Aalto-Korte K, Turpeinen M (1997) Bone mineral density in patients with atopic dermatitis. *Br J Dermatol* 136:172-175.

Abbasi-Jahromi SH, Matayoshi A, Kimble R, Dimarogonas A, Pacifici R (1996) Bone quality factor analysis: A new noninvasive technique for the measurement of bone density and bone strength. *J Bone Miner Res* 11:594-599.

Agren M, Karellas A, Leahey D, Marks S, Baran D (1991) Ultrasound attenuation of the calcaneus: a sensitive and specific discriminator of osteopenia in postmenopausal women. *Calcif Tissue Int* 48:240-244.

Aguado F, Revilla M, Hernandez ER, Villa LF, Rico H (1997) Ultrasound bone velocity on proximal phalanges in premenopausal, perimenopausal, and postmenopausal healthy women. *Invest Radiol* 32:66-70.

Alves JM, Ryaby JT, Kaufman JJ, Magee FP, Siffert RS (1996) Influence of marrow on ultrasonic velocity and attenuation in bovine trabecular bone. *Calcif Tissue Int* 58:362-367.

Antich PP (1993) Ultrasound study of bone in vitro. Calcif Tissue Int 53(Suppl 1):157-161.

Antich PP, Anderson JA, Ashman RB, Dowdey JE, Gonzales J, Murry RC, Zerwekh JE, Pak CYC (1991) Measurement of mechanical properties of bone material in vitro by ultrasound reflection: methodology and comparison with ultrasound transmission. *J Bone Miner Res* 6(4):417-426.

Antich PP, Pak CYC, Gonzales J, Anderson J, Sakhaee K, Rubin C (1993) Measurement of intrinsic bone quality in vivo by reflection ultrasound: correction of impaired quality with slow-release sodium fluoride and calcium citrate. *J Bone Miner Res* 8(3):301-311.

Arden NK, Baker J, Hogg C, Baan K, Spector TD (1996) The heritability of bone mineral density, ultrasound of the calcaneus and hip axis length: A study of postmenopausal twins. *J Bone Miner Res* 11:530-534.

Arden NK, Keen RW, Lanchbury JS, Spector TD (1996) Polymorphisms of the vitamin D receptor gene do not predict quantitative ultrasound of the calcaneus or hip axis length. *Osteoporosis Int* 6:334-337.

Baran DT (1995) Quantitative ultrasound: a technique to target women with low bone mass for preventive therapy. Am J Med 98(Suppl. 2A):48-51.

Baran DT, Kelly AM, Karellas A, Gionet M, Price M, Leahey D, Stauterman S, McSherry B, Roche J (1988) Ultrasound attenuation of the os calcis in women with osteoporosis and hip fractures. *Calcif Tissue Int* 43:138-142.

Baran DT, McCarthy CK, Leahey D, Lew R (1991) Broadband ultrasound attenuation of the calcaneus predicts lumbar and femoral neck density in Caucasian women: a preliminary study. *Osteoporosis Int* 1:110-113.

Bauer DC, Gluer CC, Cauley JA, Vogt TM, Ensrud KE, Genant HK, Black DM (1997) Broadband ultrasound attenuation predicts fractures strongly and independently of densitometry in older women. *Arch Intern Med* 157:629-634.

Bauer DC, Gluer CC, Genant HK, Stone K (1995) Quantitative ultrasound and vertebral fracture in postmenopausal women. J Bone Miner Res 10:353-358.

Beck TJ (1996) On measuring bone to predict osteoporotic fracture: Moving beyond statistical inference [Editorial]. *Radiology* 199:612-614.

Benhamou CL, Lespessailles E, Royant V (1996) Architecture osseuse et resistance mecanique du tissu osseux. *Presse Med* 25:249-254.

Berg JP, Falch JA, Haug E (1996) Fracture rate, pre- and postmenopausal bone mass and early and late postmenopausal bone loss are not associated with vitamin D receptor genotype in a high-endemic area of osteoporosis. *Europ J Endocrinol* 135:96-100.

Bernecker P, Pietschmann P, Winkelbauer F, Krexner E, Resch H, Willvonseder R (1992) The spine deformity index in osteoporosis is not related to bone mineral and ultrasound measurements. *Br J Radiol* 65:393-396.

Black DM (1996) Screening and treatment in the elderly to reduce osteoporotic fracture risk. *Br J Obstet Gynaecol* 103(Suppl 13):2-8.

Blake GM, Herd RJM, Miller CG, Fogelman I (1994) Should broadband ultrasonic attenuation be normalized for the width of the calcaneus? Br J Radiol 67:1206-1209.

Blanckaert F, Cortet B, Coquerelle P, Flipo RM, Duquesnoy B, Marchandise X, Delcambre B (1997) Contribution of calcaneal ultrasonic assessment to the evaluation of postmenopausal and glucocorticoid-induced osteoporosis. *Rev Rhum, English Ed* 64:305-313.

Bouxsein ML, Courtney AC, Hayes WC (1995) Ultrasound and densitometry of the calcaneus correlate with the failure loads of cadaveric femurs. Calcif Tissue Int 56:99-103.

Bouxsein ML, Radloff SE (1997) Quantitative ultrasound of the calcaneus reflects the mechanical properties of calcaneal trabecular bone. *J Bone Miner Res* 12:839-846.

Brandenburger GH (1993) Clinical determination of bone quality: Is ultrasound the answer? *Calcif Tissue Int* 53(Suppl 1):151-156.

Brooke-Wavell K, Jones PRM, Hardman AE (1997) Brisk walking reduces calcaneal bone loss in post-menopausal women. *Clin Sci* 92:75-80.

Brooke-Wavell K, Jones PRM, Hardman AE (1997) Brisk walking reduces calcaneal bone loss in post-menopausal women. *Clin Sci* 92:75-80.

Buckingham SHW, Jeffcott LB, Anderson GA, McCartney RN (1992) *In vivo* measurement of bone quality in the horse: estimates of precision for ultrasound velocity measurement and single photon absorptiometry. *Med Biol Eng Comput* 30:41-45.

