.dfs

MC GOWAN, JAMES PAUL, 050 Y M
 0862736
 ACC#3057751

Bone Density Diagnostic Center
 LDOCSCAN1
 08/29/2007
 10:30:00

University of California San Diego
 Lewis Street Radiology
 Bone Density Risk Factor Information

DEXA (BONE DENSITY) SKELETA
 08/29/2007 10:30 Status: 0



E-3067751
 MCGOWAN, JAMES PAUL
 MRN: 8862786

Alias Name:
 Scan: (L5/L7) 7020 Age: 50 Years
 History: ELSO/ETOH
 Diagnosis: FOLLOW UP/COMPARE
 Requesting MO: ALPERT, HORTON E, M.D.
 Comments: FERRY, P 19336

Gender: Male Female
 HEIGHT: 5'9" WEIGHT: 171

Have you ever had a Bone Density Scan?
 If yes, when? Where?

PATIENT RISK FACTORS:
 Is there any family history of Osteoporosis? Yes No
 Do you smoke now or have you in the past? Yes No
 Have you had any fractured bones as an adult? Yes No
 If yes, when? 1, 1, 1987 Which bone(s)? ankle

Do you consume 3 or more dairy servings per day? Yes No Occasionally
 Do you take calcium supplements? Yes No Occasionally
 Do you exercise at least 3 times per week? Yes No Occasionally
 Do you drink more than 2 alcoholic drinks per day? Yes No Occasionally
 Do you drink 5 or more cups of coffee or soft drink per day? Yes No Occasionally

If Female:
 Have you gone through menopause? Yes No
 Have you had a hysterectomy? Yes No
 If so, were your ovaries removed? Yes No

Do you take estrogen? Yes No
 If yes, for how many years?
 Do you take medication for Osteoporosis? Yes No
 If yes, what kind?
 For how long?

Are you taking seizure medication? Yes No
 Do you take oral prednisone or cortisone medications? Yes No
 Have you had surgery on your spine? Yes No
 What kind?

Have you had surgery on your hips? Yes No BOTH
 If yes: LEFT RIGHT BOTH

Do you any of the following?: Please circle if yes.
 Thyroid condition Bowel Disease Cancer
 Kidney Disease Diabetes
 Arthritis Asthma

COMMENTS: pre-liver transplant prostate
genetic

MEDICATIONS: potassium Chloride, propranolol, Lasix, Synthroid, Spiroplactone, Tranzone, Ambience, Latelose
 Technologist Date 8-29-07

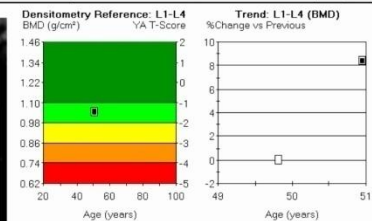
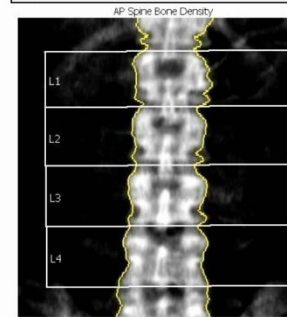
W 255 : L 127

MC GOWAN, JAMES PAUL, 050 Y M
 0862736
 ACC#3057751

Bone Density Diagnostic Center
 LDOCSCAN1
 08/29/2007
 10:30:00

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MCGOWAN, JAMES P Patient ID: 0862786
 Birth Date: 9/16/1956 50.9 years Referring Physician: VAN KLEEB, ERIK J, M.D.
 Height / Weight: 69.0 in. 174.0 lbs. Measured: 8/29/2007 10:32:39 AM (11:40)
 Sex / Ethnic: Male Other Analyzed: 8/29/2007 10:38:12 AM (11:40)



Region	BMD (g/cm ²) ¹	Young-Adult T-Score ²
L1	0.990	-1.5
L2	1.029	-1.8
L3	1.135	-0.9
L4	1.025	-1.8
L1-L4	1.044	-1.5

Measured Date	Age (years)	Trend: L1-L4		
		BMD (g/cm ²) ¹	Previous (g/cm ²)	Change vs Previous (%)
8/29/2007	50.9	1.044	0.081*	8.4*
7/12/2006	49.8	0.963	-	-

COMMENTS:

Image not for diagnosis
 Printed: 8/29/2007 10:39:15 AM (11:40) 763:00:50:00:12.0:0.00:10:02
 0.60x1.05 22.8%Fat=23.9%
 0.00:0.00 0.00:0.00
 Filename: Sp3n33.dfx
 Scan Mode: Standard 37.0 gray

* - Indicates significant change based on 95% confidence interval.
 1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm²) for AP Spine L1-L4
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (1/05)
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score ≥ or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score ≤ or below -2.5 SD. (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

GE Healthcare

Lunar Prodigy
 DF+15771

W 255 : L 127

MCGOWAN, JAMES PAUL, 050 Y M
 0862736
 AC#3067751

Bone Density Diagnostic Center
 LDOCSCAN1
 08/29/2007
 10:30:00

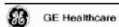
Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MCGOWAN, JAMES P Patient ID: 0862796
 Birth Date: 9/16/1956 50.9 years Referring Physician: VAN KLEEB, ERIK J, M.D.
 Height / Weight: 69.0 in. 174.0 lbs. Measured: 8/29/2007 10:32:39 AM (11:40)
 Sex / Ethnic: Male Other Analyzed: 8/29/2007 10:38:12 AM (11:40)

ANCILLARY RESULTS [AP Spine]

Region	1		2		BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
	BMD (g/cm ³)	Young-Adult (%)	T-Score	Age-Matched (%)				
L1	0.980	84	-1.5	-	15.23	15.55	4.4	3.57
L2	1.029	83	-1.8	-	16.41	15.96	4.2	3.78
L3	1.135	92	-0.9	-	19.89	17.52	4.5	3.89
L4	1.025	83	-1.8	-	19.94	19.44	5.0	3.89
L1-L2	1.004	84	-1.6	-	31.64	31.50	4.3	7.35
L1-L3	1.051	87	-1.3	-	51.53	49.03	4.4	11.24
L1-L4	1.044	86	-1.5	-	71.47	68.47	4.5	15.12
L2-L3	1.084	87	-1.3	-	36.30	33.48	4.4	7.67
L2-L4	1.063	86	-1.5	-	56.24	52.92	4.6	11.55
L3-L4	1.077	87	-1.4	-	39.83	36.97	4.8	7.77

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine (11-64)
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Filename: Sp3y1p63.dfx



Lunar Prodigy
 DF+15771

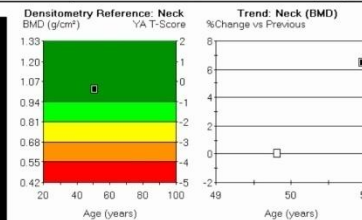
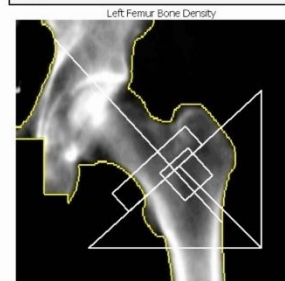
W 255 : L 127

MCGOWAN, JAMES PAUL, 050 Y M
 0862736
 AC#3067751

Bone Density Diagnostic Center
 LDOCSCAN1
 08/29/2007
 10:30:00

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MCGOWAN, JAMES P Patient ID: 0862796
 Birth Date: 9/16/1956 50.9 years Referring Physician: VAN KLEEB, ERIK J, M.D.
 Height / Weight: 69.0 in. 174.0 lbs. Measured: 8/29/2007 10:35:03 AM (11:40)
 Sex / Ethnic: Male Other Analyzed: 8/29/2007 10:38:14 AM (11:40)



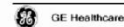
Region	1		2	
	BMD (g/cm ³)	Young-Adult T-Score	BMD (g/cm ³)	Young-Adult T-Score
Neck	1.019	-0.4	1.087	0.1
Total	1.110	0.1	1.177	0.1

HAL chart results unavailable

Measured Date	Age (years)	Trend: Neck		
		BMD (g/cm ³)	Previous (g/cm ³)	Change vs Previous (%)
8/29/2007	50.9	1.019	0.962*	6.5*
7/12/2006	49.8	0.957	-	-

Image not for diagnosis
 Printed: 8/29/2007 10:39:27 AM (11:40) 76:3:00:50:00:12:0:0:0:9:72
 0.60x1.05 16.5%Fat=24.5%
 0.00:0.00:0.00:0.00
 Neck Angle (deg)= 42
 Filename: Sp3y1p63.dfx
 Scan Mode: Standard 37.0 µm

* - Indicates significant change based on 95% confidence interval.
 1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³) for Left Femur Neck
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 11 - World Health Organization Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD. (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)



Lunar Prodigy
 DF+15771

W 255 : L 127

MCGOWAN, JAMES PAUL, 050 Y M
 0862736
 AC#3067751

Bone Density Diagnostic Center
 LDOCSCAN1
 08/29/2007
 10:30:00

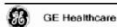
Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MCGOWAN, JAMES P Patient ID: 0862796
 Birth Date: 9/16/1956 50.9 years Referring Physician: VAN KLEEB, ERIK J, M.D.
 Height / Weight: 69.0 in. 174.0 lbs. Measured: 8/29/2007 10:35:03 AM (11:40)
 Sex / Ethnic: Male Other Analyzed: 8/29/2007 10:38:14 AM (11:40)

ANCILLARY RESULTS [Left Femur]

Region	1		2		BMC (g)	Area (cm ²)
	BMD (g/cm ³)	Young-Adult (%) T-Score	Age-Matched (%) z-Score			
Neck	1.019	95 -0.4	-	-	6.88	6.76
Upper Neck	0.877	96 -0.3	-	-	2.99	3.41
Lower Neck	1.163	-	-	-	3.90	3.35
Wards	0.787	82 -1.3	-	-	3.99	5.07
Troch	0.886	95 -0.4	-	-	7.61	8.59
Shaft	1.258	-	-	-	21.42	17.02
Total	1.110	101 0.1	-	-	35.91	32.36

1 - Statistically 69% of repeat scans fall within 1SD (± 0.014 g/cm³) for Left Femur Neck
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Filename: 829j063.dfx



Lunar Prodigy
 DF+15771

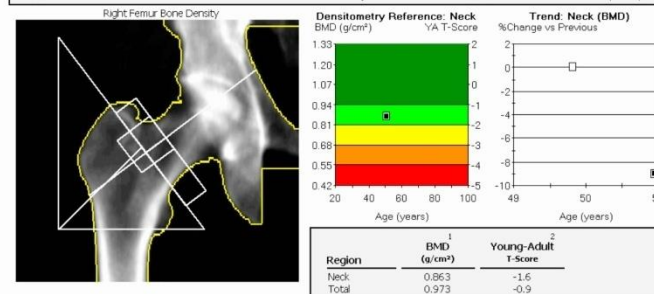
W 255 : L 127

MCGOWAN, JAMES PAUL, 050 Y M
 0862736
 AC#3067751

Bone Density Diagnostic Center
 LDOCSCAN1
 08/29/2007
 10:30:00

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MCGOWAN, JAMES P Patient ID: 0862796
 Birth Date: 9/16/1956 50.9 years Referring Physician: VAN KLEEB, ERIK J, M.D.
 Height / Weight: 69.0 in. 174.0 lbs. Measured: 8/29/2007 10:36:01 AM (11:40)
 Sex / Ethnic: Male Other Analyzed: 8/29/2007 10:38:16 AM (11:40)



HAL chart results unavailable

Measured Date	Age (years)	Trend: Neck		
		1 BMD (g/cm ³)	2 Previous (g/cm ³)	Change vs Previous (%)
8/29/2007	50.9	0.863	-	-0.086 *
7/12/2006	49.8	0.948	-	-

Image not for diagnosis
 Printed: 8/29/2007 10:39:39 AM (11:40) 76:3:00:50:00:12.0 0:00:10:38
 0.60x1.05 16.9%Fat=22.5%
 0.00:0.00:0.00:0.00
 Neck Angle (deg)= 53
 Filename: 829j063.dfx
 Scan Mode: Standard 37.0 µs/y

* - Indicates significant change based on 95% confidence interval.
 1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³) for Right Femur Neck
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 11 - World Health Organization Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD. (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)



Lunar Prodigy
 DF+15771

W 255 : L 127

MC GOWAN, JAMES PAUL, 050 Y M
0862736
AC C#3057751

Bone Density Diagnostic Center
LDOCSCAN1
08/29/2007
10:30:00

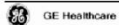
Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	MC GOWAN, JAMES P	Patient ID:	0862786
Birth Date:	9/16/1956 50.9 years	Referring Physician:	VAN KLEEB, ERIK J, M.D.
Height / Weight:	69.0 in. 174.0 lbs.	Measured:	8/29/2007 10:36:01 AM (11:40)
Sex / Ethnic:	Male Other	Analyzed:	8/29/2007 10:38:16 AM (11:40)

ANCILLARY RESULTS [Right Femur]

Region	BMD ¹ (g/cm ³)	Young-Adult ² (%) T-Score	Age-Matched (%) z-Score	BMC (g)	Area (cm ²)
Neck	0.863	81 -1.6	- -	6.32	7.32
Upper Neck	0.803	88 -0.9	- -	2.97	3.70
Lower Neck	0.924	- -	- -	3.35	3.63
Wards	0.774	81 -1.4	- -	4.50	5.81
Troch	0.812	87 -1.1	- -	9.19	11.33
Shaft	1.127	- -	- -	19.32	17.15
Total	0.973	88 -0.9	- -	34.83	35.79

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Right Femur Neck)
2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
Filename: 8zppj063.dfx



Lunar Prodigy
DF+15771

W 255 : L 127

MC GOWAN, JAMES PAUL, 050 Y M
0862736
AC C#3057751

Bone Density Diagnostic Center
LDOCSCAN1
08/29/2007
10:30:00

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	MC GOWAN, JAMES P	Patient ID:	0862786
Birth Date:	9/16/1956 50.9 years	Referring Physician:	VAN KLEEB, ERIK J, M.D.
Height / Weight:	69.0 in. 174.0 lbs.	Measured:	8/29/2007 10:36:01 AM (11:40)
Sex / Ethnic:	Male Other	Analyzed:	8/29/2007 10:38:16 AM (11:40)

DualFemur Bone Density

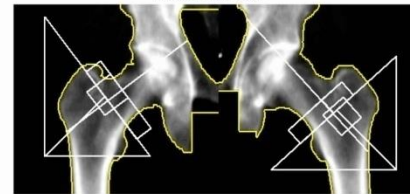
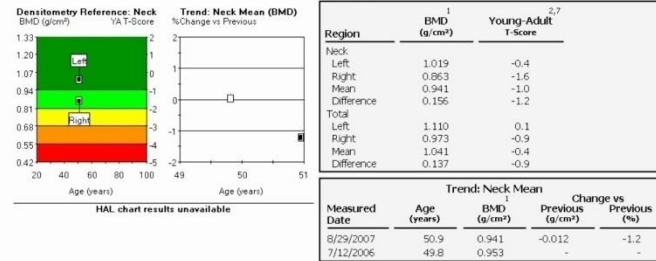


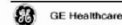
Image not for diagnosis



COMMENTS:

1 - Statistically 68% of repeat scans fall within 1SD (± 0.012 g/cm³ for DualFemur Neck Mean)
2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
7 - DualFemur Total Mean T-Score difference is 0.9. Asymmetry is Mild.
11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women: Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD; Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

Printed: 8/29/2007 10:39:50 AM (11:40); Filename: 8zppj063.dfx; Right Femur: 16.9-%Fat=22.5%; Neck Angle (deg)= 53; Scan Mode: Standard 37.0 µg; Left Femur: 16.5-%Fat=24.5%; Neck Angle (deg)= 42; Scan Mode: Standard 37.0 µg



Lunar Prodigy
DF+15771

W 255 : L 127

DEXA misplaced femoral necks 60M

MC GOWAN, JAMES PAUL, 050 Y M
0862736
AC C#3057751

Bone Density Diagnostic Center
LDOCSCAN1
08/29/2007
10:30:00

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
1330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MCGOWAN, JAMES P Patient ID: 0862786
Birth Date: 9/16/1956 50.9 years Referring Physician: VAN KLEEB, ERIK J, M.D.
Height / Weight: 69.0 in. 174.0 lbs. Measured: 8/29/2007 10:32:39 AM (11:40)
Sex / Ethnic: Male Other Analyzed: 8/29/2007 10:38:12 AM (11:40)

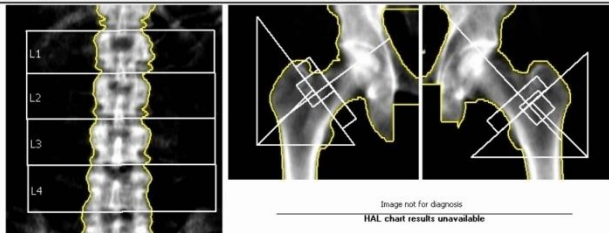
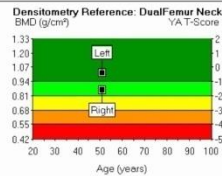
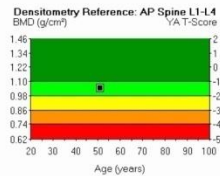


Image not for diagnosis



Region	¹ BMD (g/cm ³)	^{2,7} Young-Adult T-Score	¹¹ WHO Classification
AP Spine L1-L4	1.044	-1.5	-
Dual Femur Neck:			
Left	1.019	-0.4	-
Right	0.863	-1.6	-
Mean	0.941	-1.0	-
Difference	0.156	-1.2	-

1 - Statistically 95% of repeat scans fall within 1SD (± 0.010 g/cm³ for AP Spine L1-L4; ± 0.011 g/cm³ for Dual Femur Neck Mean)
2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105); NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
7 - Dual Femur Total Mean T-Score difference is 0.9. Asymmetry is Mild.
11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women: Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD; Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

Printed: 8/29/2007 10:39:57 AM (11:40); Filename: 02gpn33.dfr; AP Spine: 22.8%Fat=23.9%; Scan Mode: Standard 37.0 µgy; Right Femur: 16.5%Fat=22.5%; Neck Angle (deg)=53; Scan Mode: Standard 37.0 µgy; Left Femur: 16.5%Fat=24.5%; Neck Angle (deg)=42; Scan Mode: Standard 37.0 µgy



Lunar Prodigy
DF+15771

W 255 : L 127

MC GOWAN, JAMES PAUL, 050 Y M
0862736
AC C#3057751

Bone Density Diagnostic Center
LDOCSCAN1
08/29/2007
10:30:00

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
1330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MCGOWAN, JAMES P Patient ID: 0862786
Birth Date: 9/16/1956 50.9 years Referring Physician: VAN KLEEB, ERIK J, M.D.
Height / Weight: 69.0 in. 174.0 lbs. Measured: 8/29/2007 10:32:39 AM (11:40)
Sex / Ethnic: Male Other Analyzed: 8/29/2007 10:38:12 AM (11:40)

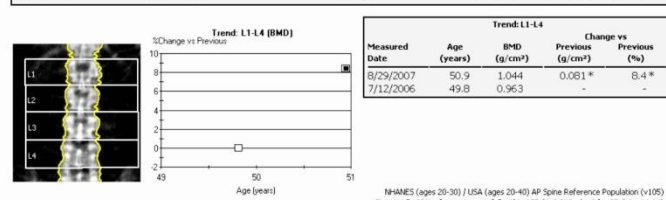


Image not for diagnosis

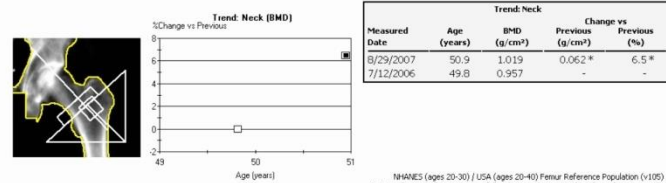


Image not for diagnosis

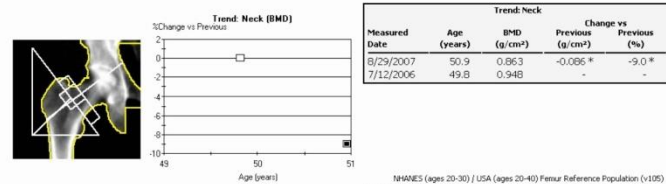


Image not for diagnosis

* - Indicates significant change based on 95% confidence interval.



Lunar Prodigy
DF+15771

W 255 : L 127



3

Rebecca and John Moores UCSD Cancer Center
3855 Health Sciences Dr. Rm 1220
La Jolla, CA 92093

Patient:	DERCOLE, DOMENICA	Facility ID:	1645058
Birth Date:	9/22/1945 61.8 years	Referring Physician:	YU, PEARL
Height / Weight:	64.2 in. 200.0 lbs.	Measured:	7/20/2007 11:47:38 AM (9.30)
Sex / Ethnic:	Female Hispanic	Analyzed:	7/20/2007 11:47:41 AM (9.30)

DualFemur Bone Density

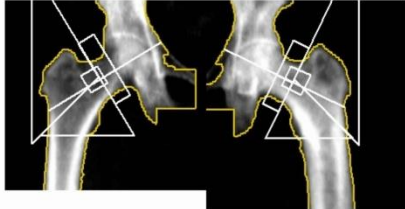
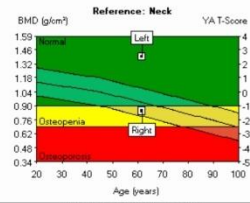


Image not for diagnosis



Region	BMD ¹ (g/cm ³)	Young-Adult ^{2,7} T-Score	Age-Matched ³ Z-Score
Neck:			
Neck Left	1.388	2.5	3.3
Neck Right	0.945	-1.4	-0.6
Neck Mean	1.116	0.6	1.3
Neck Diff.	0.543	3.9	3.9
Total:			
Total Left	1.508	4.0	4.4
Total Right	0.960	-0.2	0.2
Total Mean	1.244	1.9	2.3
Total Diff.	0.529	4.2	4.2

HAL chart results unavailable

COMMENTS: F/U 2002

1 - Statistically 68% of repeat scans fall within 1SD (± 0.012 g/cm³ for DualFemur Neck Mean)
 2 - NHANES (ages 20-39) / USA (ages 20-40) Femur Reference Population (n=105)
 3 - Matched for Age, Weight (Females 25-100 kg), Ethnic
 7 - DualFemur Total Mean T-Score difference is 4.2. Asymmetry is Significant.
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women: Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD; Osteoporosis = T-Score at or below -2.5 SD) (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

Printed: 7/20/2007 11:49:23 AM (9.30); Filenames: qmN02ip.dfi; Right Femur: 22.8%FA=32.7%; Neck Angle (deg)= 59; Scan Mode: Standard 37.0 µCi; Left Femur: 21.0%FA=27.8%; Neck Angle (deg)= 64; Scan Mode: Standard 37.0 µCi



Lunar Prodigy Advance
PA113055

W 256 : L 127

WILLIS, WINNIE ODESSA, 064 / F
 1311841
 ACC#3953266

Bone Density Diagnostic Center
 ML/EDDX
 08/08/2007
 13:21:04

University of California San Diego
 Lewis Street Radiology
 Bone Density Risk Factor Information

DEXA (BONE DENSITY) SKELETA
 08/08/2007 13:08 Status: 0
 E-3083266
 WILLIS, WINNIE ODESSA MRN: 1311841

Alias Name:
 Sex: (F) Age: 64 Years
 History: baseline screening
 Diagnosis: SCREENING FOR OSTEOPOROSIS
 Requesting MD: MEHTA, GITA, M.D.
 Comments: PT SCH

Gender: Male Female HEIGHT: 5ft 11in WEIGHT: 145

Have you ever had a Bone Density Scan? Yes () No ()
 If yes, when? / / Where? _____

PATIENT RISK FACTORS:
 Is there any family history of Osteoporosis? Yes () No ()
 Do you smoke now or have you in the past? Yes () No ()
 Have you had any fractured bones as an adult? Yes () No ()
 If yes, when? / / Which bone(s)? _____

Do you consume 3 or more dairy servings per day? Yes () No () Occasionally ()
 Do you take calcium supplements? Yes () No () Occasionally ()
 Do you exercise at least 3 times per week? Yes () No () Occasionally ()
 Do you drink more than 2 alcoholic drinks per day? Yes () No () Occasionally ()
 Do you drink 5 or more cups of coffee or soft drink per day? Yes () No () Occasionally ()
 If Female:
 Have you gone through menopause? Yes () No ()
 Have you had a hysterectomy? Yes () No ()
 If so, were your ovaries removed? Yes () No ()
 Do you take estrogen? Yes () No ()

If yes, for how many years? _____
 Do you take medication for Osteoporosis? Yes () No ()
 If yes, what kind? _____
 For how long? _____

Are you taking seizure medication? Yes () No ()
 Do you take oral prednisone or cortisone medications? Yes () No ()
 Have you had surgery on your spine? Yes () No ()
 What kind? _____

Have you had surgery on your hips? Yes () No ()
 If yes: LEFT RIGHT BOTH

Do you any of the following? Please circle if yes.
 Thyroid condition Bowel Disease Cancer
 Kidney Disease Diabetes
 Arthritis Asthma

COMMENTS: Diverticulosis

MEDICATIONS: Vytorin 10/20 + Vitamin B Complex

Technologist: [Signature] Date: 8-8-07

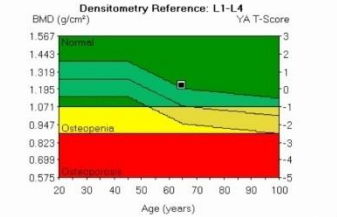
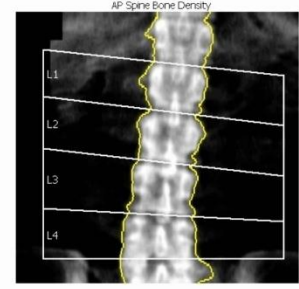
W 255 : L 127

WILLIS, WINNIE ODESSA, 064 / F
 1311841
 ACC#3953266

Bone Density Diagnostic Center
 ML/EDDX
 08/08/2007
 13:21:04

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: WILLIS, WINNIE O Patient ID: 1311841
 Birth Date: 3/9/1943 64.4 years Referring Physician: MEHTA, GITA
 Height / Weight: 61.0 in. 145.0 lbs. Measured: 8/8/2007 1:21:04 PM (11:40)
 Sex / Ethnic: Female Black Analyzed: 8/8/2007 1:47:28 PM (11:40)



Region	¹ BMD (g/cm ²)	² Young-Adult T-Score	³ Age-Matched z-Score
L1	1.154	0.1	1.0
L2	1.230	0.2	1.0
L3	1.243	0.2	1.0
L4	1.254	0.3	1.1
L1-L4	1.223	0.2	1.1

COMMENTS:

Image not for diagnosis
 Printed: 8/8/2007 1:47:54 PM (11:40) 76:3.00:50.00:12.0 0.00:8.76 0.60:1.05
 20.7:50:Pal=28.9%
 0.00:0.00:0.00:0.00
 Filename: 8r1hm263.dfx
 Scan Mode: Standard, OneScan 37.0 µgJ

1 - Statistically 68% of repeat scans fall within 1SD (± 0.019 g/cm²) for AP Spine (L1-L4)
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (105)
 3 - Matched for Age, Weight (Ranges 25-100 kg), Ethnicity
 11 - World Health Organization's Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score ≥ +1.0 SD; Osteopenia = T-Score between -1.0 and +2.5 SD;
 Osteoporosis = T-Score ≤ -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

GE Healthcare

Lunar Prodigy
 DF415771

W 255 : L 127

WILLIS, WINNIE ODESSA, 064 / F
 1311841
 ACC#3053266

Bone Density Diagnostic Center
 MIL/EDDX
 08/08/2007
 13:21:04

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	WILLIS, WINNIE O	Patient ID:	1311841
Birth Date:	3/9/1943 64.4 years	Referring Physician:	MEHTA, GITA
Height / Weight:	61.0 in. 145.0 lbs.	Measured:	8/8/2007 1:21:04 PM (11:40)
Sex / Ethnic:	Female Black	Analyzed:	8/8/2007 1:47:28 PM (11:40)

ANCILLARY RESULTS [AP Spine]

Region	1		2		3		BMC (g)	Area (cm²)	Width (cm)	Height (cm)
	BMD (g/cm³)	Young-Adult (%)	T-Score	Age-Matched (%)	Z-Score					
L1	1.154	101	0.1	111	1.0	12.93	11.20	3.6	3.10	
L2	1.230	102	0.2	111	1.0	14.93	12.14	3.7	3.31	
L3	1.243	102	0.2	111	1.0	16.26	13.09	3.9	3.37	
L4	1.254	103	0.3	112	1.1	16.32	13.01	4.6	2.84	
L1-L2	1.194	102	0.2	111	1.0	27.86	23.34	3.6	6.41	
L1-L3	1.211	102	0.2	112	1.1	44.13	36.43	3.7	9.78	
L1-L4	1.223	102	0.2	112	1.1	60.45	49.44	3.9	12.62	
L2-L3	1.237	102	0.2	111	1.0	31.20	25.23	3.8	6.68	
L2-L4	1.243	102	0.2	111	1.0	47.52	38.24	4.0	9.51	
L3-L4	1.249	102	0.2	111	1.1	32.59	26.10	4.2	6.20	

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 3 - Matched for Age, Weight (Females 25-100 kg), Ethnic
 Filename: 6r1hms63.dfx



Lunar Prodigy
 DF+15771

W 255 : L 127

WILLIS, WINNIE ODESSA, 064 / F
 1311841
 ACC#3053266

Bone Density Diagnostic Center
 MIL/EDDX
 08/08/2007
 13:21:04

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	WILLIS, WINNIE O	Patient ID:	1311841
Birth Date:	3/9/1943 64.4 years	Referring Physician:	MEHTA, GITA
Height / Weight:	61.0 in. 145.0 lbs.	Measured:	8/8/2007 1:22:19 PM (11:40)
Sex / Ethnic:	Female Black	Analyzed:	8/8/2007 1:47:29 PM (11:40)

ANCILLARY RESULTS [Left Femur]

Region	1		2		3		BMC (g)	Area (cm²)
	BMD (g/cm³)	Young-Adult (%)	T-Score	Age-Matched (%)	Z-Score			
Neck	1.121	108	0.6	116	1.1	6.85	6.11	
Upper Neck	0.794	97	-0.2	105	0.3	2.16	2.72	
Lower Neck	1.363	-	-	-	-	4.69	3.39	
Wards	0.854	94	-0.4	111	0.6	3.54	4.14	
Troch	0.898	106	0.4	113	0.9	12.28	13.67	
Shaft	1.156	-	-	-	-	17.05	14.75	
Total	1.048	104	0.3	106	0.5	36.18	34.53	

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³) for Left Femur Neck
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 3 - Matched for Age, Weight (Females 25-100 kg), Ethnic
 Filename: 6r1hms63.dfx



Lunar Prodigy
 DF+15771

W 255 : L 127

WILLIS, WINNIE ODESSA, 064 / F
 1311841
 ACG#3053266

Bone Density Diagnostic Center
 ML/EDDX
 08/08/2007
 13:21:04

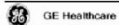
Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: WILLIS, WINNIE O Patient ID: 1311841
 Birth Date: 3/9/1943 64.4 years Referring Physician: MEHTA, GITA
 Height / Weight: 61.0 in. 145.0 lbs. Measured: 8/8/2007 1:23:59 PM (11:40)
 Sex / Ethnic: Female Black Analyzed: 8/8/2007 1:47:31 PM (11:40)

ANCILLARY RESULTS [Right Femur]

Region	BMD ¹ (g/cm ³)	Young-Adult ²		Age-Matched ³		BMC (g)	Area (cm ²)
		(%)	T-Score	(%)	Z-Score		
Neck	0.987	95	-0.4	102	0.1	6.00	6.07
Upper Neck	0.760	93	-0.5	100	0.0	2.26	2.97
Lower Neck	1.205	-	-	-	-	3.74	3.10
Wards	0.829	91	-0.6	107	0.4	3.29	4.10
Troch	0.944	111	0.8	119	1.3	11.59	12.27
Shaft	1.169	-	-	-	-	16.82	14.39
Total	1.051	104	0.3	107	0.5	34.41	32.74

1 - Statistically 66% of repeat scans fall within 1SD (± 0.014 g/cm³) for Right Femur Neck
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 3 - Matched for Age, Weight (Females 25-100 kg), Ethnic
 Filename: 6r1hm563.dfx



Lunar Prodigy
 DF+15771

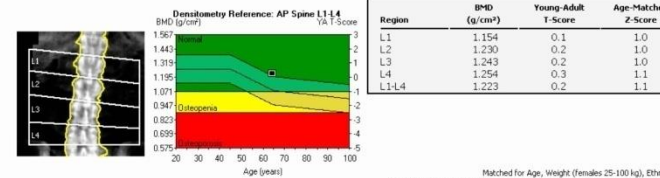
W 255 : L 127

WILLIS, WINNIE ODESSA, 064 / F
 1311841
 ACG#3053266

Bone Density Diagnostic Center
 ML/EDDX
 08/08/2007
 13:21:04

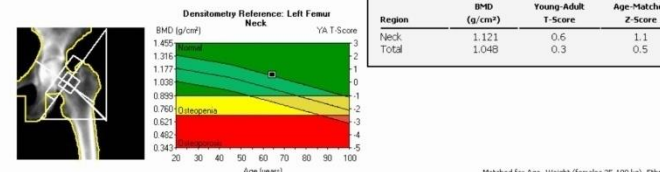
Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: WILLIS, WINNIE O Patient ID: 1311841
 Birth Date: 3/9/1943 64.4 years Referring Physician: MEHTA, GITA
 Height / Weight: 61.0 in. 145.0 lbs. Measured: 8/8/2007 1:21:04 PM (11:40)
 Sex / Ethnic: Female Black Analyzed: 8/8/2007 1:47:28 PM (11:40)



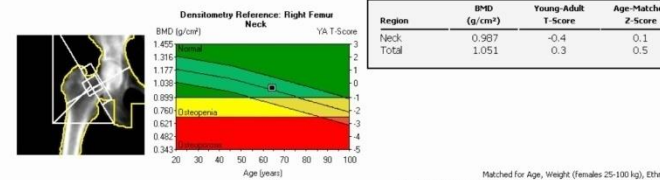
Matched for Age, Weight (Females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Statistically 66% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4

Image not for diagnosis



Matched for Age, Weight (Females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 66% of repeat scans fall within 1SD (± 0.014 g/cm³) for Left Femur Neck

Image not for diagnosis



Matched for Age, Weight (Females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 66% of repeat scans fall within 1SD (± 0.014 g/cm³) for Right Femur Neck

