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Joint Replacement & Spine Surgery

Spine Surgery: Where is the Evidence

Andreas Loeffler



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Herniated Lumbar Disc

- Common
- Variable severity
- Multiple treatments
 - Analgesia, rest, modified activity
 - Traction, 90/90 position, heat
 - Massage, exercise
 - Injections
 - Surgery



Classic Paper: Henrik Weber, 1982 Volvo Award

- 280 patients with sciatica and disc herniation
 - 67 had surgery
 - 87 had non-operative treatments
 - 126 were randomized
- Results:
 - At 1yr the surgically treated were better
 - At 4yrs there was no significant difference
- Surgery gives quicker pain relief



SPORT

Spine Patient Outcome Trial, 2009

- Prospective randomized
 - 501 patients
 - 13 clinics
- Observational cohort
 - 743 patients surgical and non-operative
- Results: ODI and SF36
 - At 4 yrs patients who had surgery did better on all scores, except work status



The Challenge: Who Needs Surgery?

- Evaluate each patient
 - Physical, emotional, social
 - Neurological deficit
 - Review and investigate
- Surgery
 - Intractable pain
 - Progressive neurological loss
 - Failure to improve



Degenerative Spondylolisthesis

- Common with aging population
- F>M
- Child birth?
- Back pain and or leg pain
- Spinal stenosis



Case 1

Poster-lateral Fusion



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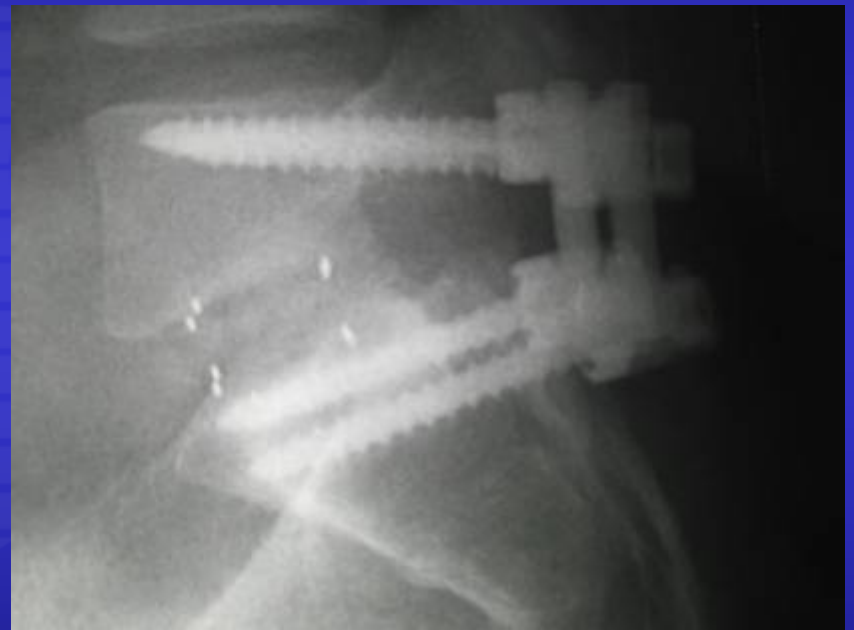
Anterior Support

- Bone
 - Soft fusion
- Fusion cages
 - Stability
 - Bone graft
 - Titanium
 - PEEK
 - Tantalum



