

Down To The Bone

Assessing Bone Density With X-Ray Technologies

Sponsored By: LIFE CHIROPRACTIC COLLEGE WEST
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 Certified Clinical (Bone) Densitometrist

Hour 1	Basic Science of Bone Densitometry. Basic Dual Energy X-ray Absorptiometry (DEXA) Spine regions of interest, identification of vertebral bodies – analysis includes L1-L4. Principals of operation for DXA. Central skeletal DXA and Peripheral DXA (pDXA). Hip regions of interest: femoral neck box, total proximal hip, greater and lesser trochanters and Ward’s area. Forearm regions of interest of interpretation of bone mineral density.
Hour 2	Dual-energy x-ray production, fan beam and pencil-beam scanners. DXA devices including Hologic, GE/Lunar and Norland. Studies comparing the accuracy between companies. Review of the NHANES database for computing the T-score and Z-score values of bone density via DXA devices. Central and peripheral devices including wrist, heel and finger. Computer generated reports of the scanners. Reports from each company and how to interpret the results. X-ray diagnosis of osteoporosis and the reliability of x-rays as a diagnostic tool will be discussed. X-rays of classic osteoporosis will be presented.
Hour 3	Quantitative Computerized Tomography (QCT) or CAT scans of the lumbar spine of the cortical and cancellous bone. QCT lumbar images will be viewed and interpreted for bone density. X-ray diagnosis of osteoporosis and the reliability of x-rays as a diagnostic tool will be discussed. X-rays of classic osteoporosis will be presented. Technician set up for lumbar spine and hip. The importance of proper patient set up for an accurate Dual Energy X-ray Absorptiometry (DEXA) scan.
Hour 4	Bone densities of the lumbar spine, hip and wrist will be analyzed in detail – raw data for bone density reading will be provided and attendees will learn how to read and interpret the data from x-rays of the lumbar spine, hip and forearm. Understanding DXA reports. The reports generated by the DXA scanner are critical to evaluate bone density. Including T-scores, Z-scores. Evaluating patient set up by viewing the computer generated x-rays of the region of interest: lumbar spine, hip and forearm. Ten year fracture probability and least significant change for monitoring serial bone density testing.
Hour 5	Case studies will be presented of the x-ray images. Assessment of fracture risk utilizing the Foundation of Osteoporosis Fracture Risk assessment tool of the T-score of the hip. Vertebral fracture assessment. Images of entire spine both AP and lateral and how to grade fractures. Atypical fractures of the femur due to medications prescribed for osteoporosis (bisphosphonates). A video showing these fractures with x-ray will be viewed.
Hour 6	Nutrition and how it impacts bone including digestive disorders, nutrient deficiencies including; vitamin D, calcium, magnesium, boron, vitamin K, EPA/DHA, excessive protein or low protein. Exercise for bone health and for osteoporosis including whole body vibration, weight-bearing exercise, weight vests and weight training.