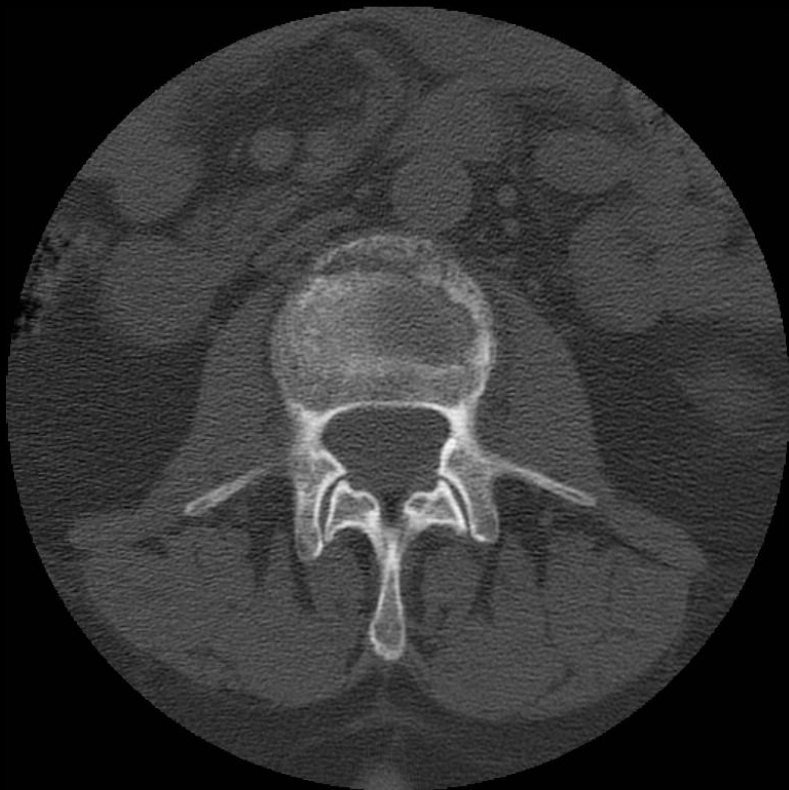
Image not for diagnosis



Lunar Prodigy
 DF+15771

W 255 : L 127

49



W 2000 : L 500

17



W 2000 : L 500



W 2140 : L 475

MAJORS, BRENDA LEE, 0717 F
0836678
ACC#3105685

Bone Density Diagnostic Center
MIXEDDX
10/09/2007
14:33:55

University of California San Diego
Lewis Street Radiology
Bone Density Risk Factor Information

DEXA (BONE DENSITY) SKELETA
10/09/2007 14:30 Status: 0



E-3105685
MAJORS, BRENDA LEE
ARR: 0836678

Alias Name:
Exam: (LS) L77030 Age: 71 Years
History: fu osteopenia
Diagnosis: OSTEOPENIA
Requesting MD: MEHTA, GITA, M.D.
Comments:

Gender: Male Female HEIGHT: 5-5 WEIGHT: 187

Have you ever had a Bone Density Scan? *not sure* Yes No
If yes, when? *1/1/05* Where? *here (330 Lewis St)*

PATIENT RISK FACTORS:
Is there any family history of Osteoporosis? Yes No
Do you smoke now or have you in the past? Yes No
Have you had any fractured bones as an adult? *not sure* Yes No
If yes, when? *1/1/05* Which bone(s)? *number 4 vertebrae*

Do you consume 3 or more dairy servings per day? Yes No Occasionally
Do you take calcium supplements? Yes No Occasionally
Do you exercise at least 3 times per week? Yes No Occasionally
Do you drink more than 2 alcoholic drinks per day? Yes No Occasionally
Do you drink 5 or more cups of coffee or soft drink per day? Yes No Occasionally

If Female:
Have you gone through menopause? Yes No
Have you had a hysterectomy? Yes No
If so, were your ovaries removed? Yes No
Do you take estrogen? Yes No
If yes, for how many years? *not sure* 1 or 2
If yes, what kind? Yes No

For how long? Yes No
Are you taking seizure medication? Yes No
Do you take oral prednisone or cortisone medications? Yes No
Have you had surgery on your spine? Yes No
What kind? Yes No
Have you had surgery on your hips? Yes No
If yes: LEFT RIGHT BOTH

Do you any of the following?: Please circle if yes. Cancer
Thyroid condition Bowel Disease
Kidney Disease Diabetes
Arthritis *probably* Asthma

COMMENTS:
MEDICATIONS: *levothyroxin, simvastatin*
3 different blood pressure pills, estrogen for vagina

Technologist

Date
10-9-07

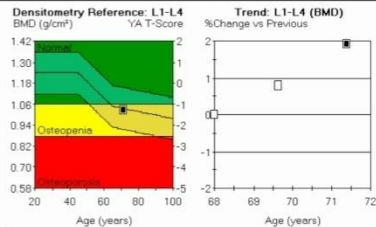
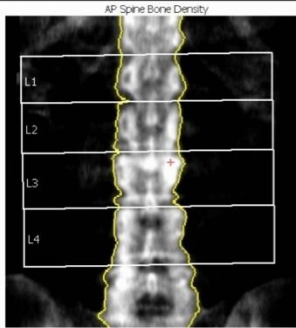
W 255 : L 127

MAJORS, BRENDA LEE, 071 Y F
 0836678
 ACC#3105685

Bone Density Diagnostic Center
 MIXEDDX
 10/09/2007
 14:33:55

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MAJORS, BRENDA L Patient ID: 0836678
 Birth Date: 5/24/1936 71.3 years Referring Physician: MEHTA, GITA
 Height / Weight: 67.0 in. 175.0 lbs. Measured: 10/9/2007 2:33:55 PM (11.40)
 Sex / Ethnic: Female White Analyzed: 10/9/2007 2:37:08 PM (11.40)



Region	¹ BMD (g/cm ³)	² Young-Adult T-Score	³ Age-Matched Z-Score
L1	0.817	-2.6	-1.4
L2	0.933	-2.2	-1.0
L3	1.213	0.1	1.3
L4	1.081	-1.0	0.2
L1-L4	1.025	-1.3	-0.1

Measured Date	Trend: L1-L4		Change vs Previous	
	Age (years)	¹ BMD (g/cm ³)	Previous (g/cm ³)	Previous (%)
10/9/2007	71.3	1.025	0.019	1.9
1/10/2006	69.6	1.006	0.008	0.8
5/27/2004	68.0	0.998	-	-

COMMENTS:

Image not for diagnosis
 Pinned: 10/9/2007 2:37:21 PM (11.40) 76:3.00:50.00:12.0 0.00:10.96 0.60:1.05
 24.7758:44.2%
 0.00:0.00:0.00:0.00
 Filename: rhytpic63.dfx
 Scan Mode: Standard 37.0 µgY

¹ - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4)
² - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
³ - Matched for Age, Weight (females 25-100 kg), Ethnic
 1 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian women reference database is used to determine T-Scores.)

GE Healthcare

Lunar Prodigy
 DF-15771

W255 : L 127

MAJORS, BRENDA LEE, 071 Y F
 0836678
 ACC#3105685

Bone Density Diagnostic Center
 MIXEDDX
 10/09/2007
 14:33:55

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MAJORS, BRENDA L Patient ID: 0836678
 Birth Date: 5/24/1936 71.3 years Referring Physician: MEHTA, GITA
 Height / Weight: 67.0 in. 175.0 lbs. Measured: 10/9/2007 2:33:55 PM (11.40)
 Sex / Ethnic: Female White Analyzed: 10/9/2007 2:37:08 PM (11.40)

ANCILLARY RESULTS [AP Spine]

Region	¹ BMD (g/cm ³)	² Young-Adult T-Score	³ Age-Matched Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	0.817	-2.6	83	-1.4	8.75	10.71	3.7
L2	0.933	-2.2	88	-1.0	10.85	11.63	3.8
L3	1.213	0.1	115	1.3	15.79	13.02	3.8
L4	1.081	-1.0	103	0.2	16.31	15.09	4.2
L1-L2	0.877	-2.4	86	-1.2	19.60	22.34	3.7
L1-L3	1.001	-1.4	98	-0.2	35.39	35.36	3.8
L1-L4	1.025	-1.3	99	-0.1	51.70	50.45	3.9
L2-L3	1.081	-1.0	102	0.2	26.64	24.65	3.8
L2-L4	1.081	-1.0	102	0.2	42.95	39.74	3.9
L3-L4	1.142	-0.5	108	0.7	32.10	28.11	4.0

¹ - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4)
² - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
³ - Matched for Age, Weight (females 25-100 kg), Ethnic
 Filename: rhytpic63.dfx

GE Healthcare

Lunar Prodigy
 DF-15771

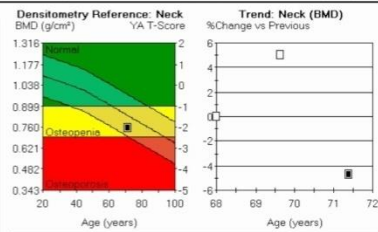
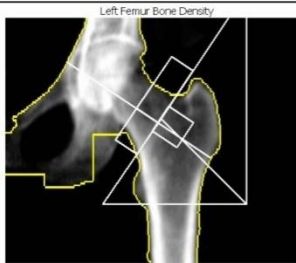
W255 : L 127

MAJORS, BRENDA LEE, 071 Y F
 0836678
 ACC#3105685

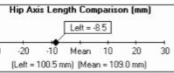
Bone Density Diagnostic Center
 MIXEDDX
 10/09/2007
 14:33:55

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MAJORS, BRENDA L Patient ID: 0836678
 Birth Date: 5/24/1936 Referring Physician: MEHTA, GITA
 Height / Weight: 67.0 in. Measured: 10/9/2007 2:35:36 PM (11.40)
 Sex / Ethnic: Female White Analyzed: 10/9/2007 2:36:51 PM (11.40)



Region	¹ BMD (g/cm ³)	² Young-Adult T-Score	³ Age-Matched Z-Score
Neck	0.756	-2.0	-0.6
Total	0.839	-1.3	-0.1



Trend: Neck

Measured Date	Age (years)	BMD (g/cm ³)	Previous (g/cm ³)	Change vs Previous (%)
10/9/2007	71.3	0.756	0.793	-0.037
1/10/2006	69.6	0.793	0.755	0.039
5/27/2004	68.0	0.755	-	-

Image not for diagnosis
 Performed: 10/9/2007 2:37:33 PM (11.40) 76:3.00:50.00:12.0 0.00:11.70 0.60:1.05
 19.9:9:58:40:3%
 0.00:0.00:0.00:0.00
 Neck Angle (deg)=56
 Filename: rhytpic63.d.f
 Scan Mode: Standard 37.0 µGy

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³) for Left Femur Neck)
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 3 - Matched for Age, Weight (females 25-100 kg), Ethnic
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above +1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy
 Caucasian Women reference database is used to determine T-Scores.)

MAJORS, BRENDA LEE, 071 Y F
 0836678
 ACC#3105685

Bone Density Diagnostic Center
 MIXEDDX
 10/09/2007
 14:33:55

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: MAJORS, BRENDA L Patient ID: 0836678
 Birth Date: 5/24/1936 Referring Physician: MEHTA, GITA
 Height / Weight: 67.0 in. Measured: 10/9/2007 2:35:36 PM (11.40)
 Sex / Ethnic: Female White Analyzed: 10/9/2007 2:36:51 PM (11.40)

ANCILLARY RESULTS [Left Femur]

Region	¹ BMD (g/cm ³)	² Young-Adult (%)	³ Age-Matched (%)	Z-Score	BMC (g)	Area (cm ²)
Neck	0.756	73	-2.0	90	-0.6	3.96
Upper Neck	0.539	66	-2.4	81	-1.1	1.39
Lower Neck	0.966	-	-	-	-	2.57
Wards	0.625	69	-2.2	94	-0.3	1.90
Troch	0.657	77	-1.7	90	-0.6	6.65
Shaft	0.993	-	-	-	-	14.75
Total	0.839	83	-1.3	98	-0.1	25.37

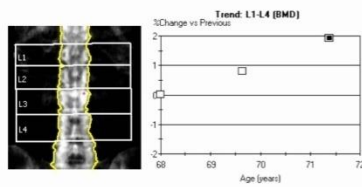
1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³) for Left Femur Neck)
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 3 - Matched for Age, Weight (females 25-100 kg), Ethnic
 Filename: rhytpic63.d.f

MAJORS, BRENDA LEE, 071 Y F
 0336673
 ACC#3105685

Bone Density Diagnostic Center
 MIXEDDX
 10/09/2007
 14:33:55

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

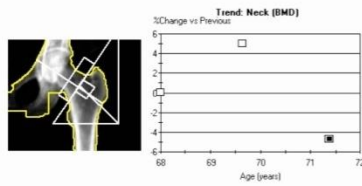
Patient:	MAJORS, BRENDA L	Patient ID:	0836678
Birth Date:	5/24/1936 71.3 years	Referring Physician:	MEHTA, GITA
Height / Weight:	67.0 in. 175.0 lbs.	Measured:	10/9/2007 2:33:55 PM (11.40)
Sex / Ethnic:	Female White	Analyzed:	10/9/2007 2:37:08 PM (11.40)



Measured Date	Trend: L1-L4			
	Age (years)	BMD (g/cm ²)	Change vs Previous (g/cm ²)	Change vs Previous (%)
10/9/2007	71.3	1.025	0.019	1.9
1/10/2006	69.6	1.006	0.008	0.8
5/27/2004	68.0	0.998	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm²) for AP Spine L1-L4

Image not for diagnosis



Measured Date	Trend: Neck			
	Age (years)	BMD (g/cm ²)	Change vs Previous (g/cm ²)	Change vs Previous (%)
10/9/2007	71.3	0.756	-0.037	-4.7
1/10/2006	69.6	0.793	0.038	5.0
5/27/2004	68.0	0.755	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm²) for Left Femur Neck

Image not for diagnosis

AKYAWI, VIOLETTE 0757 F
 2099510
 ACC#3040327

Bone Density Diagnostic Center
 MIXEDDX
 07/24/2007
 16:46:38

University of California San Diego
 Lewis Street Radiology
 Bone Density Risk Factor Information

DEXA (BONE DENSITY) SKELETA
 07/24/2007 16:00 Status: 0



E-3040327

MRB: 2099510

Alias Name:
 Exam: (LS) L77680 Age: 75 Years
 History: screening bone density.
 Diagnosis: SCREENING FOR OSTEOPOROSIS
 Requesting MD: YU, PEARL S, M.D.
 Comments: DRUGHTER-NOURA

Gender: Male Female HEIGHT: 51 WEIGHT: 165 lb

Have you ever had a Bone Density Scan? Yes No
 If yes, when? 1/1 Where? _____

PATIENT RISK FACTORS:

Is there any family history of Osteoporosis? Yes No
 Do you smoke now or have you in the past? Yes No
 Have you had any fractured bones as an adult? Yes No
 If yes, when? 4/1/85 Which bone(s)? left hip

Do you consume 3 or more dairy servings per day? Yes No Occasionally
 Do you take calcium supplements? Yes No Occasionally
 Do you exercise at least 3 times per week? Yes No Occasionally
 Do you drink more than 2 alcoholic drinks per day? Yes No Occasionally
 Do you drink 5 or more cups of coffee or soft drink per day? Yes No Occasionally

If Female:
 Have you gone through menopause? Yes No
 Have you had a hysterectomy? Yes No
 If so, were your ovaries removed? Yes No
 Do you take estrogen? Yes No
 If yes, for how many years? _____
 Do you take medication for Osteoporosis? Yes No
 If yes, what kind? _____
 For how long? _____

Are you taking seizure medication? Yes No
 Do you take oral prednisone or cortisone medications? Yes No
 Have you had surgery on your spine? Yes No
 What kind? _____
 Have you had surgery on your hips? Yes No
 If yes: LEFT RIGHT BOTH

Do you any of the following?: Please circle if yes.
 Thyroid condition Bowel Disease Cancer
 Kidney Disease Diabetes
 Arthritis Asthma

COMMENTS:

MEDICATIONS: Effexor, Lasix, Norvasc, Atenolol
 HTP, Nexium
 Technologist Date 7-24-07

W255: L 127

AKYAWI, VIOLETTE 0757 F
 2099510
 ACC#3040327

Bone Density Diagnostic Center
 MIXEDDX
 07/24/2007
 16:46:38

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: AKYAWI, VIOLETTE Patient ID: 2099510
 Birth Date: 5/30/1932 75.1 years Referring Physician: YU, PEARL
 Height / Weight: 61.0 in. 165.0 lbs. Measured: 7/24/2007 4:46:33 PM (9.30)
 Sex / Ethnic: Female Other Analyzed: 7/24/2007 4:52:27 PM (9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ³)	Young-Adult ² (%) T-Score	Age-Matched (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.025	90 -0.9	- -	9.56	9.32	4.4	2.10
L2	1.130	93 -0.7	- -	10.26	9.08	4.9	1.86
L3	0.918	76 -2.4	- -	12.37	13.47	4.4	3.05
L4	0.796	67 -3.3	- -	8.54	10.73	4.5	2.40
L1-L2	1.077	92 -0.8	- -	19.82	18.41	4.7	3.97
L1-L3	1.010	86 -1.4	- -	32.19	31.87	4.6	7.01
L1-L4	0.956	80 -1.9	- -	40.72	42.61	4.6	9.41
L2-L3	1.003	83 -1.7	- -	22.63	22.55	4.6	4.91
L2-L4	0.936	78 -2.2	- -	31.17	33.28	4.6	7.31
L3-L4	0.864	72 -2.8	- -	20.90	24.20	4.4	5.44

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4.
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (n=105)
 Filename: pbjpk53.dfx



Lunar Prodigy
 DF-15771

W234: L 143

AKYAWI,VIOLETTE 0757 F
 2099510
 ACC#3040327

Bone Density Diagnostic Center
 MIXEDDX
 07/24/2007
 16:46:38

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	AKYAWI, VIOLETTE	Patient ID:	2099510
Birth Date:	5/30/1932 75.1 years	Referring Physician:	YU, PEARL
Height / Weight:	61.0 in. 165.0 lbs.	Measured:	7/24/2007 4:47:52 PM (9.30)
Sex / Ethnic:	Female Other	Analyzed:	7/24/2007 4:52:28 PM (9.30)

ANCILLARY RESULTS [Right Femur]

Region	¹ BMD (g/cm ³)	Young-Adult (%)	² T-Score	Age-Matched (%)	Z-Score	BMC (g)	Area (cm ²)
Neck	0.599	58	-3.2	-	-	3.26	5.44
Upper Neck	0.420	51	-3.3	-	-	1.11	2.64
Wards	0.372	41	-4.1	-	-	1.22	3.29
Troch	0.369	43	-4.2	-	-	4.07	11.03
Shaft	0.808	-	-	-	-	11.24	13.92
Total	0.611	61	-3.1	-	-	18.58	30.39

1 -Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³) for Right Femur Neck)
 2 -NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Filename: pbjpk63.dfx

AKYAWI,VIOLETTE 0757 F
 2099510
 ACC#3040327

Bone Density Diagnostic Center
 MIXEDDX
 07/24/2007
 16:46:38

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	AKYAWI, VIOLETTE	Patient ID:	2099510
Birth Date:	5/30/1932 75.1 years	Referring Physician:	YU, PEARL
Height / Weight:	61.0 in. 165.0 lbs.	Measured:	7/24/2007 4:46:33 PM (9.30)
Sex / Ethnic:	Female Other	Analyzed:	7/24/2007 4:52:27 PM (9.30)

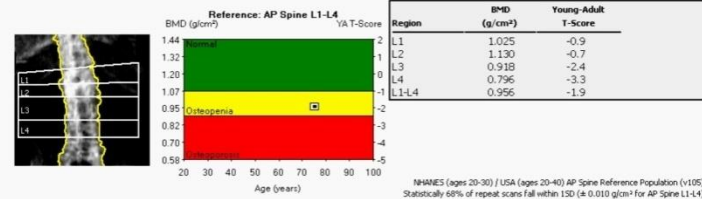


Image not for diagnosis

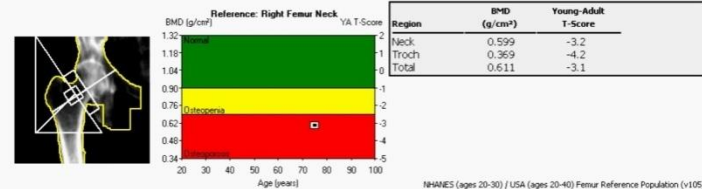


Image not for diagnosis

WARE, DELORES DELRIO, 0757 F
0373890
ACC#3029764

Bone Density Diagnostic Center
MIXEDDX
07/05/2007
12:33:02

University of California San Diego
Lewis Street Radiology
Bone Density Risk Factor Information

DEXA (BONE DENSITY) SKELETA
07/05/2007 10:30 Status: 0

Alias Name: WARE, DELORES DELRIO
DOB: (LS) L-77000
History: screening
Diagnosis: UNSPECIFIED OSTEOPOROSIS
Requesting MD: KALLENBERG, GENE A, M.D.
Comments: SEF

E-3029764
MRB: 0373890

Gender: Male Female HEIGHT: 63" WEIGHT: 280

Have you ever had a Bone Density Scan? Yes (No)
If yes, when? _____ Where? _____

PATIENT RISK FACTORS:
Is there any family history of Osteoporosis? Yes (No)
Do you smoke now or have you in the past? Yes (No)
Have you had any fractured bones as an adult? Yes (No)
If yes, when? 2/12/98 Which bone(s)? LEFT HIP

Do you consume 3 or more dairy servings per day? Yes (No) Occasionally
Do you take calcium supplements? Yes (No) Occasionally
Do you exercise at least 3 times per week? Yes (No) Occasionally
Do you drink more than 2 alcoholic drinks per day? Yes (No) Occasionally
Do you drink 5 or more cups of coffee or soft drink per day? Yes (No) Occasionally

If Female:
Have you gone through menopause? Yes (No)
Have you had a hysterectomy? Yes (No)
If so, were your ovaries removed? Yes (No)
Do you take estrogen? Yes (No)

Do you take medication for Osteoporosis? Yes (No)
If yes, what kind? _____ For how long? _____

Are you taking seizure medication? Yes (No)
Do you take oral prednisone or cortisone medications? Yes (No)
Have you had surgery on your spine? Yes (No)
What kind? _____

Have you had surgery on your hips? Yes (No)
If yes: (LEFT) RIGHT BOTH
→ hip replacement

Do you any of the following?: Please circle if yes.
Thyroid condition Bowel Disease
Kidney Disease Diabetes
Arthritis Asthma
Cancer

COMMENTS:
MEDICATIONS: Prednisone / LASIX (See LIST)

Technologist: de Date: 7-5-07

W255: 1 127

WARE, DELORES DEPRIO, 0757 F
0373890
ACC#3029764

Bone Density Diagnostic Center
MIXEDDX
07/05/2007
12:33:02

I, DELORES D.R. WARE @ 619/262-5792 PATIENT of U.C.S.D.
M.R. # 0373890-3, HAS AS my PRIMARY CARE PHYSICIAN
DR. GENE KALLENBERG a family MEDICINE on LEWIS ST.
@ 619/471-9260. My MEDICATIONS SUPPLIER is GALLOWAY
PHARMACY @ 619/525-1551

NAME	DOSAGE
Levoxyl 50mg Tab.	1 TABLET DAILY 1 BEFORE MEAL
PREVACID 30mg CAP.	1 CAPSULE DAILY 1 BEFORE MEAL
GABAPENTIN 400mg CAP.	1 CAPSULE 3X PER DAY NEURONTIN
FUROSEMIDE 40mg TAB.	1 TABLET EACH A.M. "LASIX"
DICAL-D 500/200 TAB.	1 TABLET 3X PER DAY
Klor-Con 8mg CR TAB.	1 TABLET EACH A.M.
Premarin 0.225mg Tab.	1 TABLET EACH A.M.
KEPPRA 500mg TAB.	1 TABLET 2X PER DAY AM & P.M.
Lisinopril 10mg TAB.	1 TABLET EACH A.M. "ZESTRIL"
Prednisone 5mg TAB.	1 1/2 = 7.5 EACH A.M.
Tums 500mg TAB.	1 TABLET 3X PER DAY
Amikriptyline 20mg TAB	1 TABLET @ Bed TIME "E/AVIL"
Famotidine 20mg TAB	1 TABLET @ Bed TIME "Pepcid"
Levothyroxin 50mcg	1 TABLET EACH A.M. SunThroid "Levoxyl"
APAP/codeine 30/30mg Tab.	1 TABLET EVERY 4 TO 6 Hours
Hydroco/APAP 5/500mg TAB.	1 TABLET EVERY 4 TO 6 HOURS
"Vicodin"	DONOT TAKE & APAP/CODEINE
	= SEE OR OTHER SIDE =

W255: 1 127

WARE, DELORES DELRIO, 0757 F
0373890
ACC#3029784

Bone Density Diagnostic Center
0373890
MIXEDDX
07/05/2007
WARE, D 12:33:02

The Two Below ARE on hold @ This Time

NAME

Celebrex 200mg. Cap. 1 capsule per day

Aspirin 81mg. Tab. 1 TABLET PER DAY

OVER THE COUNTER

ONE A DAY / CHOLESTEROL PLUS VITAMIN

Tylenol "ARTHRITIS" 1 TABLET 3X^S PER DAY

CREAM FOR RASH P.R.N.

Clotrimazole 1% 2X^S DAILY

Hydrocortisone 25% 2X^S DAILY

LAYSAX

ARTHRITIS Clinic @ 4168 FRONT STREET

PHONE # 619/543-6248 FAX # 619/471-0239

DR. Vigil Woods

W255 : L 127

WARE, DELORES DELRIO, 0757 F
0373890
ACC#3029784

Bone Density Diagnostic Center
MIXEDDX
07/05/2007
12:33:02

Bone Density Diagnostic Center

Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	WARE, DELORES D	Patient ID:	0373890
Birth Date:	9/23/1931 75.7 years	Referring Physician:	KALLENBERG, GENE
Height / Weight:	63.0 in. 280.0 lbs.	Measured:	7/5/2007 12:33:02 PM (9.30)
Sex / Ethnic:	Female Black	Analyzed:	7/5/2007 12:37:58 PM (9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ³)	Young-Adult ² (%) T-Score	Age-Matched ³ (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	0.941	83 -1.6	83 -1.6	12.79	13.59	5.2	2.60
L2	1.237	103 0.3	102 0.2	24.49	19.80	5.6	3.53
L3	1.556	130 3.0	128 2.9	29.04	18.66	5.6	3.36
L4	1.409	117 1.7	116 1.6	22.57	16.01	5.9	2.72
L1-L2	1.116	96 -0.4	95 -0.5	37.28	33.40	5.4	6.14
L1-L3	1.274	109 0.9	108 0.8	66.32	52.05	5.5	9.49
L1-L4	1.306	111 1.0	110 1.0	88.89	68.07	5.6	12.22
L2-L3	1.392	116 1.6	115 1.5	53.53	38.46	5.6	6.89
L2-L4	1.397	116 1.6	115 1.5	76.10	54.47	5.7	9.61
L3-L4	1.489	124 2.4	123 2.3	51.61	34.67	5.7	6.08

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4)
2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (n=105)
3 - Matched for Age, Weight (Females 25-100 kg), Ethnic
Filename: rto3g333.dfx

W255 : L 129

DEXA exclude L spine 75F

WARE,DELORES DELRIO, 075 Y F
0373890
ACC#3029784

Bone Density Diagnostic Center
MIXEDDX
07/05/2007
12:33:02

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: WARE, DELORES D Patient ID: 0373890
Birth Date: 9/23/1931 75.7 years Referring Physician: KALLENBERG, GENE
Height / Weight: 63.0 in. 280.0 lbs. Measured: 7/5/2007 12:35:10 PM (9.30)
Sex / Ethnic: Female Black Analyzed: 7/5/2007 12:39:25 PM (9.30)

ANCILLARY RESULTS [Right Femur]

Region	¹ BMD (g/cm ³)	Young-Adult (%)	² T-Score	³ Age-Matched (%)	³ Z-Score	BMC (g)	Area (cm ²)
Neck	0.667	64	-2.7	67	-2.4	3.46	5.18
Upper Neck	0.477	58	-2.9	59	-2.8	1.21	2.54
Wards	0.400	44	-3.9	48	-3.3	1.19	2.98
Troch	0.421	49	-3.7	50	-3.6	6.30	14.98
Shaft	0.827	-	-	-	-	11.61	14.03
Total	0.625	62	-3.0	62	-3.1	21.37	34.19

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Right Femur Neck)
2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
3 - Matched for Age, Weight (Females 25-100 kg), Ethnic
Filename: r10ajg33.dfx



Lunar Prodigy
DF+15771

W255 : L 129

WARE,DELORES DELRIO, 075 Y F
0373890
ACC#3029784

Bone Density Diagnostic Center
MIXEDDX
07/05/2007
12:33:02

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: WARE, DELORES D Patient ID: 0373890
Birth Date: 9/23/1931 75.7 years Referring Physician: KALLENBERG, GENE
Height / Weight: 63.0 in. 280.0 lbs. Measured: 7/5/2007 12:33:02 PM (9.30)
Sex / Ethnic: Female Black Analyzed: 7/5/2007 12:37:58 PM (9.30)

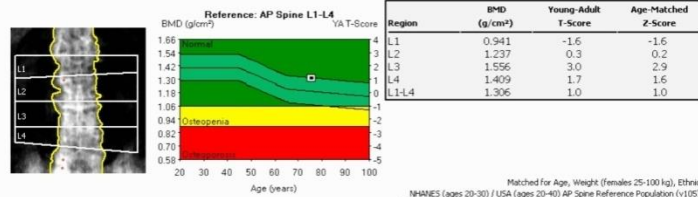


Image not for diagnosis

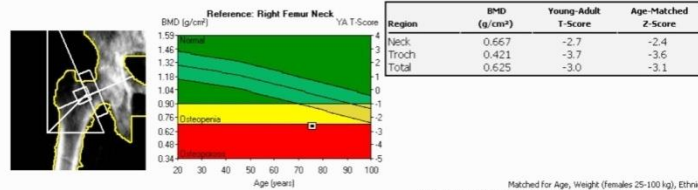


Image not for diagnosis



Lunar Prodigy
DF+15771

W255 : L 129

PLAKSEN, IRVING L, 0757 M
1906333
ACC#3044932

Bone Density Diagnostic Center
MIXEDDX
07/25/2007
15:13:48

University of California San Diego
Lewis Street Radiology
Bone Density Risk Factor Information

DEXA (BONE DENSITY) SKELETR

07/25/2007 15:00 Status: D



E-3044932

PLAKSEN, IRVING L

MRN: 1906333

Alias Name:
PLAKSEN, IRVING L Age: 75 Years
History: S/P HEART TX ANNUAL REVIEW
Diagnosis: ANNUAL REVIEW
Requesting MD: HERMANN, DENISE D, M.D.
Comments: RORISOL 36756

Gender: Male Female HEIGHT: 6 WEIGHT: 151

Have you ever had a Bone Density Scan?
If yes, when? July 2006

Where? Left No

PATIENT RISK FACTORS:

Is there any family history of Osteoporosis? Yes No
Do you smoke now or have you in the past? Yes No
Have you had any fractured bones as an adult? Yes No
If yes, when? / /

Which bone(s)?

Do you consume 3 or more dairy servings per day? Yes No Occasionally
Do you take calcium supplements? Yes No Occasionally
Do you exercise at least 3 times per week? Yes No Occasionally
Do you drink more than 2 alcoholic drinks per day? Yes No Occasionally
Do you drink 5 or more cups of coffee or soft drink per day? Yes No Occasionally

If Female:
Have you gone through menopause? Yes No
Have you had a hysterectomy? Yes No
If so, were your ovaries removed? Yes No
Do you take estrogen? Yes No

Do you take medication for Osteoporosis? Yes No
If yes, what kind? _____
For how long? _____

Are you taking seizure medication? Yes No
Do you take oral prednisone or cortisone medications? Yes No
Have you had surgery on your spine? Yes No

What kind? _____
Have you had surgery on your hips? Yes No
If yes: LEFT RIGHT BOTH

Do you any of the following?: Please circle if yes.
Thyroid condition Bowel Disease Cancer
Kidney Disease Diabetes
Arthritis Asthma

COMMENTS:

MEDICATIONS: Fo SA MAX, Plav-CAMF

LC Miller
Technologist

7/25/07
Date

W255: L 125

PLAKSEN, IRVING L, 0757 M
1906333
ACC#3044932

Bone Density Diagnostic Center
MIXEDDX
07/25/2007
15:13:48

Bone Density Diagnostic Center
Dept. of Radiology, UCSD Medical Center
330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	PLAKSEN, IRVING L	Patient ID:	1906333
Birth Date:	5/31/1932 75.1 years	Referring Physician:	HERMANN, DENISE D.
Height / Weight:	72.0 in. 151.0 lbs.	Measured:	7/25/2007 3:13:48 PM (9.30)
Sex / Ethnic:	Male White	Analyzed:	7/25/2007 3:22:40 PM (9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹ (g/cm ³)	Young-Adult ² (%)	T-Score	Age-Matched ³ (%)	Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.322	114	1.4	126	2.3	20.04	15.16	4.8	3.17
L2	1.526	123	2.4	135	3.3	23.50	15.40	5.3	2.90
L3	1.454	117	1.8	129	2.7	25.71	17.68	6.1	2.90
L4	1.503	121	2.2	133	3.1	23.60	15.70	5.7	2.78
L1-L2	1.425	119	1.9	131	2.8	43.54	30.56	5.1	6.06
L1-L3	1.436	119	1.9	131	2.8	69.26	48.24	5.4	8.97
L1-L4	1.452	119	1.9	131	2.9	92.86	63.94	5.5	11.75
L2-L3	1.488	120	2.1	132	3.0	49.22	33.08	5.7	5.80
L2-L4	1.493	120	2.1	132	3.0	72.82	48.79	5.7	8.58
L3-L4	1.477	119	2.0	131	2.9	49.32	33.39	5.9	5.68

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³) for AP Spine L1-L4)
2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (n=105)
3 - Matched for Age, Weight (males 25-100 kg), Ethnic
Filename: 0201933.dfx

GE Healthcare

Lunar Prodigy
DF-15771

W246: L 125

PLAKSEN, IRVING L, 0757 M
 1906333
 ACC#3044932

Bone Density Diagnostic Center
 MIXEDDX
 07/25/2007
 15:13:48

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: PLAKSEN, IRVING L Patient ID: 1906333
 Birth Date: 5/31/1932 75.1 years Referring Physician: HERMANN, DENISE D.
 Height / Weight: 72.0 in. 151.0 lbs. Measured: 7/25/2007 3:16:06 PM (9.30)
 Sex / Ethnic: Male White Analyzed: 7/25/2007 3:22:41 PM (9.30)

ANCILLARY RESULTS [Left Femur]

Region	¹ BMD (g/cm ³)	Young-Adult (%)	² T-Score	³ Age-Matched (%)	³ Z-Score	BMC (g)	Area (cm ²)
Neck	0.789	74	-2.2	92	-0.6	4.57	5.80
Upper Neck	0.655	72	-2.0	94	-0.3	1.88	2.87
Wards	0.535	56	-3.3	81	-1.0	1.99	3.73
Troch	0.671	72	-2.4	81	-1.5	11.45	17.05
Shaft	0.963	-	-	-	-	15.48	16.07
Total	0.809	74	-2.0	86	-0.9	31.50	38.91

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³) for Left Femur Neck)
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 3 - Matched for Age, Weight (males 25-100 kg), Ethnic
 File name: 2ppl933.dfx

W246 : L 125

PLAKSEN, IRVING L, 0757 M
 1906333
 ACC#3044932

Bone Density Diagnostic Center
 MIXEDDX
 07/25/2007
 15:13:48

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: PLAKSEN, IRVING L Patient ID: 1906333
 Birth Date: 5/31/1932 75.1 years Referring Physician: HERMANN, DENISE D.
 Height / Weight: 72.0 in. 151.0 lbs. Measured: 7/25/2007 3:13:48 PM (9.30)
 Sex / Ethnic: Male White Analyzed: 7/25/2007 3:22:40 PM (9.30)