Case 2

PLIF



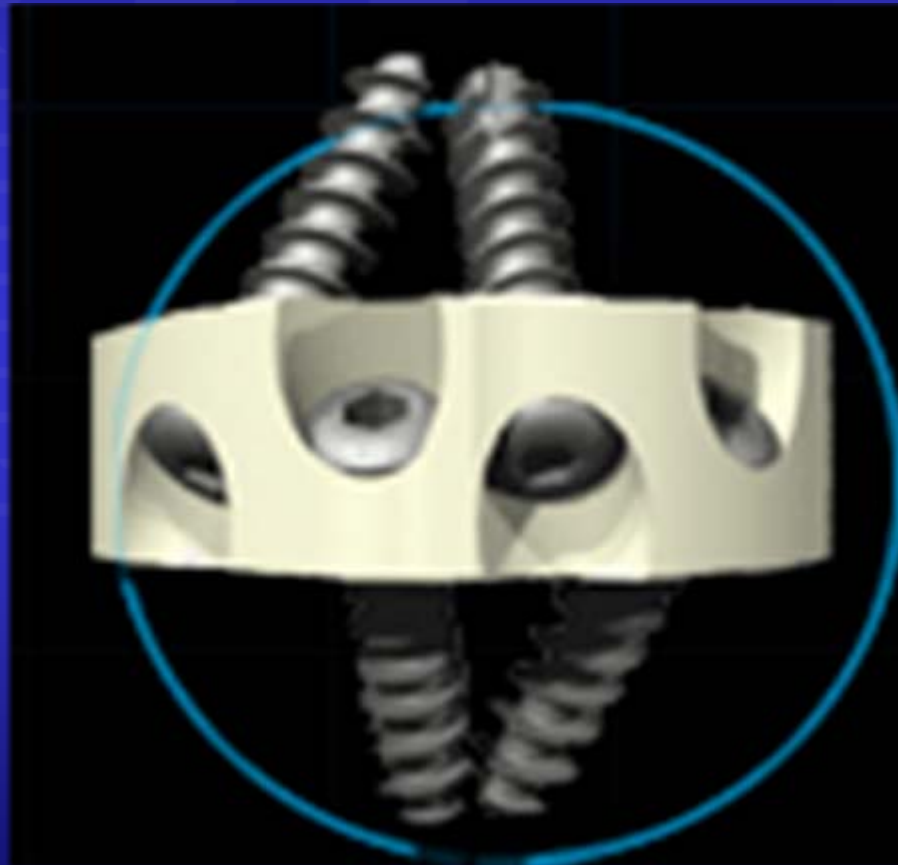
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ALIF

(Anterior Lumbar Interbody Fusion)



Degenerative Spondylolisthesis

The Evidence

- Cochrane review 2005
 - Meta analysis concluded that there is limited evidence to support some aspects of surgery
- SPORT 2009
 - Randomized 304 patients
 - Laminectomy with or without fusion
 - Surgery resulted in substantially more pain relief
 - No difference between different types of fusions



Low Back Pain

- Common
- Mostly transient, but sometimes persistent
- May be incapacitating
- Beware of Red Flags and Yellow Flags
- Multiple treatments
- Are any cost effective?
- Surgery rising exponentially



Classic Paper: Peter Fritzell, 2001 Volvo Award

- Randomized controlled study
 - 294 patients with chronic pain (8yrs)
 - Radiographic changes at L4/5 and or L5/S1
 - 19 spine centers
 - 222 treated surgically
 - 72 non-operatively



Fritzell's Results

	Pain reduced	Feeling better	Back to work
Surgical	33%	63%	36%
Non-op	7%	29%	13%



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Fritzell's Conclusions

- In a selected group of patients with severe chronic low back pain fusion can diminish pain more effectively than non-operative treatments.
- There was no advantage of one type of fusion over another.



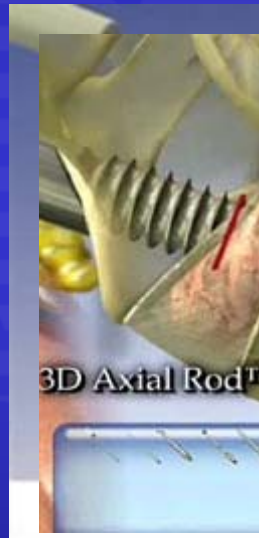
Lumbar Spondylosis

- Degenerative changes in the lumbar spine
- Common
- Related to:
 - Age
 - Activity
 - Work?
- Mechanical back pain and or leg pain