Cadossi R, Cane V (1996) Pathways of transmission of ultrasound energy through the distal metaphysis of the second phalanx of pigs: An in vitro study. *Osteoporosis Int* 6:196-206.

Cardenas JL, Revilla M, Hernandez ER, Aguado F, Villa LF, Rico H (1997) Comparison of three bone densitometry methods in osteoporosis women. *Calcif Tissue Int* 61:358-361.

Cardenas JL, Revilla M, Hernandez ER, Aguado F, Villa LF, Rico H (1997) Comparison of three bone densitometry methods in osteoporosis women. *Calcif Tissue Int* 61:358-361.

Cauley JA, Danielson ME, Gregg EW, Vogt MT, Zmuda J, Bauer DC (1997) Calcaneal ultrasound attenuation in older African-American and Caucasian-American women. *Osteoporosis Int* 7:100-104.

Center J, Eisman J (1997) The epidemiology and pathogenesis of osteoporosis. *Bailliere's Clin Endocrinol Metab* 11:23-61.

Cepollaro C, Agnusdei D, Gonnelli S, Martini G, Pondrelli C, Borracelli D, Palmieri R, Parisi G, Gennari C (1995) Ultrasonographic assessment of bone in normal Italian males and females. *Br J Radiol* 68:910-914.

Cepollaro C, Gonnelli S, Pondrelli C, Martini S, Montagnani A, Rossi S, Gennari L, Gennari C (1997) The combined use of ultrasound and densitometry in the prediction of vertebral fracture. *Br J Radiol* 70:691-696.

Chappard C, Laugier P, Fournier B, Roux C, Berger G (1997) Assessment of the relationship between broadband ultrasound attenuation and bone mineral density at the calcaneus using BUA imaging and DXA. *Osteoporosis Int* 7:316-322.

Cheng XG, Nicholson PHF, Boonen S, Lowet G, Brys P, Aerssens J, van der Peere G, Dequeker J (1997) Prediction of vertebral strength in vitro by spinal bone densitometry and calcaneal ultrasound. *J Bone Miner Res* 12:1721-1728.

Chow YW, Inman C, Pollintine P, Sharp CA, Haddaway MJ, El Masry W, Davie MWJ (1997) Ultrasound bone densitometry and dual energy X-ray absorptiometry in patients with spinal cord injury: a cross-sectional study. *Spinal Cord* 34:736-741.

Clarke AJ, Evans JA, Truscott JG, Milner R, Smith MA (1994) A phantom for quantitative ultrasound of trabecular bone. *Phys Med Biol* 39:1677-1687.

Collet P, Ubelhart D, Vico L, Moro L, Hartmann D, Roth M, Alexandre C (1997) Effects of 1- and 6-month spaceflight on bone mass and biochemistry in two humans. *Bone* 20:547-551.

Collet P, Ubelhart D, Vico L, Moro L, Hartmann D, Roth M, Alexandre C (1997) Effects of 1- and 6-month spaceflight on bone mass and biochemistry in two humans. *Bone* 20:547-551.

Cook SD, Ryaby JP, McCabe J, Frey JJ, Heckman JD, Kristiansen TK (1997) Acceleration of tibia and distal radius fracture healing in patients who smoke. *Clin Orthop Rel Res* 337:198-207.

Cranney A, Tugwell P, Cummings S, Sambrook P, Adachi J, Silman AJ, Gillespie WJ, Felson DT, Shea B, Wells G (1997) Osteoporosis clinical trials endpoints: Candidate variables and clinimetric properties. *J Rheumatol* 24:1222-1229.

Cunningham JL, Fordham JN, Hewitt TA, Speed CA (1996) Ultrasound velocity and attenuation at different skeletal sites compared with bone mineral density measured using dual energy X-ray absorptiometry. *Br J Radiol* 69:25-32.

Daly RM, Rich PA, Klein R (1997) Influence of high impact loading on ultrasound bone measurements in children: A cross-sectional report. *Calcif Tissue Int* 60:401-404.

Damilakis JE, Dretakis E, Gourtsoyiannis NC (1992) Ultrasound attenuation of the calcaneus in the female population: normative data. *Calcif Tissue Int* 51:180-183.

Daniel BL, Waanders NA, Zhang Y, Moskalik A, Fowlkes JB, Rubin JM, Goulet JA, Adler RS (1994) The use of ultrasound mean acoustic attenuation to quantify bone formation during distraction osteogenesis performed by the Ilizarov method - Preliminary results in five dogs. Invest Radiol 29:933-939.

de Aloysio D, Rovati LC, Cadossi R, Paltrinieri F, Mauloni M, Mura M, Penacchioni P, Ventura V (1997) Bone effects of transdermal hormone replacement therapy in postmenopausal women as evaluated by means of ultrasound: an open one-year prospective study. *Maturitas* 27:61-68.

de Aloysio D, Rovati LC, Cadossi R, Paltrinieri F, Mauloni M, Mura M, Penacchioni P, Ventura V (1997) Bone effects of transdermal hormone replacement therapy in postmenopausal women as evaluated by means of ultrasound: an open one-year prospective study. *Maturitas* 27:61-68.

Douglas AS, Robins SP, Hutchison JD, Porter RW, Stewart A, Reid DM (1995) Carboxylation of osteocalcin in post-menopausal osteoporotic women following vitamin K and D supplementation. Bone 17:15-20.

Dretakis E, Damilakis J, Kontakis G, Gourtsoyiannis N (1994) Variation between os calces as measured by broadband ultrasound attenuation. *Br J Radiol* 67:636-638.

Dretakis EC, Kontakis GM, Steriopoulos CA, Dretakis CE (1994) Decreased broadband ultrasound attenuation of the calcaneus in women with fragility fracture. *Acta Orthop Scand* 65:305-308.

Dretakis EK, Kontakis GM, Steriopoulos K, Dretakis K, Kouvidis G (1995) Broadband ultrasound attenuation of the os calcis in female postmenopausal patients with cervical and trochanteric fracture. *Calcif Tissue Int* 57:419-421.

