

	REF. NO.	AUTHOR	TITLE	SUMMARY	PUBLISHED
FULL LENGTH ARTICLE	1	Kullenberg R., Falch J. <i>Center for Endocrinology Aker Univ. Hospital, Oslo, Norway</i>	The prevalence of osteoporosis using bone mineral measurements at the Calcaneus by Dual X-ray and Laser (DXL).	<ul style="list-style-type: none"> • 250 women (mean age 62 years +/- 14.5 years. • “Several studies have revealed that the relative risk of all fractures estimated from heel BMD measurements is similar to that of DXA measurements in the hip and lumbar spine. For vertebral fracture prediction, heel BMD measurements are similar to those made in the spine, and better than those made in the hip and forearm.” • “We conclude that DXL measurement at the heel bone, using a T-score threshold of -2.5 for classification of osteoporosis, is in concordance with the World Health Organization (WHO) definition of osteoporosis.” 	Osteoporosis International (2003) 14: 823-827.
ORAL PRESENTATION	2	Brismar TB, Nyberg, C., Salminen, H. <i>Karolinska Institute Stockholm, Sweden</i>	Calcaneal BMD with DXL Technique Discriminates Between Postmenopausal Females With and Without a History of Fracture – The CALCOS Study	<ul style="list-style-type: none"> • 1677 females age 55 and older were scanned using DXL Calscan at 30 Swedish health centers. In total, 894 fractures were reported by 753 of these individuals. • DXL Calscan was best in identifying hip fracture patients, with an AUC of 0.72. This can be compared to similar studies that have shown the ability of DXA hip scans to identify hip fracture patients at AUC of 0,66. • We conclude that calcaneal BMD obtained by the DXL Calscan technique has potential to predict osteoporosis-related fractures. 	Presented at the American Society of Bone Mineral Research (ASBMR) October 2004

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FULL LENGTH ARTICLE	3	Martini G., Valenti R., Giovani S., Gennari L., Salvadori S., Galli B., Nuti R. <i>Dept. of Metabolic Diseases, Univ. of Siena, Italy</i>	Assessment of Bone Mineral density of the Calcaneus in healthy and Osteoporotic Women by a new DXA device.	<ul style="list-style-type: none"> • “Our data showed that DXL Calscan provides a convenient method of measuring skeletal BMD with some advantages over axial BMD.” • DXL Calscan showed excellent sensitivity and specificity for Osteoporosis diagnosis when compared to axial DXA results. • “Calscan diagnostic capacity and relationships with other sites of the skeleton are excellent”. 	J Clin Dens, Vol 7, No. 3 2004, p.349-354
FULL LENGTH ARTICLE	4	Thorpe, J.A., Steel, S.A. <i>Centre for Metabolic Bone Disease, Hull Royal Infirmary United Kingdom</i>	The DXL Calscan heel densitometer: evaluation and diagnostic thresholds	<ul style="list-style-type: none"> • “The Calscan is well suited for use in the management of post-menopausal osteoporosis.” • Using the study thresholds, sensitivity of 90% and specificity of 90% was achieved. • Given that 6 of the 7 patients identified as non-osteoporotic by axial DXA had severe axial osteopenia of -2.0 or worse, the DXL Calscan results were impressive. 	The British Journal of Radiology, 79 (2006), 336-341

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FULL LENGTH ARTICLE	5	<p>Kullenberg R., Hansson B., Sandberg R., Dahlberg H.</p> <p><i>Dept. of Orthopedics, Central Hospital Karlstad, Sweden</i></p>	<p>Comprehensive Osteoporosis Management with easy access to bone mineral density measurements</p>	<ul style="list-style-type: none"> • 3400 risk patients for osteoporosis were evaluated using 4 devices of the bone densitometer DXL Calscan. • A multidisciplinary team of primary care physicians, orthopaedic surgeons, internists, and physiotherapists developed a fracture prevention system to find risk patients for osteoporosis, scan their BMD and treat them. • A direct result of the study was the establishment of an effective osteoporosis management system covering all of Varmland County using only limited financial resources. • The net economic savings to the County from the fractures prevented as well as the quality of life benefits from the program will be documented in an upcoming study. 	<p>Journal of Evaluation in Clinical Practice, Vol 12, Dec 2006, p. 675-681.</p>
	FULL LENGTH ARTICLE	6	<p>G. M. Blake, D. Chinn, S. Steel, R. Patel, E. Panayiotou, J. Thorpe and J. N. Fordham</p> <p><i>Department of Nuclear Medicine, Guy's Hospital, London</i></p>	<p>A list of device-specific thresholds for the clinical interpretation of peripheral x-ray absorptiometry examinations</p>	<ul style="list-style-type: none"> • The National Osteoporosis Society's scientific committee in the UK approves use of pDXA devices for diagnostic purposes. • Diagnostic thresholds were established for DXL Calscan and other selected pDXA devices through clinical studies in the UK. • Prof. Blake estimates that roughly 60% of all suspected cases can now be diagnosed with pDXA.

