PHYSIOTHERAPY IN SURGICAL CONDITIONS

[PT 310]

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LECTURE NOTES FOR 3rD GRADE BPT STUDENTS

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TISHK INTERNATIONAL UNIVERSITY

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Spinal Surgery: Spinal fusion

LECTURE OUTLINE

- Learning objectives
- Definitions/indications
- Surgical procedures/ types of incision techniques
- Contraindications
- Preoperative assessment and treatment
- Postoperative treatment/rehabilitation
- Complications
- Review
- Reading resources/additional materials

PHYSIOTHERAPY IN SURGICAL CONDITIONS

LEARNING OUTCOMES

At the end of this lecture, the students should be able to:

- Understand the indications and contraindications of spinal fusion
- Understand the surgical procedures involved in spinal fusion
- Describe the preoperative & postoperative physiotherapy assessment for spinal fusion
- Describe preoperative & postoperative physiotherapy treatment for spinal fusion
- Recognize common early & late postoperative complications of spinal fusion

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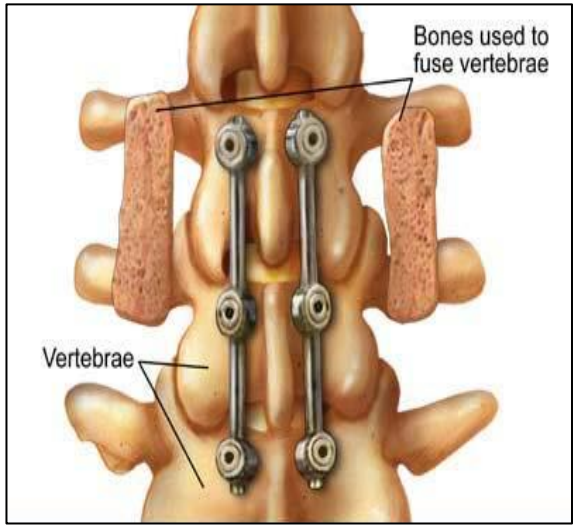
Spinal fusion

What is spinal fusion?

- Surgical procedure that involves joining two or more vertebrae in the spine to prevent movement between them.
- Commonly performed in the lumbar spine (60-80%), to alleviate pain, improve stability, & restore function.

Indications:

- Degenerative disc disease (DDDx),
- Radiculopathy due to spinal stenosis,
- Neurogenic claudication,
- Degenerative spinal deformities (e.g., spondylolisthesis, scoliosis),
- Trauma (e.g., fractures),
- Tumors,
- Failed Back Surgery Syndrome (FBSS)



