

### **Improved bone SPECT image quality with the Wide Beam Reconstruction technique**

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**Purpose:** SPECT imaging applied to bone scintigraphy is frequently helpful in diagnosis and localization of bone disease. Filtered back projection and ordered subset expectation maximization (OSEM) are common reconstruction algorithms. However, neither compensates for system resolution. Reconstruction with filtering may suppress the noise level but may also degrade image resolution. The Wide Beam Reconstruction (WBR) iterative algorithm (UltraSPECT Ltd, Haifa, Israel), is designed to suppress noise, recover image resolution and improve contrast. The purpose of this study was to compare image quality between routine OSEM and the WBR techniques in bone SPECT. **Materials & Methods:** Sixteen patients underwent bone SPECT with 740 MBq of Tc-99m HDP using a dual head gamma camera (Infinia, GE Medical Systems) equipped with high resolution low energy collimators. The tomographic images were reconstructed by routine OSEM as well as WBR. The order of display of OSEM and WBR images for each patient were randomized by flipping a coin. Two nuclear medicine physicians compared the images blindly. **Results:** The bone SPECT studies included 13 spine, 1 pelvis, and 2 knee images. The two observers showed 100% agreement in all 16 patients that the WBR images were superior to routine OSEM in quality. **Conclusion:** This study demonstrates that WBR image reconstruction yields better image quality than conventional reconstruction technique.