

# CT Lumbar Spine Pre Surgical

Updated 09/28/25

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Indications - pre surgical evaluation prior to lumbar spine surgery.

Use this protocol for any **pre surgical indication** and if the order mentions **Mazor** or **Karma** protocols.

Use CT Spine Lumbar without Contrast charge.

## GENERAL SCAN NOTES

Move patient's arms over head if possible. Remove any metal from the imaging field of view.

Topogram - T12 through bottom of SI joints.

Craniocaudal scan coverage - T12 through bottom of SI joints.

FOV should be between 200-250 mm.

Matrix must be 512 x 512.

IV Contrast: not given for this protocol.

For **GE scanners**, it is essential for the 1st recon thickness on the scanner to match the 1st recon thickness in this protocol book for the prescribed Noise Index to be valid. The 1st recon should generally be the thickest recon in the protocol.

## SIEMENS PARAMETERS & RECONS

|               | Scan Mode | kV  | mAs | Care Dose | Care kV & Lvl | Pitch | Acq | Coll | Rot Time | Scan Time |
|---------------|-----------|-----|-----|-----------|---------------|-------|-----|------|----------|-----------|
| Sensation 16  | spiral    | 120 | 300 | on        | NA            | 0.80  | 16  | 1.5  | 0.75     | 11.7      |
| Go Up 32      | spiral    | 130 | 182 | on        | on 285        | 0.80  | 32  | 0.7  | 1.0      | 16.7      |
| Sensation 64  | spiral    | 120 | 300 | on        | NA            | 0.90  | 64  | 0.6  | 1.0      | 17.4      |
| Definition 64 | spiral    | 120 | 330 | on        | on            | 0.80  | 64  | 0.6  | 1.0      | 19.5      |
| Go Top 64     | spiral    | 120 | 219 | on        | on 285        | 0.80  | 64  | 0.6  | 1.0      | 9.8       |
| Drive 128     | spiral    | 120 | 232 | on        | on            | 0.80  | 128 | 0.6  | 1.0      | 9.8       |
| Force 192     | spiral    | 130 | 193 | on        | on            | 0.80  | 192 | 0.6  | 1.0      | 6.5       |

| Name of Series  | Thick        | Interval     | Kernel             | Window            | IR Lvl   | Recon Direction  |
|-----------------|--------------|--------------|--------------------|-------------------|----------|------------------|
| AX SOFT         | 3.0          | 3.0          | Br40 / H31s        | abdomen           | 3        | head/feet        |
| AX BONE         | 3.0          | 3.0          | Br59 / H70s        | bone/osteo        | 3        | head/feet        |
| COR BONE        | 3.0          | 3.0          | Br59 / H70s        | bone/osteo        | 3        | front/back       |
| SAG BONE        | 3.0          | 3.0          | Br59 / H70s        | bone/osteo        | 3        | left/right       |
| <b>AX THINS</b> | <b>0.625</b> | <b>0.625</b> | <b>Br59 / H70s</b> | <b>bone/osteo</b> | <b>3</b> | <b>head/feet</b> |

**Protocol specific recon.**

If the scan parameters do not allow for 0.625 mm thickness & interval, pick as close to 0.625 mm as the scanner will allow, however the thickness & interval must be less than 1.0 mm.

# CT Lumbar Spine Pre Surgical

## GE PARAMETERS & RECONS

|             | Scan Type | SFOV       | kV  | mA Range | Noise Index | Smart mA | Slice Thick | Beam Coll | Pitch | Speed | Rot Time | Dose Red | ASIR | Scan Time |
|-------------|-----------|------------|-----|----------|-------------|----------|-------------|-----------|-------|-------|----------|----------|------|-----------|
| LS 16       | helical   | large      | 120 | 100-440  | 13.50       | on       | 2.5         | 20        | 1.375 | 27.50 | 0.5      | NA       | NA   | 5.5       |
| Opt 540     | helical   | large      | 120 | 100-440  | 13.50       | on       | 2.5         | 20        | 1.375 | 27.50 | 0.5      | NA       | NA   | 5.5       |
| LS VCT 64   | helical   | large body | 120 | 100-450  | 16.00       | on       | 2.5         | 40        | 1.375 | 55.00 | 0.5      | 20       | 20   | 2.7       |
| Disc VCT 64 | helical   | large body | 120 | 100-450  | 16.00       | on       | 2.5         | 40        | 1.375 | 55.00 | 0.5      | NA       | NA   | 2.7       |

| Name of Series  | Thickness    | Interval     | Recon Algorithm  | Window Width/Level | Recon Direction  |
|-----------------|--------------|--------------|------------------|--------------------|------------------|
| <b>AX SOFT</b>  | <b>2.5</b>   | <b>2.5</b>   | <b>std full</b>  | <b>400/40</b>      | <b>head/feet</b> |
| AX BONE         | 2.5          | 2.5          | bone full        | 2500/480           | head/feet        |
| COR BONE        | 2.5          | 2.5          | bone full        | 2500/480           | front/back       |
| SAG BONE        | 2.5          | 2.5          | bone full        | 2500/480           | left/right       |
| <b>AX THINS</b> | <b>0.625</b> | <b>0.625</b> | <b>bone full</b> | <b>2500/480</b>    | <b>head/feet</b> |

**Must be first recon.**

**Protocol specific recon.**

If the scan parameters do not allow for 0.625 mm thickness & interval, pick as close to 0.625 mm as the scanner will allow, however the thickness & interval must be less than 1.0 mm.

## PHILIPS PARAMETERS & RECONS

|              | Scan Mode | kV  | Avg mAs | Dose Index | 3D Dose | Pitch | Detect | Colli | Rot Time | Scan Time |
|--------------|-----------|-----|---------|------------|---------|-------|--------|-------|----------|-----------|
| Incisive 128 | helical   | 120 | 162     | 24         | on      | 1.00  | 64     | 0.625 | 0.75     | 5.6       |

| Name of Series  | Thick        | Interval     | Filter    | Window      | iDose    | Recon Direction  |
|-----------------|--------------|--------------|-----------|-------------|----------|------------------|
| AX SOFT         | 3.0          | 3.0          | B         | abdomen     | 3        | head/feet        |
| AX BONE         | 3.0          | 3.0          | YB        | bone        | 3        | head/feet        |
| COR BONE        | 3.0          | 3.0          | YB        | bone        | 3        | front/back       |
| SAG BONE        | 3.0          | 3.0          | YB        | bone        | 3        | left/right       |
| <b>AX THINS</b> | <b>0.625</b> | <b>0.625</b> | <b>YB</b> | <b>bone</b> | <b>3</b> | <b>head/feet</b> |

**Protocol specific recon.**

If the scan parameters do not allow for 0.625 mm thickness & interval, pick as close to 0.625 mm as the scanner will allow, however the thickness & interval must be less than 1.0 mm.