

## 6. Literaturverzeichnis

1. Kolta S., Ravaud P., Fechtenbaum J., Dougados M. and Roux C., *Accuracy and precision of 62 bone densitometers using a European Spine Phantom*. Osteoporos Int, 1999. **10**(1): p. 14-9.
2. Sabin M.A., Blake G.M., MacLaughlin-Black S.M. and Fogelman I., *The accuracy of volumetric bone density measurements in dual X-ray absorptiometry*. Calc Tissue int, 1995. **56**(3): p. 210-4.
3. Mazess R.B., Chesnut III C.H., McClung M. and Genant H.K., *Enhanced precision with dual-energy X-ray absorptiometry*. Calc Tissue int, 1992. **51**(1): p. 14-7.
4. Mazess R.B., Collick B., Trempe J., Barden H. and Hanson J., *Performance evaluation of a dual-energy x-ray bone densitometer*. Calc Tissue int, 1989. **44**(3): p. 228-32.
5. Frost M.L., Blake G.M. and Fogelman I., *Does the combination of quantitative ultrasound and dual-energy X-ray absorptiometry improve fracture discrimination?* Osteoporos Int, 2001. **12**(6): p. 471-7.
6. Jergas M. and Genant H.K., *Spinal and femoral DXA for the assessment of spinal osteoporosis*. Calc Tissue int, 1997. **61**(5): p. 351-7.
7. Huang C., Ross P.D., Yates A.J., Walker R.E., Imose K., Emi K. and Wasnich R.D., *Prediction of fracture risk by radiographic absorptiometry and quantitative ultrasound: a prospective study*. Calcif Tissue Int, 1998. **63**(5): p. 380-4.
8. Cepollaro C., Gonnelli S., Pondrelli C., Martini S., Montagnani A., Rossi S., Gennari L. and Gennari C., *The combined use of ultrasound and densitometry in the prediction of vertebral fracture*. Br J Radiol, 1997. **70**(835): p. 691-6.
9. Kroger H., Huopio J., Honkanen R., Tuppurainen M., Punttila E., Alhava E. and Saarikoski S., *Prediction of fracture risk using axial bone mineral density in a perimenopausal population: a prospective study*. J Bone Miner Res, 1995. **10**(2): p. 302-306.
10. Melton III L.J., Crowson C.S., O'Fallon W.M., Wahner H.W. and Riggs B.L., *Relative contributions of bone density, bone turnover, and clinical risk factors to long-term fracture prediction*. J Bone Miner Res, 2003. **18**(2): p. 312-8.
11. Blake G.M., Patel R., Lewis M.K., Batchelor S., Potts E., Smith I.G. and Fogelman I., *New generation dual x-ray absorptiometry scanners increase dose to patients and staff*. J Bone Miner Res, 1996. **11**(suppl. 1): p. 157.
12. Gluer C.C., Wu C.Y., Jergas M., Goldstein S.A. and Genant H.K., *Three quantitative ultrasound parameters reflect bone structure*. Calcif Tissue Int, 1994. **55**(1): p. 46-52.
13. Gluer C.C., Wu C.Y. and Genant H.K., *Broadband ultrasound attenuation signals depend on trabecular orientation: an in vitro study*. Osteoporos Int, 1993. **3**(4): p. 185-91.
14. van den Bergh J.P., Noordam C., Ozyilmaz A., Hermus A.R., Smals A.G. and Otten B.J., *Calcaneal ultrasound imaging in healthy children and adolescents: relation of the ultrasound parameters BUA and SOS to age, body weight,*

- height, foot dimensions and pubertal stage.* Osteoporos Int, 2000. **11**(11): p. 967-76.
15. *Consensus development conference: diagnosis, prophylaxis and treatment of osteoporosis.* Am J Med, 1993. **94**: p. 646-650.
  16. WHO, *Assessment of fracture risk and its application to screening for postmenopausal osteoporosis.*, in WHO technical report series. 1994, World Health Organisation: Geneva.
  17. Kanis J.A., *Assessment of fracture risk and its application to screening for postmenopausal osteoporosis: synopsis of a WHO report.* Osteoporosis international, 1994. **4**: p. 368-381.
  18. Schuit S.C., van der Klift M., Weel A.E., de Laet C.E., Burger H., Seeman E., Hofman A., Uitterlinden A.G., van Leeuwen J.P. and Pols H.A., *Fracture incidence and association with bone mineral density in elderly men and women: the Rotterdam Study.* Bone, 2004. **34**(1): p. 195-202.
  19. Holt G., Khaw K.T., Reid D.M., Compston J.E., Bhalla A., Woolf A.D., Crabtree N.J., Dalzell N., Wardley-Smith B., Lunt M. and Reeve J., *Prevalence of osteoporotic bone mineral density at the hip in Britain differs substantially from the US over 50 years of age: implications for clinical densitometry.* Br J Radiol, 2002. **75**: p. 736-742.