Axi-ALIF

- Minimal approach



- As yet unproven



Case 3

TDR



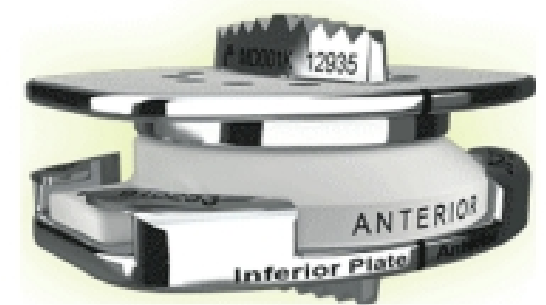
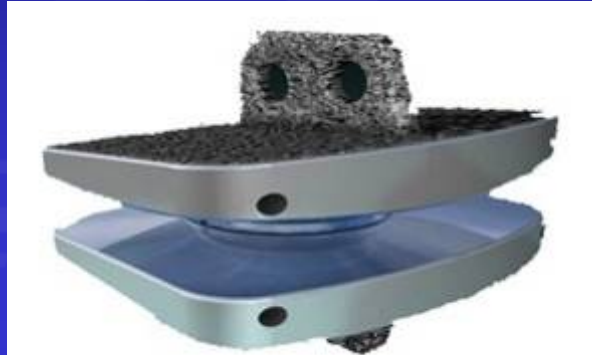
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TDR Prostheses

- Charite
- Maverick
- Prodisc
- Mobidisc
- Flexicore

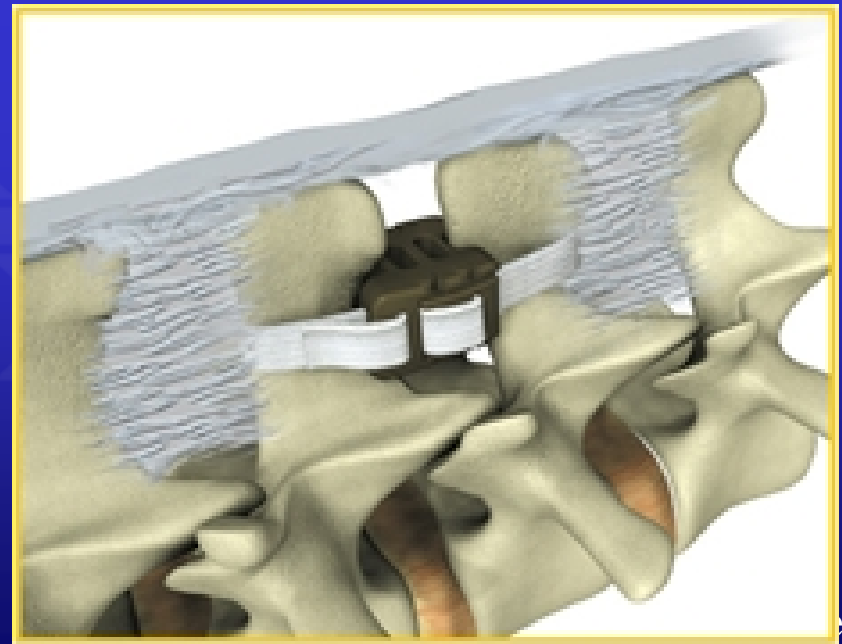
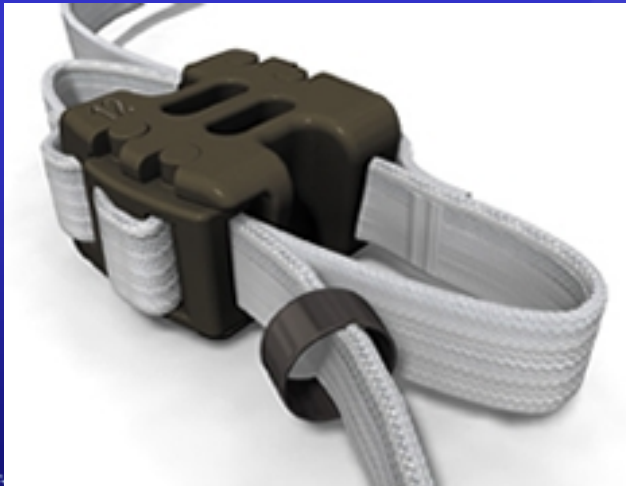