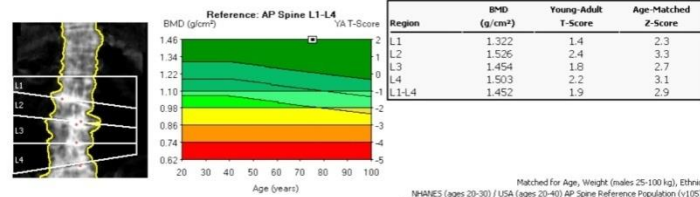


Image not for diagnosis

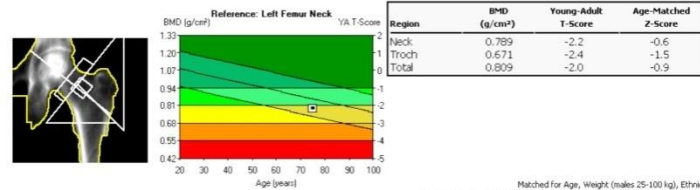


Image not for diagnosis

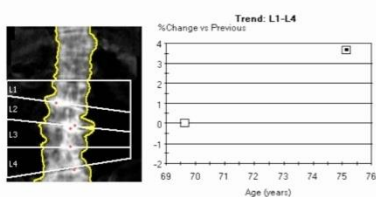
W246 : L 125

PLAKSEN, IRVING L, 0757 M
 1906333
 ACC#3044932

Bone Density Diagnostic Center
 MIXEDDX
 07/25/2007
 15:13:48

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

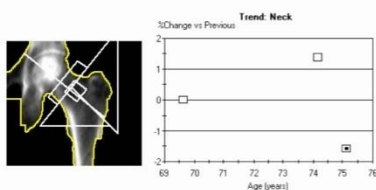
Patient: PLAKSEN, IRVING L Patient ID: 1906333
 Birth Date: 5/31/1932 75.1 years Referring Physician: HERMANN, DENISE D.
 Height / Weight: 72.0 in. 151.0 lbs. Measured: 7/25/2007 3:13:48 PM (9.30)
 Sex / Ethnic: Male White Analyzed: 7/25/2007 3:22:40 PM (9.30)



Trend: L1-L4				
Measured Date	Age (years)	BMD (g/cm ³)	Previous (g/cm ³)	Change vs Previous (%)
7/25/2007	75.1	1.452	0.051	3.7
1/24/2002	69.6	1.401	-	-

Matched for Age, Weight (males 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm³ for AP Spine L1-L4)

Image not for diagnosis



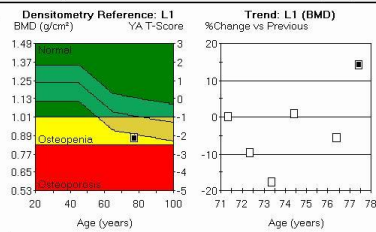
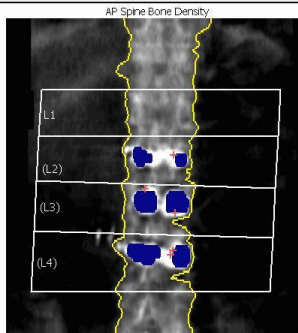
Trend: Neck				
Measured Date	Age (years)	BMD (g/cm ³)	Previous (g/cm ³)	Change vs Previous (%)
7/25/2007	75.1	0.789	-0.013	-1.6
8/2/2006	74.1	0.802	0.011	1.4
1/24/2002	69.6	0.791	-	-

Matched for Age, Weight (males 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Left Femur Neck)

Image not for diagnosis

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	Mordan, Gabriela	Patient ID:	1061879
Birth Date:	8/8/1950 77.4 years	Referring Physician:	HERMANN, DENISE D.
Height / Weight:	67.0 in. 200.0 lbs.	Measured:	1/8/2008 11:12:42 AM (11.40)
Sex / Ethnic:	Female White	Analyzed:	1/8/2008 11:17:10 AM (11.40)



Region	¹ BMD (g/cm ³)	² Young-Adult T-Score	³ Age-Matched Z-Score
L1	0.871	-2.2	-1.2
L2	1.159	-0.3	0.6
L3	1.187	-0.1	0.8
L4	1.075	-1.0	-0.1

Measured Date	Trend: L1		
	Age (years)	¹ BMD (g/cm ³)	Change vs Previous (%)
1/8/2008	77.4	0.871	0.108 * 14.2 *
1/9/2007	76.4	0.762	-0.046 -5.7
1/6/2005	74.4	0.806	0.007 0.8
12/16/2003	73.3	0.802	-0.171 * -17.6 *
12/12/2002	72.3	0.973	-0.107 * -9.9 *
12/11/2001	71.3	1.080	- -

COMMENTS: L-medJ,LF-med,P-2

Image not for diagnosis
 Performed: 1/8/2008 11:17:27 AM (11.40)76:3.00:22:27.0 0.00:14.22
 0.00:1.55 26.8%IPAT=12.9%
 0.00:0.00 0.00:0.00
 Filename: qkacuj63.dfx
 Scan Mode: Thick 63.0 µSv

* - Indicates significant change based on 95% confidence interval.
 1 - Statistically 68% of repeat scans fall within 1SD (± 0.030 g/cm³) for AP Spine L1
 2 - NHANES (ages 20-50) / USA (ages 20-40) AP Spine Reference Population (V105)
 3 - Matched for Age, Weight (Females 25-100 kg), Ethnic
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above +1.0 SD; Osteopenia = T-Score between +1.0 and +2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	Mordan, Gabriela	Patient ID:	1061879
Birth Date:	8/8/1950 77.4 years	Referring Physician:	HERMANN, DENISE D.
Height / Weight:	67.0 in. 200.0 lbs.	Measured:	1/8/2008 11:12:42 AM (11.40)
Sex / Ethnic:	Female White	Analyzed:	1/8/2008 11:17:10 AM (11.40)

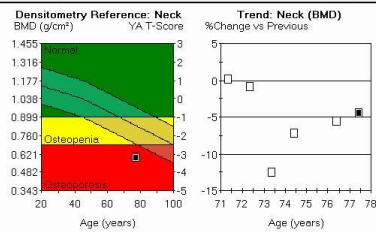
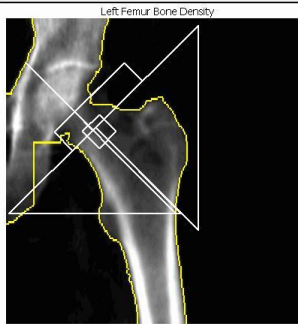
ANCILLARY RESULTS [AP Spine]

Region	¹ BMD (g/cm ³)	² Young-Adult (%) T-Score	³ Age-Matched (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)		
L1	0.871	77	-2.2	86	-1.2	10.29	11.82	4.1	2.89
L2	1.159	97	-0.3	106	0.6	11.31	9.77	3.3	2.94
L3	1.187	99	-0.1	109	0.8	10.19	8.58	2.8	3.09
L4	1.075	90	-1.0	99	-0.1	11.90	11.07	3.1	3.55

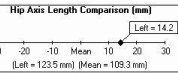
1 - Statistically 68% of repeat scans fall within 1SD (± 0.030 g/cm³) for AP Spine L1
 2 - NHANES (ages 20-50) / USA (ages 20-40) AP Spine Reference Population (V105)
 3 - Matched for Age, Weight (Females 25-100 kg), Ethnic
 Filename: qkacuj63.dfx

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: Mordan, Gabriela Patient ID: 1061879
 Birth Date: 8/8/1950 77.4 years Referring Physician: HERMANN, DENISE D.
 Height / Weight: 67.0 in. 200.0 lbs. Measured: 1/8/2008 11:13:47 AM (11.40)
 Sex / Ethnic: Female White Analyzed: 1/8/2008 11:17:11 AM (11.40)



Region	BMD ¹ (g/cm ³)	Young-Adult ² T-Score	Age-Matched ³ z-Score
Neck	0.586	-3.3	-1.8
Total	0.708	-2.4	-1.1



COMMENTS: L-medJ,L,F-med,P-2

Trend: Neck

Measured Date	Age (years)	BMD (g/cm ³)	Change vs Previous (g/cm ³)	Change vs Previous (%)
1/8/2008	77.4	0.586	-0.027	-4.5
1/9/2007	76.4	0.613	-0.037	-5.7
1/6/2005	74.4	0.650	-0.051*	-7.8*
12/16/2003	73.3	0.701	-0.102*	-12.7*
12/12/2002	72.3	0.803	-0.008	-1.0
12/11/2001	71.3	0.811	-	-

Image not for diagnosis
 Performed: 1/8/2008 11:17:41 AM (11.40) 76:3.00:50.00:12.0 0.00:13.26
 0.60x1.55 21.75x9.94=15.0%
 0.00:0.00:0.00:0.00
 Neck Angle (deg)= 45
 Filename: qkacuj63.dfx
 Scan Mode: Standard 37.0 µgy

* - Indicates significant change based on 95% confidence interval.
 1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³) for Left Femur Neck
 2 - NHANES (ages 20-50) / USA (ages 20-40) Femur Reference Population (v105)
 3 - Matched for Age, Weight (females 25-100 kg), Ethnic
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women:
 Normal = T-Score at or above +1.0 SD; Osteopenia = T-Score between +1.0 and +2.5 SD;
 Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: Mordan, Gabriela Patient ID: 1061879
 Birth Date: 8/8/1950 77.4 years Referring Physician: HERMANN, DENISE D.
 Height / Weight: 67.0 in. 200.0 lbs. Measured: 1/8/2008 11:13:47 AM (11.40)
 Sex / Ethnic: Female White Analyzed: 1/8/2008 11:17:11 AM (11.40)

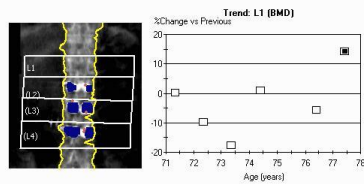
ANCILLARY RESULTS [Left Femur]

Region	BMD ¹ (g/cm ³)	Young-Adult ² T-Score	Age-Matched ³ z-Score	BMC (g)	Area (cm ²)		
Neck	0.586	56	-3.3	70	-1.8	2.45	4.18
Upper Neck	0.516	63	-2.5	76	-1.4	1.06	2.06
Lower Neck	0.653	-	-	-	-	1.39	2.12
Wards	0.582	64	-2.5	86	-0.7	1.13	1.94
Troch	0.606	71	-2.1	83	-1.1	10.78	17.77
Shaft	0.872	-	-	-	-	12.37	14.19
Total	0.708	70	-2.4	83	-1.1	25.59	36.14

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³) for Left Femur Neck
 2 - NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 3 - Matched for Age, Weight (females 25-100 kg), Ethnic
 Filename: qkacuj63.dfx

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient: Mordan, Gabriela Patient ID: 1061879
 Birth Date: 8/8/1930 77.4 years Referring Physician: HERMANN, DENISE D.
 Height / Weight: 67.0 in. 200.0 lbs. Measured: 1/8/2008 11:12:42 AM (11.40)
 Sex / Ethnic: Female White Analyzed: 1/8/2008 11:17:10 AM (11.40)

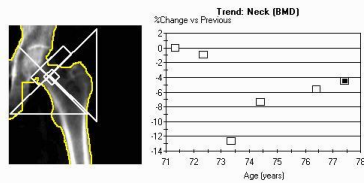


Trend: L1

Measured Date	Age (years)	BMD (g/cm ²)	Previous (g/cm ²)	Change vs Previous (%)
1/8/2008	77.4	0.871	0.108*	14.2*
1/9/2007	76.4	0.762	-0.046	-5.7
1/6/2005	74.4	0.808	0.007	0.8
12/16/2003	73.3	0.802	-0.171*	-17.6*
12/12/2002	72.3	0.973	-0.107*	-9.9*
12/11/2001	71.3	1.080	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (n105)
 Statistically 68% of repeat scans fall within 1SD (± 0.030 g/cm²) for AP Spine L1

Image not for diagnosis



Trend: Neck

Measured Date	Age (years)	BMD (g/cm ²)	Previous (g/cm ²)	Change vs Previous (%)
1/8/2008	77.4	0.586	-0.027	-4.5
1/9/2007	76.4	0.613	-0.037	-5.7
1/6/2005	74.4	0.650	-0.051*	-7.3*
12/16/2003	73.3	0.701	-0.102*	-12.7*
12/12/2002	72.3	0.803	-0.008	-1.0
12/11/2001	71.3	0.811	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (n105)
 Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm²) for Left Femur Neck

Image not for diagnosis

* - Indicates significant change based on 95% confidence interval.

University of California San Diego
 Lewis Street Radiology
 Bone Density Risk Factor Information

DEXA (BONE DENSITY) SKELETA
 01/08/2008 11:00 Status: 0



E-3133807

MORDAN, GABRIELA

MR#: 1061879

Alias Name:
 Scan: 01/08/2008 Age: 77 Years
 History: s/p heart tx
 Diagnosis: annual review
 Requesting MD: HERMANN, DENISE D, M.D.
 Comment: last rc 9/1/08

Gender: Male Female HEIGHT: 5'7" WEIGHT: 200

Have you ever had a Bone Density Scan?
 If yes, when? 1/2007 Where? Yes No

PATIENT RISK FACTORS:
 Is there any family history of Osteoporosis? Yes No
 Do you smoke now or have you in the past? Yes No
 Have you had any fractured bones as an adult?
 If yes, when? / / Which bone(s)? Yes No

Do you consume 3 or more daily servings per day?
 Do you take calcium supplements? Yes No Occasionally
 Do you exercise at least 3 times per week? Yes No Occasionally
 Do you drink more than 2 alcoholic drinks per day? Yes No Occasionally
 Do you drink 5 or more cups of coffee or soft drink per day? Yes No Occasionally

If Female:
 Have you gone through menopause? Yes No
 Have you had a hysterectomy? Yes No
 If so, were your ovaries removed? Yes No
 Do you take estrogen? Yes No

If yes, for how many years? _____
 Do you take medication for Osteoporosis?
 If yes, what kind? _____
 For how long? _____

Are you taking seizure medication? Yes No
 Do you take oral prednisone or cortisone medications? Yes No

Have you had surgery on your spine?
 What kind? cement infection Yes No

Have you had surgery on your hips?
 If yes: Yes No
 LEFT RIGHT BOTH

Do you any of the following?: Please circle if yes.
 Thyroid condition Bowel Disease
 Kidney Disease Diabetes
 Arthritis Asthma
 Cancer

COMMENTS: _____

MEDICATIONS: _____

[Signature]
 Technologist Date: 1/8/08

Gabriela Mordan Meds List

1 Rapamune	1 mg	QD	at noon
2 Prograf	2 mg	QD	1 mg tabs
3 CellCept	1000 mg	QD	500 mg tabs
4 Metoprolol tartrate	100 mg/am, 50 mg/pm		50 mg tabs
5 Fosinopril	40 mg	QD	40 mg tabs
6 Bumetanide	3 mg	QD	1 mg tabs
7 Colchicine	0.6 mg	QD	0.6 mg tabs
8 Zocor	20 mg	QD	20 mg tabs
9 Zetia	10 mg	QD	10 mg tabs
10 Evista	60 mg	QD	60 mg tabs
11 Calcium carbonate	650 mg	TID	650 mg tabs
12 Vitamin D			
13 Levothyroxine	0.025 mg	QD	0.025 mg tabs
14 Sporanox	200 mg	QD	100 mg tabs
15 Omeprazole	20 mg	QD	20 mg tabs
16 Aspirin EC	81 mg	QD	81 mg tabs
17 Docusate	500 mg	QD	250 mg caps
17 Warfarin	5 mg	QD	

18->

Multivitamins
Vitamin B6
Vitamin B 12
Vitamin C
Magnesium

MORDAN, GABRIELA		F DOB: 08/08/1930
MRN: 1061879	ALIAS:	
ACCN 3133897 (LS)L77080	Pt. Loc:	
DEXA (BONE DENSITY) SKELETAL /		
Date: 01/08/2008	Time: 11:00	LDEXA
Last similar exam:	Time:	
Attending MD: HERRMANN, DENISE D, M.D.		
P/B: (619) 543-5743 / (619)290-5592		
Requesting MD: HERRMANN, DENISE D, M.D.		
P/B: (619) 543-5743 (619)290-5592		
Precaution/Allergies: IODINE		
Diagnosis: annual review		

FONG, PAULINE T, 0791 F
 0873093
 ACC#2979233

Bone Density Diagnostic Center
 University of California San Diego
 Lewis Street Radiology
 Bone Density Risk Factor Information

FONG, PAULINE T, 0791 F
 0873093
 ACC#2979233

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

DEXA SKELETAL-HIPS, PELV, SP1
 06/12/2007 13:05 Status: 0



E-2979233

FONG, PAULINE T

University of California San Diego
 Lewis Street Radiology
 Bone Density Risk Factor Information

Alias Name: [REDACTED] Age: 79 Years
 at dex history: 79 y/o with osteopenia, assess change from
 D Diagnosis: DISORDER OF BONE AND CARTILAGE, UNSPECI
 Requesting MD: SRNI, BRTELIA, M.D.
 Comments: PISCM

Gender: Male Female
 HEIGHT: 5'4 1/2" WEIGHT: 143

Have you ever had a Bone Density Scan?
 If yes, when? 1/1 Where? UCSD

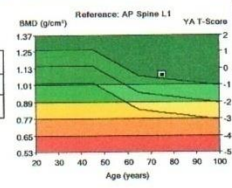
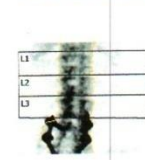
PATIENT RISK FACTORS:
 Is there any family history of Osteoporosis? Yes No
 Do you smoke now or have you in the past? Yes No
 Have you had any fractured bones as an adult? Yes No
 If yes, when? 1/1 Which bone(s)?

Do you consume 3 or more dairy servings per day? Yes No Occasionally
 Do you take calcium supplements? Yes No Occasionally
 Do you exercise at least 3 times per week? Yes No Occasionally
 Do you drink more than 2 alcoholic drinks per day? Yes No Occasionally
 Do you drink 5 or more cups of coffee or soft drink per day? Yes No Occasionally
 If Female:
 Have you gone through menopause? Yes No
 Have you had a hysterectomy? Yes No
 If so, were your ovaries removed? Yes No
 Do you take estrogen? Yes No
 If yes, for how many years? 20 yrs
 Do you take medication for Osteoporosis? Yes No
 If yes, what kind? For how long?
 Are you taking seizure medication? Yes No
 Do you take oral prednisone or cortisone medications? Yes No
 Have you had surgery on your spine? Yes No
 What kind? Laminectomy
 Have you had surgery on your hips? Yes No BOTH
 If yes: LEFT RIGHT BOTH

Do you any of the following?: Please circle if yes.
 Thyroid condition Bowel Disease Cancer
 Kidney Disease Diabetes
 Arthritis Asthma

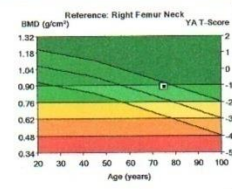
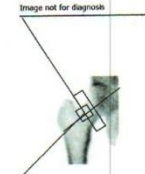
COMMENTS: Leukemia, Low thyroid, HT
 MEDICATIONS: premenin, diovan, synthroid
Sprycel, Potassium, Quelaprim, vit, folic acid
 Technologist: [Signature] Date: 6-12-07

Patient: FONG, PAULINE Patient ID:
 Birth Date: 10/31/1927 75.0 years Referring Physician:
 Height / Weight: 64.2 in. 150.3 lbs. Measured: 12/6/2002 12:00:00 AM (3.60)
 Sex / Ethnic: Female Asian Analyzed: 12/6/2002 12:00:00 AM (3.60)



Region	BMD (g/cm³)	Young-Adult T-Score	Age-Matched Z-Score
L1	1.082	-0.4	1.2
L2	1.293	0.8	2.4
L3	1.496	2.5	4.1

Matched for Age, Weight (females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v185)
 Statistically 68% of repeat scans fall within 1SD (± 0.030 g/cm³ for AP Spine L1)



Region	BMD (g/cm³)	Young-Adult T-Score	Age-Matched Z-Score
Neck	0.887	-1.1	0.8
Troch	0.688	-1.4	0.1

Matched for Age, Weight (females 25-100 kg), Ethnic
 NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Right Femur Neck)

GE Healthcare

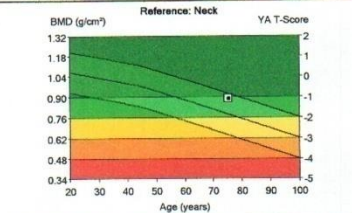
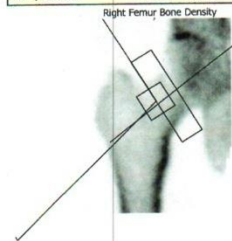
DPX
 6116

FONG, PAULINE T, 079 / F
 0873093
 ACC#2979233

Bone Density Diagnostic Center
 MAL/EDDX
 06/12/2007
 13:07:23

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FONG, PAULINE	Patient ID:	
Birth Date:	10/31/1927 75.0 years	Referring Physician:	
Height / Weight:	64.2 in. 150.3 lbs.	Measured:	12/6/2002 12:00:00 AM (3.60)
Sex / Ethnic:	Female Asian	Analyzed:	12/6/2002 12:00:00 AM (3.60)



Region	¹ BMD (g/cm ³)	² Young-Adult T-Score	³ Age-Matched Z-Score
Neck	0.887	-1.1	0.8
Troch	0.688	-1.4	0.1

HAL chart results unavailable

COMMENTS:

Images met for diagnosis
 Protocol: 0/22/2007 1:00:37 PM (9.30)76:0.75:76.80:15.6 0.00: 1.00 1.20x1.20
 0.00:0.00 0.00:0.00
 Neck Angle (Deg): 58
 Filename: fong_p00116
 Scan Mode: Standard

1 - Statistically 68% of repeat scans fall within 1SD (± 0.014 g/cm³ for Right Femur Neck)
 2 - NHANES (ages 20-30) / USA (ages 20-80) Femur Reference Population (v105)
 3 - Matched for Age, Weight (emales 25-100 kg), Ethnic:
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women: Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD; Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

FONG, PAULINE T, 079 / F
 0873093
 ACC#2979233

Bone Density Diagnostic Center
 MAL/EDDX
 06/12/2007
 13:07:23

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FONG, PAULINE	Patient ID:	
Birth Date:	10/31/1927 75.0 years	Referring Physician:	
Height / Weight:	64.2 in. 150.3 lbs.	Measured:	12/6/2002 12:00:00 AM (3.60)
Sex / Ethnic:	Female Asian	Analyzed:	12/6/2002 12:00:00 AM (3.60)

ANCILLARY RESULTS [Right Femur]

Region	¹ BMD (g/cm ³)	² Young-Adult (%) T-Score	³ Age-Matched (%) Z-Score	BMC (g)	Area (cm ²)
Neck	0.887	85 -1.1	114 0.8	4.69	5.28
Wards	0.702	77 -1.6	113 0.6	2.18	3.10
Troch	0.688	81 -1.4	102 0.1	8.14	11.82

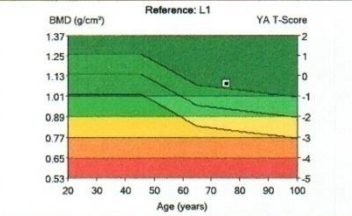
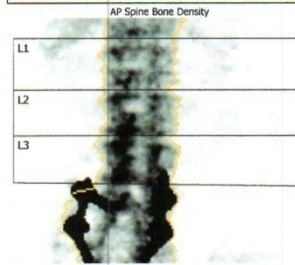
1 - Statistically 98% of repeat scans fall within 1SD (± 0.014 g/cm³ for Right Femur Neck)
 2 - NHANES (ages 20-30) / USA (ages 20-80) Femur Reference Population (v105)
 3 - Matched for Age, Weight (emales 25-100 kg), Ethnic:
 Filename: fong_p00116

FONG, PAULINE T, 079 F
 0873093
 ACC#2979233

Bone Density Diagnostic Center
 M/EDDX
 06/12/2007
 13:07:23

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FONG, PAULINE	Patient ID:	
Birth Date:	10/31/1927 75.0 years	Referring Physician:	
Height / Weight:	64.2 in. 150.3 lbs.	Measured:	12/6/2002 12:00:00 AM (3.60)
Sex / Ethnic:	Female Asian	Analyzed:	12/6/2002 12:00:00 AM (3.60)



Region	¹ BMD (g/cm ²)	² Young-Adult T-Score	³ Age-Matched Z-Score
L1	1.082	-0.4	1.2
L2	1.293	0.8	2.4
L3	1.496	2.5	4.1

COMMENTS:

Image not for diagnosis
 Printed: 6/12/2007 1:00:32 PM (9.30)76:0.75:76.80:15.6 0.00:-1.00 1.20x1.20
 0.00:0.00 0.00:0.00
 Filename: fong_p00.s16
 Scan Mode: Standard

1 - Statistically 68% of repeat scans fall within 1SD (± 0.030 g/cm² for AP Spine L1)
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 3 - Matched for Age, Weight (females 25-100 kg), Ethnic
 11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women: Normal = T-Score at or above -1.0 SD; Osteopenia = T-Score between -1.0 and -2.5 SD; Osteoporosis = T-Score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-Scores.)

GE Healthcare

DPX
6116

W 255 : 1.127

FONG, PAULINE T, 079 F
 0873093
 ACC#2979233

Bone Density Diagnostic Center
 M/EDDX
 06/12/2007
 13:07:23

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FONG, PAULINE	Patient ID:	
Birth Date:	10/31/1927 75.0 years	Referring Physician:	
Height / Weight:	64.2 in. 150.3 lbs.	Measured:	12/6/2002 12:00:00 AM (3.60)
Sex / Ethnic:	Female Asian	Analyzed:	12/6/2002 12:00:00 AM (3.60)

ANCILLARY RESULTS [AP Spine]

Region	¹ BMD (g/cm ²)	² Young-Adult (%) T-Score	³ Age-Matched (%) Z-Score	BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
L1	1.082	96 -0.4	116 1.2	15.83	14.63	4.4	3.36
L2	1.293	108 0.8	129 2.4	16.69	12.90	4.5	2.88
L3	1.496	125 2.5	149 4.1	21.37	14.29	4.8	2.96
L1-L2	1.181	101 0.1	122 1.8	32.52	27.53	4.4	6.24
L1-L3	1.289	110 1.0	132 2.6	53.89	41.82	4.5	9.24
L2-L3	1.400	117 1.7	140 3.3	38.06	27.19	4.6	5.88

1 - Statistically 68% of repeat scans fall within 1SD (± 0.030 g/cm² for AP Spine L1)
 2 - NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 3 - Matched for Age, Weight (females 25-100 kg), Ethnic
 Filename: fong_p00.s16

GE Healthcare

DPX
6116

W 255 : 1.127

FONG, PAULINE T, 0797 F
0873093
ACC#2979233

Bone Density Diagnostic Center
Lewis St. Women's Center
Bone Densitometry
M/EDDX
06/12/2007
13:07:23
MRN: 0873093
FONG, PAULINE T
DOB: 10/31/1927 Sex: F
Status: O Patient Loc:

Requested by: Armelia Sani, M.D.
Attending Physician: Edward D Ball, M.D.

ACC: 1781438 12/06/200214:45
DEXA SKELETAL-HIPS, PELV, SPINE

Procedure: DEXA, BONE DEN, SKEL

CLINICAL HISTORY:
Screening bone mineral density. On estrogen.

REFERENCE FILMS:
Prior study of 08/08/00.

FINDINGS:
RIGHT FEMUR (NECK):
The bone mineral density is 0.887 gm/cm sq.
Percentage of young normal mean is 91%.
T-score is -0.78.
Percentage age-matched mean is 114%.
Z-score is 0.90.

World Health Organization and National Osteopathic Foundation
Classification is consistent with normal.

COMMENTS:
There has been a decrease in the bone mineral density of the
femoral neck, but this is not statistically significant since
08/08/00.

LUMBAR SPINE (L1-L3):
The bone mineral density is 1.289 gm/cm sq.
Percentage of young normal mean is 110%.
T-score is 0.99.
Percentage age-matched mean is 127%.
Z-score is 2.8.

World Health Organization and National Osteopathic Foundation
Classification is normal.

COMMENTS:
There is significant degenerative facet arthropathy and disc
disease at the L3 and L4 levels which could artifactually elevate
the bone mineral density. At the L1 level, the bone mineral
density is 1.082 gm/cm sq. Percentage of young normal mean is 96%.
T-score is -0.40. Percentage age-matched mean is 120%. Z-score is
1.50. World Health Organization and National Osteopathic

W 255 : L 127

FONG, PAULINE T, 0797 F
0873093
ACC#2979233

Bone Density Diagnostic Center
Lewis St. Women's Center
Bone Densitometry
M/EDDX
06/12/2007
13:07:23
MRN: 0873093
FONG, PAULINE T
DOB: 10/31/1927 Sex: F
Status: O Patient Loc:

Requested by: Armelia Sani, M.D.
Attending Physician: Edward D Ball, M.D.

ACC: 1781438 12/06/200214:45
DEXA SKELETAL-HIPS, PELV, SPINE

Foundation Classification is within normal limits.

The L4 vertebral body has not been included in the evaluation of
the lumbar spine bone mineral density due to placement of pedicle
screws and fixation rods. In addition, since 08/08/00, there has
been a decrease in bone mineral density, but this is not
statistically significant.

IMPRESSION:
1. Normal bone mineral density of the left femoral neck and
lumbar spine from L1 to L3.

Approved by:
Rama Sharma, M.D. /signed by/ Rama Sharma, M.D.
Amilcare Gentili, M.D. /signed by/ Amilcare Gentili, M.D. ,Staff Radiologist
01/14/2003

Transcribed on: 01/13/2003 09:34 by Regina Pizarro

W 255 : L 127

FONG, PAULINE T, 0797 F
 0878093
 ACC#2979233

Bone Density Diagnostic Center
 MAXEDDX
 06/12/2007
 13:07:23

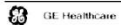
Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FONG, PAULINE T	Patient ID:	0873093
Birth Date:	10/31/1927 79.6 years	Referring Physician:	SANI, ANELIA
Height / Weight:	64.2 in. 143.0 lbs.	Measured:	6/12/2007 1:07:23 PM (9.30)
Sex / Ethnic:	Female Asian	Analyzed:	6/12/2007 1:14:11 PM (9.30)

ANCILLARY RESULTS [AP Spine]

Region	BMD ¹		Young-Adult ²		Age-Matched ³		BMC (g)	Area (cm ²)	Width (cm)	Height (cm)
	(g/cm ³)	(%)	T-Score	(%)	Z-Score	(%)				
L1	1.094	96	-0.4	119	1.5	14.83	18.55	4.3	3.15	
L2	1.557	129	2.9	158	4.7	20.14	12.94	4.7	2.76	
L3	1.025	149	4.9	182	6.7	19.30	10.57	4.7	2.27	
L1+L2	1.320	112	1.2	138	2.0	34.97	26.49	4.5	5.91	
L1+L3	1.464	124	2.3	152	4.1	54.27	37.06	4.6	8.18	
L2+L3	1.677	158	3.8	169	5.6	39.44	23.51	4.7	5.03	

1 -Statistically 95% of repeat scans fall within 1SD (± 0.030 g/cm³) for AP Spine (1)
 2 -NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (n=105)
 3 -Matched for Age, Weight (females 25-100 kg), Ethnic:
 Filenine: e#0303.af



Lunar Prodigy
 DF415271

W 97 : L 88

FONG, PAULINE T, 0797 F
 0878093
 ACC#2979233

Bone Density Diagnostic Center
 MAXEDDX
 06/12/2007
 13:07:23

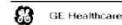
Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

Patient:	FONG, PAULINE T	Patient ID:	0873093
Birth Date:	10/31/1927 79.6 years	Referring Physician:	SANI, ANELIA
Height / Weight:	64.2 in. 143.0 lbs.	Measured:	6/12/2007 1:09:21 PM (9.30)
Sex / Ethnic:	Female Asian	Analyzed:	6/12/2007 1:11:30 PM (9.30)

ANCILLARY RESULTS [Right Femur]

Region	BMD ¹		Young-Adult ²		Age-Matched ³		BMC (g)	Area (cm ²)
	(g/cm ³)	(%)	T-Score	(%)	Z-Score	(%)		
Neck	0.805	88	-1.2	117	0.9	4.57	5.28	
Upper Neck	0.898	78	-1.9	101	0.0	1.53	2.55	
Wards	0.614	67	-2.3	104	0.2	1.90	2.09	
Troch	0.605	71	-2.1	94	-0.4	7.61	12.57	
Shaft	1.073	-	-	-	-	15.99	14.81	
Total	0.859	85	-1.2	113	0.8	28.06	32.66	

1 -Statistically 95% of repeat scans fall within 1SD (± 0.012 g/cm³) for Right Femur Total
 2 -NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (n=105)
 3 -Matched for Age, Weight (females 25-100 kg), Ethnic:
 Filenine: e#0303.af



Lunar Prodigy
 DF415271

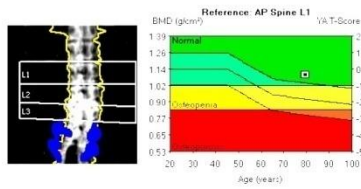
W 97 : L 88

FONG, PAULINE T, 079 Y F
 0878093
 ACC#2979233

Bone Density Diagnostic Center
 M/EDDX
 06/12/2007
 13:07:23

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

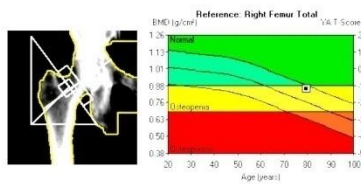
Patient: FONG, PAULINE T Patient ID: 0873093
 Birth Date: 10/31/1927 79.6 years Referring Physician: SANI, AMELIA
 Height / Weight: 64.2 in. 143.0 lbs. Measured: 6/12/2007 1:07:23 PM (9.30)
 Sex / Ethnic: Female Asian Analyzed: 6/12/2007 1:14:11 PM (9.30)



Region	BMD (g/cm ³)	Young Adult T-Score	Age-Matched Z-Score
L1	1.094	-0.4	1.5
L2	1.557	2.9	4.7
L3	1.825	4.9	6.7

Matched for Age, Weight (females 25-100 kg), Ethnic: NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.030 g/cm³ for AP Spine L1)

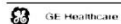
Image not for diagnosis



Region	BMD (g/cm ³)	Young Adult T-Score	Age-Matched Z-Score
Neck	0.865	-1.2	0.9
Troch	0.605	-2.1	-0.4
Total	0.859	-1.2	0.8

Matched for Age, Weight (females 25-100 kg), Ethnic: NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.012 g/cm³ for Right Femur Total)

Image not for diagnosis



Lunar Prodigy
 DF-15771

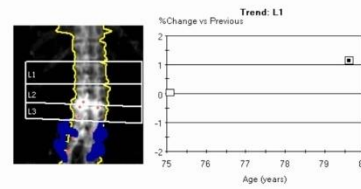
W 97 : L 88

FONG, PAULINE T, 079 Y F
 0878093
 ACC#2979233

Bone Density Diagnostic Center
 M/EDDX
 06/12/2007
 13:07:23

Bone Density Diagnostic Center
 Dept. of Radiology, UCSD Medical Center
 330 Lewis Street, Suite 202 San Diego, CA 92103

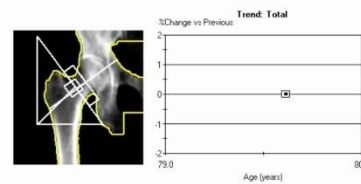
Patient: FONG, PAULINE T Patient ID: 0873093
 Birth Date: 10/31/1927 79.6 years Referring Physician: SANI, AMELIA
 Height / Weight: 64.2 in. 143.0 lbs. Measured: 6/12/2007 1:07:23 PM (9.30)
 Sex / Ethnic: Female Asian Analyzed: 6/12/2007 1:14:11 PM (9.30)



Measured Date	Age (years)	BMD (g/cm ³)	Previous (g/cm ³)	Change vs Previous (%)
6/12/2007	79.6	1.094	0.012	1.1
12/6/2002	75.0	1.082	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic: NHANES (ages 20-30) / USA (ages 20-40) AP Spine Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.030 g/cm³ for AP Spine L1)

Image not for diagnosis



Measured Date	Age (years)	BMD (g/cm ³)	Previous (g/cm ³)	Change vs Previous (%)
6/12/2007	79.6	0.859	-	-

Matched for Age, Weight (females 25-100 kg), Ethnic: NHANES (ages 20-30) / USA (ages 20-40) Femur Reference Population (v105)
 Statistically 68% of repeat scans fall within 1SD (± 0.012 g/cm³ for Right Femur Total)

Image not for diagnosis



Lunar Prodigy
 DF-15771

W 255 : L 127



Report

Bone Densitometry

DEPA

- Gd^{153}
- Accuracy similar to QCT
- Less radiation than QCT
- Measures cortical and trabecular
- Less sensitive to early changes
- Affected by aortic Ca^{2+}

Bone Densitometry

QCT

- Single energy 97% accurate
- Dual energy not routinely available
- 300mR
- Fat content adversely affects accuracy
- Difficult to reproduce positioning
- Can only measure trabecular bone
- 8X increase turnover of trabecular bone





Dr. Tudor H. Hughes M.D., FRCR
Department of Radiology
University of California School of Medicine
San Diego, California

DEXA Interpretation : Pearls and Pitfalls

ROAD MAP

- **Defining osteoporosis**
- **Review of bone physiology**
- **DEXA interpretation basics**
- **DEXA imaging examples**
- **Cases for YOU!**
- **Expert Consultant**



What is Osteoporosis?



