A retrospective review of 345 patients with lumbar TDR in 2-years follow-up over 10 years of practice in one Belgian clinical center: results

(published in 2016)

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Promotor: Yves Lecomte

TDR: Total disc replacement

Outline

- Introduction: Low back pain
- Review at 2 years follow-up
- Review at 10 – 15 years follow-up

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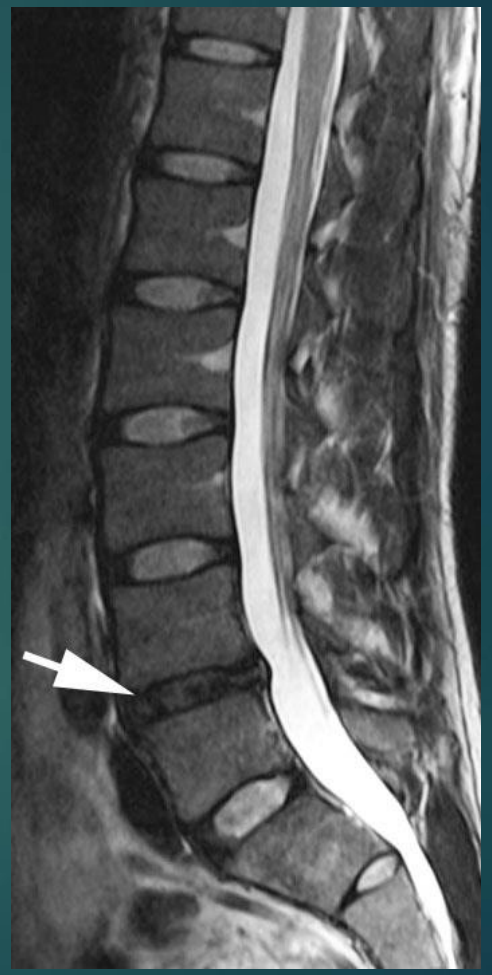
- **Introduction: Low back pain**
- Review at 2 years follow-up
- Review at 10 – 15 years

Introduction: Low back pain



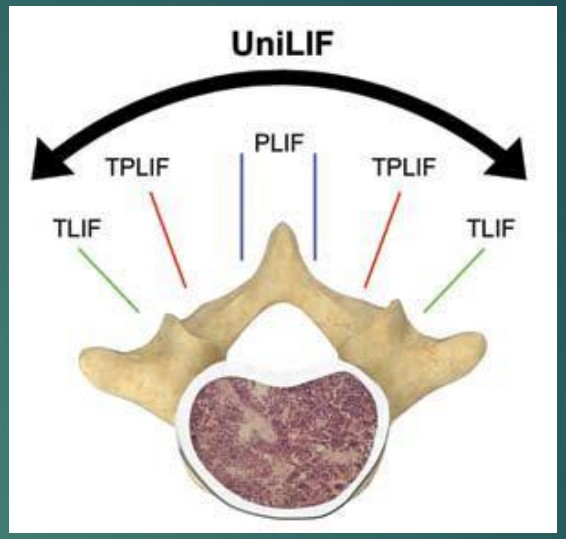
Disc disease

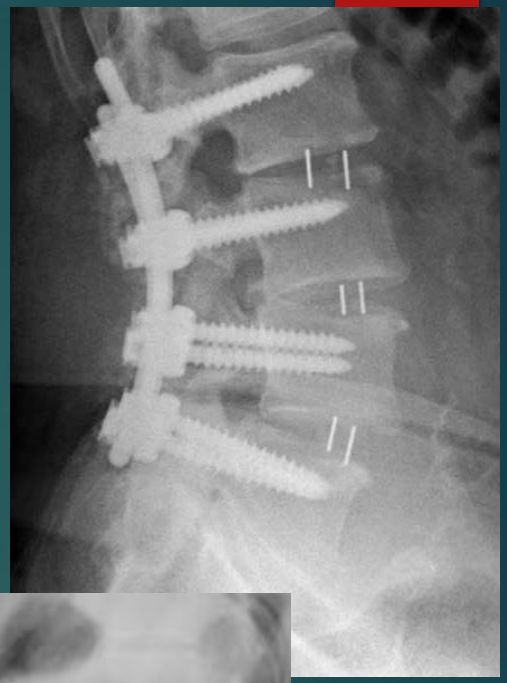
Conservative treatment: Pain killers, antiinflammatory pills,..., Physiotherapy, back schooling, infiltrations, etc...