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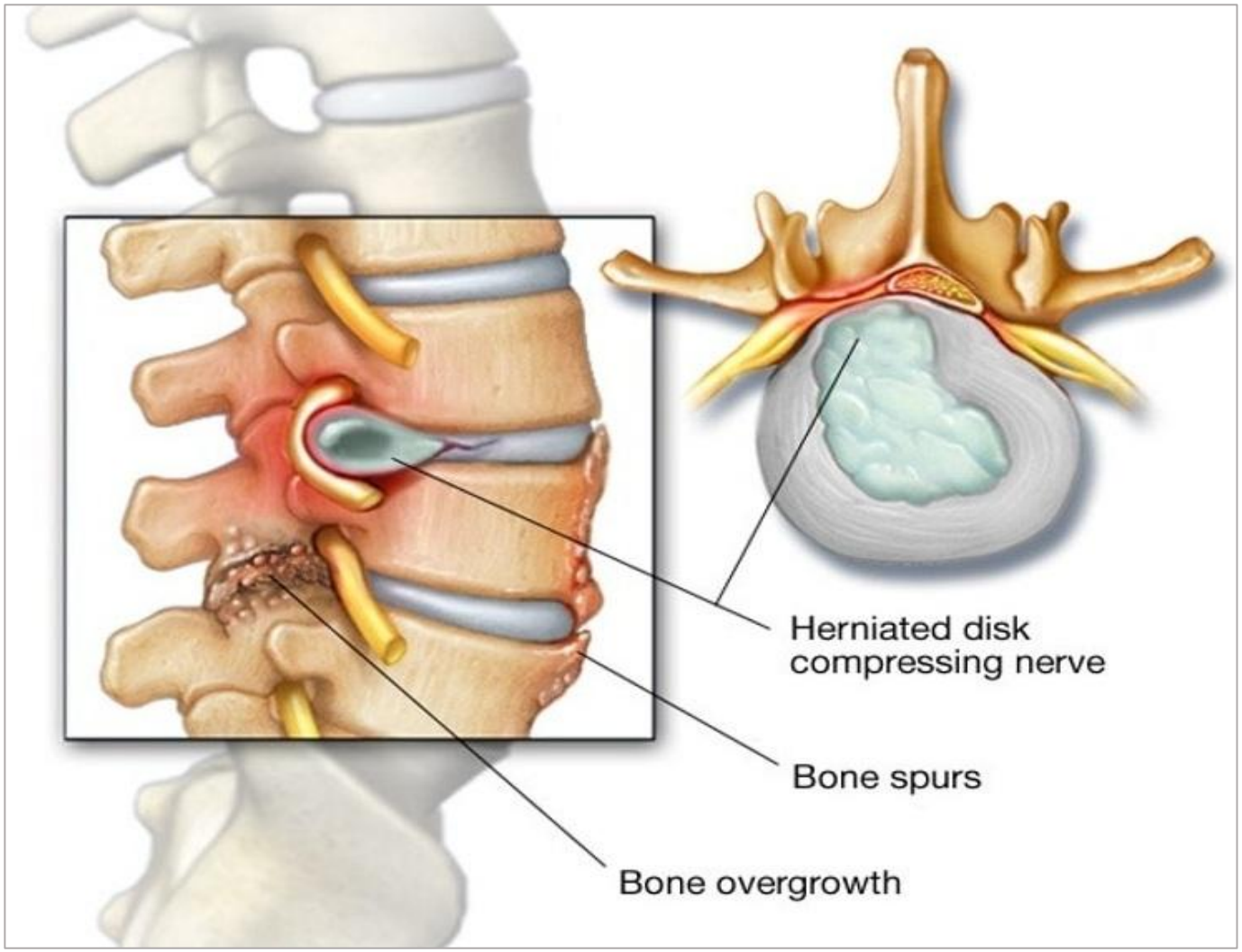
Spinal fusion



Degenerative spine disease

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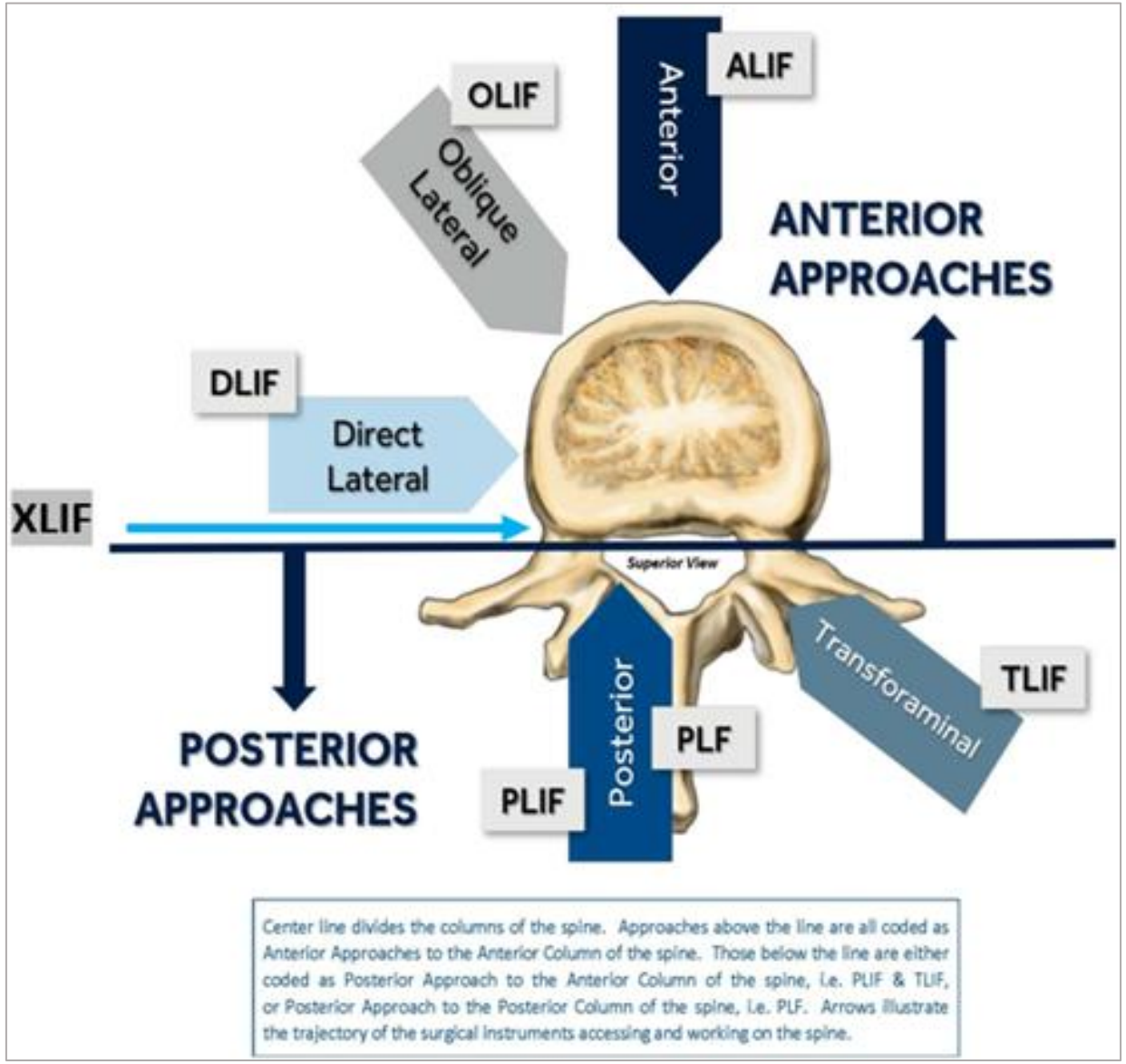
Spinal fusion