  20. Kullenberg R. and Falch J.A., *Prevalence of osteoporosis using bone mineral measurements at the calcaneus by dual X-ray and laser (DXL).* Osteoporos Int, 2003. **14**(10): p. 823-827.
  21. Lunt M., Felsenberg D., Reeve J., Benevolenskaya L., Cannata J., Dequeker J., Dodenhof C., Falch J.A., Masaryk P., Pols H.A., Poor G., Reid D.M., Scheidt-Nave C., Weber K., Varlow J., Kanis J.A., O'Neill T.W. and Silman A.J., *Bone density variation and its effects on risk of vertebral deformity in men and women studied in thirteen European centers: the EVOS Study.* J Bone Miner Res, 1997. **12**(11): p. 1883-94.
  22. Lane J.M., Riley E.H. and Wirganowicz P.Z., *Osteoporosis: Diagnosis and treatment.* J Bone Joint Surgery, 1996. **78A**: p. 618-632.
  23. Ismail A.A., Pye S.R., Cockerill W.C., Lunt M., Silman A.J., Reeve J., Banzer D., Benevolenskaya L.I., Bhalla A., Bruges Armas J., Cannata J.B., Cooper C., Delmas P.D., Dequeker J., Dilsen G., Falch J.A., Felsch B., Felsenberg D., Finn J.D., Gennari C., Hoszowski K., Jajic I., Janott J., Johnell O., Kanis J.A., Kragl G., Lopez Vaz A., Lorenc R., Lyritis G., Marchand F., Masaryk P., Matthis C., Miazgowski T., Naves-Diaz M., Pols H.A., Poor G., Rapado A., Raspe H.H., Reid D.M., Reisinger W., Scheidt-Nave C., Stepan J., Todd C., Weber K., Woolf A.D., and O'Neill T.W., *Incidence of limb fracture across Europe: results from the European Prospective Osteoporosis Study (EPOS).* Osteoporos Int, 2002. **13**(7): p. 565-71.
  24. Seeley D.G., Browner W.S., Nevitt M.C., Genant H.K. and Cummings S.R., *Almost all fractures are osteoporotic.* J Bone Miner Res, 1995. **10**(Suppl 1): p. 468.
  25. Seeley D.G., Browner W.S., Nevitt M.C., Genant H.K., Scott J.C. and Cummings S.R., *Which fractures are associated with low appendicular bone mass in elderly women?* Ann Intern Med, 1991. **115**: p. 837-42.

26. Danielson M.E., Cauley J.A., Baker C.E., Newman A.B., Dorman J.S., Towers J.D. and Kuller L.H., *Familial resemblance of bone mineral density (BMD) and calcaneal ultrasound attenuation: the BMD in mothers and daughters study*. J Bone Miner Res, 1999. **14**(1): p. 102-10.
27. Eisman J.A., *Genetics of osteoporosis*. Endocr Rev, 1999. **20**(6): p. 788-804.
28. Seeman E., Hopper J.L., Bach L.A., Cooper M.E., Parkinson E., McKay J. and Jerums G., *Reduced bone mass in daughters of women with osteoporosis*. N Engl J Med, 1989. **320**: p. 552-558.
29. Espallargues M., Sampietro-Colom L., Estrada M.D., Sola M., del Rio L., Setoain J. and Granados A., *Identifying bone-mass-related risk factors for fracture to guide bone densitometry measurements: a systematic review of the literature*. Osteoporos Int, 2001. **12**(10): p. 811-22.
30. Stewart A., Walker L.G., Porter R.W., Reid D.M. and Primrose W.R., *Predicting a second hip fracture*. J Clin Densitom, 1999. **2**(4): p. 363-70.
31. Wardlaw G.M., *Putting body weight and osteoporosis into perspective*. Am J Clin Nutr, 1996. **63**(3 Suppl): p. 433S-436S.
32. Margolis K.L., Ensrud K.E., Schreiner P.J. and Tabor H.K., *Body size and risk for clinical fractures in older women. Study of Osteoporotic Fractures Research Group*. Ann Intern Med, 2000. **133**(2): p. 123-7.
33. del Puente A., Esposito A., Savastano S., Carpinelli A., Postiglione L. and Oriente P., *Dietary calcium intake and serum vitamin D are major determinants of bone mass variations in women. A longitudinal study*. Aging Clin Exp Res., 2002. **14**(5): p. 382-8.
34. Feskanich D., Willett W.C. and Colditz G.A., *Calcium, vitamin D, milk consumption, and hip fractures: a prospective study among postmenopausal women*. Am J Clin Nutr, 2003. **77**(2): p. 504-11.
35. Daniell H.W., *Osteoporosis of the slender smoker. Vertebral compression fractures and loss of metacarpal cortex in relation to postmenopausal cigarette smoking and lack of obesity*. Arch Intern Med, 1976. **136**(3): p. 298-304.