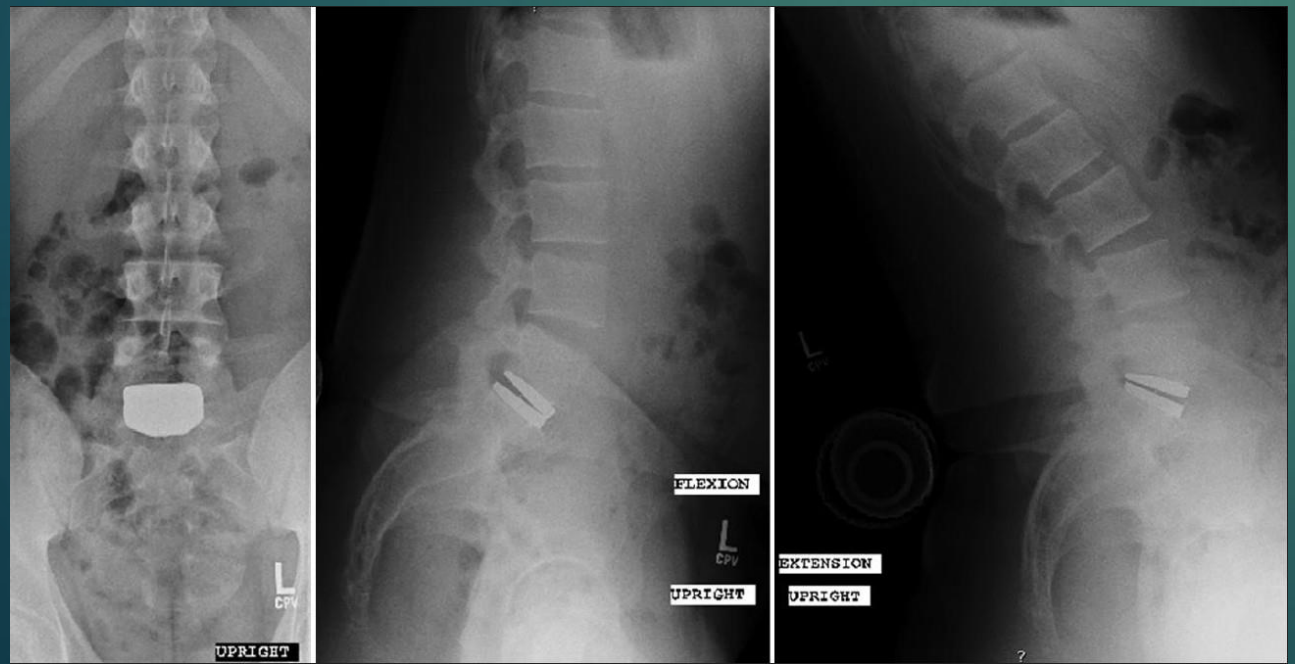
But... when conservative treatment fails:

<u>Surgical solution:</u>

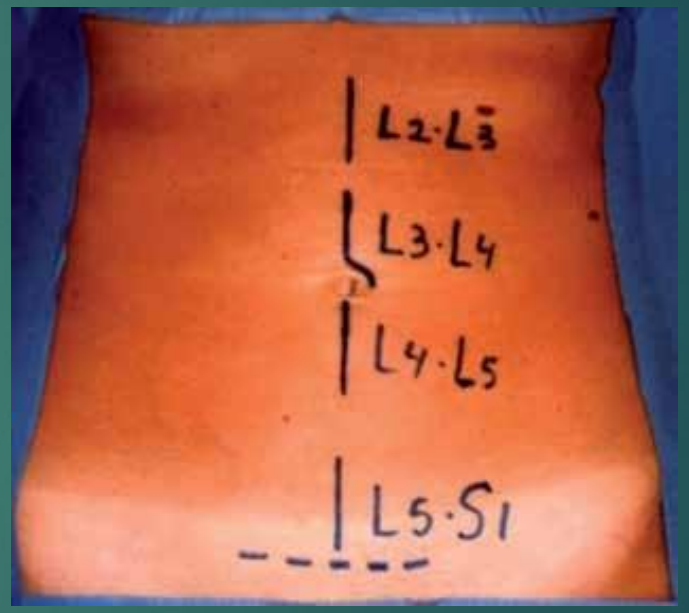
- Arthrodesis (anterior approach)
- Arthrodesis (posterior approach)
- Prosthesis (anterior approach)

