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DXL Calscan - Studienübersicht 030717

Ref. nr.	Author	Titel	Zusammenfassung der Ergebnisse	Erschienen
1	Kullenberg R.	A new accurate technology for the determination of bone mineral areal density – Dual X-ray and Laser (DXL)	• Study used different levels of BMD, 0.2 representing severe osteoporotic patients and 0.6 representing young healthy patients. • For each BMD level, fat fraction of total soft tissue composition was calculated and the accuracy in BMD was expressed as a Standard Error of Estimate (SEE). • **Calscan accuracy measured to be better than 98% (SEE 1.8 % and 1.9% respectively). No influence on BMD of adipose tissue (fat).** • In vivo precision measured by duplicate scans of 35 healthy volunteers (mean age 52 years, range 25-72 years. • **Calscan: Präzision in vivo 1.2 %, in vitro 0.5 % (CV-rms).**	Fifth Symposium on Clinical Advances in Osteoporosis, National Osteoporosis Foundation, USA 2002
2	Waern E., Johnell O., Jutberger H., Karlsson J, Nyman C., Mellström D.	Patients with forearm fracture should be diagnosed for osteoporosis.	• 192 Patienten mit Unterarmfraktur measured by DXL Calscan and axial DXA within 1 week of having a radius (forearm) fracture. • **Calscan showed osteoporosis diagnosis agreement with axial DXA.** • **Calscan showed 97% agreement in physician treatment decision with axial DXA.**	J Bone Min Res 2001:16, Suppl 1, S515
3	Martini G., Valenti R., Giovani S., Gennari L., Salvadori S., Galli B., Nuti R.	Assessment of Bone Mineral density of the Calcaneus in healthy and Osteoporotic Women by a new DXA device.	• 40 postmenopausal women measured by DXL Calscan, Axial DXA and ultrasound • **Calscan correlation to total body r=0.86, spine L2-L4 r=0.76** • Showed DXL Calscan sensitivity of 80% and specificity of 80% for Osteoporosis diagnosis when compared to axial DXA. • **"Calscan diagnostic capacity and relationships with other sites of the skeleton are excellent".**	J Bone Min Res 2002;17, suppl. 1, S280

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4	Saarakkala S., Hakulinen M., Kroger H. Toyras J., Jurvelin JS.	Calcaneal DXA and ultrasound: Comparison of DXL Calscan, Lunar Pixi and Hologic Sahara instruments.	• 39 subjects (mean age 60 years) • **DXL Calscan in vivo precision 1.24%** • **Correlation to axial DXA spine was r= 0.86 and to hip was r=0.72** • **DXL Calscan predicted better axial BMD at the femoral neck than Lunar PIXI.** • Numerical simulations suggested that the spatial variation of soft tissue composition in the heel can induce incontrollable inaccuracies in BMD when measured with the DXA technique. • **The prediction of axial BMD by calcaneal BUA or SOS was inferior compared to that of calcaneal BMD.**	4:th BBC, Germany, Sept. 2002 (full-length manuscript submitted for publication Jan. 2003)
5	Ekström W., Sääf M., Kullenberg R., Brismar T.	Evaluation DXL versus DXA in radius and humerus fractures	• 32 patients (mean age 61 years) • **DXL Calscan showed strong correlation to total body BMD r=0.72 and femoral neck r=0.69** • **The DXL technique has good potential for screening for Osteoporosis in patients with radius and humerus fractures.**	Osteoporosis International 2002; 13, suppl 3, S38
6	Kullenberg R. , Falch J.	The prevalence of osteoporosis using bone mineral measurements at the Calcaneus by Dual X-ray and Laser (DXL)	• 250 women (mean age 62 years +/- 14.5 years • **Calscan showed sensitivity of 91% for osteoporosis and 98% for osteopenia, specificity was 86% for osteoporosis and 82% for osteopenia (assuming a low T-score at the spine or femur neck as the criterion for a correct diagnosis).** • **T-score of –2.5 using DXL Calscan identifies the same number of patients as osteoporotic as the WHO criteria.** • **Fracture prediction capability of DXL Calscan similar or better than measurements at the hip, spine or radius.**	Osteoporosis Int. – (full-length manuscript in peer-review process for publication 2003).
7	Nyman C., Hulthén L., Johnell O. et al.	BMD in Calcaneus in 3200 18 year old men is related to physical activity and lifestyle factors.	• 3200 military recruits • **BMD measured by DXL Calscan correlated to physical activity, muscle strength and endurance in young military recruits.**	J Bone Min Res 2001:16, Suppl 1, M261

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8	Pettersson U., Nyman C., Lorentzon R., Landin-Wilhelmsson K., Hulthén L. Johnell O. et al.	Peak bone mass in the Calcaneus in men and the influence of lifestyle factors	• 2805 men aged 17.3 – 19.9 years • **Peak bone mass in military recruits identified as 18.3 years**.	Calcified Tissue Int 2002; 70 (4): 278
9	Elgán C., Dykes A.K., Samsioe G.	Bone mineral density and lifestyle among female students aged 16 – 24	• 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
10	Swanpalmer J., Kullenberg R	A new measuring device for quantifying the amount of mineral in the heel bone.	• **Calscan precision in vivo 1.4%** • **Calscan precision in vitro 0.8%** • **Calscan showed high accuracy - standard error of estimate <1.6%.**	Ann NYAS 904(2000), 115-117