Duquette J, Honeyman T, Hoffman A, Ahmadi S, Baran D (1997) Effect of bovine bone constituents on broadband ultrasound attenuation measurements. *Bone* 21:289-294.

Duquette J, Lin J, Hoffman A, Houde J, Ahmadi S, Baran D (1997) Correlations among bone mineral density, broadband ultrasound attenuation, mechanical indentation testing, and bone orientation in bovine femoral neck samples. *Calcif Tissue Int* 60:181-186.

Evans JA, Tavakoli MB (1990) Ultrasonic attenuation and velocity in bone. *Phys Med Biol* 35:1387-1396.

Evans WD (1989) Broadband ultrasonic attenuation of the os calcis. In: Ring EFJ, Evans WD, Dixon AS (eds). *Osteoporosis and Bone Mineral Measurement*. York, England: Institute of Physical Sciences in Medicine. pp 127-135.

Evans WD, Jones EA, Owen GM (1995) Factors affecting the in vivo precision of broad-band ultrasonic attenuation. Phys Med Biol 40:137-151.

Faulkner KG, McClung MR, Coleman LJ, Kingston-Sandahl E (1994) Quantitative ultrasound of the heel: correlation with densitometric measurements at different skeletal sites. *Osteoporosis Int* 4:42-47.

Fournier B, Chappard C, Roux C, Berger G, Laugier P (1997) Quantitative ultrasound imaging at the calcaneus using an automatic region of interest. *Osteoporosis Int* 7:363-369.

Fujii Y, Goto B, Takahashi K, Fujita T (1994) Ultrasound transmission as a sensitive indicator of bone change in Japanese women in the perimenopausal period. *Bone Miner* 25:93-101.

Funck C, Wuster C, Alenfeld FE, Pereira-Lima JFS, Fritz T, Meeder PJ, Gotz M, Ziegler R (1996) Ultrasound velocity of the tibia in normal German women and hip fracture patients. *Calcif Tissue Int* 58:390-394.

Funke M, Kopka L, Vosshenrich R, Fischer U, Ueberschaer A, Oestmann J, Grabbe E (1995) Broadband ultrasound attenuation in the diagnosis of osteoporosis: correlation with osteodensitometry and fracture. Radiology 194:77-81.

Gambacciani M, Spinetti A, Gallo R, Cappagli B, Teti GC, Facchini V (1995) Ultrasonographic bone characteristics during normal pregnancy: Longitudinal and cross-sectional evaluation. Am J Obstet Gynecol 173:890-893.

Gambert SR, Schultz BM, Hamdy RC (1995) Osteoporosis - Clinical features, prevention, and treatment. Endocrinol Metab Clin North Am 24:317-371.

Genant HK, Lang TF, Engelke K, Fuerst T, Gluer CC, Majumdar S, Jergas M (1996) Advances in the noninvasive assessment of bone density, quality, and structure. *Calcif Tissue Int* 59(Suppl 1):S10-S15.

Glade MJ (1993) Effects of gestation, lactation, and maternal calcium intake on mechanical strength of

equine bone. J Am Coll Nutr 12:372-377.

Glass DN, Nepom BS, White PH, Shulman LE (1994) Research in pediatric rheumatology. *J Rheumatol* 21:1347-1351.

Gluer C-C (1997) Quantitative ultrasound techniques for the assessment of osteoporosis: Expert agreement on current status. *J Bone Miner Res* 12:1280-1288.

Gluer CC, Cummings SR, Bauer DC, Stone K, Pressman A, Mathur A, Genant HK (1996) Osteoporosis: Association of recent fractures with quantitative US findings. *Radiology* 199:725-732.

Gluer CC, Vahlensieck M, Faulkner KG, Engelke K, Black D, Genant HK (1992) Site-measured calcaneal measurements of broad-band ultrasound attenuation and single x-ray absorptiometry: do they measure different skeletal properties. *J Bone Miner Res* 7(9):1071-1079.

Gluer CC, Wu CY, Genant HK (1993) Broadband ultrasound attenuation signals depend on trabecular orientation: an in vitro study. *Osteoporosis Int* 3:185-191.

Gomez M, Aguado F, Menendez JM, Revilla M, Cortes J, Rico H (1997) Influence of soft tissue (fat and fat-free mass) on ultrasound bone velocity - An in vitro study). *Invest Radiol* 32:609-612.

Gonnelli S, Cepollaro C, Agnusdei D, Palmieri R, Rossi S, Gennari C (1996) Diagnostic value of ultrasound analysis and bone densitometry as predictors of vertebral deformity in postmenopausal women. *Osteoporosis Int* 5:413-418.

Gonnelli S, Cepollaro C, Pondrelli C, Martini S, Rossi S, Gennari C (1996) Ultrasound parameters of osteoporotic patients treated with salmon calcitonin: A longitudinal study. *Osteoporosis Int* 6:303-307.

Graafmans WC, Lingen A, Ooms ME, Bezemer PD, Lips P (1996) Ultrasound measurements in the calcaneus: Precision and its relation with bone mineral density of the heel, hip, and lumbar spine. *Bone* 19:97-100.

Grampp S, Genant HK, Mathur A, Lang P, Jergas M, Takada M, Gluer C-C, Lu Y, Chavez M (1997) Comparisons of noninvasive bone mineral measurements in assessing age-related loss, fracture discrimination, and diagnostic classification. *J Bone Miner Res* 12:697-711.

Graton M, Martin J, Stewart A, Krukowski Z, Matheson N, Robins S, Loveridge N, Reid D (1995) Changes in bone mass and metabolism after surgery for primary hyperparathyroidism. Clin Endocrinol 42:493-500.

Greenfield MA (1992) Current status of physical measurements of the skeleton. *Med Phys* 19(6):1349-1357.

Greenspan SL, Bouxsein ML, Melton ME, Kolodny AH, Clair JH, DeLucca PT, Stek M Jr, Faulkner KG, Orwoll ES (1997) Precision and discriminatory ability of calcaneal bone assessment technologies. *J Bone Miner Res* 12:1303-1313.