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FULL LENGTH ARTICLE	7	Söderpalm A-C, Kullenberg R, Albertsson Wikland K, Swolin-Eide D. <i>Dept. of Orthopaedics, Sahlgrenska Univ. Hospital, Göteborg Sweden</i> <i>Queen Silvia Children's Hosp. Göteborg, Sweden</i>	Pediatric Reference Data for Bone Mineral Density in the Calcaneus for Healthy Children 2, 4, and 7 Years of Age by Dual-Energy X-ray Absorptiometry and Laser	<ul style="list-style-type: none"> • A modified DXL Calscan device and software program was used in a paediatric setting. • “The calcaneus can easily and quickly be measured using the portable DXL device, and measurements are well tolerated by young children, even those 2 yr of age.” • “Some patients with syndromes or diseases that are known to have a low BMD and with clinical signs of osteoporosis were measured in order to highlight the utility of the DXL method. All (these) patients had low percentile values for BMD and BMAD compared with the healthy children measured in our study, which indicates that the DXL device is able to recognize this low value.” 	Journal of Clinical Densitometry, vol. 8, no. 3, 305–313, 2005.
	8	Nordvall H, Glanberg-Persson G, Lysholm J. <i>Departments of Physiotherapy & Orthopaedics</i> <i>Sunderby Hospital Luleå, Sweden</i>	Are distal radius fractures due to fragility or falls? A consecutive case-controlled study of bone mineral density, tendency to fall, risk factors for osteoporosis and health-related quality of life	<ul style="list-style-type: none"> • “Several researchers have shown that heel DXL can be used in the measurement of BMD according to the WHO criteria for the diagnosis of normal BMD, osteopenia and osteoporosis.” • “This study indicates that the underlying cause of a distal radius fracture may be different in patients aged 45-64 years and those who are more than 64 years old.” 	Acta Orthopaedica, volume 78, Issue 2, April 2007. pp 271-277

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FULL LENGTH ARTICLE	9	Hakulinen M., Saarakkala S., Töyräs J., Kröger H., Jurvelin JS. <i>Dept. of Applied Physics, University of Kuopio, Finland</i>	Dual Energy X-ray Laser Measurement of Calcaneal Bone Mineral Density.	<ul style="list-style-type: none"> • DXL Calscan <i>in vivo</i> precision 1.24%. • DXL Calscan predicted axial BMD better at the femoral neck than the GE/Lunar PIXI device. • Numerical simulations suggested that the spatial variation of soft tissue composition in the heel could induce uncontrollable inaccuracies in BMD when measured only with the DXA technique. • The prediction of axial BMD by calcaneal ultrasound (Sahara device by Hologic) was far inferior compared to that of axial BMD predicted by DXL Calscan. 	Physics in Medicine and Biology 48 (2003) 1741-1752.
ORAL PRESENTATION	10	Çiftçi, A, Yilmaz, F, Konyalıoğlu, R, Hamdemir, F, Bulut, T, Güveli, M. <i>Istanbul Metropolitan Municipality Department of Health, Turkey</i>	DXL Measurement as a Bone Mineral Density Screening Method	<ul style="list-style-type: none"> • 54,241 women from both the Asian and European sides of Istanbul were scanned with DXL Calscan during 2003 and 2004. • 4,321 of these women were also randomly chosen for axial DXA scans for comparison with following results: • 99% sensitivity for osteoporosis diagnosis as compared to DXA of hip & spine. • Many studies are planned for this project, which now boasts over 200,000 women scanned by DXL Calscan. 	2005 Turkish Osteoporosis Society Annual Meeting, oral presentation.