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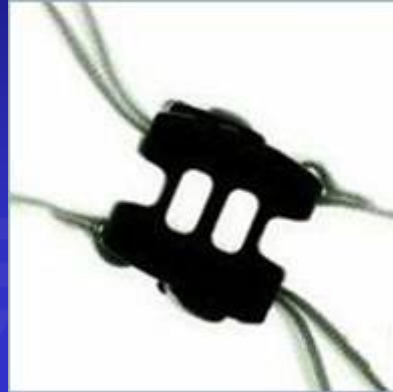
Inter-spinous Spacers

- Flex segment
- Increase volume of canal
- Decompress nerves



Inter-spinous Spacers

- Wallis
- Vertiflex
- X-stop
- Coflex
- Optima
- DIAM



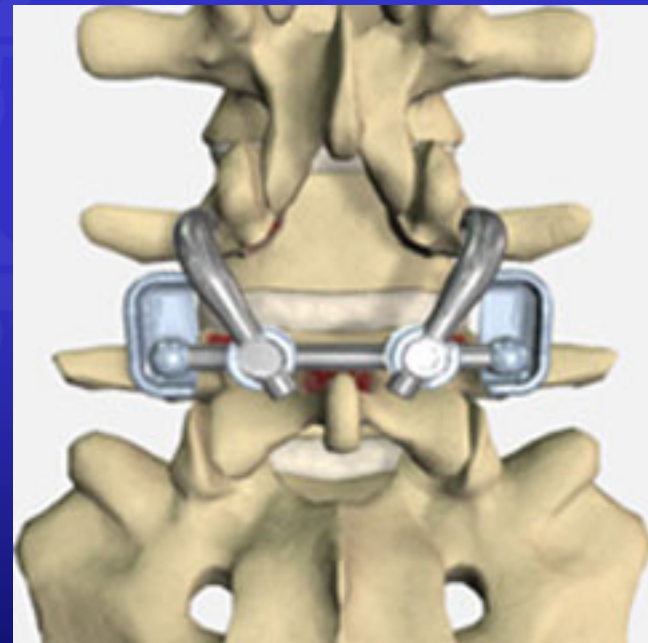
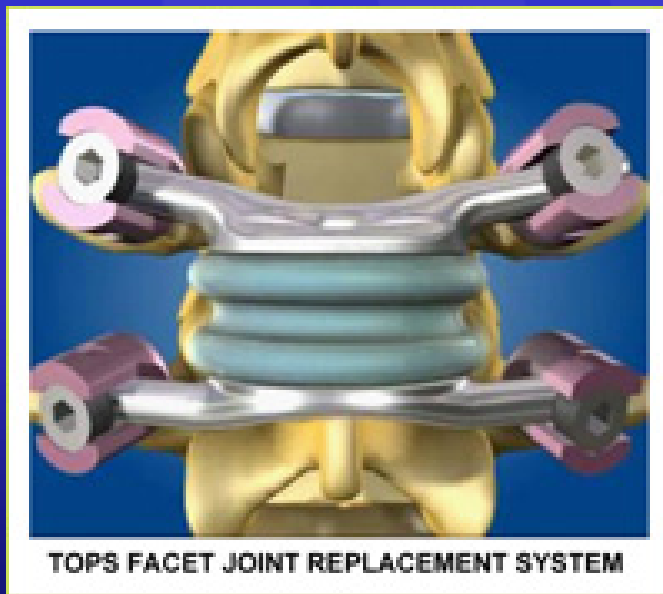
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Facet Joint Replacements

- In development
- Some concepts



Lumbar Spondylosis

The Evidence

- Cochrane Review by Gordon Waddell, 2008
- Meta-analysis of 31 papers
- Conclusions:
 - Instrumentation increases the rate of fusion, but also costs and complications.
 - Instrumentation improves outcomes marginally.
 - No advantage of anterior, posterior or both.
 - “Limited evidence to support some aspects of surgical practice”



Evidence Based Medicine

Limited Evidence

- Beware of vested interests
 - Surgeons
 - Industry
 - Insurers
- Educate patients
 - Alleviate fear
 - Address function
 - Accept a level of pain



Persistent Back Pain

Who to Refer

- Severe pain
 - Red flags
 - Uncertain diagnosis
 - Persistent symptoms
-
- Beware of new and as yet unproven treatments





Thank you



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