



Cedar Valley Bone Health Institute
United Medical Park
1753 West Ridgeway Avenue, Suite 103A
Waterloo, Iowa
319-233-BONE (2663)
www.cvbonehealth.com

DXA – Not the Same

DXA is similar to, but not identical to, other X-ray technologies. Even DXA machines are different. DXA by GE and DXA by Hologic use different technologies even though both are just called DXA. Properly used, DXA can assess the Bone Density in the hips and spine, which are often different.

DXA is not the whole story in Osteoporosis. **DXA measures Bone Density** in each of several body parts. A Low Bone Density is one of the measures used to diagnose Osteoporosis. Unfortunately, a “normal” Bone Density does not eliminate the possibility of an individual having Osteoporosis. Bone Density, as measured by DXA, is an important part of evaluation and the assessment of treatment of Osteoporosis.

Some individuals have a greater tendency for osteoporosis in the spine. Some people have a greater tendency for osteoporosis in the hips. Few individuals have the same degree of osteoporosis in hips and spine. An **Accurate DXA evaluates each area separately** and reports the area of lowest Bone Density.

Reading a DXA is different from reading a regular X-ray. DXA comes with a computer print-out. Unfortunately the initial print out summary is often wrong. The individual data points need to be checked for correlation, especially in the spine. The spine needs to be checked for arthritis, compression fractures, and for degenerative scoliosis. The hips need to be checked for deformity and arthritis. A separate reading is made for each body part. **Arthritis or deformity can invalidate the computer reading for any body part.**

Special training in reading DXA is needed to obtain reliable results. Special training is available from the **International Society for Clinical Densitometry** (ISCD). This certifying organization offers training all over the world. The ISCD also offers an examination to certify that an individual can read DXA accurately. A **Certified Clinical Densitometrist** (CCD) has taken that training and passed that examination.

Special training for X-ray technologists is needed to produce accurate DXA. Accuracy is most important in assessing the change in Bone Density over time. Patient Position on the DXA table can cause significant differences in the g/cm² reading of any body part. The accuracy of a DXA technologist can be calculated by performing 2 or 3 separate DXAs on the same patient on the same day. After enough patients have been assessed in this way, we can calculate the Least Significant Change for that Calibrated Technologist.

Knowing the **Least Significant Change** of a specific machine and a specific technologist is important if we are to know the progress of Bone Density over time. Variation from year to year, which is NOT greater than the Least Significant Change, cannot be considered significant. This is very important because the difference from year to year is often small. More than one technologist using a machine means that further calculation is needed to take into account increased variation due solely to random chance.

Different DXA Machines are different. GE and Hologic use different technologies. No accurate assessment of Change in Bone Density can be made if different brands or different models are used. Even different machines of the same model often vary in their readings of the same patient. This variation between machines markedly decreases our ability to assess change in Bone Density over time.

Cedar Valley Bone Health Institute is the only facility in our area, and one of the few in Iowa, with Certified Clinical Densitometrists reading DXA Scans. We are also the only facility which has Calibrated our Technologists.

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