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FULL LENGTH ARTICLE	11	Salminen H., Sääf M., Ringertz H., Strender LE. <i>Karolinska Institute, Stockholm, Sweden</i>	Bone mineral density measurement in the calcaneus with DXL: comparison with hip and spine measurements in a cross-sectional study of an elderly female population	<ul style="list-style-type: none"> • 388 women (mean age 73 years) • Using the NHANES III database for axial DXA and the published database for Calscan (Kullenberg 2003), and using the WHO cut-off point of -2.5 for osteoporosis, the heel measurements by DXL Calscan had optimal accuracy for detecting osteoporosis at either the combination of the lumbar spine and the femoral neck or the combination of the lumbar spine, the femoral neck, the total hip and the trochanter. 	Osteoporosis International (2005), 16(5), p541-551
	FULL LENGTH ARTICLE	12	Swolin-Eide D., Magnusson P., Hansson, S. <i>Queen Silvia Children's Hospital, The Sahlgrenska Academy, Univ. of Göteborg, Sweden</i>	Bone mass, biochemical markers and growth in children with chronic kidney disease; a 1-year prospective study	<ul style="list-style-type: none"> • A modified DXL Calscan device and software program was used in a paediatric setting. • This prospective study of children with CKD was designed to investigate the development of bone mass over a 1-year period and whether biochemical markers of bone turnover can predict changes in BMD. • Results from the DXA and DXL Calscan showed similar significant increases in BMD for total body, spine (L2-L4) and the calcaneus after one year. • Biochemical markers could not predict the BMD changes over 1 year.

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ORAL PRESENTATION	13	Rodionova, SS, Morozov, AK, Varetskaya-Chivilikhina, NB <i>Central Institute of Traumatology and Orthopaedics, Moscow, Russia</i>	<u>Comparative Research:</u> DXL of Calcaneal Bone vs. Axial DXA for Older Women	<ul style="list-style-type: none"> Women aged 57 to 88 were scanned with DXL Calscan at calcaneus and with axial DXA at the femur neck, total hip, & L1-L4. X-ray imaging of lumbar spine was used as the “gold standard” to verify vertebral fractures and clinical osteoporosis. DXL Calscan identified correctly significantly more cases of clinical osteoporosis than axial DXA. This was due to the lack of sensitivity of the hip results and the falsely elevated scores often found in spinal scans of the elderly. 	Prof. Rodionova at the 2006 Annual Congress of Traumatology in Moscow
FULL LENGTH ARTICLE	14	Kullenberg R. <i>Assoc. Professor of Med. Physics, University of Göteborg, Sweden</i>	Reference database for Dual X-ray and Laser (DXL) Calscan bone densitometer.	<ul style="list-style-type: none"> The age-adjusted Odds Ratio for women was 3.7. This means that for a woman over 50, a Calscan T-score of -1.0 means that she is 3.7 times more likely to fracture than the “young healthy” female population. A Calscan T-score of -2.0 would double this to 7.4 times, and so on. In vivo precision was excellent at 1.2% as was in vitro precision at 0.5%. 	Journal of Clinical Densitometry, vol. 6, no. 4, 367–371, 2003

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FULL LENGTH ARTICLE	15	Salminen, H, Sääf, M. Johansson, S-E, Ringertz, and Strender, L-E <i>Sahlgrenska Univ. Hospital, Gothenburg, Sweden</i>	Nutritional status, as determined by the Mini-Nutritional Assessment, and osteoporosis: a cross-sectional study of an elderly female population	<ul style="list-style-type: none"> Subjects with lower nutritional assessment scores had significantly lower BMD scores when measured by Calscan at the heel or Hologic 4500 at the femur neck and total hip. 	European Journal of Clinical Nutrition (2006) 60, 486-493
FULL LENGTH ARTICLE	16	Swanpalmer J., Kullenberg R. <i>Sahlgrenska Univ. Hospital, Gothenburg, Sweden</i>	A new measuring device for quantifying the amount of mineral in the heel bone.	<ul style="list-style-type: none"> Calscan showed high accuracy with varied quantities of bone mineral - standard error of estimate less than 1.6%. 	Ann NYAS 904(2000), 115-117.