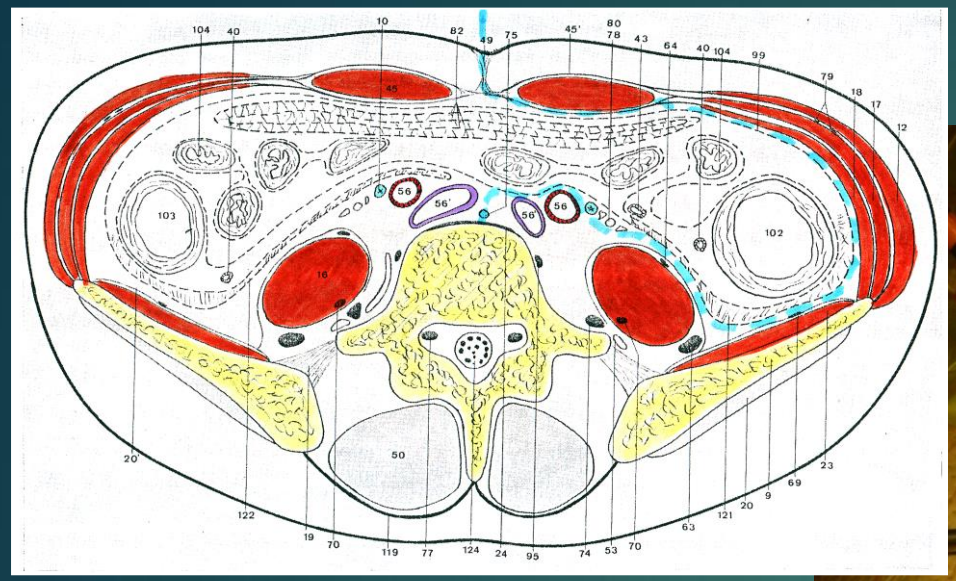






French position for Retroperitoneal Anterior approach

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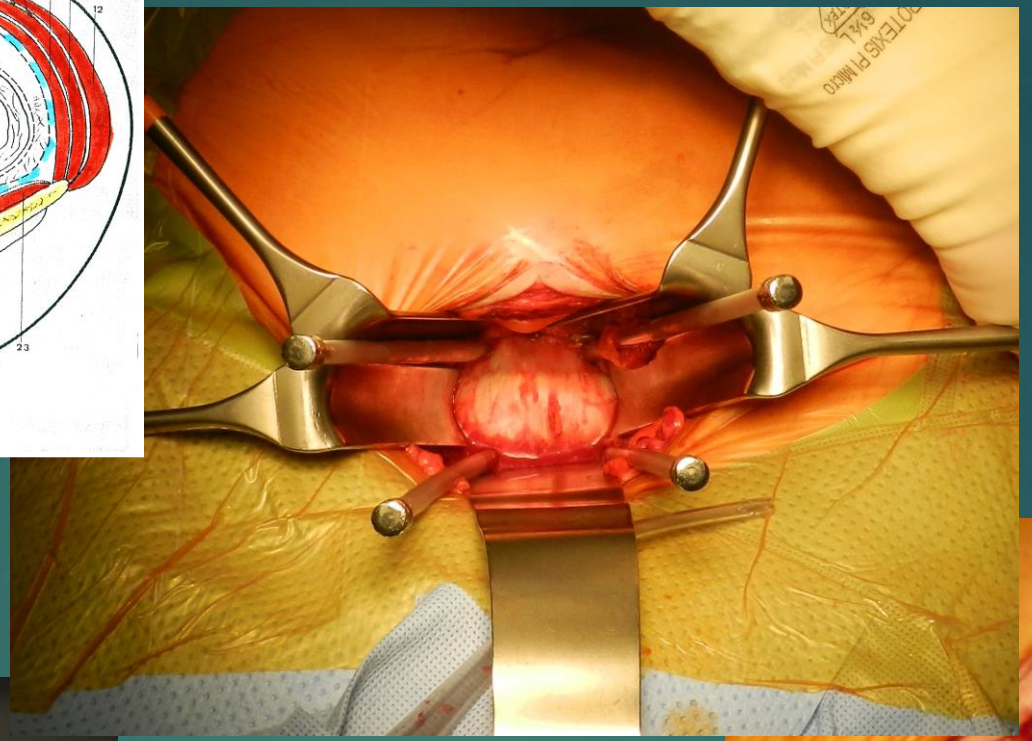