36. Williams A.R., Weiss N.S., Ure C.L., Ballard J. and Daling J.R., *Effect of weight, smoking, and estrogen use on the risk of hip and forearm fractures in postmenopausal women*. Obstet Gynecol, 1982. **60**(6): p. 695-9.
37. Bikle D.D., Genant H.K., Cann C., Recker R.R., Halloran B.P. and Strewler G.J., *Bone disease in alcohol abuse*. Ann Intern Med, 1985. **103**(1): p. 42-8.
38. Melton L.J. and Riggs B.L., *Osteoporosis: etiology, diagnosis and management*. 1988, New York: Raven Press. 133-54.
39. Winner S.J., Morgan C.A. and Evans J.G., *Perimenopausal risk of falling and incidence of distal forearm fracture*. BMJ, 1989. **298**: p. 1486-8.
40. Lord S.R., Sambrook P.N., Gilbert C., Kelly P.J., Nguyen T., Webster I.W. and Eisman J.A., *Postural stability, falls and fractures in the elderly: results from the Dubbo Osteoporosis Epidemiology Study*. Med J Aust, 1994. **160**(11): p. 684-5, 688-91.
41. Klotzbuecher C.M., Ross P.D., Landsman P.B., Abbott III T.A. and Berger M., *Patients with prior fractures have an increased risk of future fractures: a summary of the literature and statistical synthesis*. J Bone Miner Res, 2000. **15**(4): p. 721-39.

42. Wu F., Mason B., Horne A., Ames R., Clearwater J., Liu M., Evans M.C., Gamble G.D. and Reid I.R., *Fractures between the ages of 20 and 50 years increase women's risk of subsequent fractures*. Arch Intern Med, 2002. **162**(1): p. 33-6.
43. Donaldson L.J., Cook A. and Thomson R.G., *Incidence of fractures in a geographically defined population*. J Epidemiol Community Health, 1990. **44**: p. 241-5.
44. Felsenberg D., Wieland E., Hammermeister C., Armbrecht G., Gowin W. and Raspe H., *Prevalence of vertebral spinal deformities in women and men in Germany. EVOS group in Germany*. Med Klin, 1998. **93 Suppl 2**: p. 31-4.
45. *Incidence of vertebral fracture in Europe: results from the European Prospective Osteoporosis Study (EPOS)*. J Bone Miner Res, 2002. **17**(4): p. 716-24.
46. Cooper C., Campion G. and Melton III L.J., *Hip fractures in the elderly: a world-wide projection*. Osteoporos Int, 1992. **2**(6): p. 285-9.
47. Cummings S.R. and Melton L.J., *Epidemiology and outcomes of osteoporotic fractures*. Lancet, 2002. **359**(9319): p. 1761-7.
48. Gullberg B., Duppe H., Nilsson B., Redlund-Johnell I., Sernbo I., Obrant K. and Johnell O., *Incidence of hip fractures in Malmo, Sweden (1950-1991)*. Bone, 1993. **14** .(Suppl 1): p. S23-9.
49. Falch J.A., Kaastad T.S., Bohler G., Espeland J. and Sundsvold O.J., *Secular increase and geographical differences in hip fracture incidence in Norway*. 1993. **14**(4): p. 643-5.
50. Parkkari J., Kannus P., Niemi S., Pasanen M., Jarvinen M., Luthje P. and Vuori I., *Increasing age-adjusted incidence of hip fractures in Finland: the number and incidence of fractures in 1970-1991 and prediction for the future*. Calcif Tissue Int., 1994. **55**((5)): p. 342-5.
51. Boyce W.J. and Vessey M.P., *Rising incidence of fracture of the proximal femur*. Lancet, 1985. **1**(8421): p. 150-1.
52. Cooper C., *Epidemiology of osteoporosis*. Osteoporos Int, 1999. **9**(Suppl 2): p. S2-8.
53. Blake G.M., Gluer C.C. and Fogelman I., *Bone densitometry: current status and future prospects*. Br J Radiol, 1997. **70 Spec No**: p. S177-86.
54. Blake G.M. and Fogelman I., *Technical principles of dual energy x-ray absorptiometry*. Semin Nucl Med, 1997. **27**(3): p. 210-28.
55. Abendschein W. and Hyatt G.W., *Ultrasonics and selected physical properties of bone*. Clin Orthop, 1970. **69**: p. 294-301.
56. Behari J. and Singh S., *Ultrasound propagation in 'in vivo' bone*. Ultrasonics, 1981. **19**(2): p. 87-90.
57. Fry F.J. and Barger J.E., *Acoustical properties of the human skull*. J Acoust Soc Am, 1978. **63**(5): p. 1576-90.
58. Greenfield M.A., Craven J.D., Huddleston A., Kehrer M.L., Wishko D. and Stern R., *Measurement of the velocity of ultrasound in human cortical bone in vivo. Estimation of its potential value in the diagnosis of osteoporosis and metabolic bone disease*. Radiology, 1981. **138**(3): p. 701-10.