Normal Bone*



Osteoporotic Bone*

A systemic skeletal disease characterized by *low bone mass and micro-architectural deterioration* of bone tissue with a consequent increase in bone fragility and *susceptibility to fracture*.*

*Consensus Development Conference: Diagnosis, Prophylaxis, and Treatment of Osteoporosis. *Am J Med.* 1991;90:107.

*Images used with permission of David Dempster, PhD. Copyright 2001

Worldwide...

- **Over 200 million people worldwide have osteoporosis**
- **9 million osteoporotic fractures annually**
 - **39% were in men**
 - **42% vertebral fractures**
 - **30% hip fractures**
 - **20% forearm**



In the United States...

- 1 in 5 men > 50 yrs will have an osteoporosis related fracture
- 30% of all postmenopausal women in the US have osteoporosis
 - 40% will sustain ≥ 1 fracture in their remaining lifetime

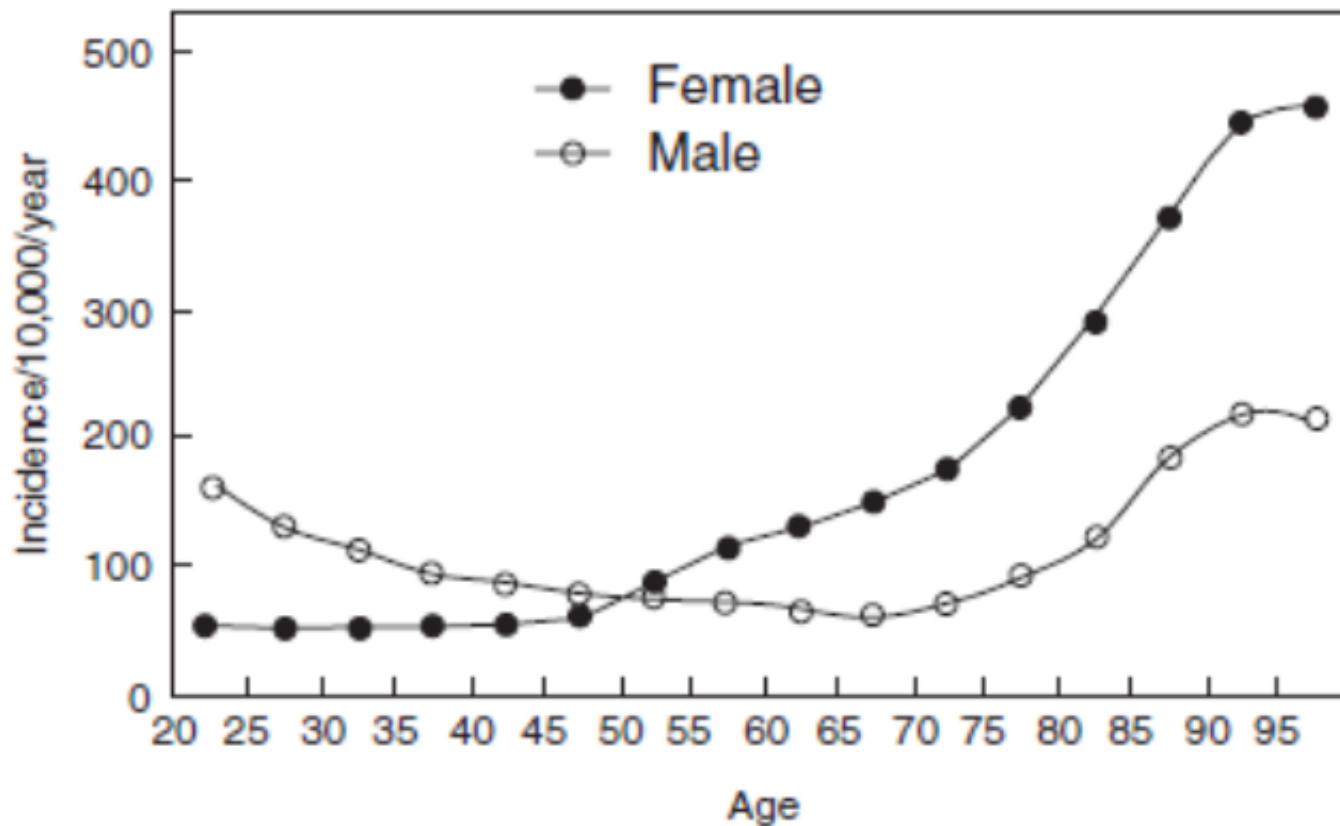


Lim, Lionel. *American Journal of Preventative Medicine*. 2009; 36(4): 366-375.

Khosla, Sundeep, et al. *Endocrine Reviews*. 2008; 29(4): 441-464.

Khosla, Sundeep, et al. *J Clin Endocrinol Metab*. 2010; 95(1): 3-10.

Age and gender vs fracture rate



Financial Cost

- **In 2005, cost of treating individuals with osteoporotic fractures in US = \$17 billion**
- **In 2020 expected to = \$25 billion**
 - **Number of women and men with osteoporosis projected to double by 2020**



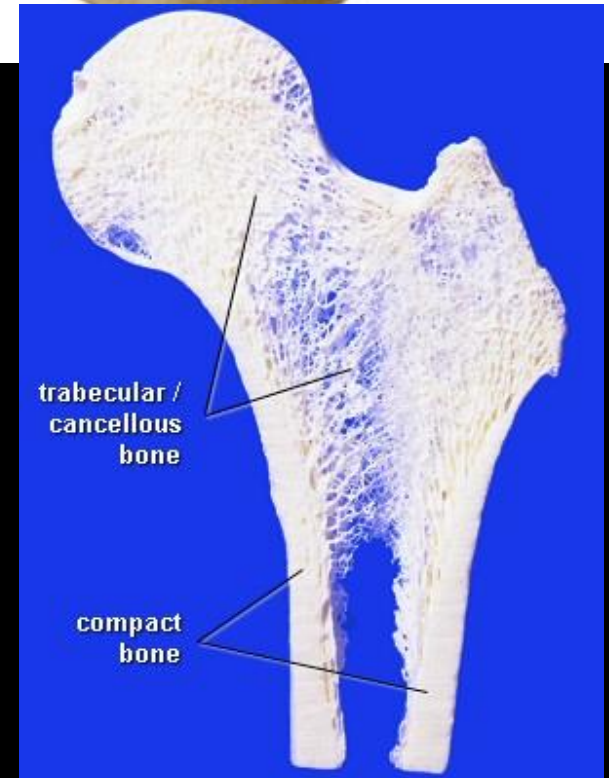
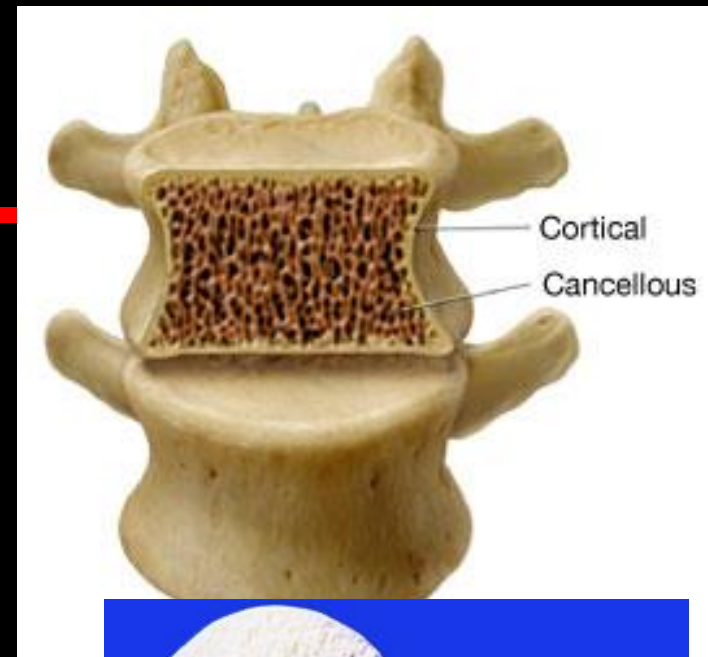
BONE REVIEW

- Trabecular / cancellous bone

- ↑ surface area
- ↓ density, weaker

- Cortical / compact bone

- ↑ density, stronger



Bone Strength

-
- **Bone Density** – measurable
 - DEXA (aBMD=g/cm²)
 - QCT (vBMD=g/cm³)
- **Bone Quality** – not well-defined, includes
 - Architecture
 - Turnover
 - Damage accumulation
 - Mineralization
 - Collagen quality

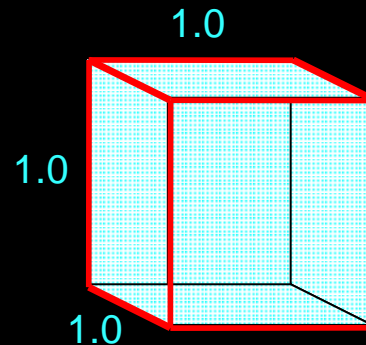
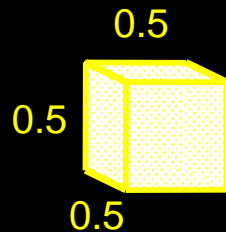
DEXA Measures Areal BMD

Areal vs. Volumetric Measurement

Volumetric density

1 g/cm³

1 g/cm³



$$\text{BMD} = \frac{\text{BMC}}{\text{Area}}$$

BMC: 0.125 grams

Area: 0.250 cm²

Areal BMD: 0.5g/cm²

BMC: 1.0 grams

Area: 1.0 cm²

Areal BMD: 1.0g/cm²

Example: **Female** vertebral body

Male vertebral body

Male bones are larger



Female

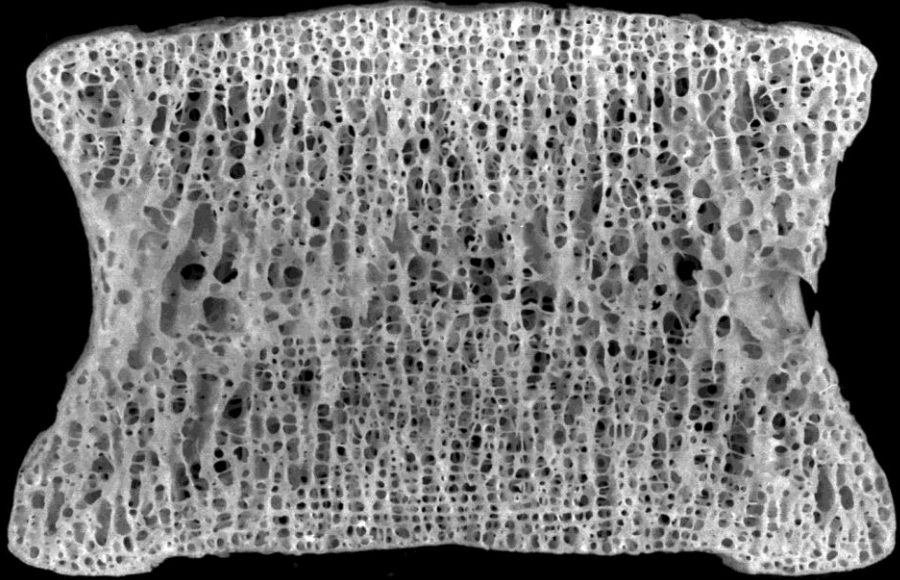
Male

Bone Strength

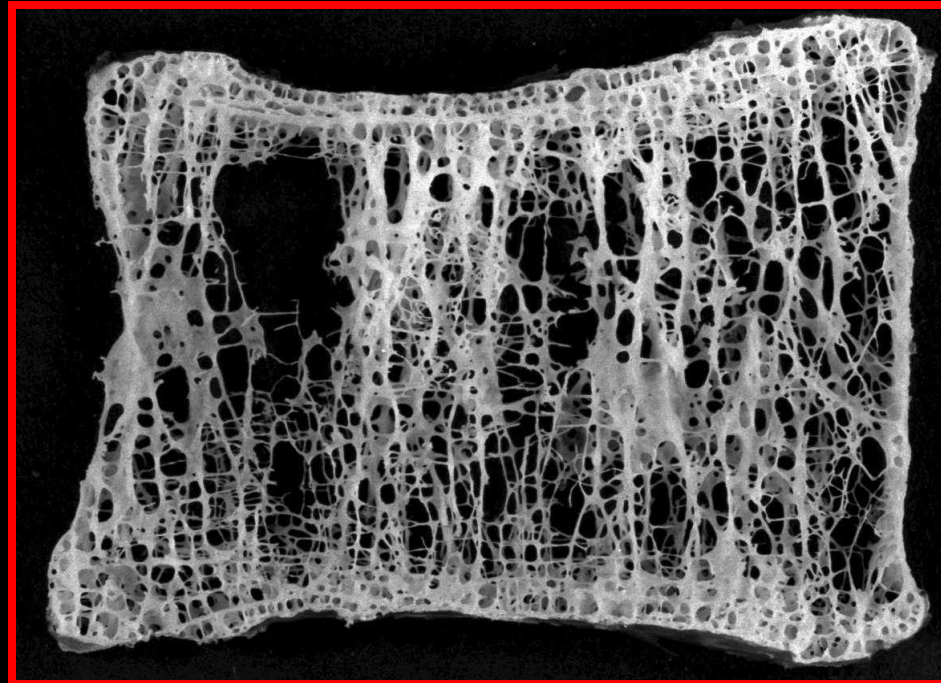
- **Bone Density – measurable**
 - DXA (aBMD=g/cm²)
 - QCT (vBMD=g/cm³)

- **Bone Quality – not well-defined, includes**
 - Architecture
 - Turnover
 - Mineralization
 - Collagen quality
 - Damage accumulation

**Normal
vertebra**



**Osteoporotic
vertebra**



Turnover: Bone Formation vs Bone Resorption

Activation

Osteoclasts

Resting

Reversal

Lining cells

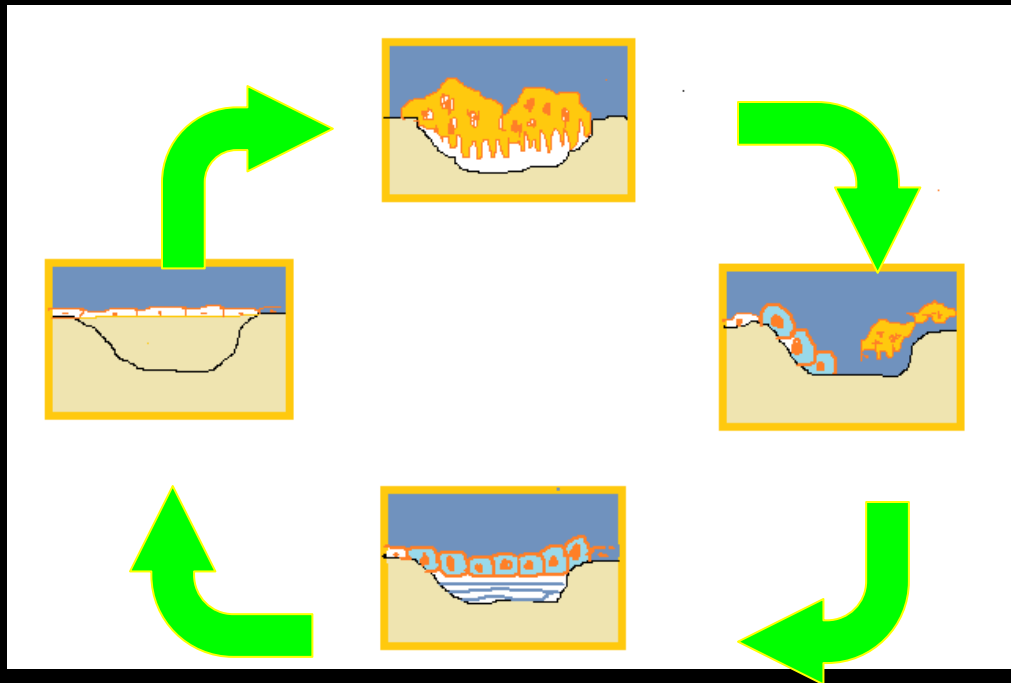
Apoptotic osteoclasts

Active osteoblasts

Osteoid
mineralized

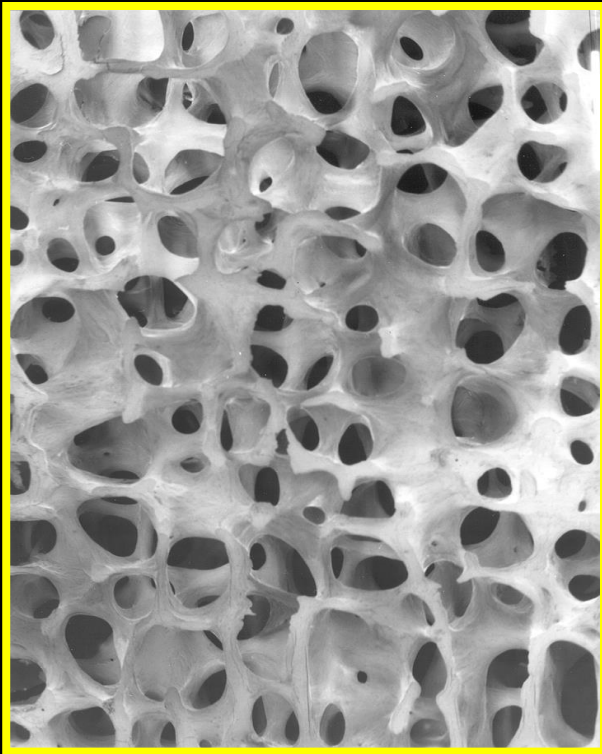
Formation

Osteoblasts produce osteoid

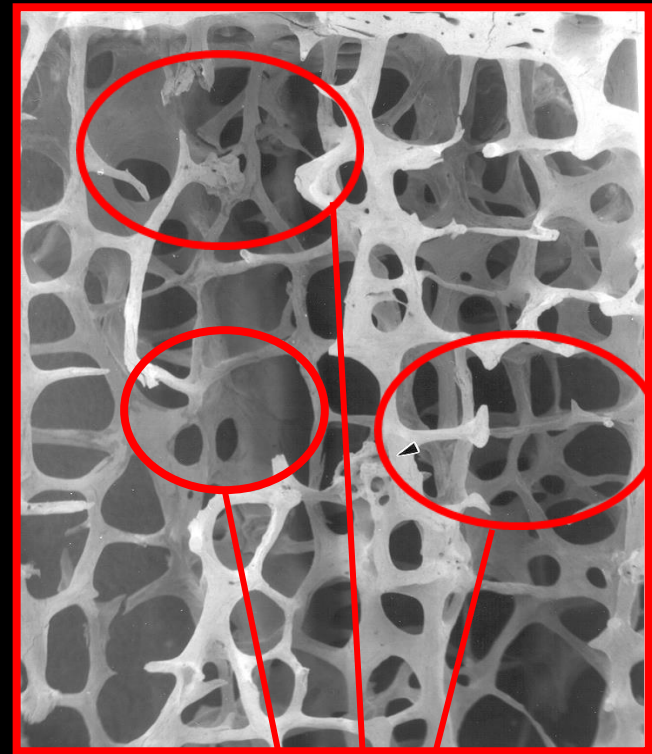


Damage Accumulation

Normal



Osteoporosis



Microfractures

Damage Accumulation

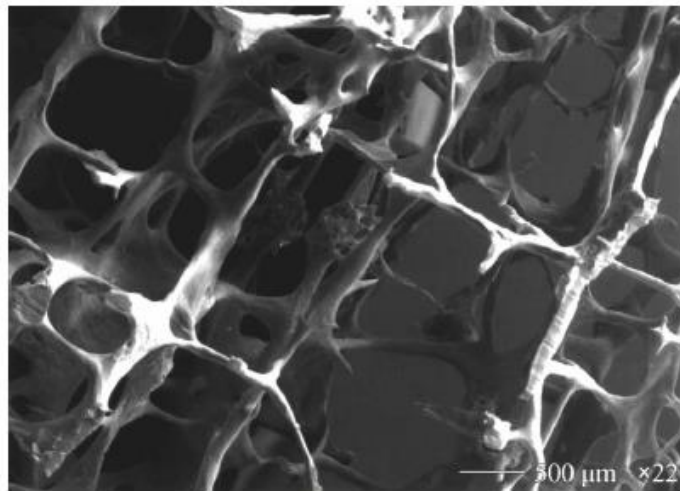
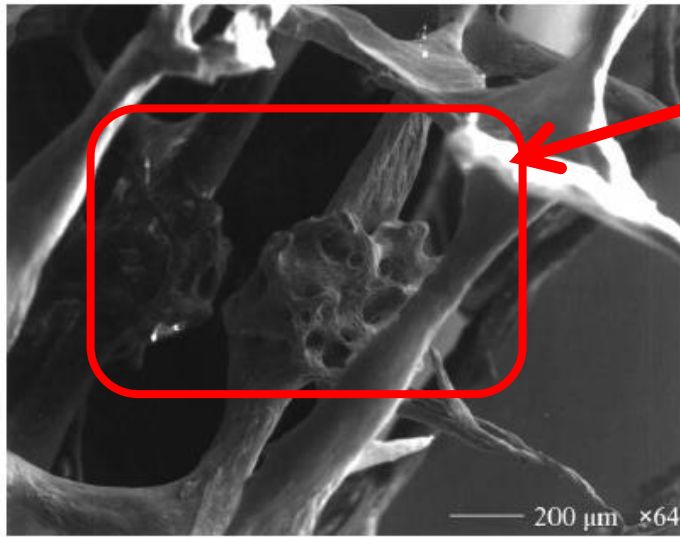
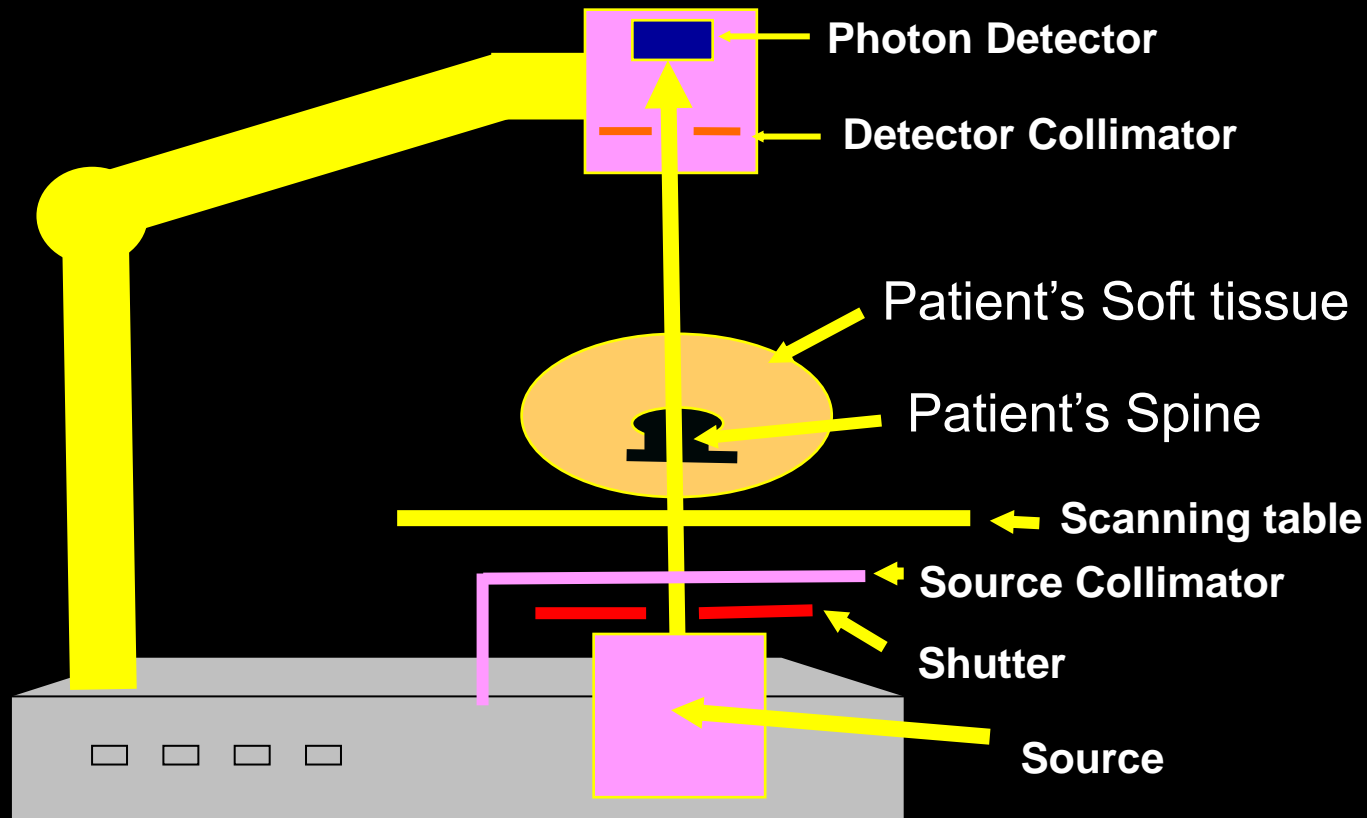


Fig. 4A



***Microcallus
formation***

Components of Central DEXA Scanners

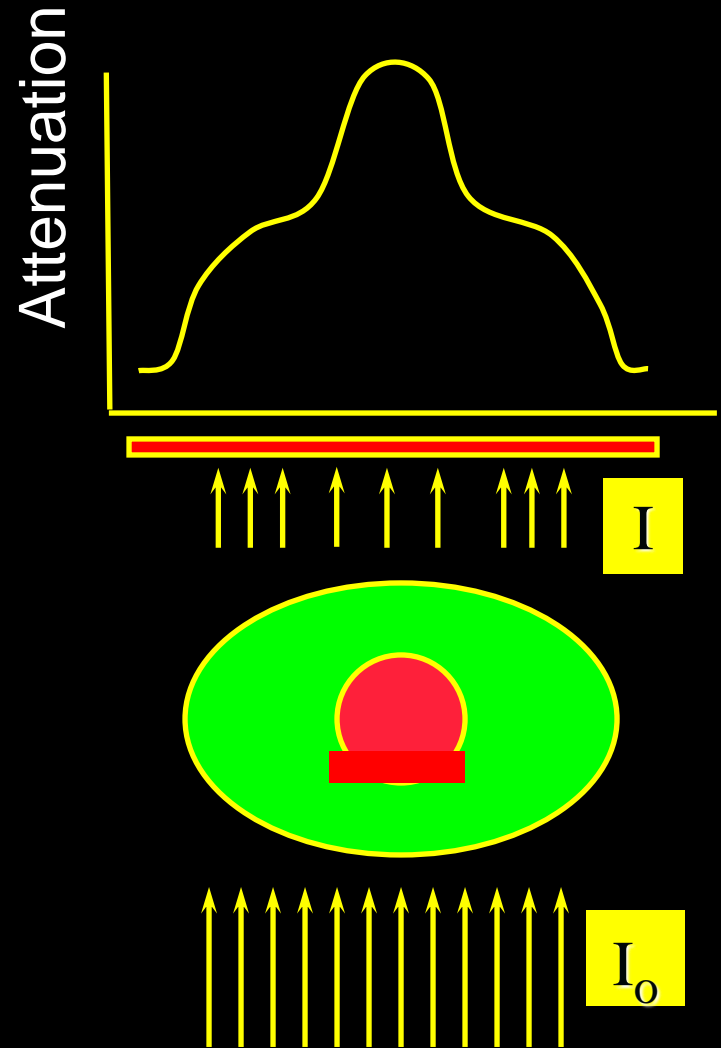


X-ray source, Collimators, Detector(s)

Attenuation of X-rays

Differential attenuation
by **bone** and **soft
tissue**

- Incident beam (I_0)
 - X-rays which enter
- Transmitted beam (I)
 - X-rays which exit
- Attenuation
 - $I_0 - I$



How Much Radiation Am I Getting?

- **~3 uSv** with a DEXA scan
 - CXR = 50-150 uSv
 - Mammogram=450 uSv
 - L-spine= 700 uSv
 - Daily background= 8 uSv



Why Use DEXA?

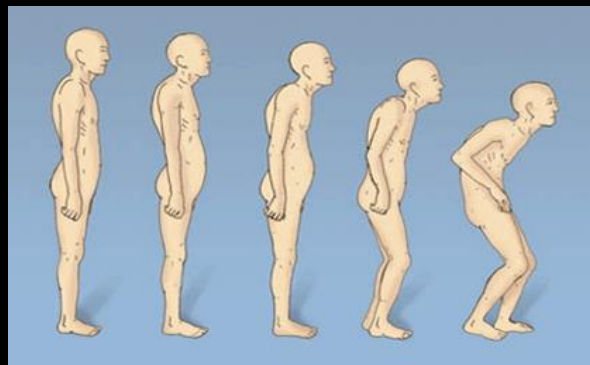
- **Established gold standard for BMD testing**
- **WHO defines osteoporosis in context of DEXA**
- **Graded relationship exists b/t DEXA determined BMD and future osteoporotic fracture risk**
- **Clinical trials showing efficacy of medical therapy for reducing fracture risk use DEXA**

DEXA Shortcomings...

- **DXA machines are not portable**
- **Cost = \$35,000**
- **Factors affect accuracy of DEXA**
 - **Artifacts**
 - **Need for same machine at same institution**
 - **Alignment during test; trained personnel**
- **Radiation exposure**
- **No information regarding bone architecture**

Defining Osteoporosis Clinically

T-Score	Diagnosis
-0.99 SD or greater	Normal
-1 to -2.49 SD	Osteopenia
-2.5 SD or worse or fragility fracture	Osteoporosis
-2.5 SD or worse with fracture	Severe osteoporosis



T-score Compares With Young Adult; Z-score with Age-Matched

$$\text{T-score} = \frac{\text{Patient's BMD} - \text{Young Normal Mean BMD}}{\text{SD of Young Normal}}$$

$$\text{Z-score} = \frac{\text{Patient's BMD} - \text{Age Matched Mean BMD}}{\text{SD of Age Matched}}$$

Using T-scores vs. Z-scores

T-scores

- WHO diagnostic classification of osteoporosis in men and postmenopausal women
- WHO classification with T-score cannot be applied to healthy premenopausal women, men under age 50, or children
- Gender matched (not ethnicity or weight)

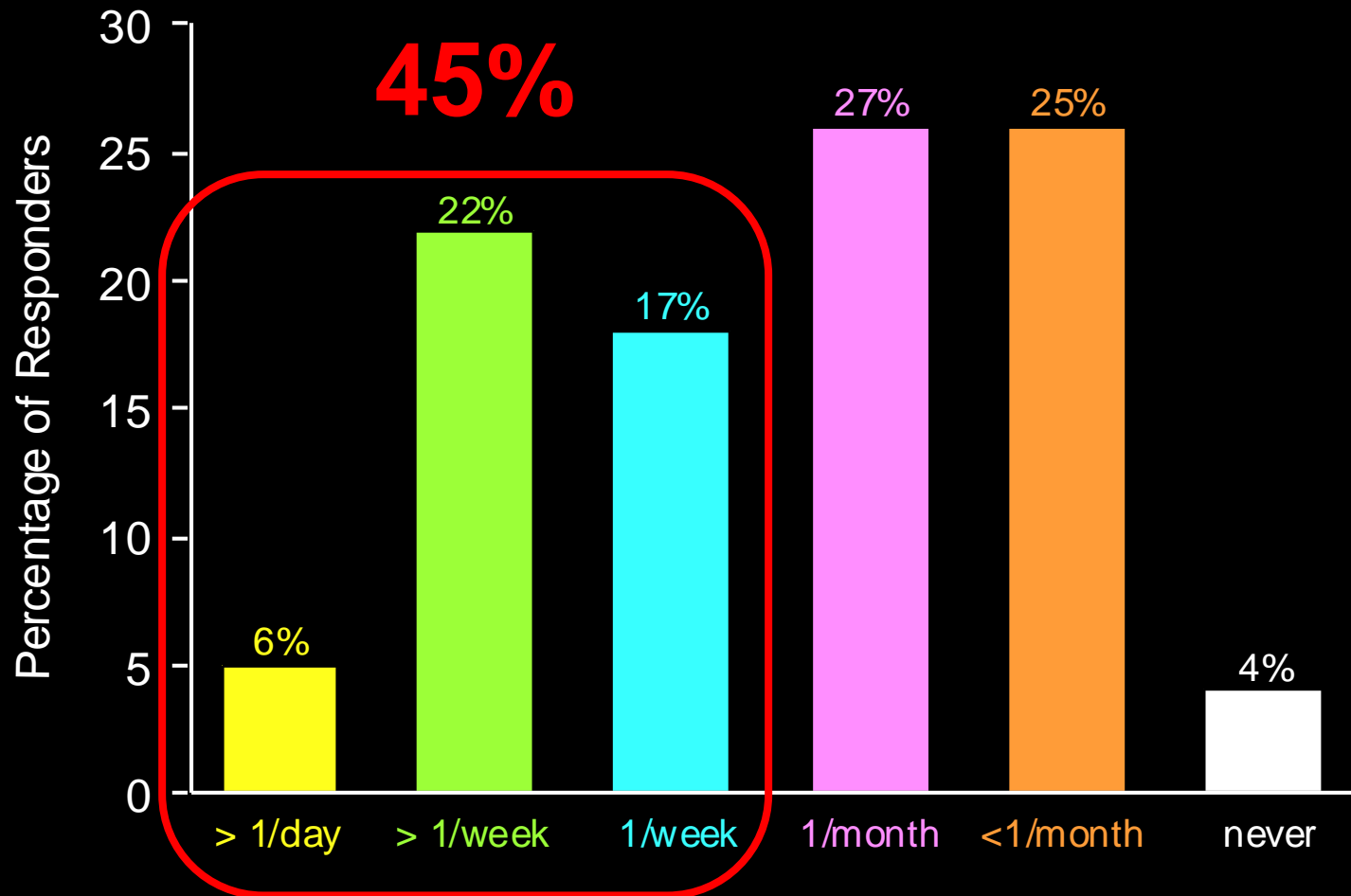
Z-scores

- For use in reporting BMD in healthy premenopausal women, men under age 50, and children
- Z-score -2.0 or less is defined as “below the expected range for age”
- Z-score above -2.0 is “within the expected range for age”
- Age, gender, weight and ethnicity matched

Why Use T-scores?