Spinal fusion techniques

- **Anterior fusion:**
  - Performed through the front of the body (abdomen).
  - Often used in cervical or lumbar spinal fusions.
- **Posterior fusion**:
  - Performed through the back & it is the most common.
  - Common for thoracic & lumbar fusions.
- **Lateral fusion**:
  - Performed through the side of the body.
  - Often used for lumbar spine procedures



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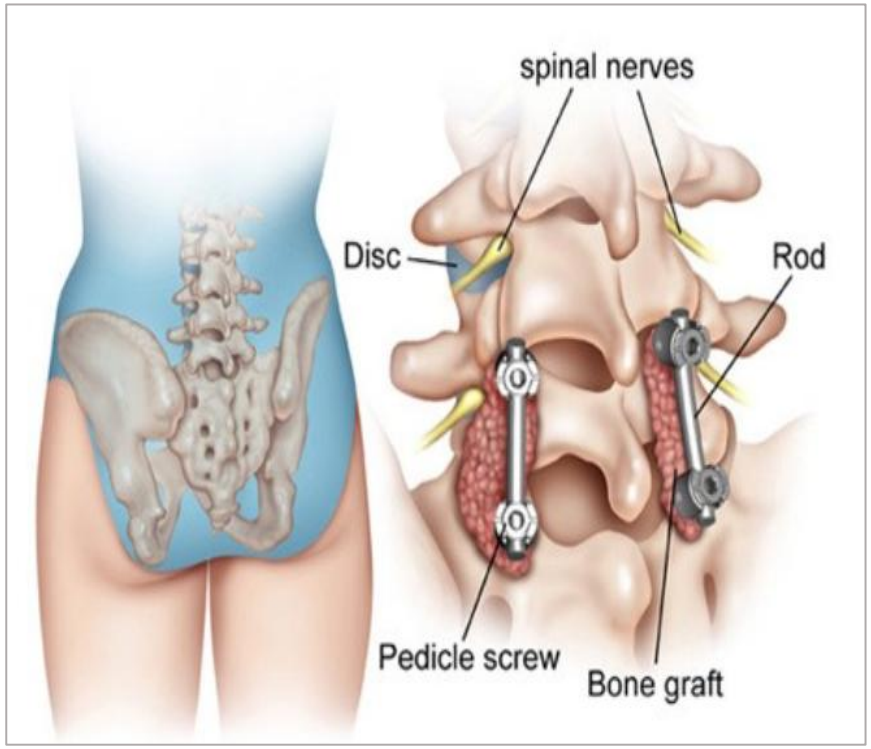
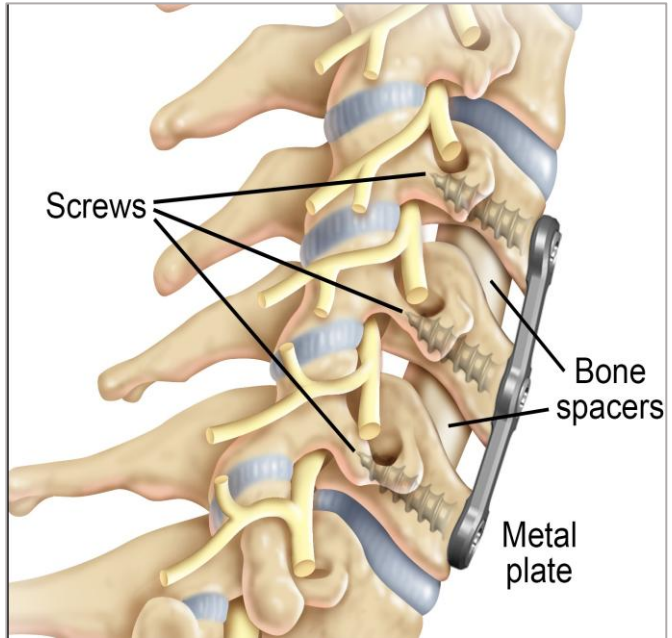
Spinal fusion