59. Andre M.P., Craven J.D., Greenfield M.A. and Stern R., *Measurement of the velocity of ultrasound in the human femur in vivo*. Med Phys, 1980. **7**(4): p. 324-30.
60. Njeh C.F., Boivin C.M. and Langton C.M., *The role of ultrasound in the assessment of osteoporosis: a review*. Osteoporos Int, 1997. **7**(1): p. 7-22.
61. Langton C.M., Palmer S.B. and Porter R.W., *The measurement of broadband ultrasonic attenuation in cancellous bone*. Eng Med, 1984. **13**(2): p. 89-91.
62. Bouxsein M.L. and Radloff S.E., *Quantitative ultrasound of the calcaneus reflects the mechanical properties of calcaneal trabecular bone*. J Bone Miner Res, 1997. **12**: p. 839-846.
63. McKelvie M.L., Fordham J., Clifford C. and Palmer S.B., *In vitro comparison of quantitative computed tomography and broadband ultrasonic attenuation of trabecular bone*. Bone, 1989. **10**(2): p. 101-4.
64. McCloskey E.V., Murray, S.A., Charlesworth, D., Miller, C., Fordham, J., Clifford, K., Atkins, R., and Kanis, J.A., *Assessment of broadband attenuation in the os calcis in vitro*. Clin Sci, 1992. **78**: p. 221-225.
65. Langton C.M. and Langton D.K., *Comparison of bone mineral density and quantitative ultrasound of the calcaneus: site-matched correlation and discrimination of axial BMD status*. Br J Radiol, 2000. **73**(865): p. 31-5.
66. Waud C.E., Lew R. and Baran D.T., *The relationship between ultrasound and densitometric measurements of bone mass at the calcaneus in women*. Calcif Tissue Int, 1992. **51**(6): p. 415-8.
67. Toyras J., Kroger H. and Jurvelin J.S., *Bone properties as estimated by mineral density, ultrasound attenuation, and velocity*. Bone, 1999. **25**(6): p. 725-31.
68. Salamone L.M., Krall E.A., Harris S. and Dawson-Hughes B., *Comparison of broadband ultrasound attenuation to single x-ray absorptiometry measurements at the calcaneus in postmenopausal women*. Calc Tissue int, 1994. **54**: p. 87-90.
69. Bauer D.C., Gluer C.C., Cauley J.A., Vogt T.M., Ensrud K.E., Genant H.K. and Black D.M., *Broadband ultrasound attenuation predicts fractures strongly and independently of densitometry in older women. A prospective study. Study of Osteoporotic Fractures Research Group*. Arch Intern Med, 1997. **157**(6): p. 629-34.
70. Hans D., Dargent-Molina P., Schott A.M., Sebert J.L., Cormier C., Kotzki P.O., Delmas P.D., Pouilles J.M., Breart G. and Meunier P.J., *Ultrasonographic heel measurements to predict hip fracture in elderly women: the EPIDOS prospective study*. Lancet, 1996. **348**(9026): p. 511-4.
71. Hodgkinson R., Njeh C., Currey J.D. and Langton C.M., *The ability of ultrasound velocity to predict the stiffness of cancellous bone in vitro*. Bone, 1997. **21**: p. 183-190.
72. Schott A.M., Weill-Engerer S., Hans D., Duboeuf F., Delmas P.D. and Meunier P.J., *Ultrasound discriminates patients with hip fracture equally well as dual energy x-ray absorptiometry and independently of bone mineral density*. J Bone Miner Res, 1995. **10**: p. 243-249.
73. Njeh C.F., Hans D., Li J., Fan B., Fuerst T., He Y.Q., Tsuda-Futami E., Lu Y., Wu C.Y. and Genant H.K., *Comparison of six calcaneal quantitative*

- ultrasound devices: precision and hip fracture discrimination.* Osteoporos Int, 2000. **11**(12): p. 1051-62.
74. Gluer C.C., Cummings S.R., Bauer D.C., Stone K., Pressman A., Mathur A. and Genant H.K., *Osteoporosis: association of recent fractures with quantitative US findings.* Radiology, 1996. **199**(3): p. 725-32.
75. Felsenberg D., Wieland E., Gowin W., Armbrecht G., Bolze X., Khorassani A. and Weingarten U., *Morphometric analysis of roentgen images of the spine for diagnosis of osteoporosis-induced fracture.* Med Klin, 1998. **93 Suppl 2**: p. 26-30.
76. O'Neill T.W., Cooper C., Cannata J.B., Diaz Lopez J.B., Hoszowski K., Johnell O., Lorenc R.S., Nilsson B., Raspe H. and Stewart O., *Reproducibility of a questionnaire on risk factors for osteoporosis in a multicentre prevalence survey: the European Vertebral Osteoporosis Study.* Int J Epidemiol, 1994. **23**(3): p. 559-65.