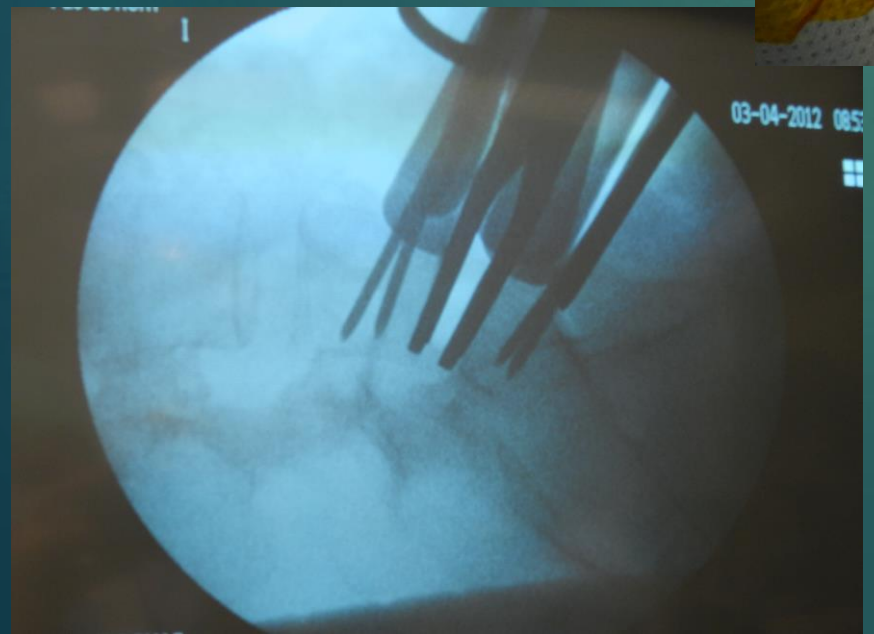
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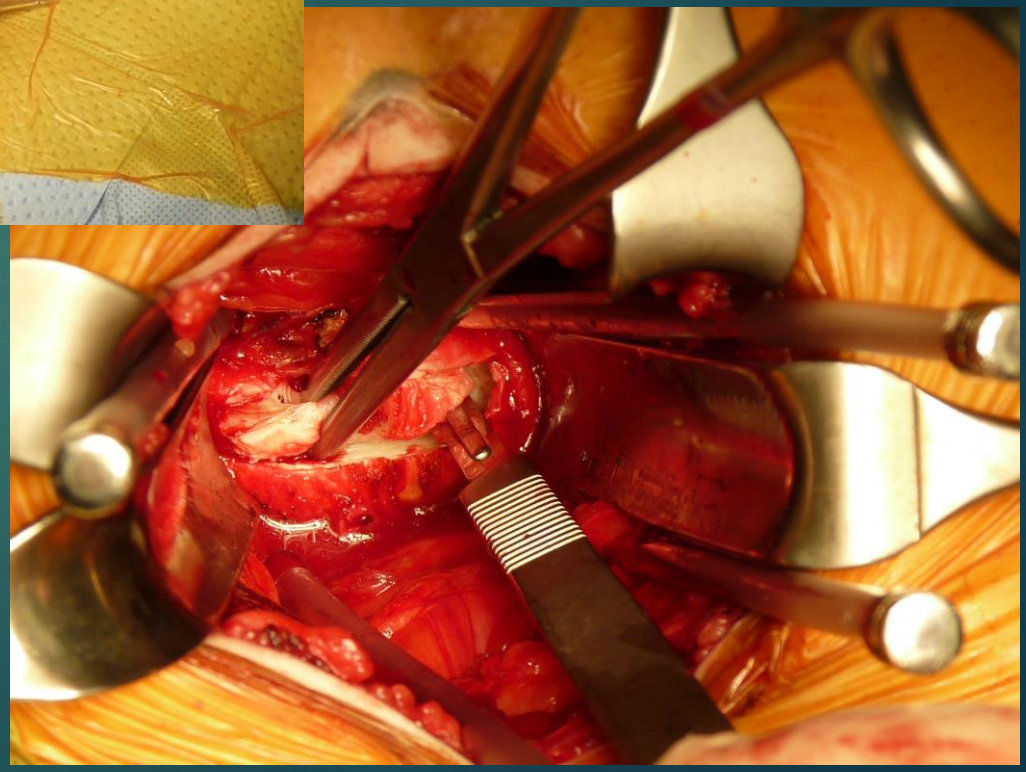
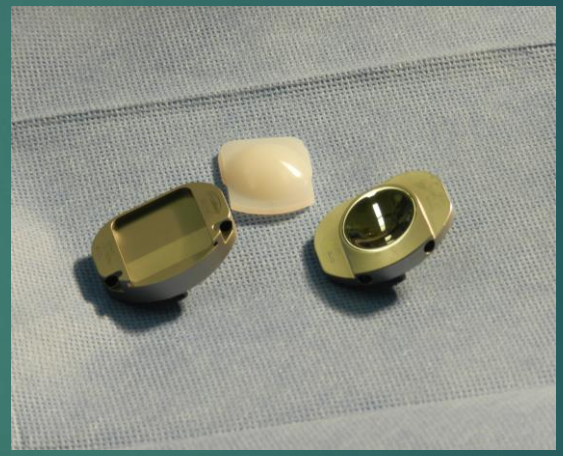


Cage

Prosthesis



Outline

- Introduction: Low back pain
- **Review at 2 years follow-up**
- Review at 10 – 15 years

Review at 2 years follow-up (Retrospective)

Review at 2 years follow-up (Retrospective)

Goal

Acknowledge the efficiency and safety of TDR?

Materials (1)

- Patient with Low back pain – 6 months of failed conservative treatment
- 345 patients - Lumbar TDR.
- Between January 2002 and December 2012.
- VAS and ODI

ODI: Oswestry Disability Index
VAS: Visual Analog Scale

Review at 2 years follow-up (Retrospective)

Materials (2)

- ODI and VAS pre-op.
- ODI and VAS at 2 years follow-up

out:

- N=22 (no ODI at 2 years follow-up)
- N=16 (no VAS at 2 years follow-up)

we kept all 345 patient's data for the remaining analyses such as complications, indications, mean of age, gender, levels etc...