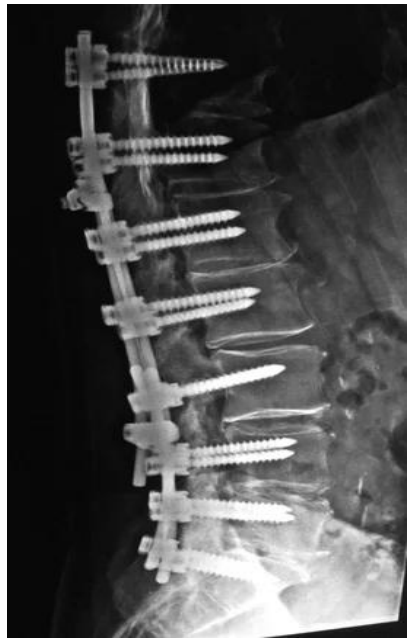
Method of spinal fusion

- **Autograft**: Bone graft taken from the patient's own body.
- **Allograft:** Bone graft from a donor.
- **Synthetic materials**: artificial materials like bone substitutes or titanium rods may be used.

Instrumentation: Use of metal plates, screws, or rods to stabilize the spine during healing.







PHYSIOTHERAPY IN SURGICAL CONDITIONS

Spinal fusion

Surgical procedure (anterior interbody lumbar fusion (AILF) surgery)

PHYSIOTHERAPY IN SURGICAL CONDITIONS

Laminectomy

Surgical procedure (AILF robotic & endoscopic surgery)

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Spinal fusion

Contraindications

1. Active infection: Infection in the spine or surrounding areas.
2. Severe osteoporosis: Fragile bones that may not heal properly
3. Obesity: Increased risk of complications.
4. Uncontrolled health conditions: Poorly controlled diabetes, heart disease, etc.
5. Poor bone health: e.g. Paget's disease (chronic bone disorder that disrupts normal bone remodeling, leading to weakened & deformed bones).

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Laminectomy

Physiotherapy preoperative assessment

- Similar to Laminectomy

Physiotherapy preoperative treatment

- Similar to Laminectomy

Physiotherapy postoperative assessment

- Similar to laminectomy

Physiotherapy postoperative treatment

- Similar to laminectomy

PHYSIOTHERAPY IN SURGICAL CONDITIONS

Spinal fusion

Complications

1. Infection: risk of infection at the surgical site.
2. Blood clots: deep vein thrombosis or pulmonary embolism.
3. Nerve injury: risk of damage to surrounding nerves during surgery.
4. Non-union or malunion: the bones may fail to fuse properly or heal out of alignment.
5. Hardware complications: the metal implants may loosen or break.
6. Chronic pain: persistent pain despite fusion due to other underlying issues.
7. Loss of mobility: In some cases, the spine may become less flexible following fusion.

QUESTIONS AND COMMENTS

REVIEW

OTHER READING SOURCES

TEXT

1. *O'Shea, J. (2019). Principles of physiotherapy in surgery and rehabilitation. Cambridge University Press.*
2. *Dutton, M. (2017). Orthopaedic examination, evaluation, and intervention (3rd ed.). McGraw-Hill Education.*

THANKS FOR LISTENING