Gregg EW, Kriska AM, Salamone LM, Roberts MM, Anderson SJ, Ferrell RE, Kuller LH, Cauley JA (1997) The epidemiology of quantitative ultrasound: A review of the relationships with bone mass, osteoporosis and fracture risk. *Osteoporosis Int* 7:89-99.

Grynpas MD, Acito A, Dimitriu M, Mertz BP, Very JM (1992) Changes in bone mineralization, architecture and mechanical properties due to long-term (1-year) administration of pamidronate (APD) to adult dogs. *Osteoporosis Int* 2:74-81.

Han S, Medige J, Davis J, Fishkin Z, Mihalko W, Ziv I (1997) Ultrasound velocity and broadband attenuation as predictors of load-bearing capacities of human calcanei. *Calcif Tissue Int* 60:21-25.

Han S, Rho J, Medige J, Ziv I (1996) Ultrasound velocity and broadband attenuation over a wide range of bone mineral density. *Osteoporosis Int* 6:291-296.

Han SM, Davis J (1997) A comparison between the patella and the calcaneus using ultrasound velocity and attenuation as predictors of bone mineral density. *Phys Med Biol* 42:1947-1955.

Hans D, Arlot ME, Schott AM, Roux JP, Kotzki PO, Meunier PJ (1995) Do ultrasound measurements on the os calcis reflect more the bone microarchitecture than the bone mass?: A two-dimensional histomorphometric study. Bone 16:295-300.

Hans D, Dargent-Molina P, Schott AM, Sebert JL, Cormier C, Kotzki PO, Delmas PD, Pouilles JM, Breart G, Meunier PJ (1996) Ultrasonographic heel measurements to predict hip fracture in elderly women: the EPIDOS prospective study. *Lancet* 348:511-514.

Hans D, Fuerst T, Duboeuf F (1997) Quantitative ultrasound bone measurement. *Eur Radiol* 7(Suppl 2):S43-S50.

Hans D, Schott AM, Arlot ME, Sornay E, Delmas PD, Meunier PJ (1996) Influence of anthropometric parameters on ultrasound measurements of os calcis. *Osteoporosis Int* 5:371-376.

Hans D, Schott AM, Chapuy MC, Benamar M, Kotzki PD, Cormier C, Pouilles JM, Meunier PJ (1994) Ultrasound measurements of the os calcis in a perspective multicenter study. *Calcif Tissue Int* 55:94-99.

Hans D, Schott AM, Meunier PJ (1994) Ultrasonic assessment of bone: a review. Eur J Med 2:157-163.

Heaney RP (1993) Is there a role for bone quality in fragility fractures? *Calcif Tissue Int* 53(Suppl 1):3-6.

Heaney RP, Avioli LV, Chesnut CH III, Lappe J, Recker RR, Brandenburger GH (1989) Osteoporotic bone fragility. Detection by ultrasound transmission velocity. *JAMA* 261:2986-2990.

Heaney RP, Avioli LV, Chesnut CH III, Lappe J, Recker RR, Brandenburger GH (1995) Ultrasound

velocity through bone predicts incident vertebral deformity. J Bone Miner Res 10:341-345.

Heaney RP, Kanis JA (1996) The interpretation and utility of ultrasound measurements of bone [Editorial]. *Bone* 18:491-492.

Herd RJM, Blake GM, Miller CG, Parker JC, Fogelman I (1994) The ultrasonic assessment of osteopenia as defined by dual X-ray absorptiometry. *Br J Radiol* 67:631-635.

Herd RJM, Blake GM, Ramalingam T, Miller CG, Ryan PJ, Fogelman I (1993) Measurements of postmenopausal bone loss with a new contact ultrasound system. *Calcif Tissue Int* 53:153-157.

Herd RJM, Ramalingham T, Ryan PJ, Fogelman I, Blake GM (1992) Measurements of broadband ultrasonic attenuation in the calcaneus in premenopausal and postmenopausal women. *Osteoporosis Int* 2:247-251.

Hoshino H, Kushida K, Yamazaki K, Takahashi M, Ogihara H, Naitoh K, Toyoyama O, Doi S, Tamai H, Inoue T (1996) Effect of physical activity as a caddie on ultrasound measurements of the os calcis: A cross-sectional comparison. *J Bone Miner Res* 11:412-418.

Hosie CJ, Smith DA, Deacon AD, and Langton CM (1987) Comparison of broadband ultrasonic attenuation of the os calcis and quantitative computed tomography of the distal radius. *Clin Phys Physiol Meas* 8:303-308.

Howard GM, Nguyen TV, Pocock NA, Kelly PJ, Eisman JA (1997) Influence of handedness on calcaneal ultrasound: Implications for assessment of osteoporosis and study designs. *Osteoporosis Int* 7:190-194.

Jaworski M, Lebiedowski M, Lorenc RS, Trempe J (1995) Ultrasound bone measurement in pediatric subjects. Calcif Tissue Int 56:368-371.

Johansen A, Harris W, Stone M (1997) Portable ultrasound assessment of bone in the elderly: Hemiparesis following stroke as a model for disuse osteoporosis. *Arch Gerontol Geriatr* 25:299-304.

Johansen A, Stone MD (1997) The effect of ankle oedema on bone ultrasound assessment at the heel. *Osteoporosis Int* 7:44-47.

Johnston CC Jr, Melton LJ III (1995) Bone densitometry. In: Riggs BL, Melton LJ III (eds) Osteoporosis: Etiology, Diagnosis, and Management, Second edn. Lippincott-Raven Publishers, Philadelphia

Jones PRM, Hardman AE, Hudson A, Norgan NG (1991) Influence of brisk walking on the broadband ultrasonic attenuation of the calcaneus in previously sedentary women aged 30-61 years. *Calcif Tissue Int* 49:112-115.

Jorgensen HL, Hassager C (1997) Improved reproducibility of broadband ultrasound attenuation of the os calcis by using a specific region of interest. *Bone* 21:109-112.