ODI: Oswestry Disability Index
VAS: Visual Analog Scale

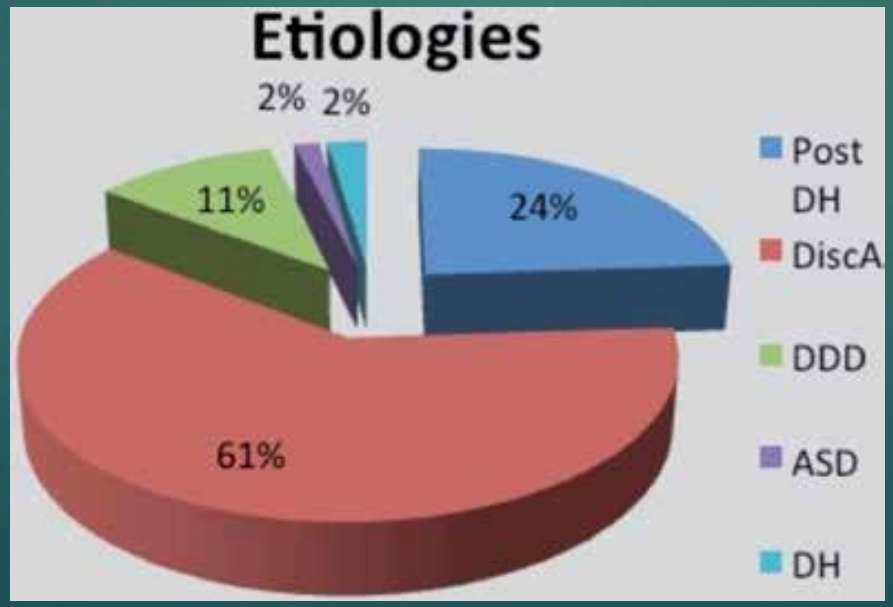
Review at 2 years follow-up (Retrospective)

Results (1)

POPULATION:

- Age range : 21 – 64 (~44)
  no significant relationship between *age* and *gain of improvement in ODI.*
- 204 women – 141 men.
  no significant relationship between *gender* and *gain of improvement in ODI.*

ETIOLOGIES:



61% Disc-arthrosis

24% Post-discectomy

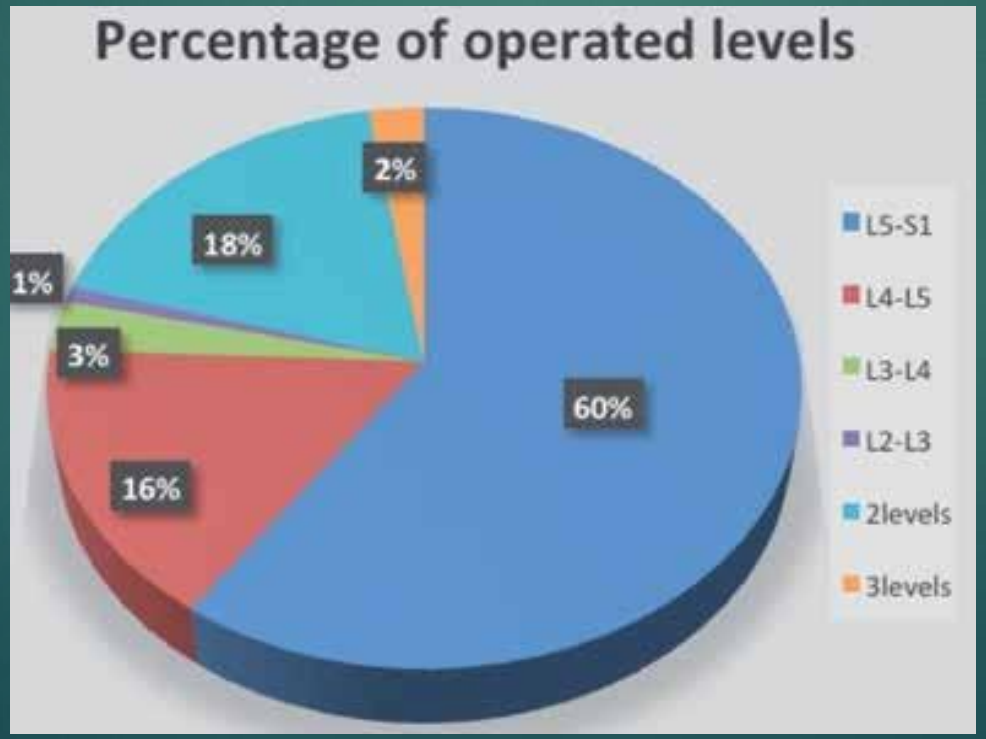
DDD: Disc Degenerated Disease
DH: Discal Hernia
ASD: Adjacent syndrome disease