77. Brosius F., *SPSS 8.0: Professionelle Statistik unter Windows.* 1998, Bonn: MITP-Verlag.
78. Kotz S. and Johnson N.L., *Encyclopedia of statistical sciences.* Vol. 8. 1982, New York: Wiley.
79. Gluer C.C., Blake G., Lu Y., Blunt B.A., Jergas M. and Genant H.K., *Accurate assessment of precision errors: how to measure the reproducibility of bone densitometry techniques.* Osteoporosis Int, 1995. **5**: p. 262-270.
80. Pientka L. and Friedrich C., *The costs of hip-fracture in Germany: a prospective evaluation.* Z Gerontol Geriatr, 1999. **32**(5): p. 326-32.
81. Ray N.F., Chan J.K., Thamer M. and Melton III L.J., *Medical expenditures for the treatment of osteoporotic fractures in the United States in 1995: report from the National Osteoporosis Foundation.* J Bone Miner Res, 1997. **12**(1): p. 24-35.
82. Hoerger T.J., Downs K.E., Lakshmanan M.C., Lindrooth R.C., Plouffe Jr. L., Wendling B., West S.L. and Ohsfeldt R.L., *Healthcare use among U.S. women aged 45 and older: total costs and costs for selected postmenopausal health risks.* J Womens Health Gend Based Med, 1999. **8**(8): p. 1077-89.
83. Dolan P. and Torgerson D.J., *The cost of treating osteoporotic fractures in the United Kingdom female population.* Osteoporos Int, 1998. **8**(6): p. 611-7.
84. Melton III L.J., *Epidemiology of spinal osteoporosis.* Spine, 1997. **22**(Suppl 24): p. 2-11.
85. Gabriel S.E., Tosteson A.N., Leibson C.L., Crowson C.S., Pond G.R., Hammond C.S. and Melton III L.J., *Direct medical costs attributable to osteoporotic fractures.* Osteoporos Int, 2002. **13**(4): p. 323-30.
86. Gehlbach S.H., Burge R.T., Puleo E. and Klar J., *Hospital care of osteoporosis-related vertebral fractures.* Osteoporos Int, 2003. **14**(1): p. 53-60.
87. Magaziner J., Simonsick E.M., Kashner T.M., Hebel J.R. and Kenzora J.E., *Survival experience of aged hip fracture patients.* Am J Public Health, 1989. **79**(3): p. 274-8.
88. Fisher E.S., Baron J.A., Malenka D.J., Barrett J.A., Kniffin W.D., Whaley F.S. and Bubolz T.A., *Hip fracture incidence and mortality in New England.* Epidemiology, 1991. **2**(2): p. 116-22.

89. Dennison E. and Cooper C., *Epidemiology of osteoporotic fractures*. Horm Res, 2000. **54**(Suppl 1): p. 58-63.
90. Society N.A.M., *Management of postmenopausal osteoporosis*. Menopause, 2002. **9**(2): p. 84-101.
91. Dempster D.W., Cosman F., Kurland E.S., Zhou H., Nieves J., Woelfert L., Shane E., Plavetic K., Muller R., Bilezikian J. and Lindsay R., *Effects of daily treatment with parathyroid hormone on bone microarchitecture and turnover in patients with osteoporosis: a paired biopsy study*. J Bone Miner Res, 2001. **16**(10): p. 1846-53.
92. Fournier B., Chappard C., Roux C., Berger G. and Laugier P., *Quantitative ultrasound imaging at the calcaneus using an automatic region of interest*. Osteoporos Int, 1997. **7**(4): p. 363-9.
93. Jorgensen H.L. and Hassager C., *Improved reproducibility of broadband ultrasound attenuation of the os calcis by using a specific region of interest*. Bone, 1997. **21**(1): p. 109-12.
94. Rosenthal L., Caminis J. and Tenenhouse A., *Correlation of ultrasound velocity in the tibial cortex, calcaneal ultrasonography, and bone mineral densitometry of the spine and femur*. Calcif Tissue Int, 1996. **58**(6): p. 415-8.
95. Tromp A.M., Smit J.H., Deeg D.J. and Lips P., *Quantitative ultrasound measurements of the tibia and calcaneus in comparison with DXA measurements at various skeletal sites*. Osteoporos Int, 1999. **9**(3): p. 230-5.
96. van Daele P.L., Burger H., Algra D., Hofman A., Grobbee D.E., Birkenhager J.C. and Pols H.A., *Age-associated changes in ultrasound measurements of the calcaneus in men and women: the Rotterdam Study*. J Bone Miner Res, 1994. **9**(11): p. 1751-7.
97. Moris M., Peretz A., Tjeka R., Negaban N., Wouters M. and Bergmann P., *Quantitative ultrasound bone measurements: normal values and comparison with bone mineral density by dual X-ray absorptiometry*. Calcif Tissue Int, 1995. **57**(1): p. 6-10.