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17	Küçükardali Y., Solmazgül, E. <i>et al</i> GATA Haydarpaşa Eğitim Hastanesi Istanbul, Turkey	Osteoporosis screening on a population of elderly people living in a rest home	<ul style="list-style-type: none"> Population had a mean age of 73 years (60-93) Osteoporosis was found in 66% of females and 23% of males. Study showed that the rate of osteoporosis was similar to persons not in a rest home, however the patients in the rest home had a lower rate of fractures. Rest home preventive practices aimed at reducing risk of falling may decrease the rate of fragility fractures and this should be considered to decrease overall incidence of fractures. 	Turkish Journ of Geriatrics, 2006;9(1) p.25-29
18	Ofluoğlu D., <i>et al</i> Marmara Üniversitesi Istanbul, Turkey	The Comparison Between Affected and Non-Affected Side of the Calcaneal Bone Density in Chronic Hemiparetic Patients	<ul style="list-style-type: none"> Population had a mean age of 58.9 years and were diagnosed with Hemipalegia after experiencing a stroke. Bone mineral density was evaluated with the DXL Calscan device. Motor functional level, spasticity and daily living activities were assessed by using Brunström, Ashworth and Barthel scales respectively. We found that higher spasticity levels were associated with lower bone mineral density. As a result, spasticity and motor functional level may be determining factors for BMD value in hemiparetic patients. 	Osteoporoz Dünyasından (2005) 11 (2), 52-56

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FULL LENGTH ARTICLE	19	<p>Ebrahimof S., Adibi, H., <i>et al</i></p> <p><i>Endocrinology and Metabolism Research Center</i></p> <p><i>Shariati Hospital, Tehran, Iran</i></p>	<p>Fruit and Vegetable Intake and Bone Mineral Density in Residents of Villages Surrounding Tehran</p>	<ul style="list-style-type: none"> The subjects were a subgroup of a large study on prevalence and causes of vitamin D deficiency in rural population surrounding Tehran, capital of Iran. Fruit and vegetable intake was assessed in subjects who had BMD measured by DXL Calscan. Fruit intake did not correlate to BMD results. The women who reported eating more than 1.5 servings of vegetables per day had significantly higher T-scores than those who ate less than 1.5 servings of vegetables per day (-1.1 vs. -1.9). High consumption of vegetables positively affected bone mineral density in rural women and daily intake of at least 1.5 servings of vegetables could positively affect osteoporosis prevention. 	<p>Iranian Journal of Public Health, 2004, A supplementary issue on Osteoporosis, pp.49-56.</p>
	FULL LENGTH ARTICLE	20	<p>Elgán C., Dykes A.K., Samsioe G.</p> <p><i>Dept. of Nursing, Lund Univ. Hospital, Sweden</i></p>	<p>Influence of smoking and oral contraceptives on bone mineral density and bone remodelling in young women: a 2-year study.</p>	<ul style="list-style-type: none"> BMD was measured by DXA (DXL Calscan) because external radiation is minimal with this device. The equipment can be used in any environment without specific precautions. “It is concluded that smokers without OC’s (oral contraceptives) had a negative BMD development and BMD in young women with irregular menstruations seems to be improved by OC’s.”

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FULL LENGTH ARTICLE	21	Elgán C., Dykes A.K., Samsioe G. <i>Dept. of Nursing, Lund Univ. Hospital, Sweden</i>	Bone mineral density and lifestyle among female students aged 16 - 24	<ul style="list-style-type: none"> • 218 female students aged 16 – 24 years. • BMD measured by DXL Calscan. • “Hormonal age was a stronger BMD predictor than chronological age”. • “Menstrual disturbances might be an indication of a risk for low BMD and might therefore be a reason for measuring BMD among young females”. 	Gynecol. Endocrinol. 2002; 16: 91-98.
	22	Forogh, B., Ghasemzadeh, A., Salimzadeh, A. <i>Dept. of Physical Medicine & Rehabilitation Iran University of Medical Science</i>	Comparison of Bone Mineral Density Measured by Dual X-ray, Axial Dual-energy Photon X-ray Absorptiometry and Laser Absorptiometry of Calcaneus	<ul style="list-style-type: none"> • Vitamin D deficiency is prevalent in Iranian women due to low calcium intake in the region. • The lack of access to diagnostic devices and timely diagnosis have been limiting factors for fracture prevention in Iran. • 475 women with over 50% having osteoporosis or osteopenia defined by DXA. • DXL Calscan had excellent sensitivity and specificity for the diagnosis of osteoporosis. • This study showed that diagnosis and evaluation of osteoporosis could be established with limited resources by using DXL Calscan. This could have great potential for lessening the burden of osteoporosis on society and patients. 	Iran J Med Sci 2005; 30(1): 34-37.