Kann P, Graeben S, Beyer J (1994) Age-dependence of bone material quality shown by the measurement of frequency of resonance in the ulna. *Calcif Tissue Int* 54:96-100.

Katz JL, Meunier A (1994) Scanning acoustic microscope studies of the lastic properties of osteons and osteon lamellae. *J Biomech Eng* 115:543-548.

Kaufman JJ, Einhorn TA (1993) Perspectives - Ultrasound assessment of bone. *J Bone Miner Res* 8(5):517-525.

Kawana K, Kushida K, Takahashi M, Ohishi T, Denda K, Yamazaki K, Inoue T (1994) The effect of menopause on biochemical markers and ultrasound densitometry in healthy females. Calcif Tissue Int 55:420-425.

Kohles SS, Vanderby R, Ashman RB, Manley PA, Markel MD, Heiner JP (1994) Ultrasonically determined elasticity and cortical density in canine femora after hip arthroplasty. *J Biomech* 27:137-144.

Kolthoff N, Eiken P, Barenholdt O, Pors Nielsen S (1995) Ultrasound measurements of the os calcis - Side differences and prediction of bone density in 39 persons. Acta Orthop Scand 66:278-282.

Kotzki PO, Buyck D, Hans D, Thomas E, Bonnel F, Favier F, Meunier PJ, Rossi M (1994) Influence of fat on ultrasound measurements of the os calcis. *Calcif Tissue Int* 54:91-95.

Krieg MA, Thiebaud D, Burckhardt P (1996) Quantitative ultrasound of bone in institutionalized elderly women: A cross-sectional and longitudinal study. *Osteoporosis Int* 6:189-195.

Kroger H, Jurvelin J, Arnala I, Penttila K, Rask A, Vainio P, Alhava E (1995) Ultrasound attenuation of the calcaneus in normal subjects and in patients with wrist fracture. Acta Orthop Scand 66:47-52.

Langton CM (1997) ZSD: A universal parameter for precision in the ultrasonic assessment of osteoporosis. *Physiol Med* 18:67-72.

Langton CM, Ali AV, Riggs CM, Evans GP, Bonfield W (1990) A contact method for the assessment of ultrasonic velocity and broadband attenuation in cortical and cancellous bone. *Clin Phys Physiol Meas* 11:243-249.

Langton CM, Langton DK (1997) Male and female normative data for ultrasound measurement of the calcaneus within the UK adult population. *Br J Radiol* 70:580-585.

Langton CM, Njeh CF, Hodgskinson R, Currey JD (1996) Prediction of mechanical properties of the human calcaneus by broadband ultrasonic attenuation. *Bone* 18:495-503.

Langton CM, Palmer SB, Porter RW (1984) The measurement of braodband ultrasonic attenuation in cancellous bone. *N Engl J Med* 13:89-91.

Lappe JM, Recker RR, Malleck MK, Stegman MR, Packard PP, Heaney RP (1995) Patellar ultrasound transmission velocity in healthy children and adolescents. Bone 16(Supplement):251S-256S.

Laugier P, Droin P, Lavel-Jeantet AM, Berger G (1997) In vitro assessment of the relationship between acoustic properties and bone mass density of the calcaneus by comparison of ultrasound parametric imaging and quantitative computed tomography. *Bone* 20:157-165.

Laugier P, Fournier B, Berger G (1996) Ultrasound parametric imaging of the calcaneus: *In Vivo* results with a new device. *Calcif Tissue Int* 58:326-331.

Laugier P, Giat P, Berger G (1994) Broadband ultrasonic attenuation imaging: a new imaging technique of the os calcis. *Calcif Tissue Int* 54:83-86.

Lee SC, Coan BS, Bouxsein ML (1997) Tibial ultrasound velocity measured in situ predicts the material properties of tibial cortical bone. *Bone* 21:119-125.

Lees B, Stevenson JC (1993) Preliminary evaluation of a new ultrasound bone densitometer. *Calcif Tissue Int* 53:149-152.

Lees S, Hanson D, Page E, Mook HA (1994) Comparison of dosage-dependent effects of β-aminopropionitrile, sodium fluoride, and hydrocortisone on selected physical properties of cortical bone. *J Bone Miner Res* 9:1377-1389.

Lehmann R, Wapniarz M, Kvasnicka HM, Klein K, Allolio B (1993) Velocity of ultrasound at the patella: influence of age, menopause and estrogen replacement therapy. *Osteoporosis Int* 3:308-313.

Lowet G, Van der Perre G (1996) Ultrasound velocity measurement in long bones: Measurement method and simulation of ultrasound wave propagation. *J Biomech* 29:1255-1262.

Marcus R (1995) Clinical Review 76 - The nature of osteoporosis. J Clin Endocrinol Metab 81:1-5.

Massie A, Reid DM, Porter RW (1993) Screening for osteoporosis: comparison between dual energy x-ray absorptiometry and broadband ultrasound attenuation in 1000 perimenopausal women. *Osteoporosis Int* 3:107-110.

Mautalen C, Vega E, Gonzalez D, Carrilero P, Otano A, Silberman F (1995) Ultrasound and dual-x-ray absorptiometry densitometry in women with hip fracture. Calcif Tissue Int 57:165-168.

McCarthy RN, Jeffcott LB, McCartney (1990) Ultrasound speed in equine cortical bone: Effects of orientation, density, and porosity and temperature. *J Biomech* 23:1139-1143.

McCloskey E, Murray S, Miller C, Charlesworth D, Tindale W, O'Doherty D, Bickerstaff D, Hamdy N, Kanis J (1990) Broadband ultrasound attenuation in the os calcis: relationship to bone mineral at other skeletal sites. *Clin Sci* 78:227-233.

McCloskey EV, Murray SA, Charlesworth D, Miller C, Fordham J, Clifford K, Atkins R, Kanis JA. (1990) Assessment of broadband ultrasound attenuation in the os calcis *in vitro*. *Clin Sci* 78:221-225.

McKelvie ML, Fordham J, Clifford C, Palmer SB (1989) In vitro comparison of quantitative computed tomography and broadband ultrasonic attenuation of trabecular bone. *Bone* 10:101-104.