98. Graafmans W.C., Van Lingen A., Ooms M.E., Bezemer P.D. and Lips P., *Ultrasound measurements in the calcaneus: precision and its relation with bone mineral density of the heel, hip, and lumbar spine*. Bone, 1996. **19**(2): p. 97-100.
99. Funke M., Kopka, L., Vosshenrich, R., Fischer, U., Ueberschaer, A., Oestmann, J.-W., Grabbe, E., *Broadband ultrasound attenuation in the diagnosis of osteoporosis: correlation with osteodensitometry and fracture*. Radiology, 1995. **194**: p. 77-81.
100. Young H., Howey S. and Purdie D.W., *Broadband ultrasound attenuation compared with dual-energy X-ray absorptiometry in screening for postmenopausal low bone density*. Osteoporosis international, 1993. **3**: p. 160-164.
101. Massie A., Reid D.M. and Porter R.W., *Screening for osteoporosis: comparison between dual energy X-ray absorptiometry and broadband ultrasound attenuation in 1000 perimenopausal women*. Osteoporosis international, 1993. **3**: p. 107-110.

102. Faulkner K.G., McClung M.R., Coleman L.J. and Kingston-Sandahl E., *Quantitative ultrasound of the heel: correlation with densitometric measurements at different skeletal sites*. Osteoporos Int, 1994. **4**(1): p. 42-7.
103. Schott A.M., Hans D., Sornay-Rendu E., Delmas P.D. and Meunier P.J., *Ultrasound measurements on os calcis: precision and age-related changes in a normal female population*. Osteoporos Int, 1993. **3**(5): p. 249-54.
104. Yeap S.S., Pearson D., Cawte S.A. and Hosking D.J., *The relationship between bone mineral density and ultrasound in postmenopausal and osteoporotic women*. Osteoporos Int, 1998. **8**(2): p. 141-6.
105. Grampp S., Genant H.K., Mathur A., Lang P., Jergas M., Takada M., Gluer C.C., Lu Y. and Chavez M., *Comparisons of noninvasive bone mineral measurements in assessing age-related loss, fracture discrimination, and diagnostic classification*. J Bone Miner Res, 1997. **12**(5): p. 697-711.
106. Diessel E., Fuerst T., Njeh C.F., Hans D., Cheng S. and Genant H.K., *Comparison of an imaging heel quantitative ultrasound device (DTU-one) with densitometric and ultrasonic measurements*. Br J Radiol, 2000. **73**(865): p. 23-30.
107. Jorgensen H.L., Warming L., Bjarnason N.H., Andersen P.B. and Hassager C., *How does quantitative ultrasound compare to dual X-ray absorptiometry at various skeletal sites in relation to the WHO diagnosis categories?* Clin Physiol, 2001. **21**(1): p. 51-9.
108. Christiansen C., *Osteoporosis: diagnosis and management today and tomorrow*. Bone, 1995. **17**(5 Suppl): p. 513S-516S.
109. Peel N.F., Eastell, R., *Measurement of bone mass and turnover*. Baillieres Clin Rheumatol, 1993. **7:479-498**.
110. Wuster C., Heilmann P., Pereira-Lima J., Schlegel J., Anstatt K. and Soballa T., *Quantitative ultrasonometry (QUS) for the evaluation of osteoporosis risk: reference data for various measurement sites, limitations and application possibilities*. Exp Clin Endocrinol Diabetes, 1998. **106**(4): p. 277-88.
111. Hans D., Schott A.M., Chapuy M.C., Benamar M., Kotzki P.D., Cormier C., Pouilles J.M. and Meunier P.J., *Ultrasound measurements on the os calcis in a prospective multicenter study*. Calc Tissue int, 1994. **55**: p. 94-99.
112. Hadji P., Hars O., Bock K., Albert U., Beckmann M.W., Emons G. and Schulz K., *Age changes of calcaneal ultrasonometry in healthy German women*. Calcif Tissue Int, 1999. **65**(2): p. 117-20.
113. Greenspan S.L., Bouxsein M.L., Melton M.E., Kolodny A.H., Clair J.H., Delucca P.T., Stek Jr. M., Faulkner K.G. and Orwoll E.S., *Precision and discriminatory ability of calcaneal bone assessment technologies [published erratum appears in J Bone Miner Res 1997 Nov;12(11):1957]*. J Bone Miner Res, 1997. **12**(8): p. 1303-13.
114. Frost M.L., Blake G.M. and Fogelman I., *Contact quantitative ultrasound: an evaluation of precision, fracture discrimination, age-related bone loss and applicability of the WHO criteria*. Osteoporos Int, 1999. **10**(6): p. 441-9.
115. van den Bergh J.P., van Lenthe G.H., Hermus A.R., Corstens F.H., Smals A.G. and Huiskes R., *Speed of sound reflects Young's modulus as assessed by microstructural finite element analysis*. Bone, 2000. **26**(5): p. 519-24.

