

## Techniques for reducing metal artifact on MR Imaging

1. Should be used on all msk scans especially in the presence of metal
  - a. FSE rather than conventional spin echo as less artifact with FSE
  - b. XL option for FSE which shortens interecho spacing time and reduces metal artifact
  - c. Do not use IDEAL unless radiologist requests it. If it is part of a protocol do not run it
  - d. Depending on where pathology is and how much metal artifact there is routine sequences might be OK.
  - e. Call a Staff Radiologist to ask questions. Fellows/Residents might not be able to help.
2. To minimize inhomogeneous fat suppression:
  - a. For T2 FAT sequences: if minimal metal try to scan. Replace with STIR or Non-FAT T2
  - b. For T2 IDEAL sequences: Replace with STIR
  - c. For T1 FAT sequences: if minimal metal try to scan. Replace with Non-Fat sat T1
  - d. For T1 IDEAL sequences: Replace with Non-Fat sat T1
3. Set the **TE to at least 20 for T1 and PD images**
4. Increase **echo train length to 6 on T1 and PD scans & at least 8 on STIR**
  - a. Will shorten scan but also increase blurring
5. Increase receiver **bandwidth to 62 kHz**
  - a. Increasing bandwidth reduces artifact but will decrease SNR
6. Increase **frequency matrix to 320**
  - a. Increasing matrix will also decrease SNR
7. Place frequency encoding axis in orientation where artifact is less important
  - a. Metal artifact is greatest in the frequency encoding direction
  - b. Add NPW if frequency is swapped