As with imaging in the head, there is a substantial improvement in SNR with current cervical spine coil designs at 3 T when compared with 1.5 T. This has yet to be quantified and may vary among manufacturers. Given the gain in SNR, the dilemma is faced, as in the brain, whether to use this increase to shorten scan time or to improve spatial resolution. Probably the greatest limitation in cervical spine imaging at 1.5 T is slice thickness, given the small structures involved—the disk space, cord, and neural foramina. In our experience, the decision is clear—that the improved SNR at 3 T should be used to decrease slice thickness.

Illustrated in Fig. 55–1 are sagittal FSE T2-weighted images at 1.5 T in a 73-year-old patient with a history of surgical fusion of C5–6 in the distant past. Broad disk-osteophyte complexes are noted at the interspace above and below the fusion, due to accentuated motion at these levels. The images were acquired in 3:12 min:sec, with a slice thickness of 4 mm and a 25% interslice gap. Due to the slice thickness, the cervical cord is really only imaged on the single central slice, with partial volume imaging of the edges of the cord on the two slices just off the midline.

This depiction of the cord at 1.5 T differs substantially from that seen in Fig. 55–2 at 3 T, when a 2-mm slice thickness is used (the interslice gap was 10%). Scan time was 2:28 min:sec, slightly shorter than the 1.5 T exam, with in-plane resolution (pixel dimensions) approximated to be that of the 1.5 T exam. At 3 T (Fig. 55–2), using 2-mm sections, portions of the cord are seen on six slices, as opposed to three at 1.5 T. The degree of canal stenosis secondary to the disk osteophyte complexes present at C4–5...
and C6–7 is better depicted. Not illustrated, but clearly evident from clinical experience, is the improvement in readability of the off midline sagittal images using a 2-mm slice thickness. Facet joint disease, whether an osteophyte or disk herniation extends laterally, and even neural foraminal narrowing (despite their oblique course through the plane of section) are all substantially better depicted on thin-section imaging at 3 T.