- **Different reference databases have different BMD means and SD**
- **There are differences in**
 - **Technologies of x-ray generation**
 - **Edge Detection approaches**
 - **Region of interest (ROI) placement**
- **T-scores allow use of same diagnostic criteria with instruments from different manufacturers**

“How often do you see a patient with a previous DEXA report interpretation that is incorrect?”



Name: [REDACTED] Sex: Female Height: 57.4 in
 Patient ID: [REDACTED] Ethnicity: Hispanic Weight: 105.0 lb
 DOB: [REDACTED] Menopause Age: 34 Age: 55

Referring Physician:

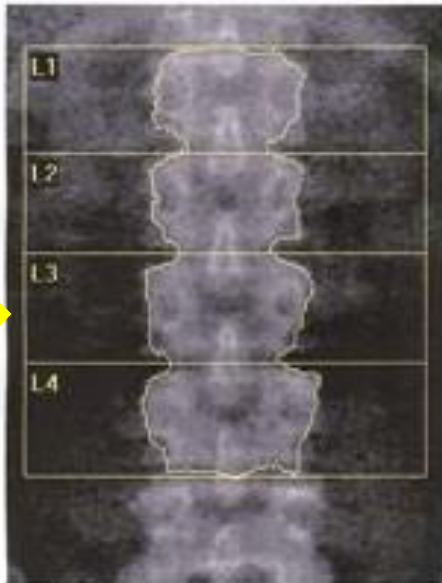


Image not for diagnostic use
 k = 1.160, d0 = 47.4
 116 x 126

Scan Information:

Scan Date: ID:
 Scan Type: f Lumbar Spine
 Analysis: Lumbar Spine 11:09 Versi
 Operator:
 Model:
 Comment:

Demographics

DXA Results Summary:

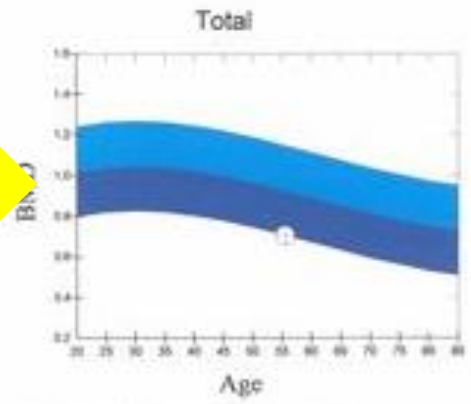
Region	Area (cm ²)	BMC (g)	BMD (g/cm ³)	T-Score	PR (%)	Z-Score	AM (%)
L1	11.19	6.93	0.619	-2.8	67	-1.8	76
L2	11.43	7.60	0.665	-3.3	65	-2.2	73
L3	13.66	10.68	0.782	-2.7	72	-1.6	81
L4	14.40	10.49	0.728	-3.5	65	-2.4	74
Total	50.68	35.69	0.704	-3.1	67	-2.0	76

Total BMD CV 1.0%, ACF = 1.033, BCF = 1.046, TH = 6.689

Results
T- and Z-scores

Image

Graph

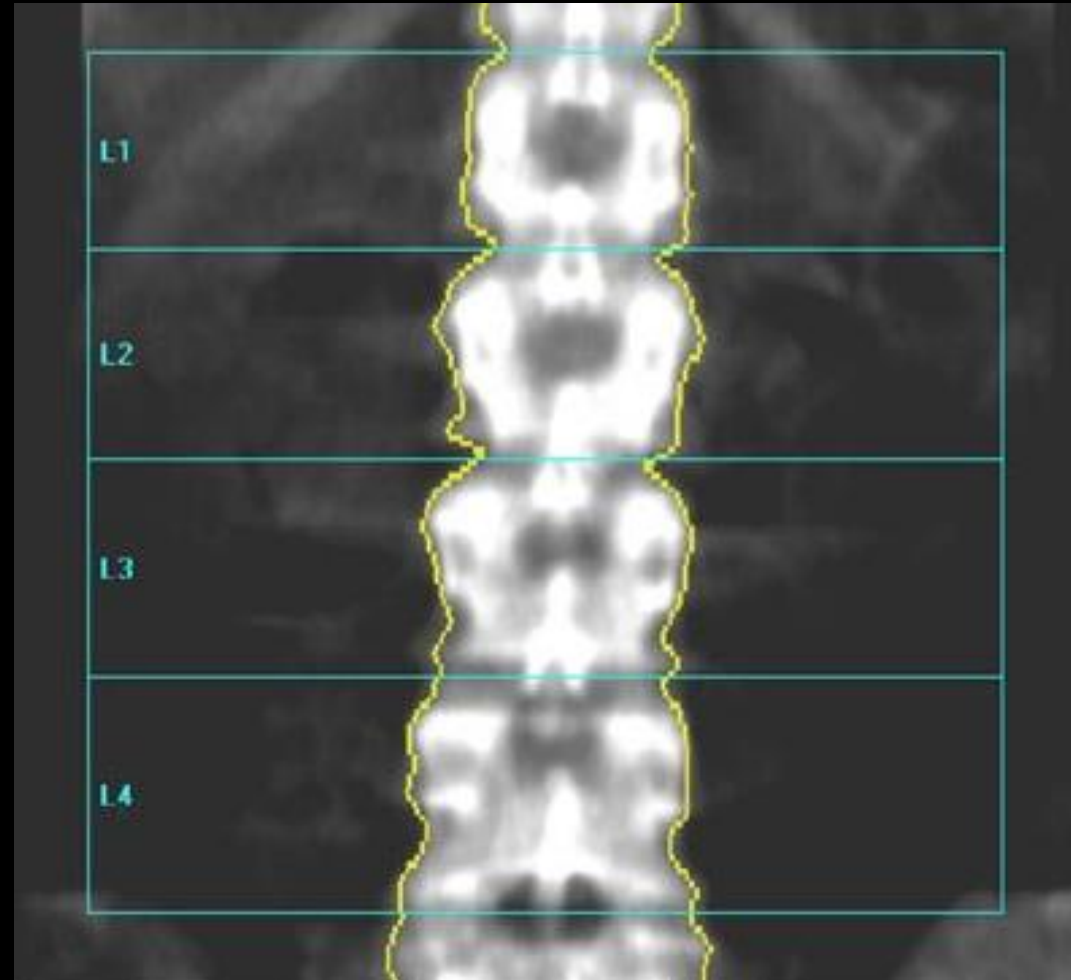


Reference curve and scores matched to Hispanic Female
 Source: T-Score not adjusted for ethnicity per ISCD

Physician's Comment:

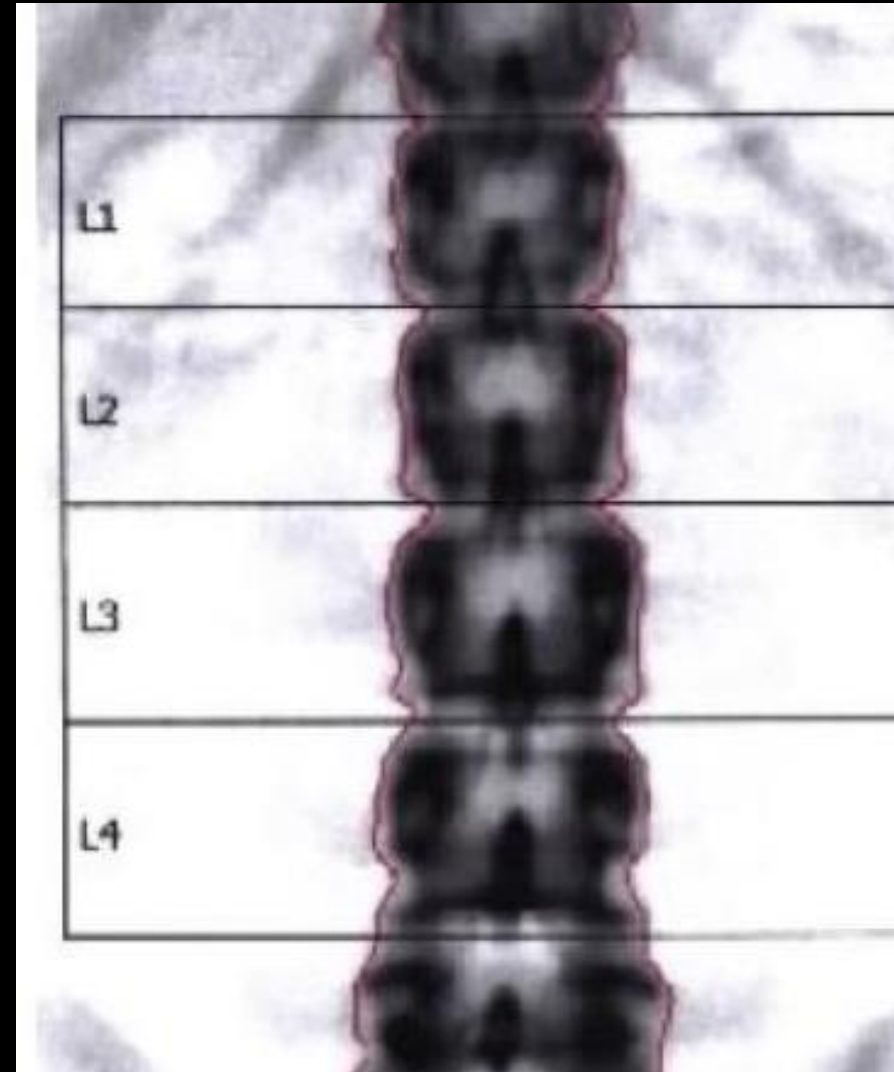
Lumbar Spine: Optimal Positioning

- Spine is centered
- Spine is straight
 - Not tilted
- Both iliac crests are visible; often between L4 and L5
- Scan includes
 - Middle of L5
 - Middle of T12



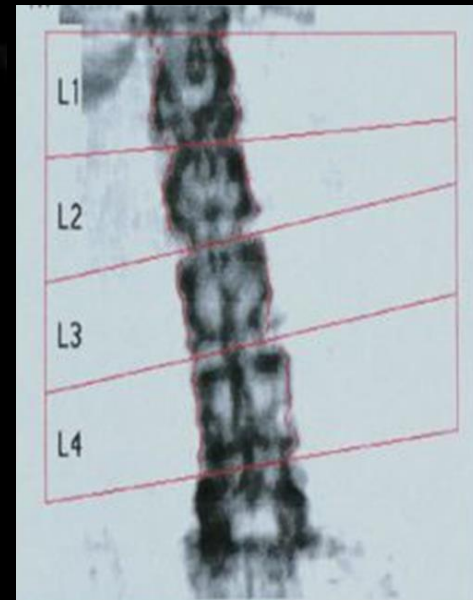
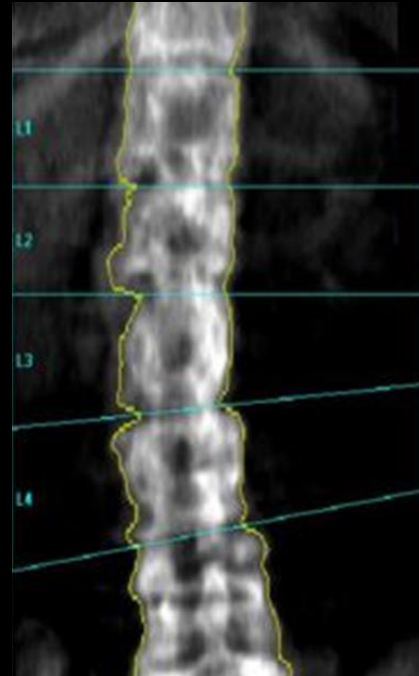
Correct Spine Analysis

- Edges should include only bone in the region to be evaluated
- Intervertebral markers should be placed in the disc space
- Numbering should be correct; generally count from the bottom up

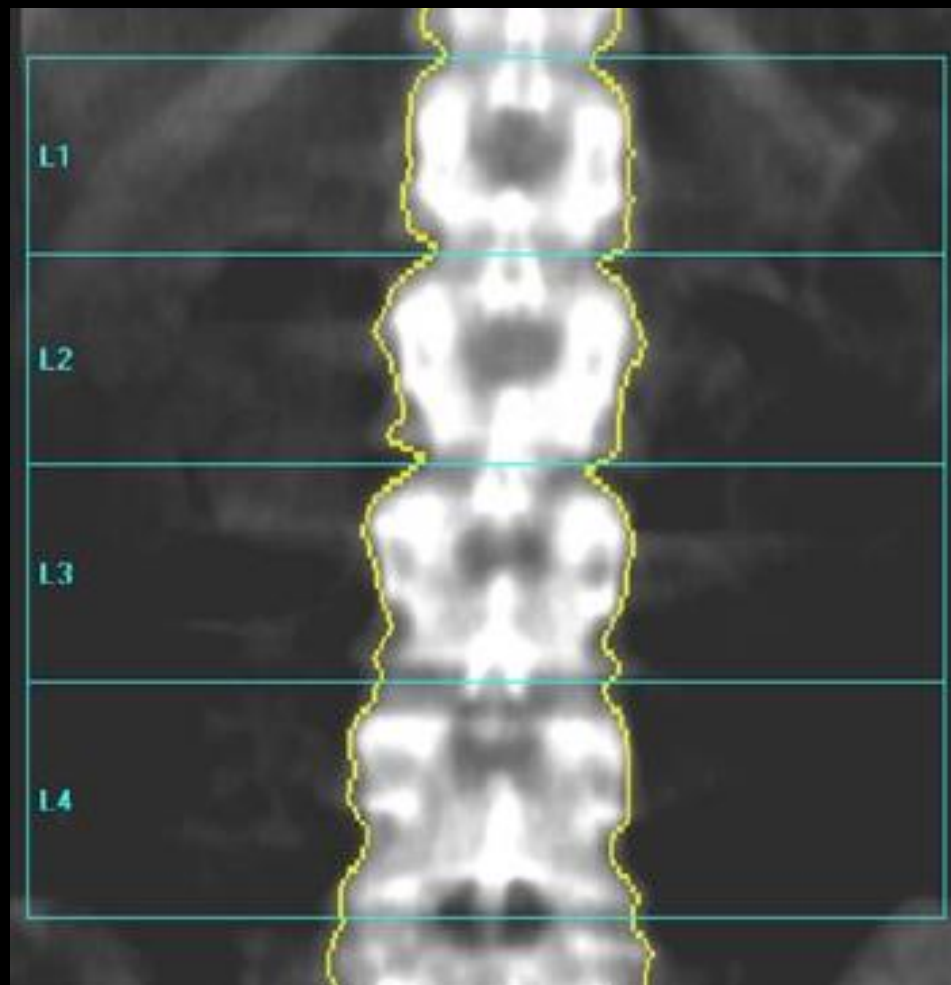


Lumbar Spine: Positioning Pitfalls

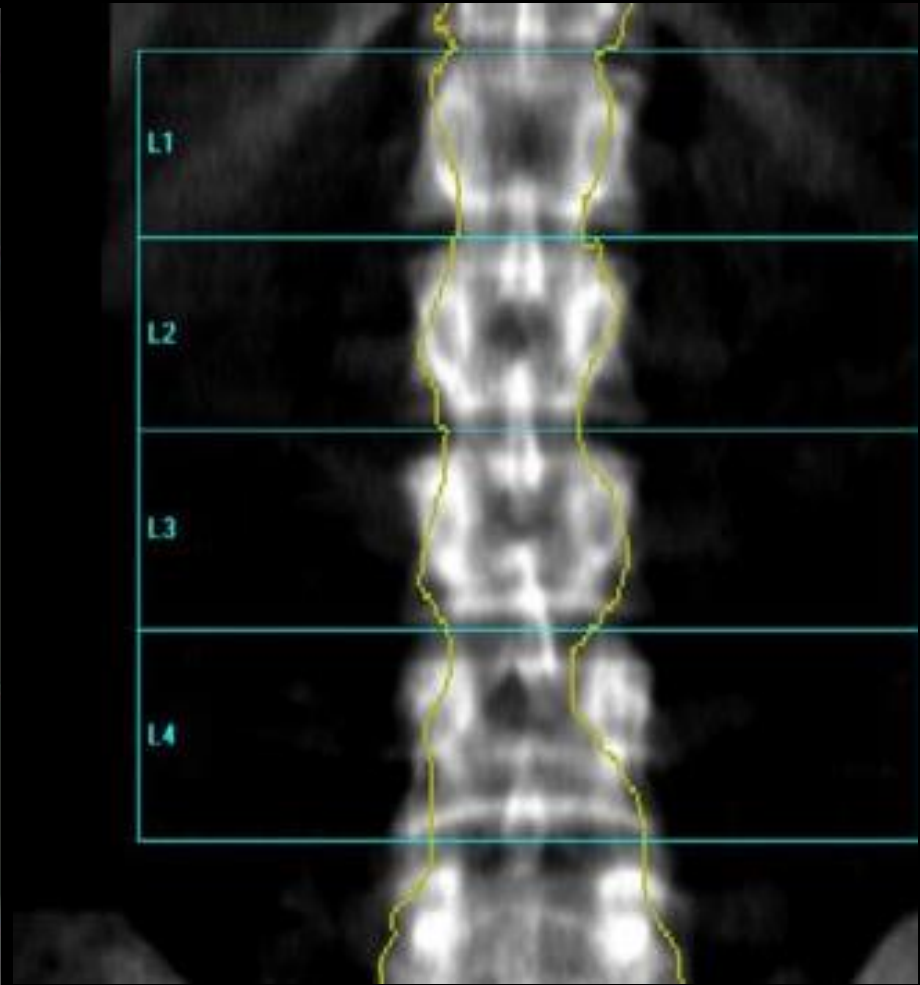
- Spine is off center
- Spine is tilted
- Only 1 iliac crest is visible
- Neither iliac crest is visible
- Does not include T12 or L5



Identify Bone Edges Correctly

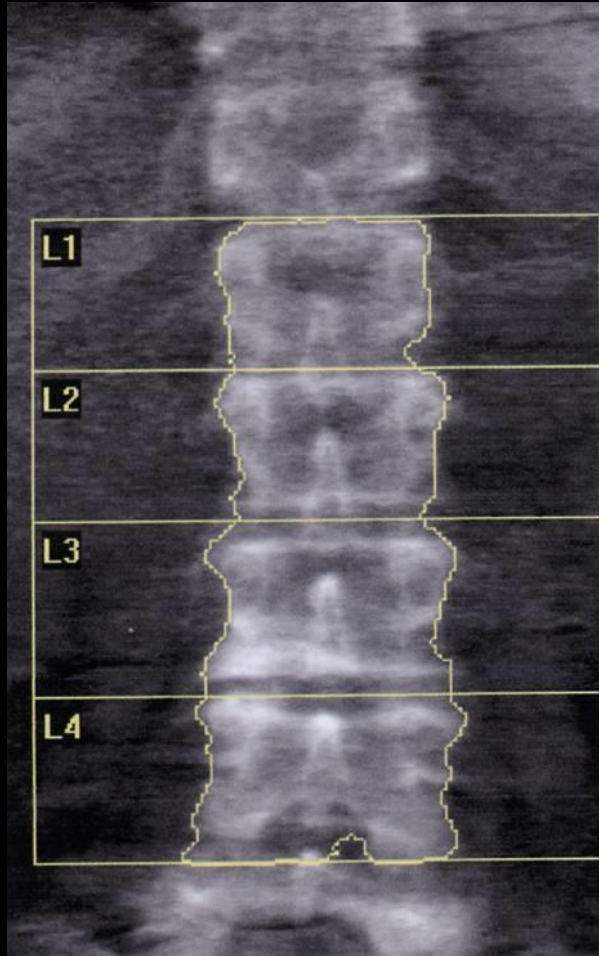


Correct

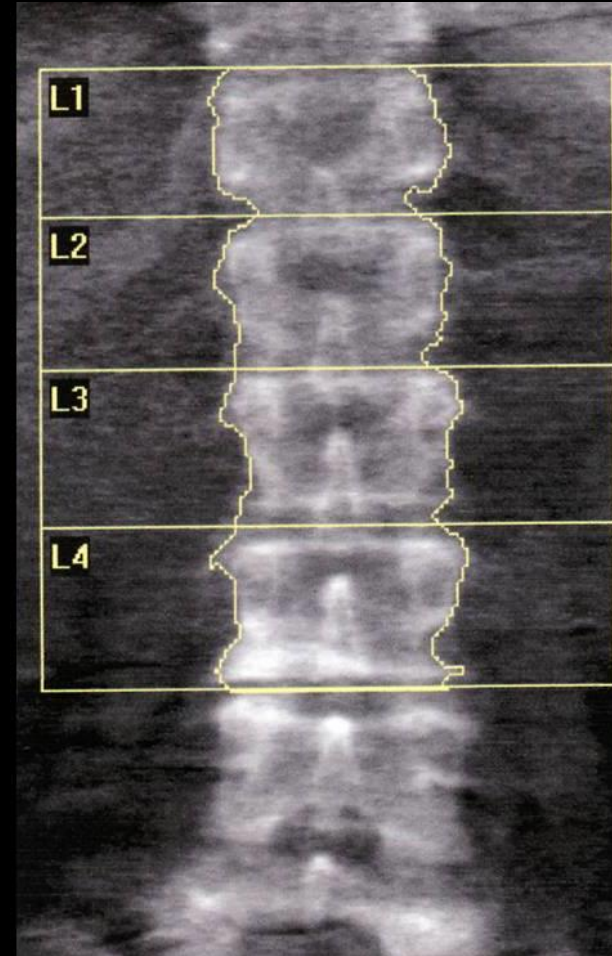


Incorrect

Check Vertebral Numbering



Correct

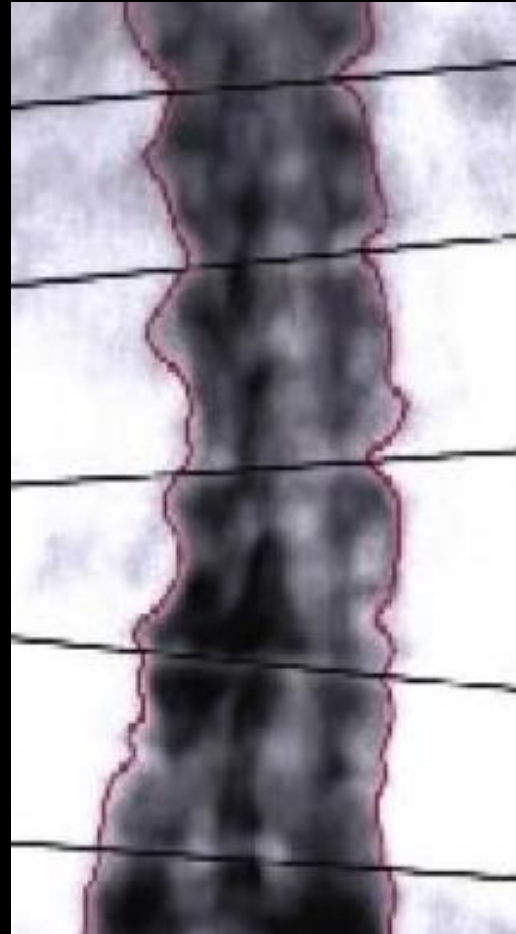


Incorrect

Internal Artifacts Affect BMD

Exclude vertebrae from analysis if there is a >1.0

T-score difference between adjacent vertebral bodies



T-score

L1 -3.0

L2 -2.3

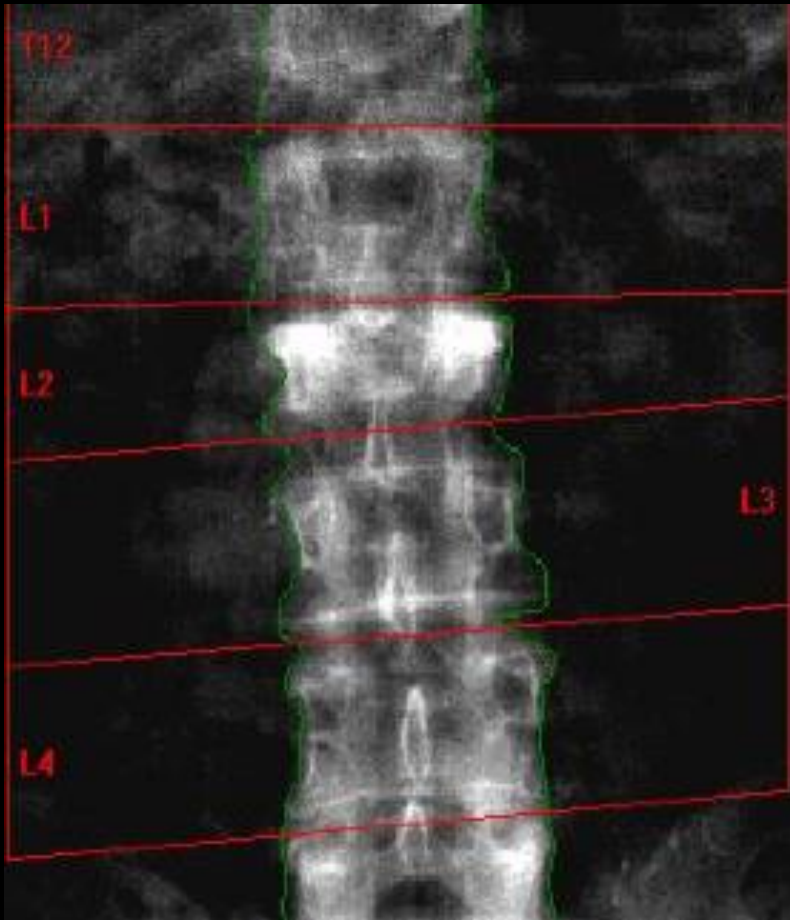
L3 2.4

L4 2.0

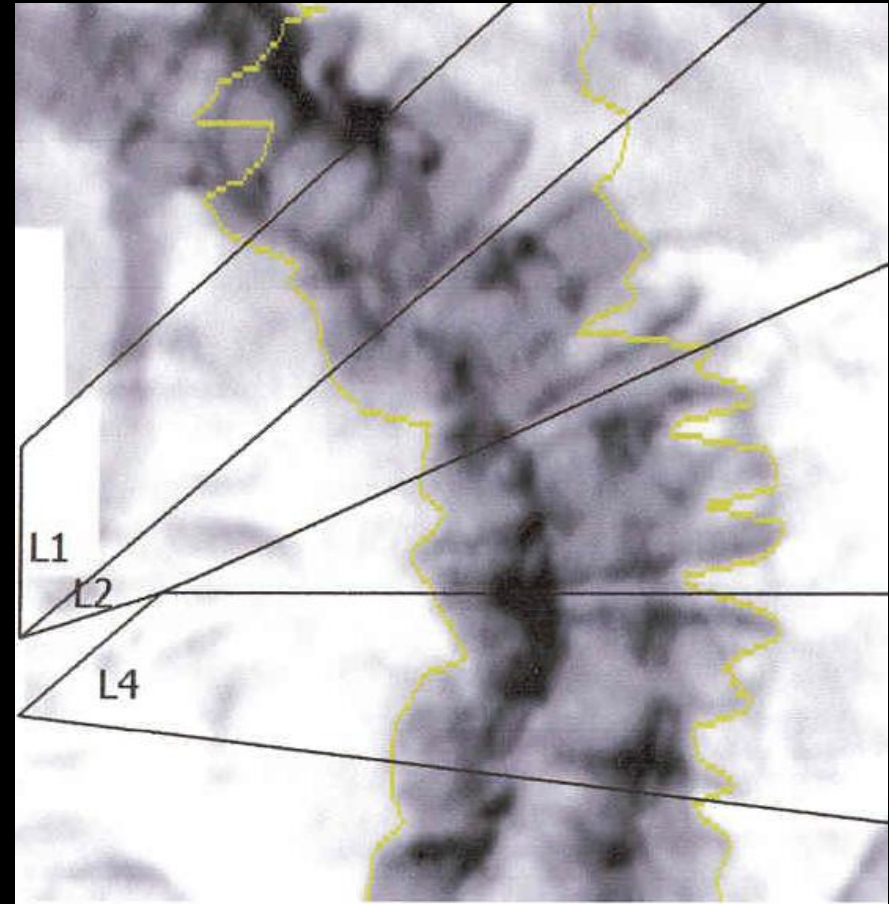
L1-4 -0.5

Adjusted L1-2 T-score -2.5

What Are These Spine Artifacts?

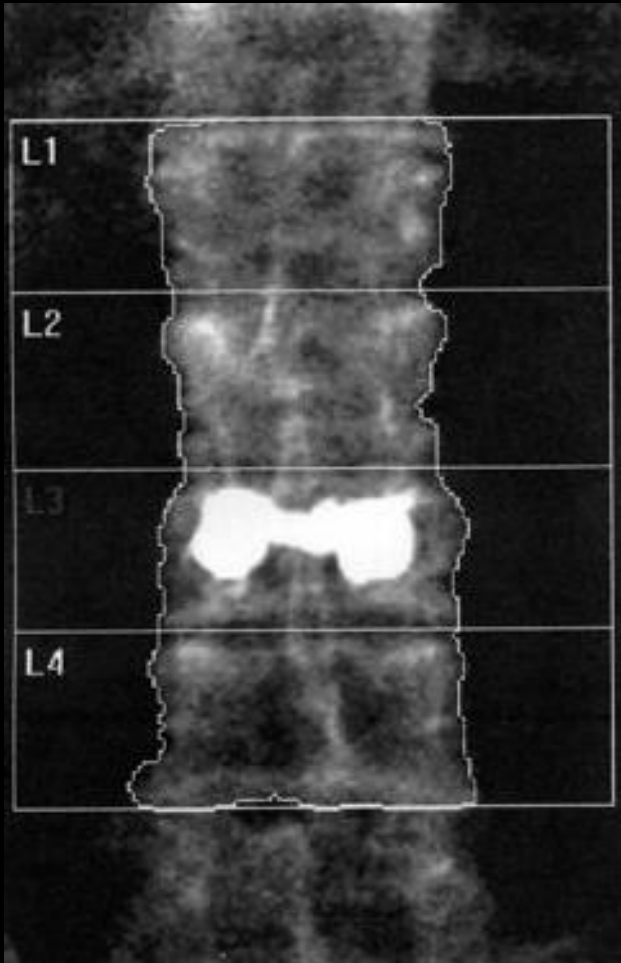


Vertebral fracture



**Severe Scoliosis:
Uninterpretable**

What Are These Spine Artifacts?

