Lumbar – Laminectomy, Fusion – Instrumented

A posterior lumbar laminectomy is done to correct spinal stenosis, which is a narrowing of the spinal canal caused by degenerative conditions in the lower back. Pressure on the spinal nerves (radiculopathy) exiting the spine causes pain, and a laminectomy removes part of the vertebral lamina to reduce the pressure. After removing bone, bone grafts can be added to fuse the vertebrae. In instances where there is instability, instrumentation is added to provide greater stability to the spine.
Introduction
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Incision & Laminectomy
An incision is made in the middle of the low back. After the spine is exposed, surgical instruments are used to remove the spinous process, lamina, and any bone spurs that may be intruding into the spinal canal. The spinal nerves now have more space with less pressure on them.

Preparing for Fusion
To prepare for the fusion that will stabilize the vertebrae, a motorized instrument is used to remove the top (cortical) layer of the transverse processes. This is the site where the bone grafts for the new fusion will be added.
Stabilizing the Spine
Before bone grafts are added, instrumentation is introduced to stabilize the spine. A drill is used to make holes in the pedicle area of the vertebrae, and screws are placed in the drilled holes. Next, rods are positioned between the screws and fastened in place. The rod and screw instrumentation provides stability to the spine and prevents the vertebrae from moving while the bone graft fusion takes place.

Bone Graft
Bone grafting can be done with pieces of a patient’s own bone (autograft), processed bone from a bone bank (allograft), or a bone graft substitute (demineralized bone, ceramic extender, or bone morphogenetic protein). To harvest a patient’s own bone for grafting, bone from the iliac crest will typically be removed through the same incision that was made to access the spine. The harvested bone is then placed along the prepared site where the top layer of bone was removed. This bone eventually grows in place, fusing the spine and providing additional stability.

Summary
The incisions are closed and dressed to complete the procedure. Adding the instrumentation to the laminectomy with bone graft fusion increases the strength of the spine directly after surgery, and may decrease the need for a post-operative brace. Patients often remain in the hospital for two to four days following the procedure and should avoid heavy lifting, bending, twisting, and turning for six to twelve weeks.