McKelvie ML, Palmer SB (1991) The interaction of ultrasound with cancellous bone. *Phys Med Biol* 36(10):1331-1340.

McKenna MJ (1997) Osteoporosis prevention: From vitamin D to HRT. Int J Med Surg 166:143-148.

Michaelsson K, Bergstrom R, Holmberg L, Mallmin H, Wolk A, Ljunghall S (1997) A high density calcium intake is needed for a positive effect on bone density in Swedish postmenopausal women. *Osteoporosis Int* 7:155-161.

Miller CG (1995) Potential measurements in patients with osteoporosis. In: Nimmo WS, Tucker GT (eds) Clinical Measurements in Drug Evaluation. John Wiley & Sons Ltd, New York

Miller CG, Herd RJM, Ramalingam T, Fogelman I, Blake GM (1993) Ultrasonic velocity measurements through the calcaneus: which velocity should be measured. *Osteoporosis Int* 3:31-35.

Miller CG, Porter RW, Smith PC, Grainger D, Palmer SB (1989) The prediction of hip fracture in the elderly by the measurement of braodband ultrasonic attenuation through the os calcis. In: Ring EFJ, Evans WD, Dixon AS (eds). *Osteoporosis and Bone Mineral Measurement* York, England: Institute of Physical Sciences in Medicine. pp 143-146.

Minisola S, Rosso R, Scarda A, Pacitti MT, Romagnoli E, Mazzuoli G (1995) Quantitative ultrasound assessment of bone in patients with primary hyperparathyroidism. Calcif Tissue Int 556:526-528.

Minisola S, Tirafili C, Rosso R, Costa G, Mazzuoli G (1996) Ultrasonic parameters of bone in young normals: effect of age and sex. *Europ J Clin Invest* 26:947-950.

Moris M, Peretz A, Tjeka R, Negaban N, Wouters M, Bergmann P (1995) Quantitative ultrasound bone measurements: Normal values and comparison with bone mineral density by dual-x-ray absorptiometry. Calcif Tissue Int 57:6-10.

Mughal MZ, Langton CM, Utretch G, Morrison J, Specker BL (1996) Comparison between broadband ultrasound attenuation of the calcaneum and total body bone mineral density in children. *Acta Paediatr* 85:663-665.

Mughal MZ, Ward K, Qayyum N, Langton CM (1997) Assessment of bone status using the contact ultrasound bone analyzer. *Arch Dis Child* 76:535-536.

Nicholson PHF, Haddaway MJ, Davie MWJ (1994) The dependence of ultrasonic properties on orientation in human vertebral bone. *Phys Med Biol* 39:1013-1024.

Nicholson PHF, Lowet G, Cheng XG, Boonen S, Van Der Perre G, Dequeker J (1997) Assessment of the strength of the proximal femur in vitro: Relationship with ultrasonic measurements of the calcaneus. *Bone* 20:219-224.

Nicholson PHF, Lowet G, Langton CM, Dequeker J, Van der Perre G (1996) A comparison of time-domain and frequency-domain approaches to ultrasonic velocity measurement in trabecular bone. *Phys Med Biol* 41:2421-2435.

Nicholson PHF, Lowet G, Langton CM, Dequeker J, Van der Perre G (1996) A comparison of time-domain and frequency-domain approaches to ultrasonic velocity measurement in trabecular bone. *Phys Med Biol* 41:2421-2435.

Njeh CF, Boivin CM, Langton CM (1997) The role of ultrasound in the assessment of osteoporosis: A review. *Osteoporosis Int* 7:7-22.

Njeh CF, Boivin CM, Langton CM (1997) The role of ultrasound in the assessment of osteoporosis: A review. *Osteoporosis Int* 7:7-22.

Njeh CF, Hodgskinson R, Currey JD, Langton CM (1996) Orthogonal relationships between ultrasonic velocity and material properties of bovine cancellous bone. *Med Engin Phys* 18:373-381.

Njeh CF, Kuo CW, Langton CM, Atrah HI, Boivin CM (1997) Prediction of femoral bone strength using ultrasound velocity and BMD: An in vitro study. *Osteoporosis Int* 7:471-477.

Njeh CF, Langton CM (1997) The effect of cortical endplates on ultrasound velocity through the calcaneus: an *in vitro* study. *Br J Radiol* 70:504-510.

Orgee JM, Foster H, McCloskey EV, Khan S, Coombes G, Kanis JA (1996) A precise method for the assessment of tibial ultrasound velocity. *Osteoporosis Int* 6:1-7.

Palacios S, Menendez C, Calderon J, Rubio S (1993) Spine and femur density and broadband ultrasound attenuation of the calcaneous in normal spanish women. *Calcif Tissue Int* 52:99-102.

Petley GW, Robins PA, Aindow JD (1995) Broadband ultrasound attenuation: are current measurement techniques inherently inaccurate? *Br J Radiol* 68:1212-1214.

Pfeifer M, Pollaehne W, Minne HW (1997) Ultrasound analyses of the calcaneus predict relative risk of the presence of at least one vertebral fracture and reflect different physical qualities of bone in different regions of the skeleton. *Horm Metab Res* 29:76-79.

Pocock NA, Noakes KA, Howard GM, Nguyen TV, Kelly PJ, Sambrook PN, Eisman JA, Freund J (1996) Screening for osteoporosis: what is the role of heel ultrasound. *Med J Aust* 164:367-370.

Poll V, Cooper C, Cawley MID (1986) Broadband ultrasonic attenuation in the os calcis and single photon absorptiometry in the distal forearm: a comparative study. *Clin Phys Physiol Meas* 7(4):375-379.

Porter RW, Johnson K, McCutchan JDS (1990) Wrist fracture, heel bone density and thoracic kyphosis: a case control study. *Bone* 11:211-214.

Porter RW, Miller CG, Grainger D, Palmer SB (1990) Prediction of hip fracture in elderly women: a prospective study. *Br Med J* 301:638-641.