116. Hans D., Wu C., Njeh C.F., Zhao S., Augat P., Newitt D., Link T., Lu Y., Majumdar S. and Genant H.K., *Ultrasound velocity of trabecular cubes reflects mainly bone density and elasticity*. Calc Tissue int, 1999. **64**(1): p. 18-23.
117. Kotzki P.O., Buyck D., Hans D., Thomas E., Bonnel F., Favier F., Meunier P.J. and Rossi M., *Influence of fat on ultrasound measurements of the os calcis*. Calc Tissue int, 1994. **54**: p. 91-95.
118. Wu C.Y., Gluer C.C., Jergas M., Bendavid E. and Genant H.K., *The impact of bone size on broadband ultrasound attenuation*. Bone, 1995. **16**(1): p. 137-41.
119. Rico H., Gonzalez-Riola J., Revilla M., Villa L.F., Gomez-Castresana F. and Escribano J., *Cortical versus trabecular bone mass: influence of activity on both bone components*. Calcif Tissue Int, 1994. **54**(6): p. 470-2.
120. Herd R.J., Ramalingham T., Ryan P.J., Fogelman I. and Blake G.M., *Measurements of broadband ultrasonic attenuation in the calcaneus in premenopausal and postmenopausal women*. Osteoporos Int, 1992. **2**(5): p. 247-51.
121. Grampp S., Henk C.B., Fuerst T.P., Lu Y., Bader T.R., Kainberger F., Genant H.K. and Imhof H., *Diagnostic agreement of quantitative sonography of the calcaneus with dual X-ray absorptiometry of the spine and femur*. Am J Roentgenol, 1999. **173**(2): p. 329-34.
122. Diez-Perez A., Marin F., Vila J., Abizanda M., Cervera A., Carbonell C., Alcolea R.M., Cama A., Rama T., Galindo E. and Olmos C., *Evaluation of calcaneal quantitative ultrasound in a primary care setting as a screening tool for osteoporosis in postmenopausal women*. J Clin Densitom, 2003. **6**(3): p. 237-46.
123. Faulkner K.G., von Stetten E. and Miller P., *Discordance in patient classification using T-scores*. J Clin Densitom, 1999. **2**(3): p. 343-50.
124. Hans D., Arlot M.E., Schott A.M., Roux J.P., Kotzki P.O. and Meunier P.J., *Do ultrasound measurements on the os calcis reflect more the bone architecture than the bone mass?: a two-dimensional histomorphometric study*. Bone, 1995. **16**: p. 295-300.
125. Nicholson P.H., Muller R., Cheng X.G., Ruegsegger P., Van Der Perre G., Dequeker J. and Boonen S., *Quantitative ultrasound and trabecular architecture in the human calcaneus*. J Bone Miner Res, 2001. **16**(10): p. 1886-92.
126. Hans D., Srivastav S.K., Singal C., Barkmann R., Njeh C.F., Kantorovich E., Gluer C.C. and Genant H.K., *Does combining the results from multiple bone sites measured by a new quantitative ultrasound device improve discrimination of hip fracture?* J Bone Miner Res, 1999. **14**(4): p. 644-51.
127. Hans D., Allaoua S., Genton L., Delmi M., Vuagnat H., Rizzoli R., Tahintzi-Zawadynski S., Perron C., Pichard C. and Slosman D.O., *Is Time Since Hip Fracture Influencing the Discrimination Between Fractured and Nonfractured Subjects as Assessed at the Calcaneum by Three Technologically Different Quantitative Ultrasound Devices?* Calc Tissue int, 2002. **71**: p. 485-492.
128. Stewart A., Reid D.M. and Porter R.W., *Broadband ultrasound attenuation and dual energy X-ray absorptiometry in patients with hip fractures: which technique discriminates fracture risk*. Calcif Tissue Int, 1994. **54**(6): p. 466-9.

129. Frost M.L., Blake G.M., Fogelman, I., *A comparison of fracture discrimination using calcaneal quantitative ultrasound and dual X-ray absorptiometry in women with a history of fracture at sites other than the spine and hip.* Calc Tissue int, 2002. **71**(3): p. 207-11.
130. *Position statement on the use of quantitative ultrasound in the management of osteoporosis.* 2001, National Osteoporosis Society: Bath.
131. Baran D.T., McCarthy C.K., Leahey D. and Lew R., *Broadband ultrasound attenuation of the calcaneus predicts lumbar and femoral neck density in Caucasian women: a preliminary study.* Osteoporos Int, 1991. **1**(2): p. 110-3.
132. Thompson P., Taylor J., Fisher A. and Oliver R., *Quantitative heel ultrasound in 3180 women between 45 and 75 years of age: compliance, normal ranges and relationship to fracture history.* Osteoporos Int, 1998. **8**(3): p. 211-4.
133. Krieg M.A., Thiebaud D. and Burckhardt P., *Quantitative ultrasound of bone in institutionalized elderly women: a cross-sectional and longitudinal study.* Osteoporos Int, 1996. **6**(3): p. 189-95.