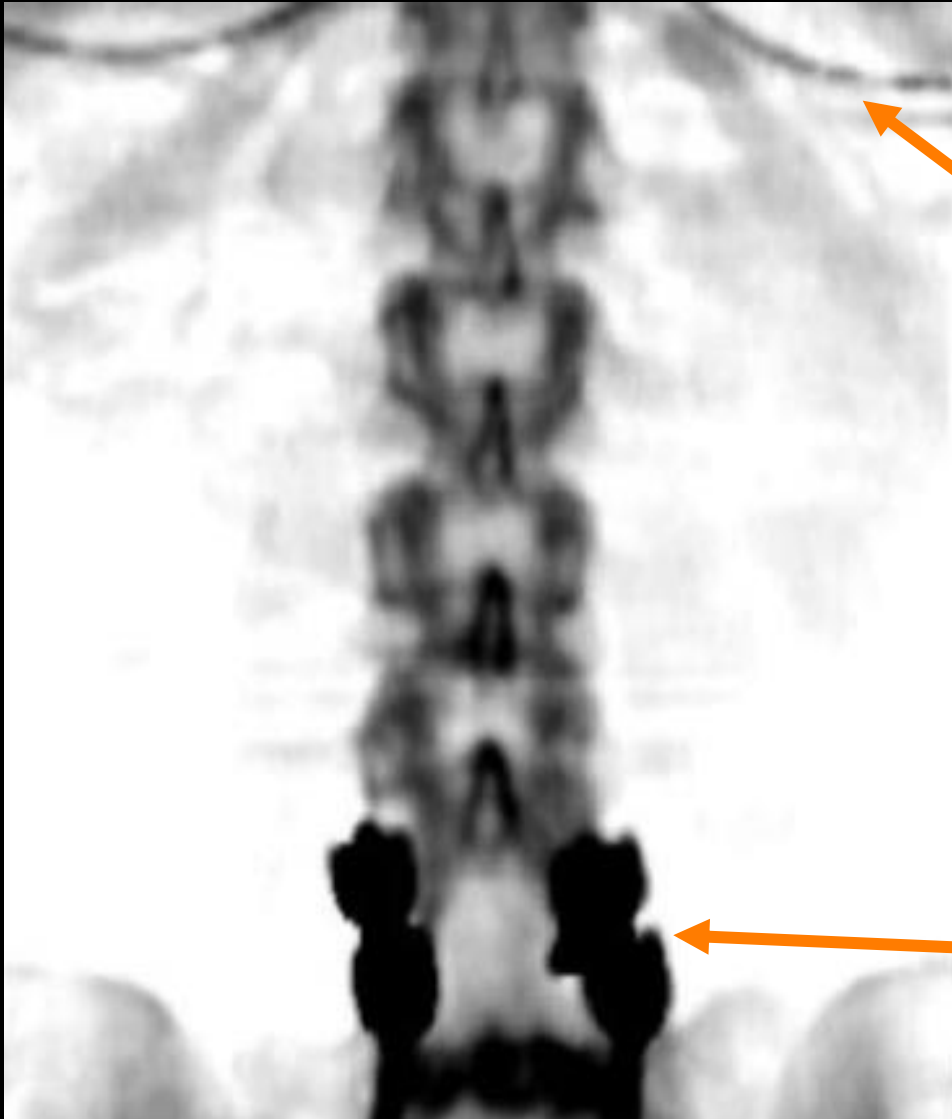


Vertebral augmentation



Osteoblastic metastasis

Artifacts - Internal and External

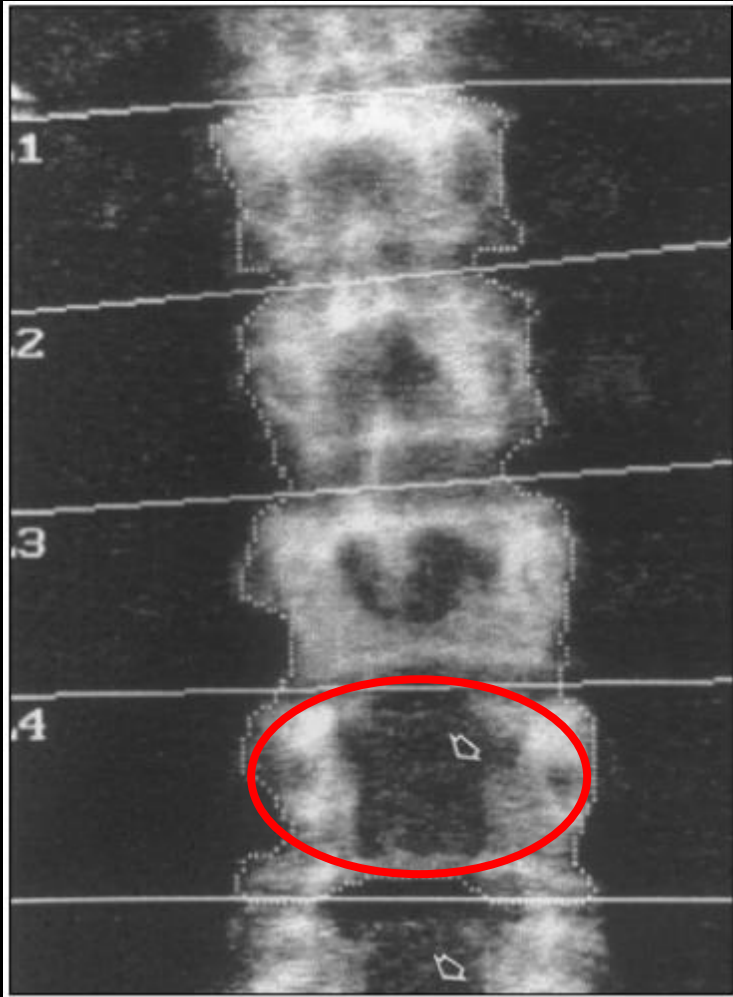


**External
Underwires**

**Internal
Fixation Devices**

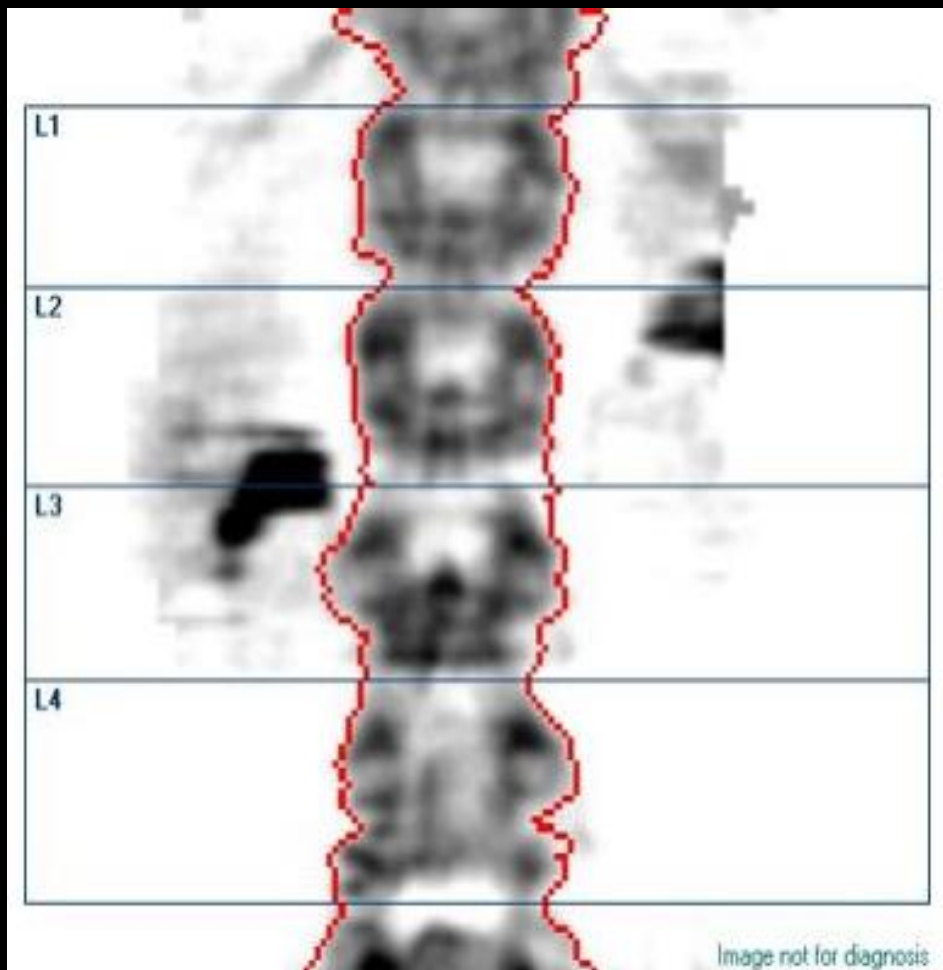


Lumbar laminectomy

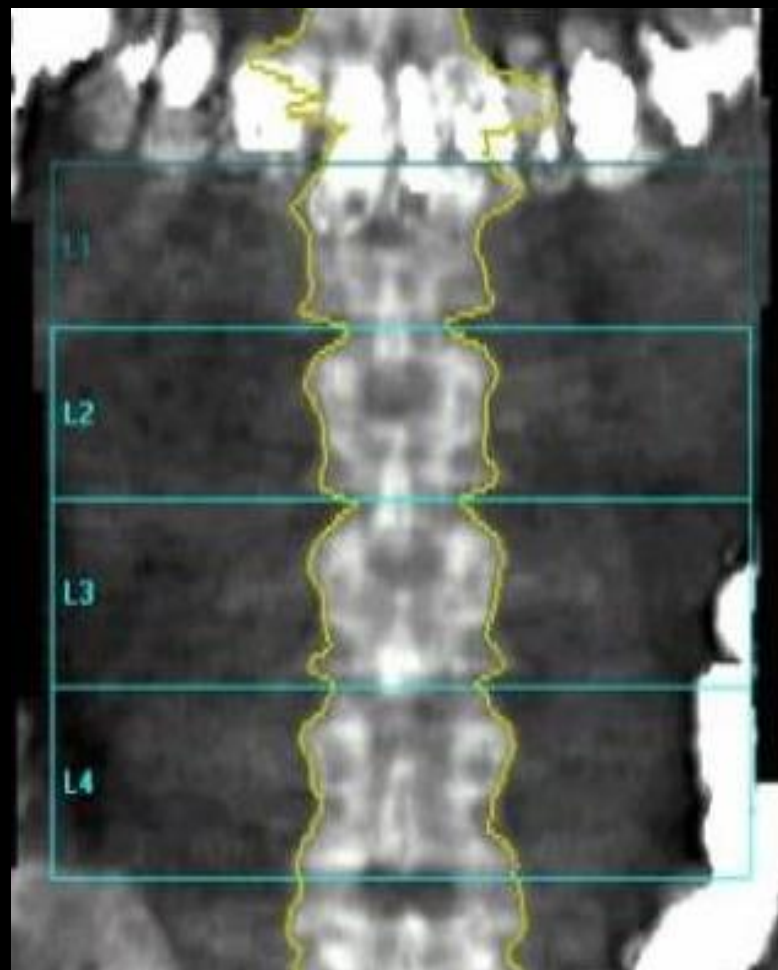


Region	BMD	T(30.0)	Z
L1	1.045	+1.09 113%	+2.60 138%
L2	1.035	+0.07 101%	+1.74 123%
L3	0.937	-1.34 86%	+0.43 105%
L4	0.878	↓ -2.16 79%	-0.34 96%
L2-L4	0.945	-1.21 88%	+0.54 107%

What Are These Spine Artifacts?

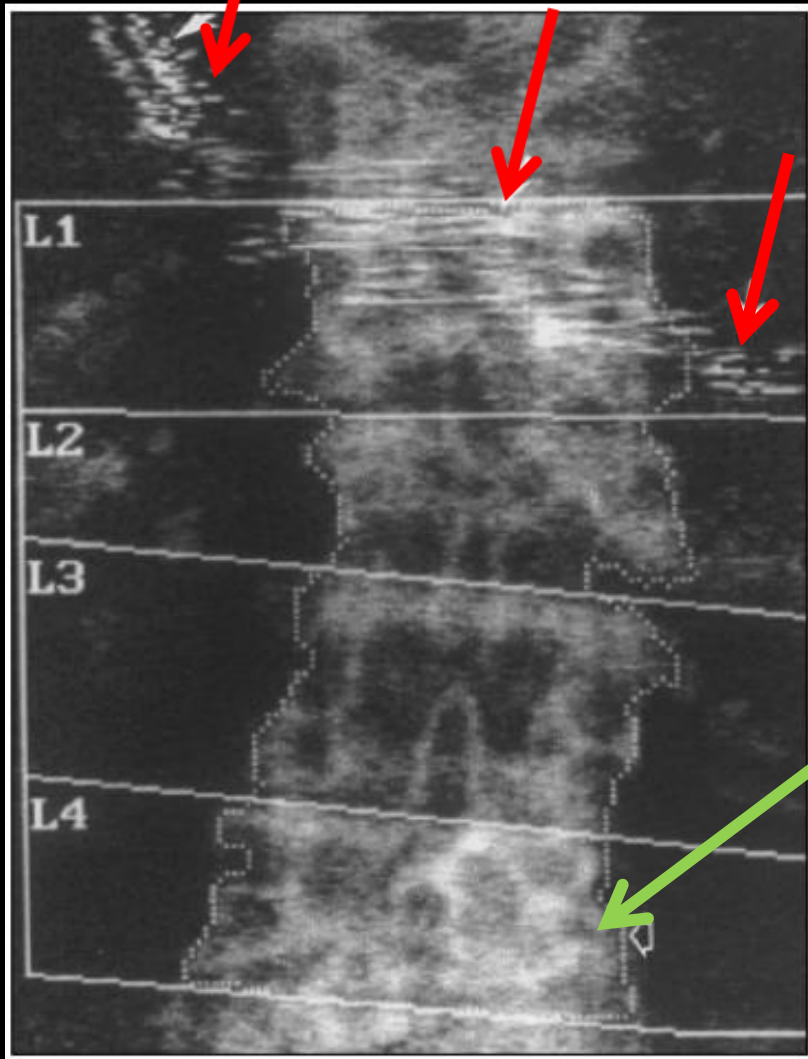


IV Contrast



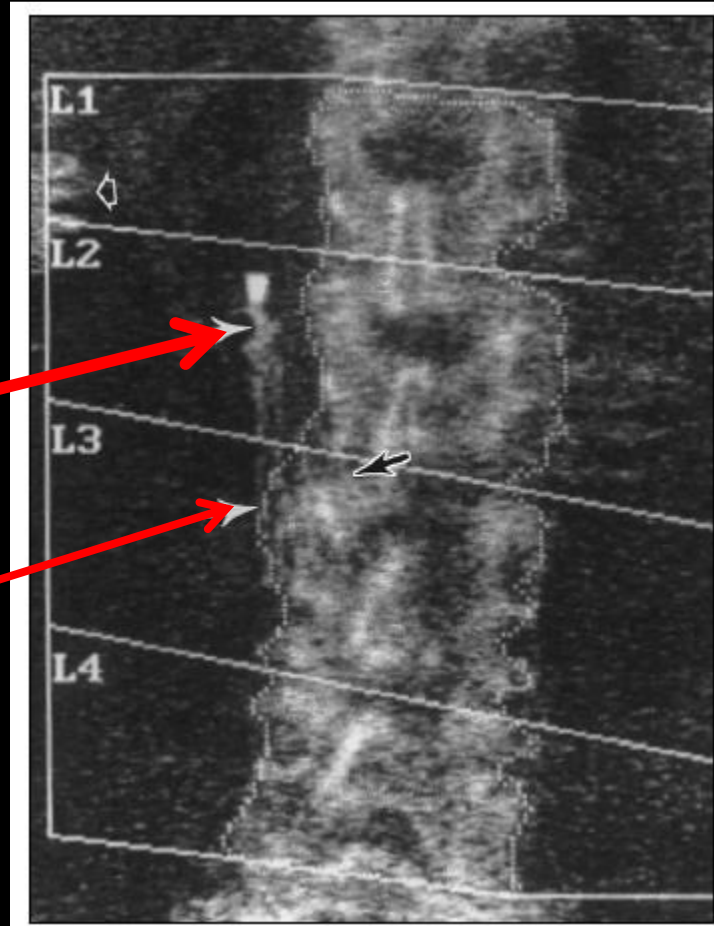
Barium

Pacemaker wires

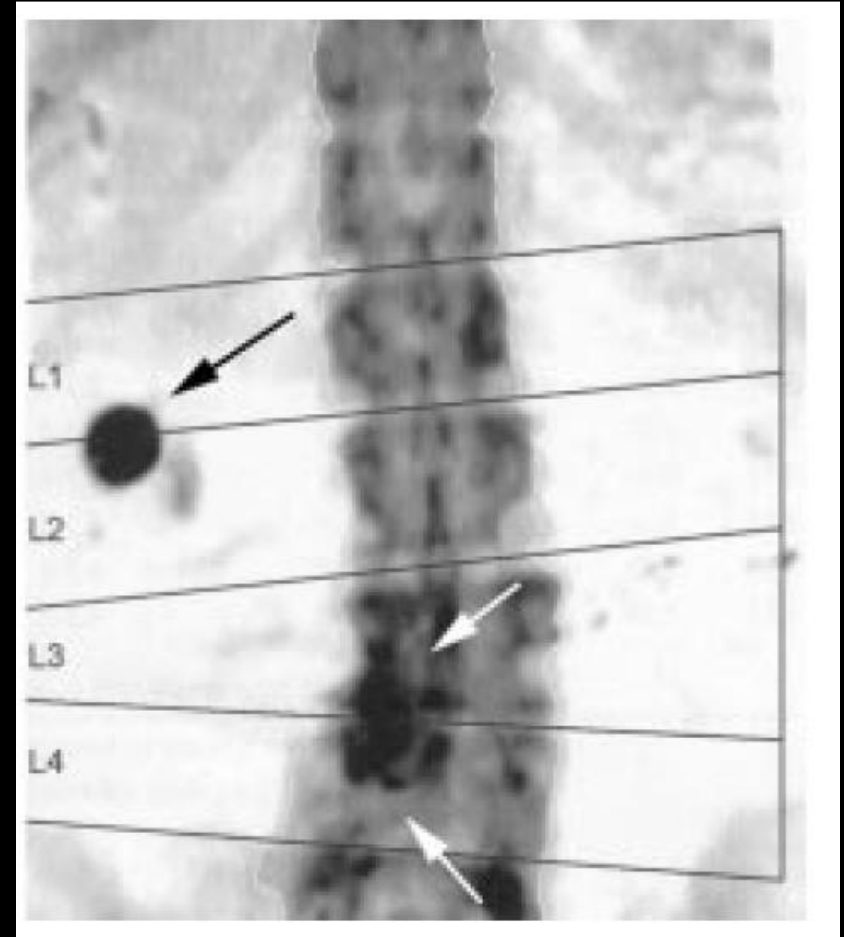


Region	BMD	T(30.0)
L1	0.927	↑+0.02 100%
L2	0.701	-2.97 68%
L3	0.721	-3.30 67%
L4	1.037	◇-0.72 93%
L2-L4	0.829	-2.27 77%

What Are These Spine Artifacts?



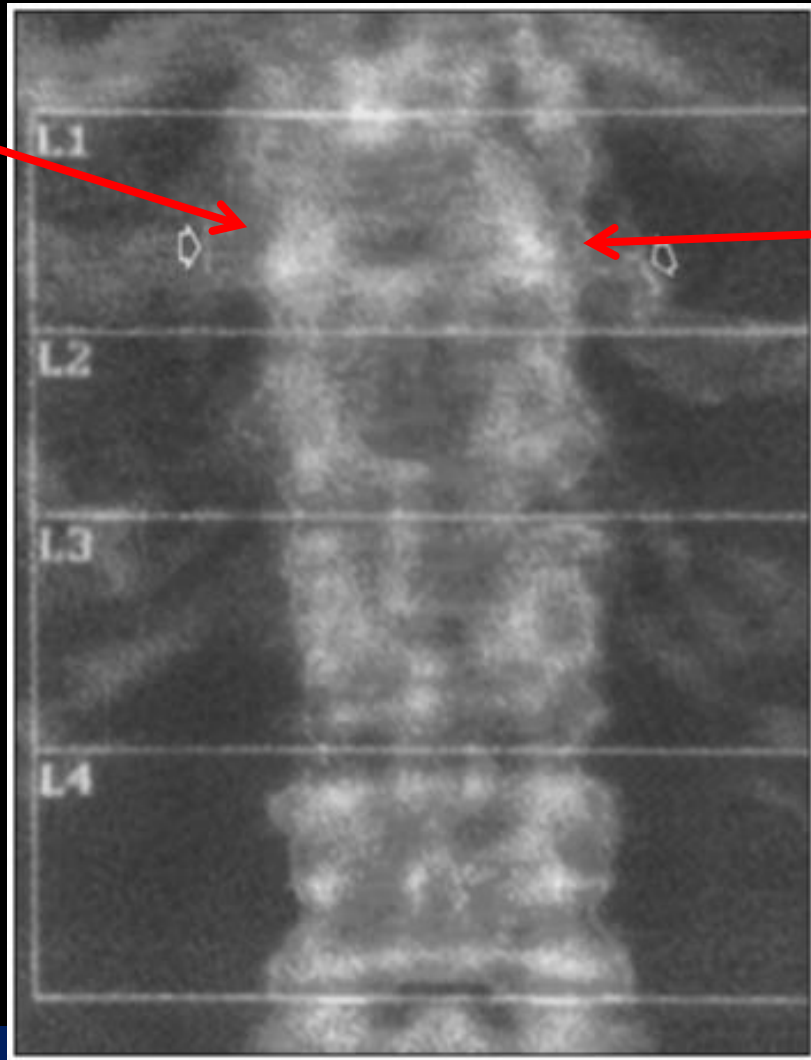
IVC Filter



**Scoliosis and
kidney stone**

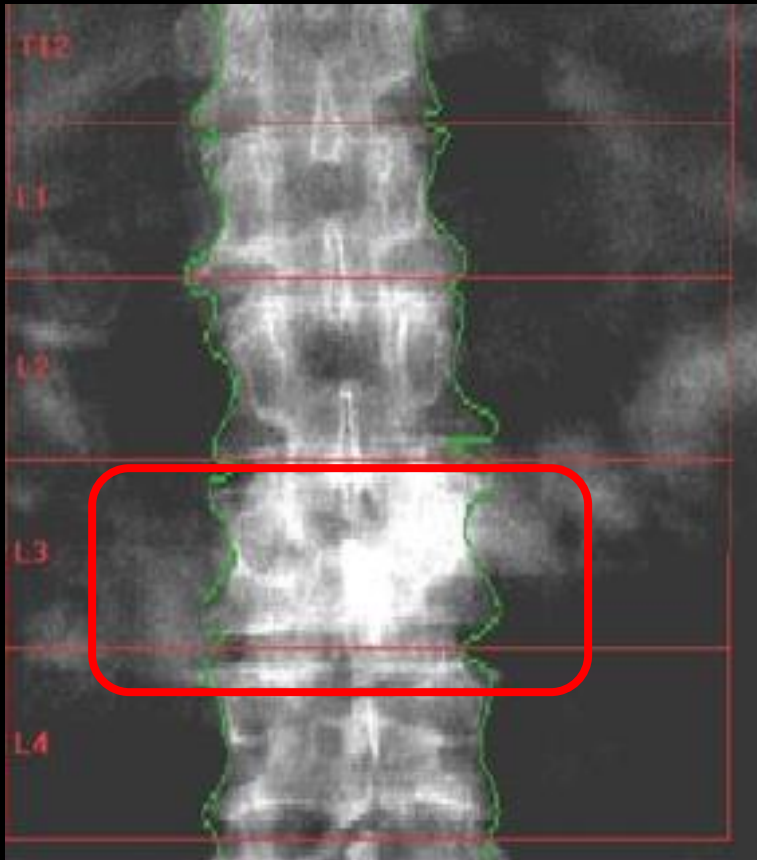


Calcified costochondral cartilage

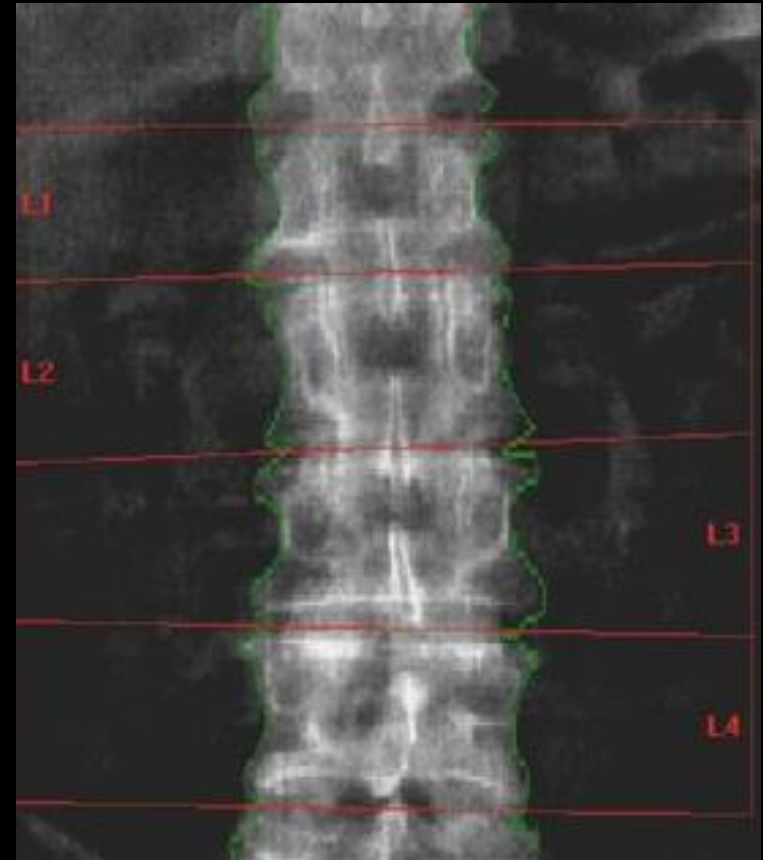


Region	BMD	T(30.0)	Z
L1	0.735	↓ -1.73 79%	+0.20 103%
L2	0.642	-3.51 62%	-1.36 81%
L3	0.582	-4.56 54%	-2.30 70%
L4	0.747	-3.35 67%	-1.03 87%
L2-L4	0.663	-3.78 61%	-1.54 80%

RETAINED CONTRAST



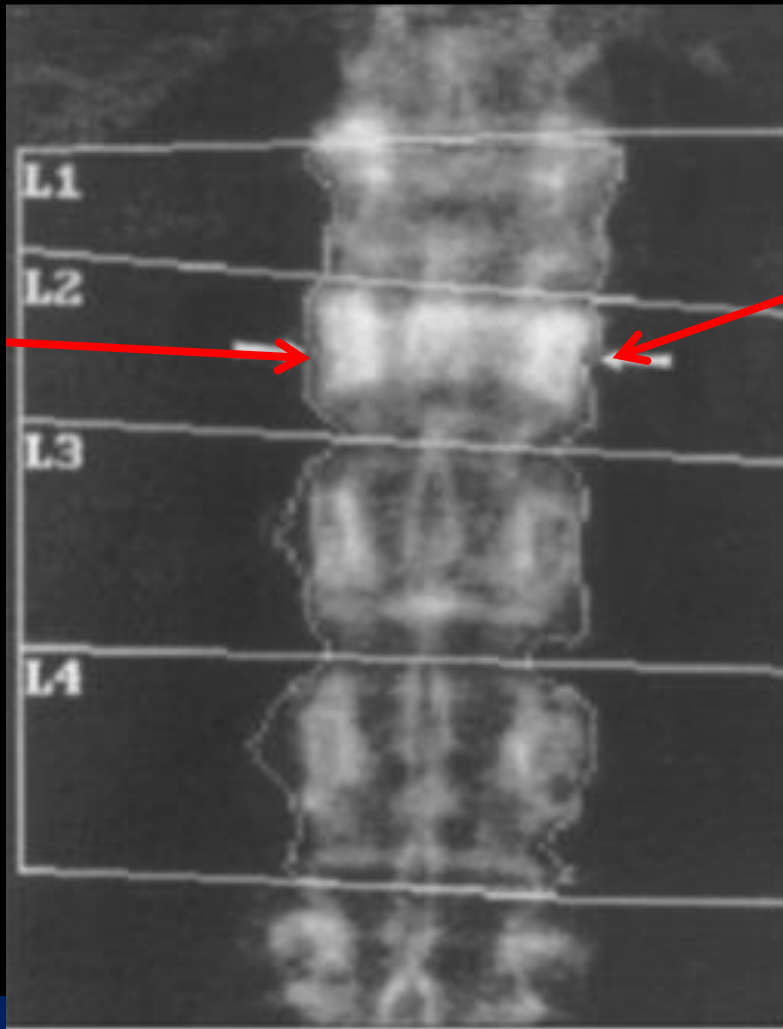
L1-L4 BMD = 1.268 g/cm²



2 weeks Later

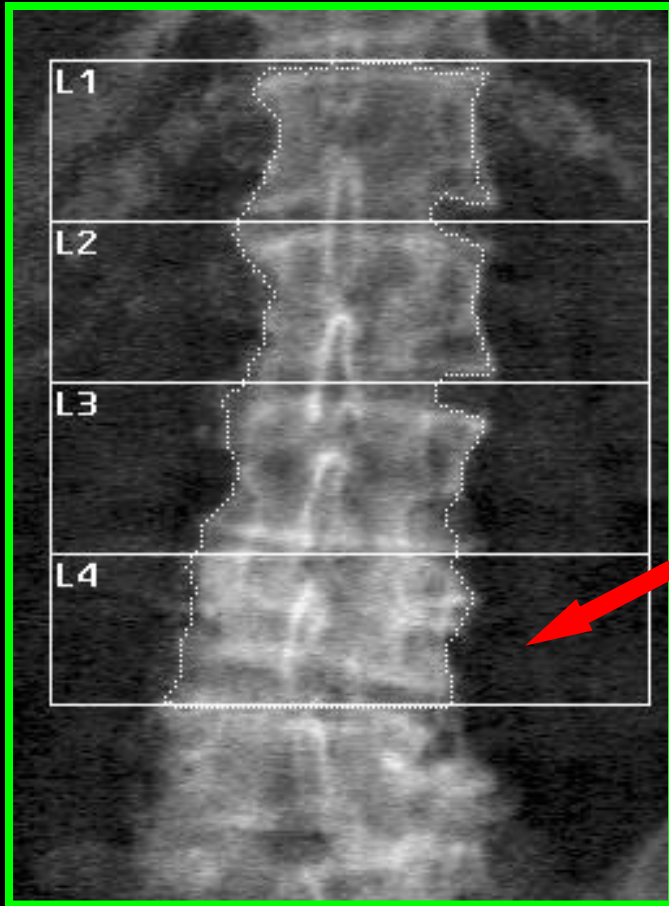
L1-L4 BMD = 0.929 g/cm²

Vertebral Compression Fracture



Region	BMD	T(30.0)		Z	
L1	0.821	-0.95	89%	+0.85	113%
L2	1.899	† +0.65	187%	+2.65	136%
L3	0.864	-2.00	80%	+0.11	101%
L4	0.843	-2.48	76%	-0.31	96%
L2-L4	0.917	-1.47	85%	+0.63	108%

Degenerative Disease

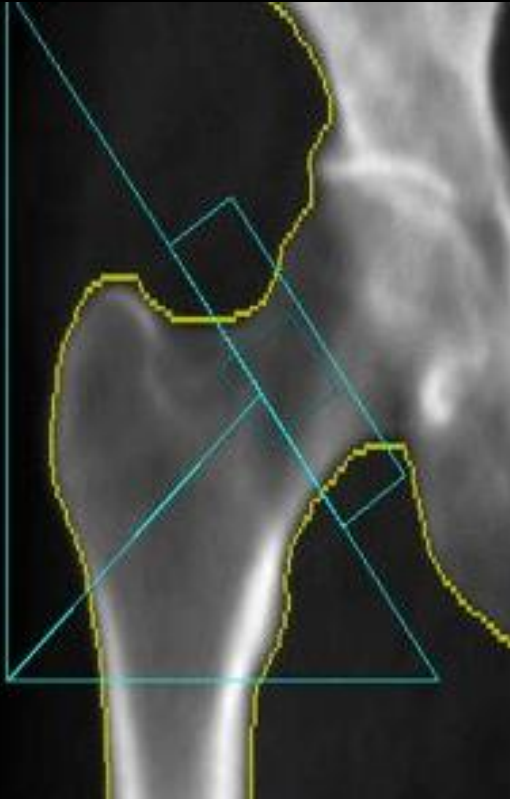


Region	BMD	T-score
L1	0.516	-3.7
L2	0.739	-2.6
L3	0.871	-1.9
L4	1.122	-0.1
L1-L4	0.834	-1.9
L1-L3	0.721	-2.7

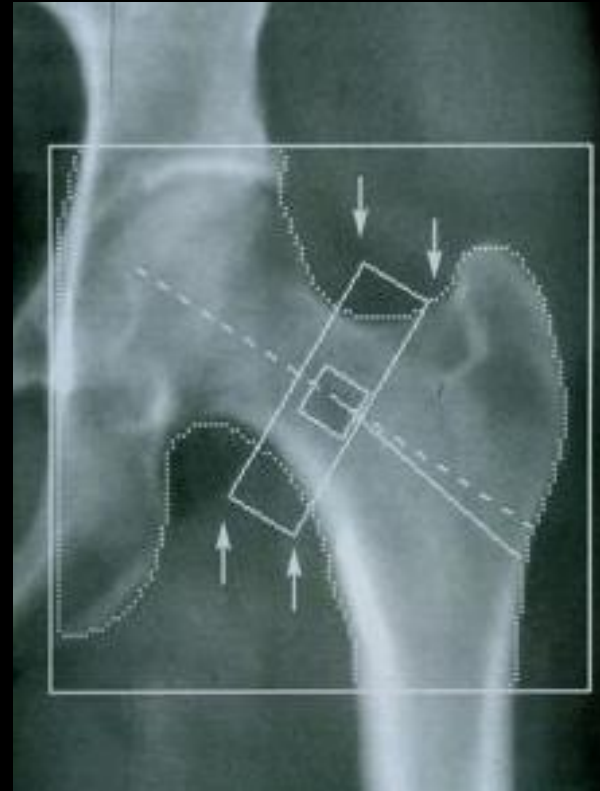
Diagnosis = Osteoporosis

Femoral Neck ROI Placement

~~Manufacturer Specific~~



GE-Lunar
ROI placed at
narrowest
portion of



Hologic
ROI anchored on
bone map of greater
trochanter

Proximal Femur Scan Analysis

- **Check for proper positioning**
- **Check if hip**
 - **Hardware, fusion, osteoarthritis, fractures**
- **Visually verify bone edges**
- **Exclude artifacts**



Identify Bone Edges Correctly



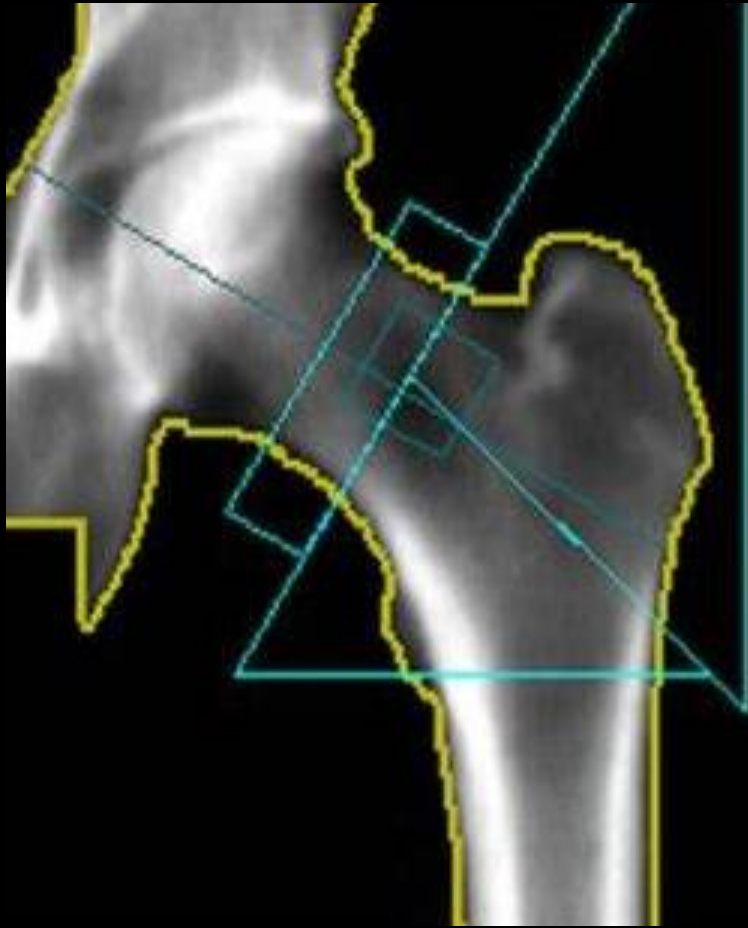
Correct



Incorrect



Check Region of Interest Placement



Correct



Incorrect



Hip Artifact - Internal and External



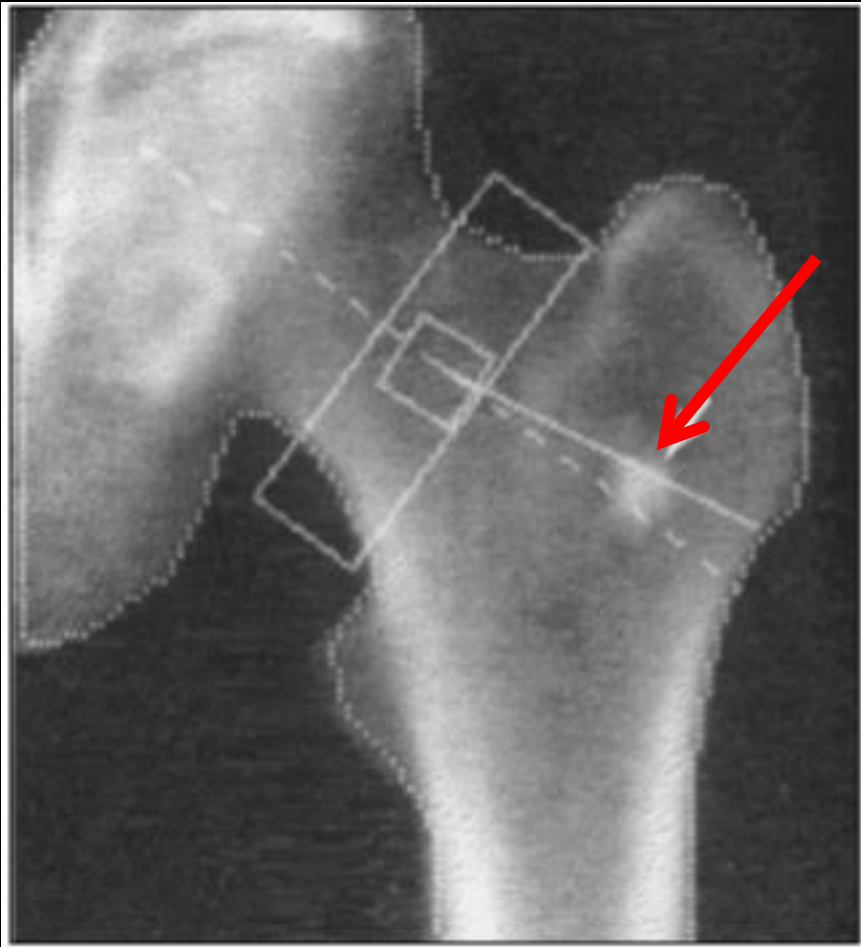
Severe osteoarthritis



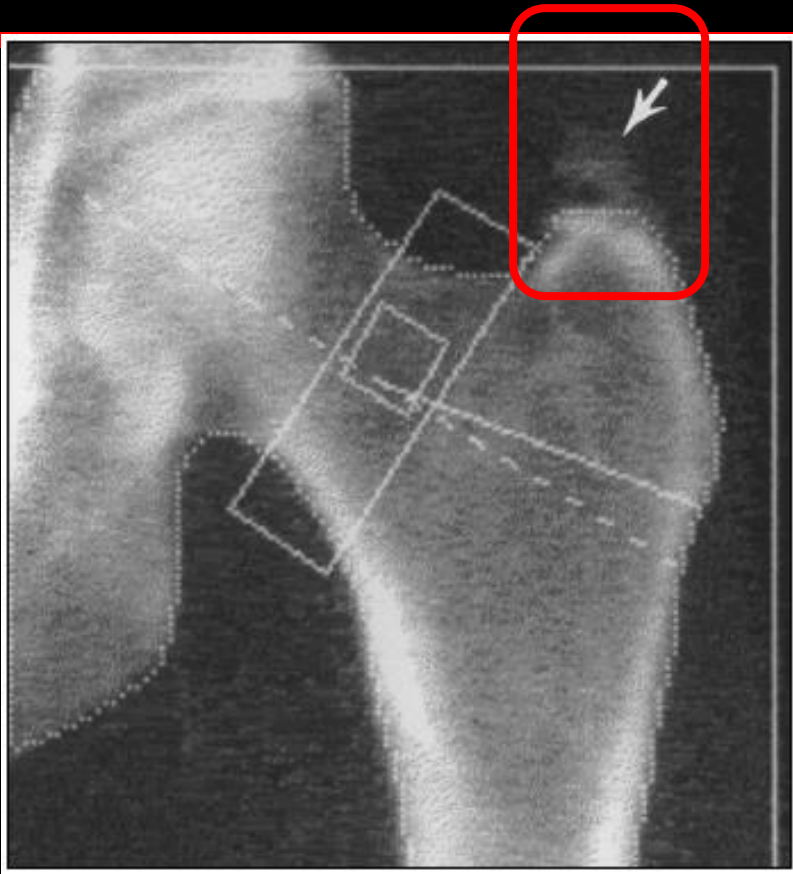
Pocket coin



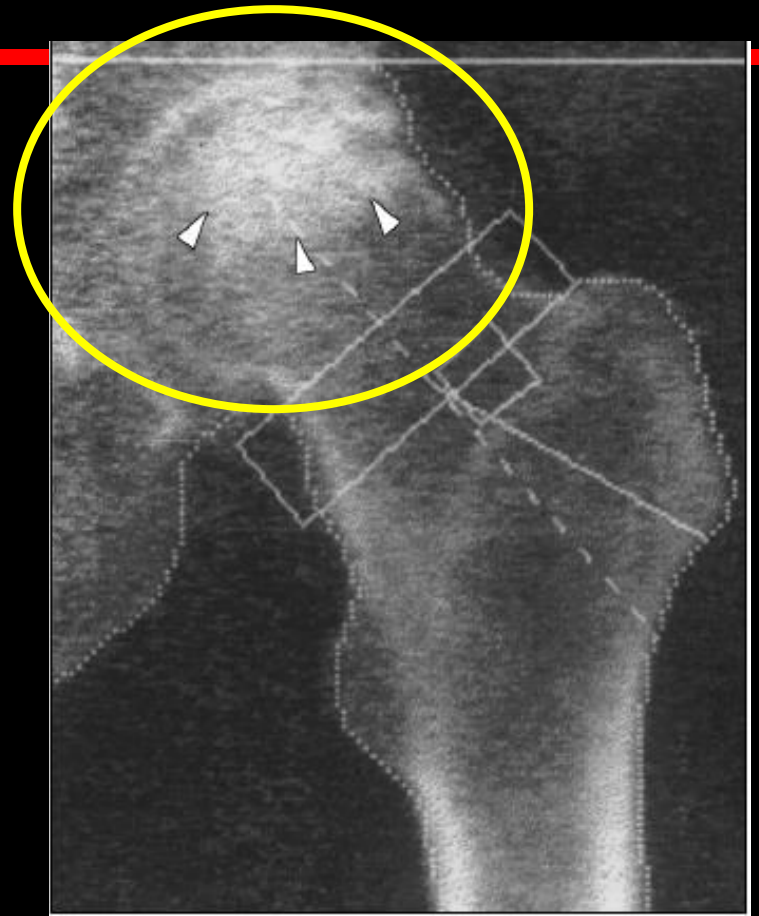
BONE ISLAND



Region	BMD	T	
Neck	0.580	-2.43	68%
		(25.0)	
Troch	0.526	-1.76	75%
		(25.0)	
Inter	0.921	↓ -1.15	84%
		(35.0)	
TOTAL	0.761	-1.48	81%
		(25.0)	
Ward's	0.481	-2.16	66%
		(25.0)	