Rausch F, Radermacher A, Danz A, Schiedermaier U, Golucke A, Michalk D, Schonau E (1997) Vitamin D receptor genotypes and changes in bone density in physically active German women with high calcium intake. *Exp Clin Endocrinol Diabetes* 105:103-108.

Resch H, Pietschmann P, Bernecker P, Krexner E, Willvonseder R (1990) Broadband ultrasound attenuation: A new diagnostic method in osteoporosis. *Am J Radiol* 155:825-828.

Revilla M, de la Sierra G, Aguado F, Varela L, Jimenez-Jimenez FJ, Rico H (1996) Bone mass in Parkinson's disease: A study with three methods. *Calcif Tissue Int* 58:311-315.

Rho JY, Ashman RB, Turner CH (1993) Young's modulus of trabecular and cortical bone material: ultrasonic and microtensile measurements. *J Biomech* 26(2):111-119.

Rho JY, Flaitz D, Swarnakar V, Acharya RS (1997) The characterization of broadband ultrasound attenuation and fractal analysis by biomechanical properties. *Bone* 20:497-504.

Rishaug U, Birkeland KI, Falch JA, Vaaler S (1995) Bone mass in non-insulin-dependent diabetes mellitus. Scand J Clin Lab Invest 55:257-262.

Rosenthal L, Tenenhouse A, Caminis J (1995) A correlative study of ultrasound calcaneal and dualenergy X-ray absorptiometry bone measurements of the lumbar spine and femur in 1000 women. Eur J Nucl Med 22:402-406.

Rosenthall L (1997) Influence of bone quality on precision of calcaneal ultrasonometry. *Calcif Tissue Int* 61:139-141.

Rosenthall L (1997) Selective supplementation of calcaneal ultrasound densitometry with dual-energy x-ray absorptiometry of the spine and femur for population screening. *Can Assoc Radiol J* 47:38-41.

Rosenthall L, Caminis J, Tenenhouse A (1996) Correlation of ultrasound velocity in the tibial cortex, calcaneal ultrasonography, and bone mineral densitometry of the spine and femur. *Calcif Tissue Int* 58:415-418.

Ross P, Huang C, Davis J, Imose K, Yates J, Vogel J, Wasnich R (1995) Predicting vertebral deformity using bone densitometry at various skeletal sites and calcaneus ultrasound. Bone 16:325-332.

Rossman P, Zagzebski J, Mesina C, Sorenson J, Mazess R (1989) Comparison of speed of sound and ultrasound attenuation in the os calcis to bone density of the radius, femur and lumbar spine. *Clin Phys* 

Physiol Meas. 10:353-360.

Roux C, Fournier B, Laugier P, Chappard C, Kolata S, Dougados M, Berger G (1996) Broadband ultrasound attenuation imaging: A new imaging method in osteoporosis. *J Bone Miner Res* 11:1112-1118.

Sakata S, Kushida K, Yamazaki K, Inoue T (1997) Ultrasound bone densitometry of os calcis in elderly Japanese women with hip fracture. *Calcif Tissue Int* 60:2-7.

Salamone LM, Krall EA, Harris S, Dawson-Hughes B (1994) Comparison of broadband ultrasound attenuation to single X-ray absorptiometry measurement at the calcaneus in postmenopausal women. *Calcif Tissue Int* 54:87-90.

Saulgozis J, Pontaga I, Lowet G, Van der Perre G (1996) The effect of fracture and fracture fixation on ultrasonic velocity and attenuation. *Physiol Meas* 17:201-211.

Schonau E, Radermacher A, Klein K, Michalk D (1994) The determination of ultrasound velocity in the os calcis, thumb and patella during childhood. *Eur J Pediatr* 153:252-256.

Schott AM, Hans D, Garnero P, Sornay-Rendu E, Delmas PD, Meunier PJ (1995) Age-related changes in os calcis ultrasonic indices: A 2-year prospective study. *Osteoporosis Int* 5:478-483.

Schott AM, Hans D, Sornay-Rendu E, Delmas PD, Meunier PJ (1993) Ultrasound measurements on os calcis: precision and age-related changes in a normal female population. *Osteoporosis Int* 3:249-254.

Schott AM, Weill-Engerer S, Hans D, Duboeuf F, Delmas PD, Meunier PJ (1995) Ultrasound discriminates patients with hip fracture equally well as dual energy X-ray absorptiometry and independently of bone mineral density. J Bone Miner Res 10:243-249.

Serpe L, Rho J-Y (1996) The nonlinear transition period of broadband ultrasound attenuation as bone density varies. *J Biomech* 29:963-966.

Serpe LJ, Rho J-Y (1996) Broadband ultrasound attenuation value dependence on bone width *in vitro*. *Phys Med Biol* 41:197-202.

Smeets AJ, Kuiper JW, van Kuijk C, Berning B, Zwamborn AW (1994) Skin thickness does not reflect bone mineral density in postmenopausal women. *Osteoporosis Int* 4:32-35.

Stegman MR, Davies KM, Heaney RP, Recker RR, Lappe JM (1996) The association of patellar ultrasound transmissions and forearm densitometry with vertebral fracture, number and severity: The Saunders County Bone Quality Study. *Osteoporosis Int* 6:130-135.

Stegman MR, Heaney RP, Recker RR, Travers-Gustafson D, Leist J (1994) Velocity of ultrasound and its association with fracture history in a rural population. *Am J Epidemiol* 139:1027-1034.

Stegman MR, Heaney RP, Recker RR (1995) Comparison of speed of sound ultrasound with single photon absorptiometry for determining fracture odds ratios. *J Bone Miner Res* 10:346-352.

Stegman MR, Heaney RP, Travers-Gustafson D, Leist J (1995) Cortical ultrasound velocity as an indicator of bone status. *Osteoporosis Int* 5:349-353.

Stewert A, Reid DM, Porter RW (1994) Broadband ultrasound attenuation and dual energy X-ray absorptiometry in patients with hip fractures: Which technique discriminates fracture risk. *Calcif Tissue Int* 54:466-469.