134. Bernecker P., Pietschmann P., Winkelbauer F., Krexner E., Resch H. and Willvonseder R., *The spine deformity index in osteoporosis is not related to bone mineral and ultrasound measurements.* Brit J Radiolog, 1992. **65**(393-396).
135. NIH, *National Institutes of Health: Consensus development panel on optimal calcium intake.*, in JAMA. 1994. p. 1945-1948.
136. Lane J.M., Russell L. and Khan S.N., *Osteoporosis.* Clin Orthop, 2000(372): p. 139-50.
137. Hannan M., Felson D.T. and Anderson J.J., *Bone mineral density in elderly men and women: results from the Framingham osteoporosis study.* J Bone Miner Res, 1992. **7**: p. 547-553.
138. Hans D., Schott A.M., Arlot M.E., Sornay E., Delmas P.D. and Meunier P.J., *Influence of Anthropometric Parameters on Ultrasound Measurements of Os Calcis.* Osteoporos Int, 1995. **5**: p. 371-376.
139. Kroke A., Klipstein-Grobusch K., Bergmann M.M., Weber K. and Boeing H., *Influence of body composition on quantitative ultrasound parameters of the os calcis in a population-based sample of pre- and postmenopausal women.* Calcif Tissue Int, 2000. **66**(1): p. 5-10.
140. Roberts J.G., DiTomasso E. and Webber C.E., *Photon scattering measurement of calcaneal bone density: result of in vivo cross-sectional studies.* Invest Radiol, 1982. **17**(1): p. 20-8.
141. Taaffe D.R., Suominen H., Ollikainen S. and Cheng S., *Calcaneal bone mineral and ultrasound attenuation in male athletes exposed to weight-bearing and nonweight-bearing activity. A cross- sectional report.* J Sports Med Phys Fitness, 2001. **41**(2): p. 243-9.
142. Kado D.M., Li-Yung L.L., Cummings S.R., *Rapid Resting Heart Rate: A Simple and Powerful Predictor of Osteoporotic Fractures and Mortality in Older Women.* Journ American Geriatr Soc, 2002. **50**(3): p. 455-460.
143. Papanicolaou D.A., Wilder R.L. and Manolagas S.C., *The pathophysiologic roles of interleukin-6 in human disease.* Ann Intern Med, 1998. **128**: p. 127-137.
144. Hussey M., in *Diagnostic Ultrasound.* 1975, Blackie: London.

145. Sprawls P., *Physical principles of medicine imaging*. 1993, New York: Aspen.
146. Langton C.M., Njeh C.F., Hodgkinson R. and Currey J.D., *Prediction of mechanical properties of the human calcaneus by broadband ultrasonic attenuation*. Bone, 1996. **18**: p. 495-503.
147. Iki M., Kajita E., Mitamura S., Nishino H., Yamagami T. and Nagahama N., *Precision of quantitative ultrasound measurement of the heel bone and effects of ambient temperature on the parameters*. Osteoporos Int, 1999. **10**(6): p. 462-7.
148. Pocock N.A., Babichev A., Culton N., Graney K., Rooney J., Bell D. and Chu J., *Temperature dependency of quantitative ultrasound*. Osteoporos Int, 2000. **11**(4): p. 316-320.
149. Chappard C., Berger G., Roux C. and Laugier P., *Ultrasound measurement on the calcaneus: influence of immersion time and rotation of the foot*. Osteoporos Int, 1999. **9**(4): p. 318-26.
150. Genant H.K., Engelke K., Fuerst T., Gluer C.C., Grampp S., Harris S.T., Jergas M., Lang T., Lu Y., Majumdar S., Mathur A. and Takada M., *Noninvasive assessment of bone mineral and structure: state of the art*. J Bone Miner Res, 1996. **11**: p. 707-730.
151. Lee R.L., Dacre J.E., Hart D.J. and Spector T.D., *Femoral neck trabecular patterns predict osteoporotic fractures*. Med Phys, 2002. **29**(7): p. 1391-6.
152. Kleerekoper M. and Nelson D.A., *Peripheral bone densitometry: an old friend revisited*. Trans Am Clin Climatol Assoc, 1998. **109**: p. 62-70.
153. Stewart A., Torgerson D.J. and Reid D.M., *Prediction of fractures in peri-menopausal women: a comparison of dual energy x-ray absorptiometry (DXA) and broadband ultrasound attenuation (BUA)*. Annals of the Rheumatic Diseases, 1996. **55**: p. 140-142.
154. Stewart A. and Reid D.M., *Quantitative ultrasound or clinical risk factors--which best identifies women at risk of osteoporosis?* Br J Radiol, 2000. **73**(866): p. 165-71.
155. Langton C.M., Ballard P.A., Langton D.K. and Purdie D.W., *Maximising the cost effectiveness of BMD referral for DXA using ultrasound as a selective population pre-screen*. Technol Health Care, 1997. **5**(3): p. 235-41.