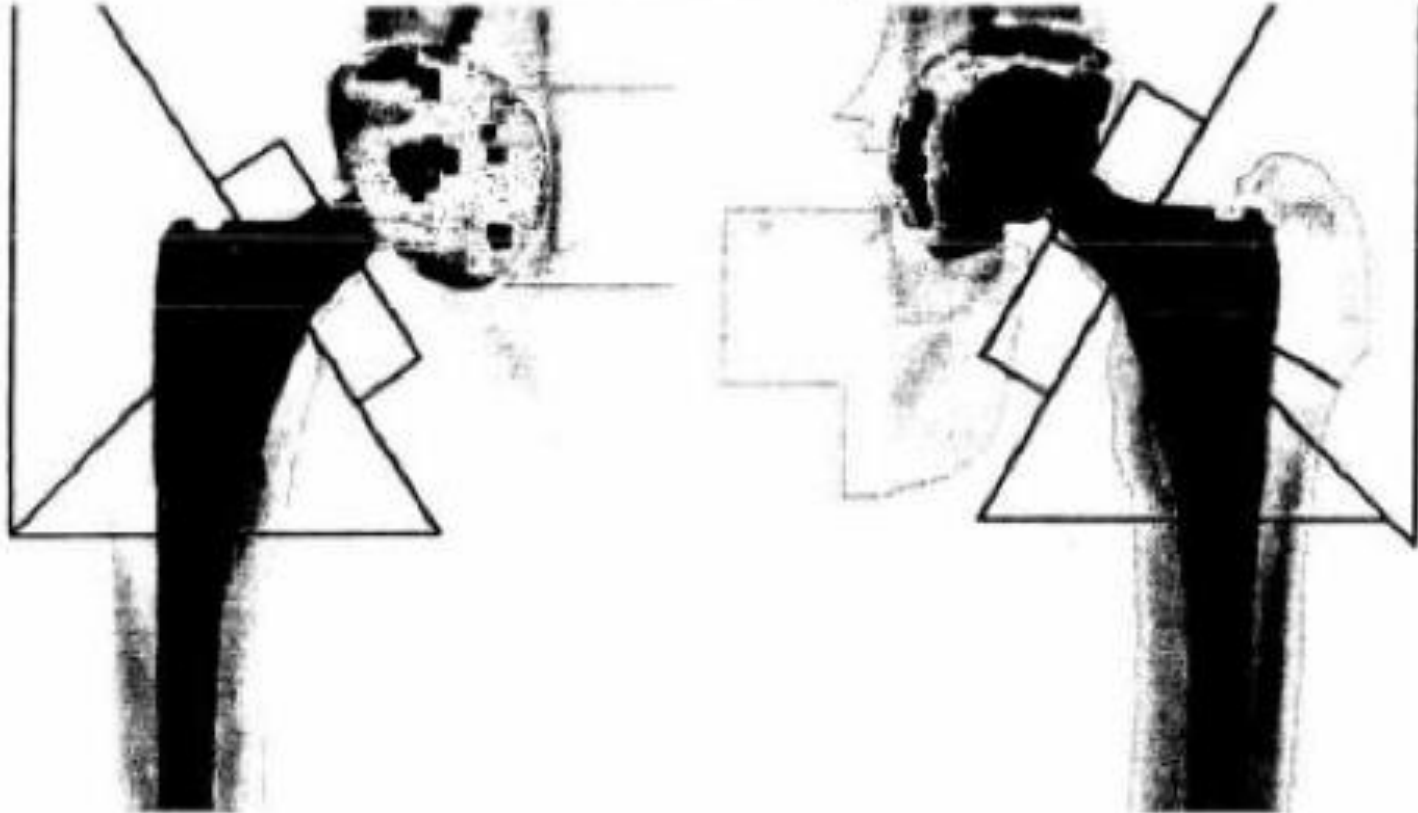


Calcific Tendon



Avascular Necrosis

DualFemur Bone Density



Right Femoral Neck:

3.726 g/cm²: **T = +19.8**

Left Femoral Neck:

3.253 g/cm²: **T = +15.9**

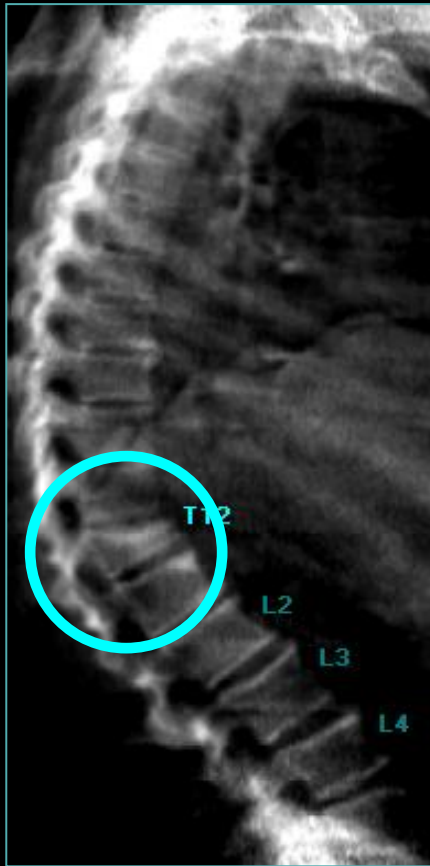
VFA

Visualizes Thoracic and Lumbar Spine

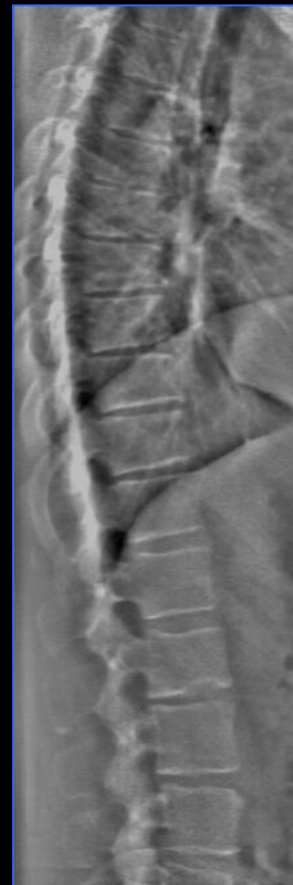
Normal



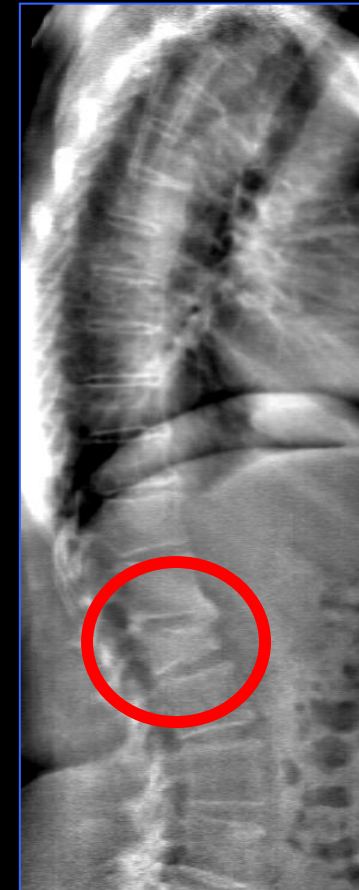
T12 Fracture



Normal



L1 Fracture



Vertebral Fracture Assessment (VFA)

- **Detects silent vertebral fractures**
- **Advantages over x-ray**
 - **Fast, low-cost**
 - **Convenient – available at point-of-care**
 - **Low radiation**
- **Adds important information for fracture risk assessment**

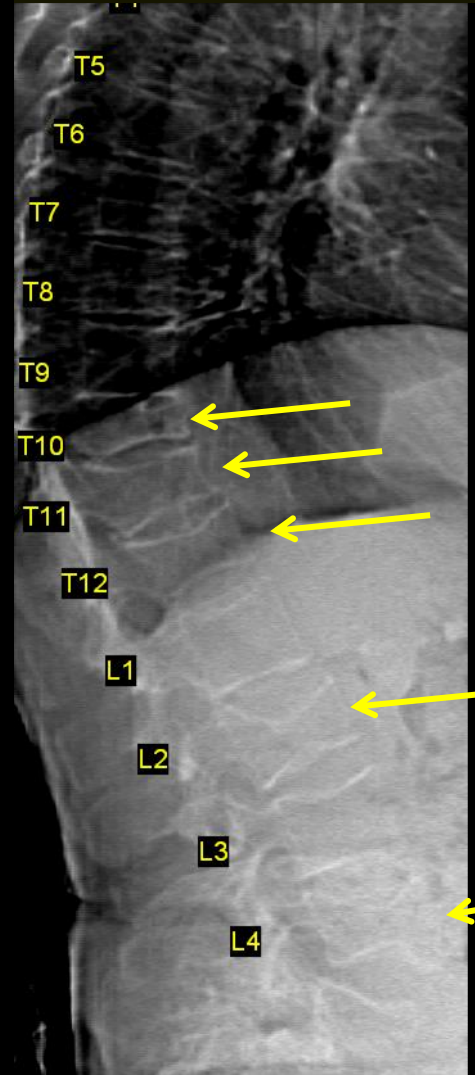
VFA Examples

← T12 G2 Wedge

← T7 Wedge

← T9 Wedge

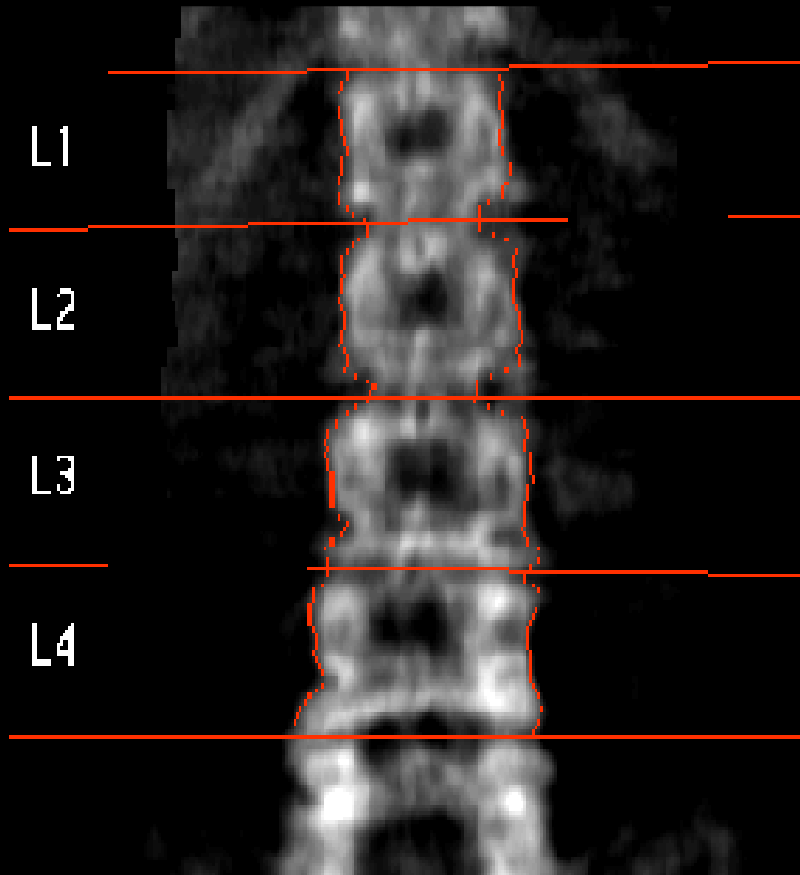
Multiple Fractures



- Least Significant Change (LSC) -

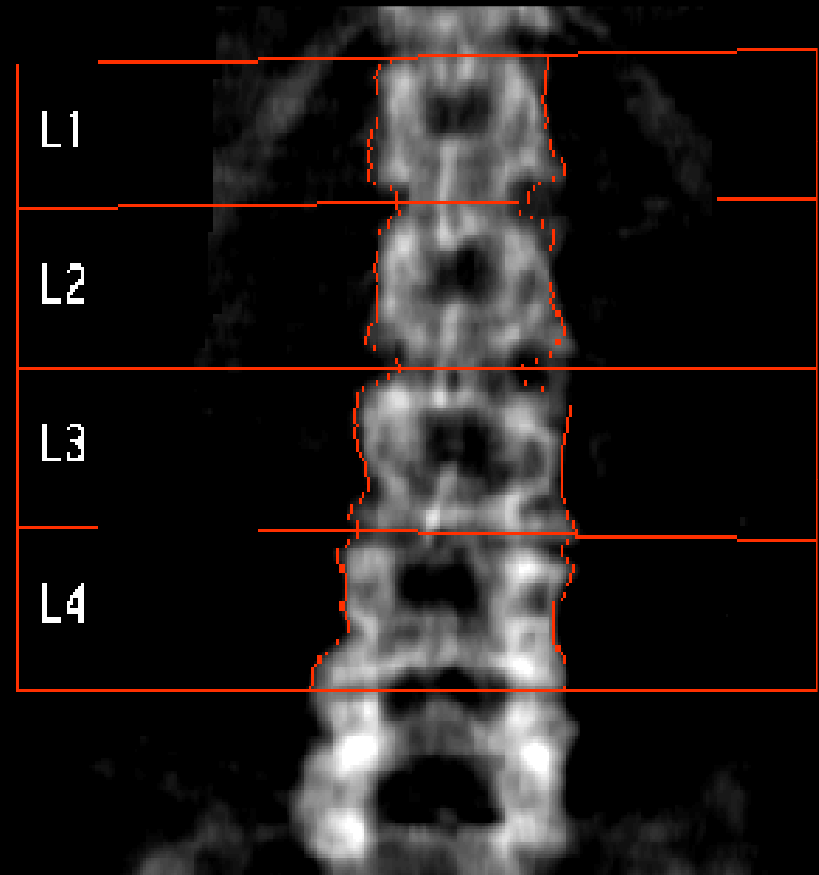
- Change in bone mineral density that is considered statistically significant**
- Institution specific**
- In reports, the asterix * by BMD comparisons indicates a statistically significant change**
- LSC reported below data chart**

What do you tell the patient?



Baseline

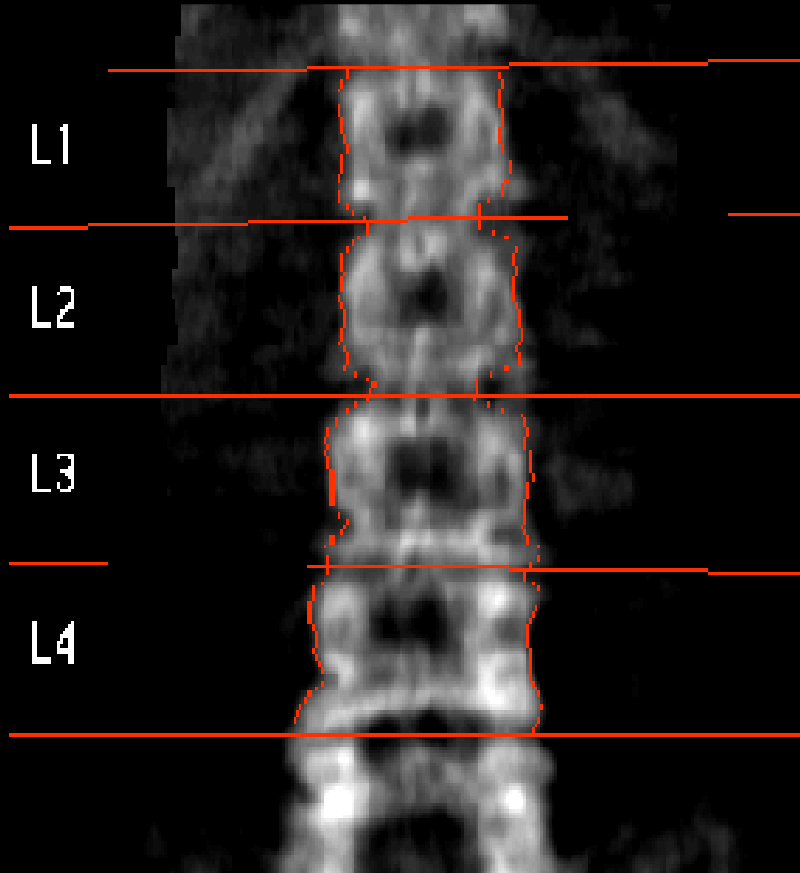
L1-L4 BMD = .705 g/cm²



Follow-up

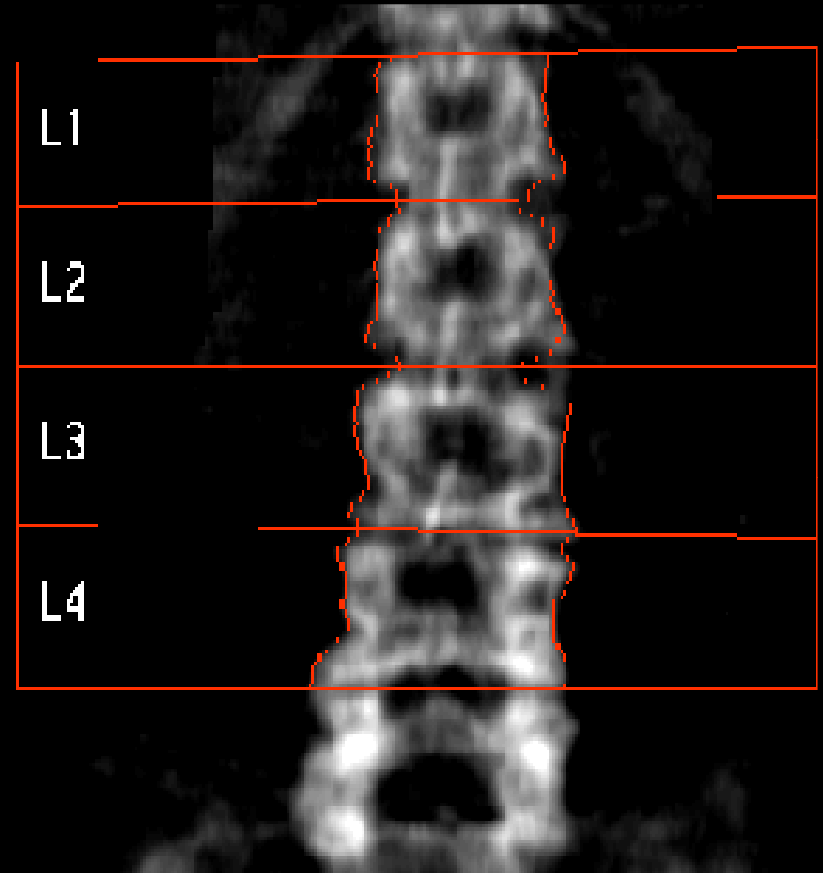
L1-L4 BMD = .684 g/cm²

**The L1-4 LSC at this facility is 0.040 g/cm²
The BMD Has NOT Changed...
~~Despite the T-score Being "Worse"~~**



Baseline

L1-L4 BMD = .705 g/cm²



Follow-up

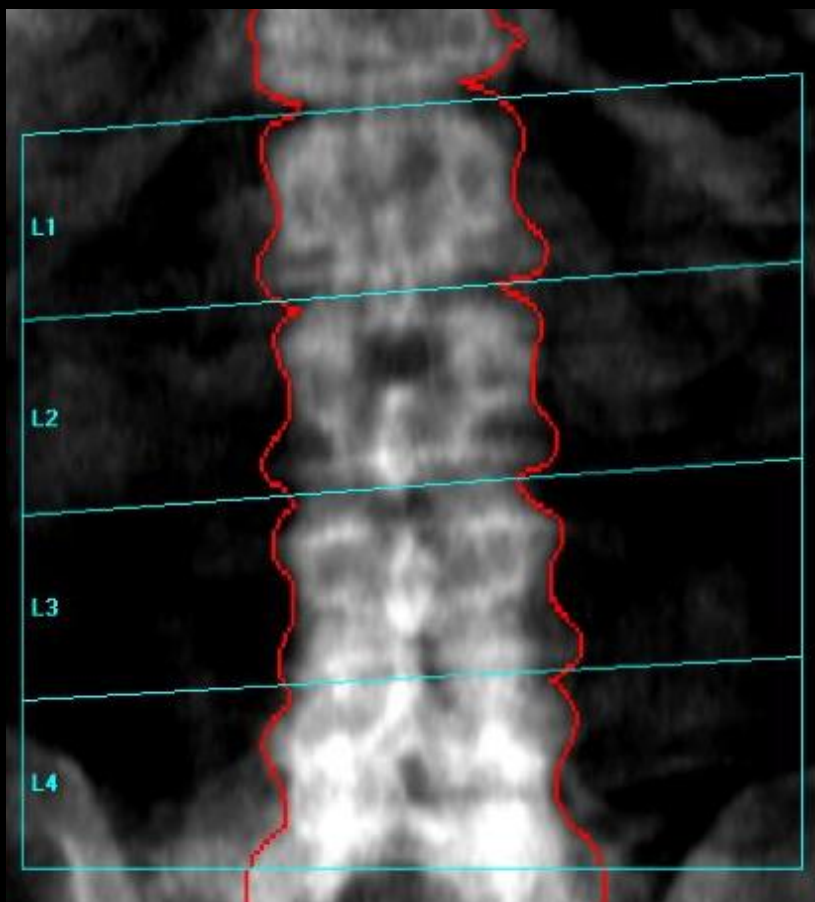
L1-L4 BMD = .684 g/cm²



PATIENT CASES (FOR YOU TO TRY)

Dr. Tudor H. Hughes M.D., FRCR
Department of Radiology
University of California School of Medicine
San Diego, California

56 yo M with COPD/frequent prednisone use
L1-L4 T-score = -0.6; Normal BMD. Is this Correct?



ANCILLARY RESULTS [AP Spine]			
Region	BMD ¹ (g/cm ²)	Young-Adult ²	
		(%)	T-Score
L1	0.846	73	-2.6
L2	0.807	65	-3.6
L3	1.159	93	-0.7
L4	1.682	136	3.7
L1-L2	0.826	69	-3.1
L1-L3	0.942	78	-2.2
L1-L4	1.144	94	-0.6
L2-L3	0.987	80	-2.1
L2-L4	1.233	99	-0.1
L3-L4	1.430	115	1.6

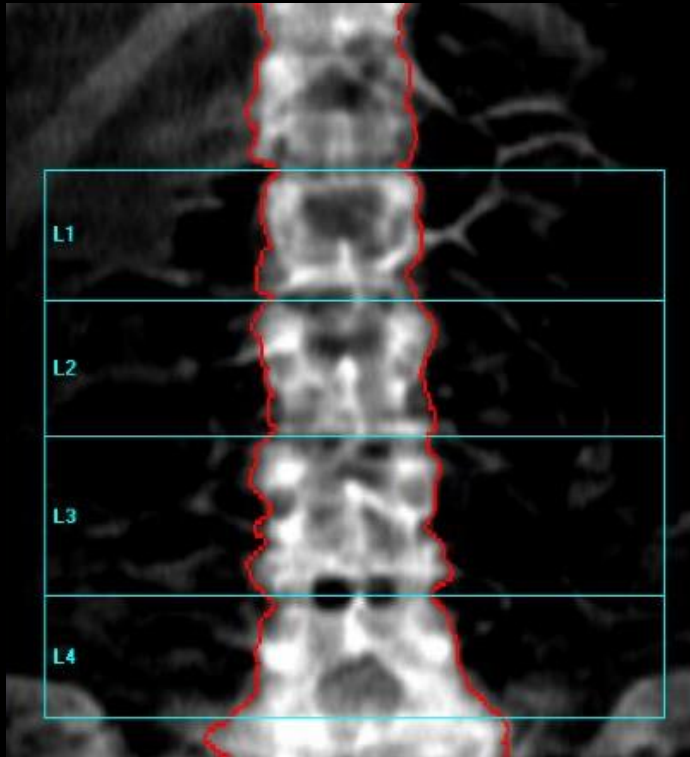
When L3 and L4 eliminated,
Diagnosis is osteoporosis

~~Patient EF: 65 year old female~~
diagnosed with osteopenia and
treated with an oral
bisphosphonate for ~ 1 year.
Referred to you due to bone loss
and a change in diagnosis from
osteopenia to osteoporosis.

What do you tell her?

Osteopenia → Osteoporosis

Baseline

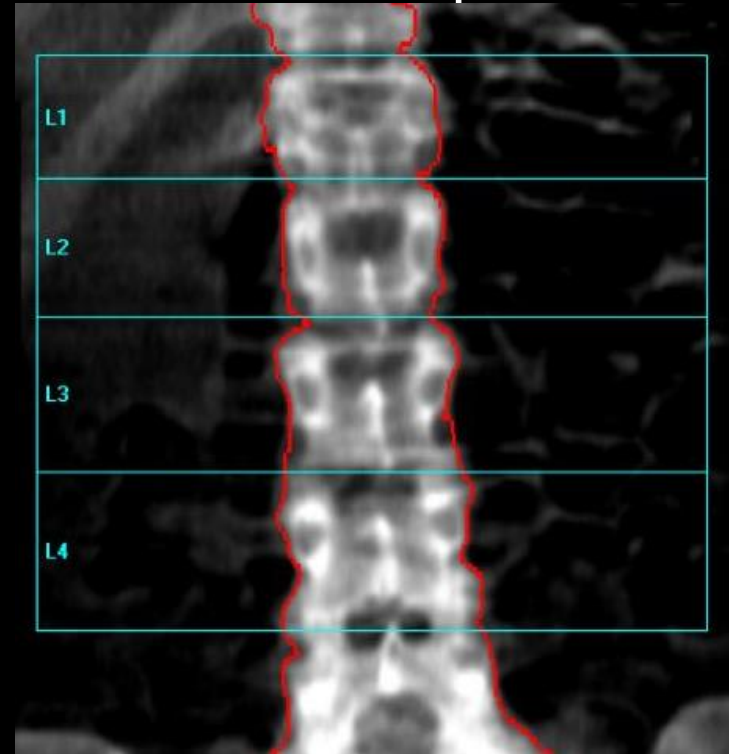


L1-L4 BMD 0.896 g/cm²

T-score = -2.4

Loss = .043 g/cm², 4.8%

Follow-up



L1-L4 BMD 0.853 g/cm²

T-score = -2.7

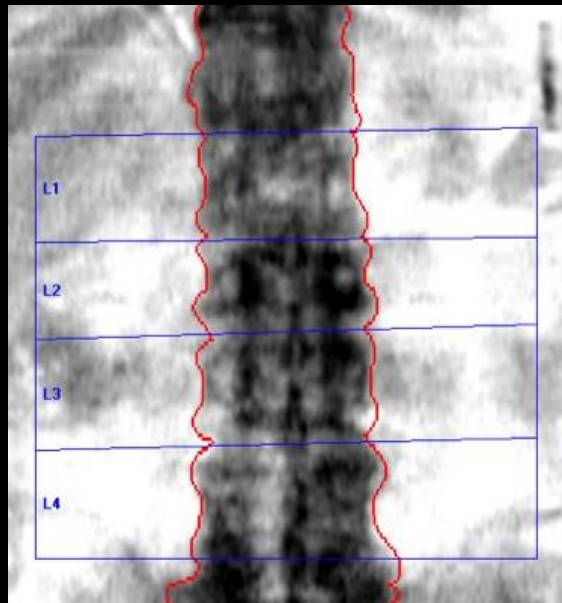


**75 year old male with improved
BMD on bisphosphonate
x 1 year.**

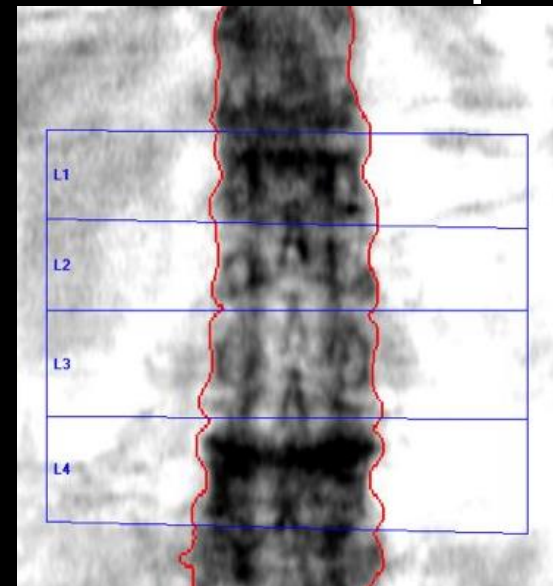
What do you tell him?

75 M: Improved BMD on bisphosphonate

Baseline



1-Year Follow-up



Region	BMD (g/cm ²)	YA T-Score
L1	0.724	-3.6
L2	0.944	-2.5
L3	0.776	-3.9
L4	0.762	-4.0
L1-L4	0.796	-3.5

Region	BMD (g/cm ²)	YA T-Score
L1	0.994	-1.4
L2	0.784	-3.8
L3	0.736	-4.2
L4	1.118	-1.0
L1-L4	0.917	-2.5

L1 to L4 increased 0.111g/cm², LSC = 0.04 gm/cm²

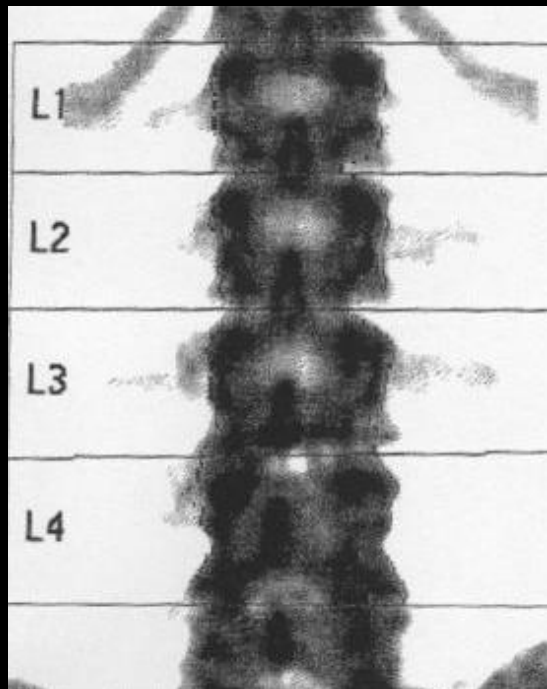
Baseline VFA 1-Year Follow-up VFA



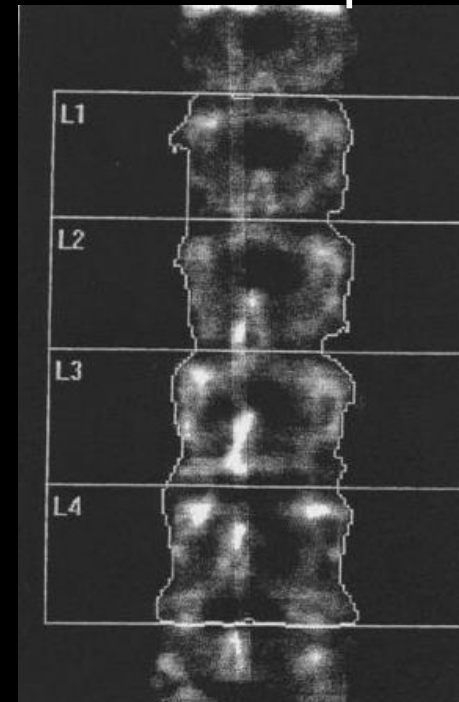
**New fractures
At L1 and L4**

**65yr M: Prior DEXA 2 yrs ago, on bisphosph therapy.
Has there been a change in BMD over time?**

Baseline



Follow-up



L1-L4 BMD 0.834 g/cm²

L1-L4 BMD 0.700 g/cm²

T-score = -3.0

T-score = -3.2

BMD loss = 16% but T-score unchanged – why??