Strelitzki R, Clarke AJ, Truscott JG, Evans JA (1996) Ultrasonic measurement: An evaluation of three heel bone scanners compared with a bench-top system. *Osteoporosis Int* 6:471-479.

Strelitzki R, Evans JA, Clarke AJ (1997) The influence of porosity and pore size on the ultrasonic properties of bone investigated using a phantom material. *Osteoporosis Int* 7:370-375.

Strelitzki R, Nicholson PHF, Evans JA (1997) Low-frequency ultrasonic velocity measurements in human calcaneal trabecular bone. *Physiol Med* 18:119-127.

Takeda N, Miyake M, Kita S, Tomomitsu T, Fukunaga M (1996) Sex and age patterns of quantitative ultrasound densitometry of the calcaneus in normal Japanese subjects. *Calcif Tissue Int* 59:84-88.

Tavakoli MB, Evans JA (1991) Dependence of the velocity and attenuation of ultrasound in bone on the mineral content. *Phys Med Biol* 36:1529-1537.

Tavakoli MB, Evans JA (1992) The effect of bone structure on ultrasonic attenuation and velocity. Ultrasonics 30:389-395.

Travers-Gustafson D, Stegman MR, Heaney RP, Recker RR (1995) Ultrasound, densitometry, and extraskeletal appendicular fracture risk factors: A cross-sectional report on the Saunders County Bone Quality Study. Calcif Tissue Int 57:267-271.

Truscott JG, Simpson M, Stewart SP, Milner R, Westmacott CF, Oldroyd B, Evans JA, Horsman A, Langton CM, Smith MA (1992) Bone ultrasonic attenuation in women: reproducibility, normal variation and comparison with photon absorptiometry. *Clin Phys Physiol Meas* 13(1):29-36.

Tsuritani I, Honda R, Ishizaki M, Yamada Y (1996) Ultrasonic assessment of calcaneus in inhabitants in a cadmium-polluted area. *J Toxicol Environ Health* 48:131-140.

Turner CH, Eich M (1991) Ultrasonic velocity as a predictor of strength in bovine cancellous bone. *Calcif Tissue Int* 49:116-119.

Turner CH, Peacock M, Timmerman L, Neal JM, Johnston CC Jr (1995) Calcaneal ultrasonic measurements discriminate hip fracture independently of bone mass. Osteoporosis Int 5:130-135.

van Daele PLA, Burger H, De Laet CEDH, Hofman A, Grobbee DE, Birkenhager JC, Pols HAP

(1997) Longitudinal changes in ultrasound parameters of the calcaneus. Osteoporosis Int 7:207-212.

van Daele PLA, Burger H, De Laet CEDH, Pols HAP (1996) Ultrasound measurement of bone. *Clin Endocrinol* 44:363-369.

van Daele PLA, Burger H, De Laet CEDH, Hofman A, Grobbee DE, Birkenhager JC, Pols HAP (1997) Longitudinal changes in ultrasound parameters of the calcaneus. *Osteoporosis Int* 7:207-212.

van Daele PLA, Burger H, Algra D, Hofman A, Grobbee DE, Birkenhager JC, Pols AP (1994) Age-associated changes in ultrasound measurements of the calcaneus in men and women: the Rotterdam study. *J Bone Miner Res* 9:1751-1757.

Varila E, Sievanen H, Vuori I, Oksanen H, Punnonen R (1995) Limited value of ultrasound measured skin thickness in predicting bone mineral density in peri- and postmenopausal women. Maturitas 21:45-49.

Ventura V, Mauloni M, Mura M, Paltrinieri F, de Aloysio D (1996) Ultrasound velocity changes at the proximal phalanxes of the hand in pre, peri, and postmenopausal women. *Osteoporosis Int* 6:368-375.

Wallach S, Feinblatt JD, Avioli LV (1992) The bone "quality" problem. Calcif Tissue Int 51:169-172.

Wapniarz M, Lehmann R, Banik N, Radwan M, Klein K, Allolio B (1993) Apparent velocity of ultrasound (AVU) at the patella in comparison to bone mineral density at the lumbar spine in normal males and females. *Bone Miner* 23:243-252.

Wark JD (1996) Osteoporotic fractures: background and prevention strategies. *Maturitas* 23:193-207.

Waud CE, Lew R, Baran DT (1992) The relationship between ultrasound and densitometric measurements of bone mass at the calcaneus in women. *Calcif Tissue Int* 51:415-418.

Williams JL (1993) Ultrasonic wave propagation in cancellous and cortical bone: prediction of some experimental results by Biot's theory. *J Accoust Soc Am* 91:(2):1106-1112.

Wu CY, Gluer CC, Jergas M, Bendavid E, Genant HK (1995) The impact of bone size on broadband ultrasound attenuation. Bone 16:137-141.

Yamaga A, Taga M, Minaguchi H, Sato K (1996) Changes in bone mass as determined by ultrasound and biochemical markers of bone turnover during pregnancy and puerperium: A longitudinal study. *J Clin Endocrinol Metab* 81:752-756.

Yamazaki K, Kushida K, Ohmura A, Sano M, Inoue T (1994) Ultrasound bone density of the os calcis in Japanese women. *Osteoporosis Int* 4:220-225.

Young H, Howey S, Purdie DW (1993) Broadband ultrasound attenuation compared with dual-energy x-ray absorptiometry in screening for postmenopausal low bone density. *Osteoporosis Int* 3:160-164.

Zagzebski JA, Rossman PJ, Mesina C, Mazess RB, Madsen EL (1991) Ultrasound transmission measurements through the os calcis. *Calcif Tissue Int* 49:107-111.

Zerwekh JE, Antich PP, Sakhaee K, Gonzales J, Gottschalk F, Pak CYC (1991) Assessment by reflection ultrasound method on the effect of intermittent slow-release sodium fluoride-calcium citrate therapy on material strength of bone. *J Bone Miner Res* 3:239-244.

Zimmerman MC, Meunier A, Katz JL, Christel P, Sedel L (1990) The evaluation of cortical bone remodeling with a new ultrasonic technique. *IEEE Trans Biomed Eng* 37:433-441.