86 yo M with hip pain



Region	BMD (g/cm ²)	Young-Adult (%)	T-Score	Age-Matched (%)	Z-Score	BMC (g)	Area (cm ²)
Neck Left	1.275	119	1.6	152	3.4	8.21	6.44
Neck Right	0.728	68	-2.6	87	-0.8	4.58	6.29
Neck Mean	1.001	94	-0.5	120	1.3	6.40	6.37
Total Left	1.449	132	2.4	164	3.9	59.18	40.84
Total Right	0.808	73	-2.0	92	-0.5	28.52	35.28
Total Mean	1.129	103	0.2	128	1.7	43.85	38.06



THE INTERNATIONAL SOCIETY
FOR CLINICAL DENSITOMETRY



Dr. Tudor H. Hughes M.D., FRCR

Department of Radiology

University of California School of Medicine
San Diego, California

ISCD Official Positions 2007

© Copyright ISCD, October 2007
Supersedes all prior "Official Positions" publications.

The International Society for Clinical Densitometry (ISCD) Convened Two Position Development Conferences (PDC) in 2007

- Previous positions in this presentation are in white
- **New positions in yellow and bold**

2007 Position Development Conferences

Pediatric PDC

June 20-21, 2007

Montreal, Quebec, Canada

Adult PDC

July 20-22, 2007

Lansdowne, Virginia, USA

2007 Pediatric PDC Steering Committee

- Sanford Baim, MD, CCD, Co-Chair
- Mary B. Leonard, MD, MSCE, Co-Chair
 - Didier B. Hans, PhD, PD, CCD
 - Maria-Luisa Bianchi, MD
 - Heidi Kalkwarf, PhD
 - Frank Rauch, MD

2007 Adult PDC Steering Committee

- Sanford Baim, MD, CCD, Chair
 - Neil Binkley, MD, CCD
- Didier B. Hans, PhD, PD, CCD
 - David L. Kendler, MD, CCD
- E. Michael Lewiecki, MD, CCD

2007 PDC Expert Panels

The Pediatric PDC Expert Panel included representatives of:

- American Society for Bone and Mineral Research (ASBMR)
- International Bone and Mineral Society (IBMS)

The Adult PDC Expert Panel included representatives of:

- American Society for Bone and Mineral Research (ASBMR)
- International Bone and Mineral Society (IBMS)
- National Osteoporosis Foundation (NOF)

The recommendations of the PDC Expert Panels are reviewed by the ISCD Board of Directors. Recommendations that are approved become Official Positions of the ISCD.

Pediatric PDC Expert Panel

Sanford Baim, MD, CCD (USA) – Moderator

Craig B. Langman, MD (USA) – Moderator

- Shona L. Bass, PhD (Australia)
- Thomas O. Carpenter, MD (USA)
- Emma Clark, MD (UK)
- Barbara A. Cromer, MD (USA)
- Tim Cundy, MD (New Zealand)
- Francis H. Glorieux, MD, PhD (Canada)
- Ghada El-Hajj Fuleihan, MD, MPH (Lebanon)
- Sue C. Kaste, DO (USA)
- Gordon L. Klein, MD, MPH (USA)
- Roman S. Lorenc, MD, PhD (Poland)
- M. Zulf Mughal, MBChB (UK)
- Aenor J. Sawyer, MD (USA)
- Francisco A. Sylvester, MD (USA)
- Hiroyuki Tanaka, MD, PhD (Japan)

Adult PDC Expert Panel

~~John P. Bilezikian, MD, CCD (USA) - Moderator~~

Stuart L. Silverman, MD (USA) – Moderator

- Harry K. Genant, MD, PhD (USA)
- Claus C. Glueer, PhD (Germany)
- Akira Itabashi, MD, PhD (Japan)
- Lawrence G. Jankowski, CDT (USA)
- Michael Kleerekoper, MD (USA)
- William D. Leslie, MD (Canada)
- Marjorie Luckey, MD (USA)
- Paul D. Miller, MD (USA)
- Sergio Ortolani, MD (Italy)
- Steven Petak, MD, JD (USA)
- Lawrence G. Raisz, MD, (USA)
- Diane L. Schneider, MD (USA)

Topic Areas For Adult PDC

- **Technical and clinical issues relevant to dual-energy X-ray absorptiometry (DXA)**
- **Vertebral fracture assessment**
- **Bone densitometry technologies other than central DXA**
 - **Quantitative computed tomography**
 - **Quantitative ultrasound**
 - **Peripheral dual-energy X-ray absorptiometry**

Topic Areas For Pediatric PDC

- **DXA prediction of fracture and definition of osteoporosis**
- **DXA assessment in diseases that may affect the skeleton**
- **DXA interpretation and reporting**
- **Peripheral quantitative computed tomography measurement**

Note: Topics were restricted to children and adolescents.

Indications For Bone Mineral Density (BMD) Testing (1)

- Women aged 65 and older
- Postmenopausal women under age 65 with risk factors for fracture.
- **Women during the menopausal transition with clinical risk factors for fracture, such as low body weight, prior fracture, or high-risk medication use.**
- Men aged 70 and older.
- **Men under age 70 with clinical risk factors for fracture.**
- Adults with a fragility fracture.

Indications For Bone Mineral Density (BMD) Testing (2)

- Adults with a disease or condition associated with low bone mass or bone loss.
- Adults taking medications associated with low bone mass or bone loss.
- Anyone being considered for pharmacologic therapy.
- Anyone being treated, to monitor treatment effect.
- Anyone not receiving therapy in whom evidence of bone loss would lead to treatment.

Women discontinuing estrogen should be considered for bone density testing according to the indications listed above.

Reference Database for T-Scores

- Use a uniform Caucasian (non-race adjusted) female normative database for women of all ethnic groups.*
- Use a uniform Caucasian (non-race adjusted) male normative database for men of all ethnic groups.*
- The NHANES III database should be used for T-score derivation at the hip regions.

**Note: Application of recommendation may vary according to local requirements.*

Central DXA for Diagnosis (1)

- The WHO international reference standard for osteoporosis diagnosis is a T-score of -2.5 or less at the femoral neck.
 - The reference standard from which the T-score is calculated is the female, white, age 20-29 years, NHANES III database

Central DXA for Diagnosis (2)

- Osteoporosis may be diagnosed in postmenopausal women and in men age 50 and older if the T-score of the lumbar spine, total hip, or femoral neck is -2.5 or less:*
- In certain circumstances the 33% radius (also called 1/3 radius) may be utilized

*Note: Other hip regions of interest, including Ward's area and the greater trochanter, should not be used for diagnosis. Application of recommendation may vary according to local requirements.

Central DXA for Diagnosis (3)

- Skeletal sites to measure
 - Measure BMD at both the PA spine and hip in all patients
 - Forearm BMD should be measured under the following circumstances:
 - Hip and/or spine cannot be measured or interpreted.
 - Hyperparathyroidism
 - Very obese patients (over the weight limit for DXA table)

Central DXA for Diagnosis (4)

- Spine Region of Interest (ROI)
 - Use PA L1-L4 for spine BMD measurement
 - Use all evaluable vertebrae and only exclude vertebrae that are affected by local structural change or artifact. Use three vertebrae if four cannot be used and two if three cannot be used
 - BMD based diagnostic classification should not be made using a single vertebra.
 - If only one evaluable vertebra remains after excluding other vertebrae, diagnosis should be based on a different valid skeletal site

Central DXA for Diagnosis (5)

- Anatomically abnormal vertebrae may be excluded from analysis if:
 - They are clearly abnormal and non-assessable within the resolution of the system; or
 - There is more than a 1.0 T-score difference between the vertebra in question and adjacent vertebrae
- When vertebrae are excluded, the BMD of the remaining vertebrae is used to derive the T-score
- The lateral spine should not be used for diagnosis, but may have a role in monitoring

Central DXA for Diagnosis (6)

- Hip ROI
 - Use femoral neck, or total proximal femur whichever is lowest.
 - BMD may be measured at either hip
 - There are insufficient data to determine whether mean T-scores for bilateral hip BMD can be used for diagnosis
 - The mean hip BMD can be used for monitoring, with total hip being preferred
- Forearm ROI
 - Use 33% radius (sometimes called one-third radius) of the non-dominant forearm for diagnosis. Other forearm ROI are not recommended

Fracture Risk Assessment

- A distinction is made between diagnostic classification and the use of BMD for fracture risk assessment.
- For fracture risk assessment, any well-validated technique can be used, including measurements of more than one site where this has been shown to improve the assessment of risk.

Use of the Term “Osteopenia”

- The term “osteopenia” is retained, but “low bone mass” or “low bone density” is preferred.
- People with low bone mass or density are not necessarily at high fracture risk.

■ BMD Reporting in Postmenopausal Women and in Men Age 50 and Older ■

- T-scores are preferred.
- The WHO densitometric classification is applicable.

BMD Reporting in Females Prior to Menopause and in Males Younger Than Age 50

- Z-scores, not T-scores, are preferred. This is particularly important in children.
- A Z-score of -2.0 or lower is defined as “below the expected range for age”, and a Z-score above -2.0 is “within the expected range for age.”
- **Osteoporosis cannot be diagnosed in men under age 50 on the basis of BMD alone.**
- **The WHO diagnostic criteria may be applied to women in the menopausal transition.**

Z-Score Reference Database

- Z-scores should be population specific where adequate reference data exist. For the purpose of Z-score calculation, the patient's self-reported ethnicity should be used.

Serial BMD Measurements (1)

- Serial BMD testing can be used to determine whether treatment should be started on untreated patients, because significant loss may be an indication for treatment.
- Serial BMD testing can monitor response to therapy by finding an increase or stability of bone density.
- Serial BMD testing can evaluate individuals for non-response by finding loss of bone density, suggesting the need for reevaluation of treatment and evaluation for secondary causes of osteoporosis.

Serial BMD Measurements (2)

- Follow-up BMD testing should be done when the expected change in BMD equals or exceeds the least significant change (LSC).
- Intervals between BMD testing should be determined according to each patient's clinical status: typically one year after initiation or change of therapy is appropriate, with longer intervals once therapeutic effect is established.
- In conditions associated with rapid bone loss, such as glucocorticoid therapy, testing more frequently is appropriate.

Phantom Scanning and Calibration (1)

The Quality Control (QC) program at a DXA facility should include adherence to manufacturer guidelines for system maintenance. In addition, if not recommended in the manufacturer protocol, the following QC procedures are advised:

- Perform periodic (at least once per week) phantom scans for any DXA system as an independent assessment of system calibration.
- Plot and review data from calibration and phantom scans.

Phantom Scanning and Calibration

(2)

- Verify the phantom mean BMD after any service performed on the densitometer.
- Establish and enforce corrective action thresholds that trigger a call for service.
- Maintain service logs.
- Comply with government inspections, radiation surveys and regulatory requirements.

Precision Assessment (1)

- Each DXA facility should determine its precision error and calculate the LSC.
- The precision error supplied by the manufacturer should not be used.
- If a DXA facility has more than one technologist, an average precision error combining data from all technologists should be used to establish precision error and LSC for the facility, provided the precision error for each technologist is within a pre-established range of acceptable performance.
- Every technologist should perform an in vivo precision assessment using patients representative of the clinic's patient population.

Precision Assessment (2)

- Each technologist should do one complete precision assessment after basic scanning skills have been learned (e.g., manufacturer training) and after having performed approximately 100 patient-scans.
- A repeat precision assessment should be done if a new DXA system is installed.
- A repeat precision assessment should be done if a technologist's skill level has changed.

Precision Assessment (3)

- To perform a precision analysis:
 - Measure 15 patients 3 times, or 30 patients 2 times, repositioning the patient after each scan
 - Calculate the root mean square standard deviation (RMS-SD) for the group
 - Calculate LSC for the group at 95% confidence interval

Precision Assessment (4)

- The minimum acceptable precision for an individual technologist is:
 - Lumbar Spine: 1.9% (LSC=5.3%)
 - Total Hip: 1.8% (LSC=5.0%)
 - Femoral Neck: 2.5% (LSC=6.9%)
 - Retraining is required if a technologist's precision is worse than these values

Precision Assessment (5)

- Precision assessment should be standard clinical practice. Precision assessment is not research and may potentially benefit patients. It should not require approval of an institutional review board. Adherence to local radiologic safety regulations is necessary. Performance of a precision assessment requires the consent of participating patients.

Cross-Calibration of DXA Systems (1)

- When changing hardware, but not the entire system, or when replacing a system with the same technology (manufacturer and model), cross-calibration should be performed by having one technologist do 10 phantom scans, with repositioning, before and after hardware change.
 - If a greater than 1% difference in mean BMD is observed, contact the manufacturer for service/correction

Cross-Calibration of DXA Systems (2)

- When changing an entire system to one made by the same manufacturer using a different technology, or when changing to a system made by a different manufacturer, one approach to cross-calibration is:
 - Scan 30 patients representative of the facility's patient population once on the initial system and then twice on the new system within 60 days
 - Measure those anatomic sites commonly measured in clinical practice, typically spine and proximal femur

Cross-Calibration of DXA Systems (3)

- Facilities must comply with locally applicable regulations regarding DXA
- Calculate the average BMD relationship and LSC between the initial and new machine using the ISCD DXA Machine Cross-Calibration Tool (www.ISCD.org)
- Use this LSC for comparison between the previous and new system. Inter-system quantitative comparisons can only be made if cross-calibration is performed on each skeletal site commonly measured
- Once a new precision assessment has been performed on the new system, all future scans should be compared to scans performed on the new system using the newly established intra-system LSC

Cross-Calibration of DXA Systems (4)

- If a cross-calibration assessment is not performed, no quantitative comparison to the prior machine can be made. Consequently, a new baseline BMD and intra-system LSC should be established.

BMD Comparison Between Facilities

- It is not possible to quantitatively compare BMD or to calculate a LSC between facilities without cross-calibration.

Vertebral Fracture Assessment Nomenclature

- Vertebral Fracture Assessment (VFA) is the correct term to denote densitometric spine imaging performed for the purpose of detecting vertebral fractures.

Indications for VFA (1)

- Consider VFA when the results may influence clinical management.
- **Postmenopausal women with low bone mass (osteopenia) by BMD criteria, PLUS any one of the following:**
 - **Age greater than or equal to 70 years**
 - **Historical height loss greater than 4 cm (1.6 in.)**
 - **Prospective height loss greater than 2 cm (0.8 in.)**
 - **Self-reported vertebral fracture (not previously documented)**

Indications for VFA (2)

- **Two or more of the following;**
 - **Age 60 to 69 years**
 - **Self-reported prior non-vertebral fracture**
 - **Historical height loss of 2 to 4 cm**
 - **Chronic systemic diseases associated with increased risk of vertebral fractures (for example, moderate to severe COPD or COAD, seropositive rheumatoid arthritis, Crohn's disease)**

Indications for VFA (3)

- **Men with low bone mass (osteopenia) by BMD criteria, PLUS any one of the following:**
 - **Age 80 years or older**
 - **Historical height loss greater than 6 cm (2.4 in)**
 - **Prospective height loss greater than 3 cm (1.2 in)**
 - **Self-reported vertebral fracture (not previously documented)**

Indications for VFA (4)

- **Two or more of the following;**
 - **Age 70 to 79 years**
 - **Self-reported prior non-vertebral fracture**
 - **Historical height loss of 3 to 6 cm**
 - **On pharmacologic androgen deprivation therapy or following orchiectomy**
 - **Chronic systemic diseases associated with increased risk of vertebral fractures (for example, moderate to severe COPD or COAD, seropositive rheumatoid arthritis, Crohn's disease)**

Indications for VFA (5)

- **Women or men on chronic glucocorticoid therapy (equivalent to 5 mg or more of prednisone daily for three (3) months or longer).**
- **Postmenopausal women or men with osteoporosis by BMD criteria, if documentation of one or more vertebral fractures will alter clinical management.**

Methods for Defining and Reporting Fractures on VFA

- The methodology utilized for vertebral fracture identification should be similar to standard radiological approaches and be provided in the report.
- Fracture diagnosis should be based on visual evaluation and include assessment of grade/severity. Morphometry alone is not recommended because it is unreliable for diagnosis.
- **The Genant visual semi-quantitative method is the current clinical technique of choice for diagnosing vertebral fracture with VFA.**
- Severity of deformity may be confirmed by morphometric measurement if desired.

Indications for Following VFA With Another Imaging Modality (1)

- The decision to perform additional imaging must be based on each patient's overall clinical picture, including the VFA result.
- **Indications for follow-up imaging studies include:**
 - **Two or more mild (grade 1) deformities without any moderate or severe (grade 2 or 3) deformities**

Indications for Following VFA With Another Imaging Modality (2)

- **Lesions in vertebrae that cannot be attributed to benign causes**
- **Vertebral deformities in a patient with a known history of a relevant malignancy**
- Equivocal fractures
- Unidentifiable vertebrae between T7-L4
- Sclerotic or lytic changes, or findings suggestive of conditions other than osteoporosis

Note: VFA is designed to detect vertebral fractures and not other abnormalities.

Baseline DXA Report: Minimum Requirements (1)

- Demographics (name, medical record identifying number, date of birth, sex).
- Requesting provider.
- Indications for the test.
- Manufacturer and model of instrument used
- Technical quality and limitations of the study, stating why a specific site or ROI is invalid or not included.
- BMD in g/cm² for each site.
- The skeletal sites, ROI, and, if appropriate, the side, that were scanned.
- The T-score and/or Z-score where appropriate.

Baseline DXA Report: Minimum Requirements (2)

- WHO criteria for diagnosis in postmenopausal females and in men age 50 and over.
- Risk factors including information regarding previous non traumatic fractures.
- A statement about fracture risk. Any use of relative fracture risk must specify the population of comparison (e.g., young- adult or age-matched). The ISCD favors the use of absolute fracture risk prediction when such methodologies are established.
- A general statement that a medical evaluation for secondary causes of low BMD may be appropriate.
- Recommendations for the necessity and timing of the next BMD study.

Follow-Up DXA Report

- Statement regarding which previous or baseline study and ROI is being used for comparison.
- Statement about the LSC at your facility and the statistical significance of the comparison.
- Report significant change, if any, between the current and previous study or studies in g/cm² and percentage.
- Comments on any outside study including manufacturer and model on which previous studies were performed and the appropriateness of the comparison.
- Recommendations for the necessity and timing of the next BMD study.

DXA Report: Optional Items

- Recommendation for further non-BMD testing, such as X-ray, magnetic resonance imaging, computed tomography, etc.
- Recommendations for pharmacological and non pharmacological interventions.
- Addition of the percentage compared to a reference population.
- Specific recommendations for evaluation of secondary osteoporosis.

DXA Report: Items That Should Not be Included

- A statement that there is bone loss without knowledge of previous bone density.
- Mention of “mild,” “moderate,” or “marked” osteopenia or osteoporosis.
- Separate diagnoses for different ROI (e.g., osteopenia at the hip and osteoporosis at the spine).
- Expressions such as "She has the bones of an 80-year-old," if the patient is not 80 years old.
- Results from skeletal sites that are not technically valid.
- The change in BMD if it is not a significant change based on the precision error and LSC.

Components of a VFA Report

-
- Patient identification, referring physician, indication(s) for study, technical quality and interpretation.
- A follow-up VFA report should also include comparability of studies and clinical significance of changes, if any.
- **VFA reports should comment on the following**
 - **Unevaluable vertebrae**
 - **Deformed vertebrae, and whether or not the deformities are consistent with vertebral fracture**
 - **Unexplained vertebral and extra-vertebral pathology**
- Optional components include fracture risk and recommendations for additional studies

General Recommendations for Non Central DXA Devices: QCT, pQCT, QUS, and pDXA (1)

The following general recommendations for QCT, pQCT, QUS, and pDXA are analogous to those defined for central DXA technologies. Examples of technical differences amongst devices, fracture prediction ability for current manufacturers and equivalence study requirements are provided in the full text documents printed in the *Journal of Clinical Densitometry*.

General Recommendations for Non Central DXA Devices: QCT, pQCT, QUS, and pDXA (2)

- **Bone density measurements from different devices cannot be directly compared.**
- **Different devices should be independently validated for fracture risk prediction by prospective trials, or by demonstration of equivalence to a clinically validated device.**

General Recommendations for Non Central DXA Devices: QCT, pQCT, QUS, and pDXA (3)

- **T-scores from measurements other than DXA at the femur neck, total femur, lumbar spine, or one-third (33%) radius cannot be used according to the WHO diagnostic classification because those T-scores are not equivalent to T-scores derived by DXA.**

General Recommendations for Non Central DXA Devices: QCT, pQCT, QUS, and pDXA (4)

- **Device-specific education and training should be provided to the operators and interpreters prior to clinical use.**
- **Quality control procedures should be performed regularly.**

Baseline Non Central DXA Devices (QCT, pQCT, QUS, pDXA) Report: Minimum Requirements (1)

- **Date of test**
- **Demographics (name, date of birth or age, sex)**
- **Requesting provider**
- **Names of those receiving copy of report**
- **Indications for test**
- **Manufacturer, and model of instrument and software version**

- **Baseline Non Central DXA Devices (QCT, pQCT, QUS, pDXA) Report: Minimum Requirements (2)**
- **Measurement value(s)**
- **Reference database**
- **Skeletal site/ROI**
- **Quality of test**
- **Limitations of the test including a statement that the WHO diagnostic classification cannot be applied to T-scores obtained from QCT, pQCT, QUS, and pDXA (other than one-third (33%) radius) measurements**

▪ **Baseline Non Central DXA Devices (QCT, pQCT, QUS, pDXA) Report: Minimum Requirements (3)** ▪

- **Clinical risk factors**
- **Fracture risk estimation**
- **A general statement that a medical evaluation for secondary causes of low BMD may be appropriate**
- **Recommendations for follow-up imaging**

Note: A list of appropriate technical items is provided in the QCT and pQCT sections of the full text documents printed in the

Journal of Clinical Densitometry.

- # Non Central DXA Devices (QCT, pQCT, QUS, pDXA) Report: Optional Items
- **Report may include the following optional item:**
 - **Recommendations for pharmacological and non pharmacological interventions**

QCT and pQCT (1)

-
- **Acquisition**
 - **With single-slice QCT, L1-L3 should be scanned; with 3D QCT, L1-L2 should be scanned**
- **Fracture Prediction**
 - **Spinal trabecular BMD as measured by QCT has at least the same ability to predict vertebral fractures as AP spinal BMD measured by central DXA in postmenopausal women. There is lack of sufficient evidence to support this position for men**

QCT and pQCT (2)

- **There is lack of sufficient evidence to recommend spine QCT for hip fracture prediction in either women or men**
- **pQCT of the forearm at the ultra-distal radius predicts hip, but not spine, fragility fractures in postmenopausal women. There is lack of sufficient evidence to support this position for men**

QCT and pQCT (3)

-
- **Therapeutic Decisions**
 - **Central DXA measurements at the spine and femur are the preferred method for making therapeutic decisions and should be used if possible. However, if central DXA cannot be done, pharmacologic treatment can be initiated if the fracture probability, as assessed by QCT of the spine or pQCT of the radius using device specific thresholds, and in conjunction with clinical risk factors, is sufficiently high**

QCT and pQCT (4)

-
- **Monitoring**

- **Trabecular BMD of the lumbar spine measured by QCT can be used to monitor age-, disease-, and treatment-related BMD changes**
- **Trabecular and total BMD of the ultra-distal radius measured by pQCT can be used to monitor age-related BMD changes**

QCT and pQCT (5)

-
- **Reporting**

- **For QCT using whole body CT scanners the following additional technical items should be reported:**

- **Tomographic acquisition and reconstruction parameters**
- **kV, mAs**
- **Collimation during acquisition**
- **Table increment per rotation**
- **Table height**
- **Reconstructed slice thickness, reconstruction increment**
- **Reconstruction kernel**

QCT and pQCT (6)

-
- **For pQCT using dedicated pQCT scanners, the following additional technical items should be reported:**
 - **Tomographic acquisition and reconstruction parameters**
 - **Reconstructed slice thickness**
 - **Single / multi-slice acquisition mode**
 - **Length of scan range in multi-slice acquisition mode**

QUS (1)

-
- **Acquisition**
 - **The only validated skeletal site for the clinical use of QUS in osteoporosis management is the heel**
- **Fracture Prediction**
 - **Validated heel QUS devices predict fragility fracture in postmenopausal women (hip, vertebral, and global fracture risk) and men over the age of 65 (hip and all non-vertebral fractures), independently of central DXA BMD**

QUS (2)

- **Discordant results between heel QUS and central DXA are not infrequent and are not necessarily an indication of methodological error**
- **Heel QUS in conjunction with clinical risk factors can be used to identify a population at very low fracture probability in which no further diagnostic evaluation may be necessary. (Examples of device-specific thresholds and case findings strategy are provided in the full text documents printed in the *Journal of Clinical Densitometry*.)**

QUS (3)

-
- **Therapeutic Decisions**
 - **Central DXA measurements at the spine and femur are preferred for making therapeutic decisions and should be used if possible. However, if central DXA cannot be done, pharmacologic treatment can be initiated if the fracture probability, as assessed by heel QUS, using device specific thresholds and in conjunction with clinical risk factors, is sufficiently high. (Examples of device-specific thresholds are provided in the full text documents printed in the *Journal of Clinical Densitometry*.)**

QUS (4)

-
- **Monitoring**
 - **QUS cannot be used to monitor the skeletal effects of treatments for osteoporosis**

pDXA (1)

-
- **Fracture Prediction**
 - **Measurement by validated pDXA devices can be used to assess vertebral and global fragility fracture risk in postmenopausal women, however its vertebral fracture predictive ability is weaker than central DXA and heel QUS. There is lack of sufficient evidence to support this position for men**

pDXA (2)

- **Radius pDXA in conjunction with clinical risk factors can be used to identify a population at very low fracture probability in which no further diagnostic evaluation may be necessary. (Examples of device-specific thresholds and case findings strategy are provided in the full text documents printed in the *Journal of Clinical Densitometry*.)**

pDXA (3)

- **Diagnosis**
 - **The WHO diagnostic classification can only be applied to DXA at the femur neck, total femur, lumbar spine and the one-third (33%) radius ROI measured by DXA or pDXA devices utilizing a validated young-adult reference database**

pDXA (4)

-
- **Therapeutic Decisions**
 - **Central DXA measurements at the spine and femur are the preferred method for making therapeutic decisions and should be used if possible. However, if central DXA cannot be done, pharmacologic treatment can be initiated if the fracture probability, as assessed by radius pDXA (or DXA) using device specific thresholds and in conjunction with clinical risk factors, is sufficiently high. (Examples of device-specific thresholds are provided in the full text documents printed in the *Journal of Clinical Densitometry*.)**

pDXA (5)

-
- **Monitoring**
 - **pDXA devices are not clinically useful in monitoring the skeletal effects of presently available medical treatments for osteoporosis**

Skeletal Health Assessment In Children and Adolescents (Males and Females ages 5-19)

Fracture Prediction and Definition of Osteoporosis (1)

- **Fracture prediction should primarily identify children at risk of clinically significant fractures, such as fracture of long bones in the lower extremities, vertebral compression fractures, or two or more long-bone fractures of the upper extremities.**

Fracture Prediction and Definition of Osteoporosis (2)

- **The diagnosis of osteoporosis in children and adolescents should NOT be made on the basis of densitometric criteria alone.**
 - **The diagnosis of osteoporosis requires the presence of both a clinically significant fracture history and low bone mineral content or bone mineral density.**

Fracture Prediction and Definition of Osteoporosis (3)

- **A clinically significant fracture history is one or more of the following:**
 - **Long bone fracture of the lower extremities**
 - **Vertebral compression fracture**
 - **Two or more long-bone fractures of the upper extremities**
- **Low bone mineral content or bone mineral density is defined as a BMC or areal BMD Z-score that is less than or equal to -2.0, adjusted for age, gender and body size, as appropriate.**

• DXA Assessment in Children and Adolescents With Diseases That May Affect the Skeleton (1) -

- **DXA measurement is part of a comprehensive skeletal health assessment in patients with increased risk of fracture.**
- **Therapeutic interventions should not be instituted on the basis of a single DXA measurement.**

- **DXA Assessment in Children and Adolescents With Diseases That May Affect the Skeleton (2)** -
- **When technically feasible, all patients should have spine and total body less head (TBLH) BMC and areal BMD measured**
 - **Prior to initiation of bone-active treatment.**
 - **To monitor bone-active treatment in conjunction with other clinical data.**

- **DXA Assessment in Children and Adolescents With Diseases That May Affect the Skeleton (3)**
- **In patients with primary bone diseases or potential secondary bone diseases (e.g., due to chronic inflammatory diseases, endocrine disturbances, history of childhood cancer, or prior transplantation (non-renal)), spine and TBLH BMC and areal BMD should be measured at clinical presentation.**

- **DXA Assessment in Children and Adolescents With Diseases That May Affect the Skeleton (4)**
- **In patients with thalassemia major, spine and TBLH BMC and areal BMD should be measured at fracture presentation or at age 10 years, whichever is earlier.**
- **In children with chronic immobilization (e.g., cerebral palsy) spine and TBLH BMC and areal BMD should be measured at fracture presentation.**
 - **DXA should not be performed if contractures prevent the safe and appropriate positioning of the child.**

- **DXA Assessment in Children and Adolescents With Diseases That May Affect the Skeleton (5)** -

- **The minimum time interval for repeating a bone density measurement to monitor treatment with a bone-active agent or disease processes is six months.**

DXA Interpretation and Reporting in Children and Adolescents (1)

- **DXA is the preferred method for assessing BMC and areal BMD.**
- **The PA spine and TBLH are the most accurate and reproducible skeletal sites for performing BMC and areal BMD measurements.**
- **Soft tissue measures in conjunction with whole body scans may be helpful in evaluating patients with chronic conditions associated with malnutrition (such as anorexia nervosa, inflammatory bowel disease, cystic fibrosis), or with both muscle and skeletal deficits (such as idiopathic juvenile osteoporosis).**

DXA Interpretation and Reporting in Children and Adolescents (2)

- **The hip (including total hip and proximal femur) is not a reliable site for measurement in growing children due to significant variability in skeletal development and lack of reproducible ROI.**
- **In children with linear growth or maturational delay, spine and TBLH BMC and areal BMD results should be adjusted for absolute height or height age, or compared to pediatric reference data that provide age-, gender-, and height-specific Z-scores.**

DXA Interpretation and Reporting in Children and Adolescents (3)

- **An appropriate reference data set must include a sample of the general healthy population sufficiently large to characterize the normal variability in bone measures that takes into consideration gender, age, and race/ethnicity.**
- **When upgrading densitometer instrumentation or software, it is essential to use reference data valid for the hardware and software technological updates.**

DXA Interpretation and Reporting in Children and Adolescents (4)

- **Baseline DXA reports should contain the following information:**
 - **DXA manufacturer, model, and software version**
 - **Referring physician**
 - **Patient age, gender, race/ethnicity, weight, and height**
 - **Relevant medical history including previous fractures**
 - **Indication for study**

DXA Interpretation and Reporting in Children and Adolescents (5)

- Bone age results, if available
- Technical quality
- BMC and areal BMD
- BMC and areal BMD Z-score
- Source of reference data for Z-score calculations
- Adjustments made for growth and maturation
- Interpretation
- Recommendations for the necessity and timing of the next DXA study are optional

DXA Interpretation and Reporting in Children and Adolescents (6)

- **Serial DXA testing**
 - **Should be done only when the expected change in areal BMD equals or exceeds the LSC**
 - **Serial DXA reports should include the same information as for baseline testing, but additionally include:**

DXA Interpretation and Reporting in Children and Adolescents (7)

- **Indications for follow-up scan**
- **Comparability of studies**
- **Interval changes in height and weight**
- **BMC and areal BMD Z-scores adjusted or unadjusted for height or other adjustments**
- **Percent change in BMC and areal BMD and interval change in Z-scores**
- **Recommendations for the necessity and timing of the next BMD study are optional**

DXA Interpretation and Reporting in Children and Adolescents (8)

- **Accurate interpretation of serial DXA results requires knowledge of the LSC for all sites measured and for all technologists at the DXA testing facility.**
- **Terminology**
 - **T-scores should not appear in pediatric DXA reports.**
 - **The term “osteopenia” should not appear in pediatric DXA reports.**

DXA Interpretation and Reporting in Children and Adolescents (9)

- **The term “osteoporosis” should not appear in pediatric DXA reports without knowledge of clinically significant fracture history.**
- **“Low bone mineral content or bone mineral density for chronologic age” is the preferred term when BMC or BMD Z-scores are less than or equal to -2.0.**

pQCT in Children and Adolescents (1)

- **Reference data are not sufficient for the clinical use of pQCT for fracture prediction or diagnosis of low bone mass.**
- **When the forearm is measured, the non-dominant forearm should be used.**
- **Measurements sites should include the metaphysis and diaphysis.**
- **Determination of the precision error, LSC, and monitoring time interval should be performed as described for DXA.**

pQCT in Children and Adolescents (2)

- **pQCT reports should include:**
 - **Manufacturer, model, and software version**
 - **Referring physician**
 - **Patient age, gender, race/ethnicity, weight, and height**
 - **Relevant medical history including previous fractures**
 - **Indication for measurement**
 - **Bone age results, if available**
 - **Measurement site**
 - **Limb length**

pQCT in Children and Adolescents (3)

- **Scan acquisition and analysis parameters**
- **Scan technical quality**
- **Reference data source for Z-score calculation**
- **Metaphyseal total and trabecular vBMD and Z-scores**
- **Diaphyseal BMC, cortical vBMD, cortical thickness, cross-sectional moment of inertia, SSI results, and Z-scores.**
- **Adjustments made for growth and maturation**
- **Interpretation**

pQCT in Children and Adolescents (4)

- **Quality control procedures should be performed as described for central DXA.**

DXA Nomenclature

- DXA - not DEXA
- T-score - not T score, t-score, or t score
- Z-score - not Z score, z-score, or z score

DXA Decimal Digits

Preferred number of decimal digits for DXA reporting

- BMD: 3 digits Example, 0.927 g/cm²
- T-score: 1 digit Example, -2.3
- Z-score: 1 digit Example, 1.7
- BMC: 2 digits Example, 31.76 grams
- Area: 2 digits Example, 43.25 cm²
- % Reference Database:
Integer Example, 82%

Glossary (1)

- **BMC** - bone mineral content
- **BMD** - bone mineral density
- **DXA** - dual-energy X-ray absorptiometry
- **ISCD** – International Society for Clinical Densitometry
- **LSC** - least significant change
- **NHANES III** - National Health and Nutrition Examination Survey III
- **PA** - posterior anterior
- **pDXA** – peripheral dual-energy x-ray absorptiometry
- **pQCT** – peripheral quantitative computed tomography

Glossary (2)

- **QC** - quality control
- **QCT** - quantitative Computed Tomography
- **QUS** - quantitative Ultrasound
- **ROI** – region(s) of interest
- **SSI** - strain strength index
- **TBLH** - total body less head
- **VFA** - Vertebral Fracture Assessment
- **vBMD** - volumetric BMD
- **WHO** - World Health Organization

The 2007 ISCD Official Positions have received the endorsement of:

- **the American Association of Clinical Endocrinologists (AAACE)**
- **the American Society for Bone and Mineral Research (ASBMR)**
- **The Endocrine Society (TES)**
- **the North American Menopause Society (NAMS) (*endorsement of sections pertaining to the menopausal woman*)**



THE INTERNATIONAL SOCIETY
FOR CLINICAL DENSITOMETRY

342 N. Main Street

West Hartford, CT, USA
06117

Ph: 860.586.7563

Fax: 860.586.7550

E-mail: iscd@iscd.org

Web site: www.ISCD.org

ISCD 2007 Official Positions Full

Dr. Tudor H. Hughes M.D., FRCR

Department of Radiology

University of California School of Medicine

San Diego, California

text and brochures are available
online at: www.ISCD.org

Printed brochures can be ordered
online through the ISCD BoneYard.