Review at 2 years follow-up (Retrospective)

Results (2)

LEVELS of Prosthesis:

no significant relationship between *disc level of the procedure* and the *clinical outcomes of the procedure*



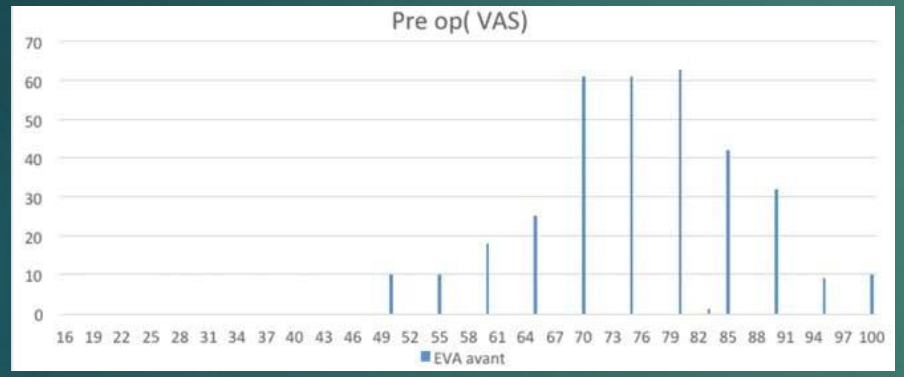
60% L5-S1

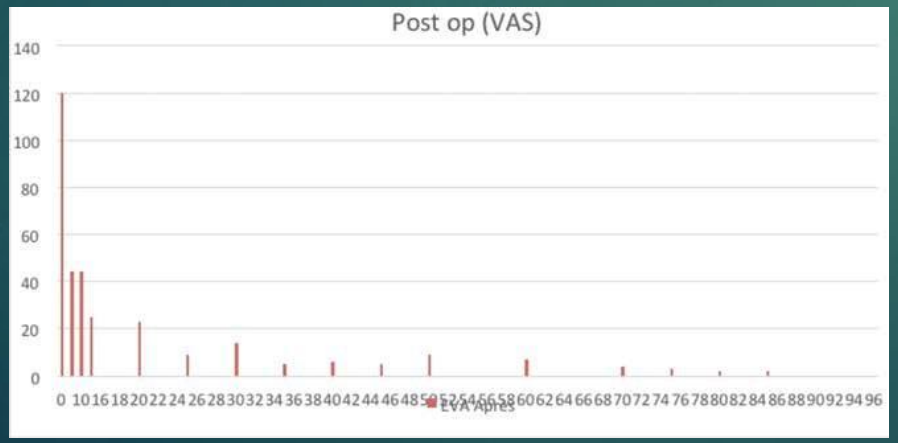
16% L4-L5

Review at 2 years follow-up (Retrospective)

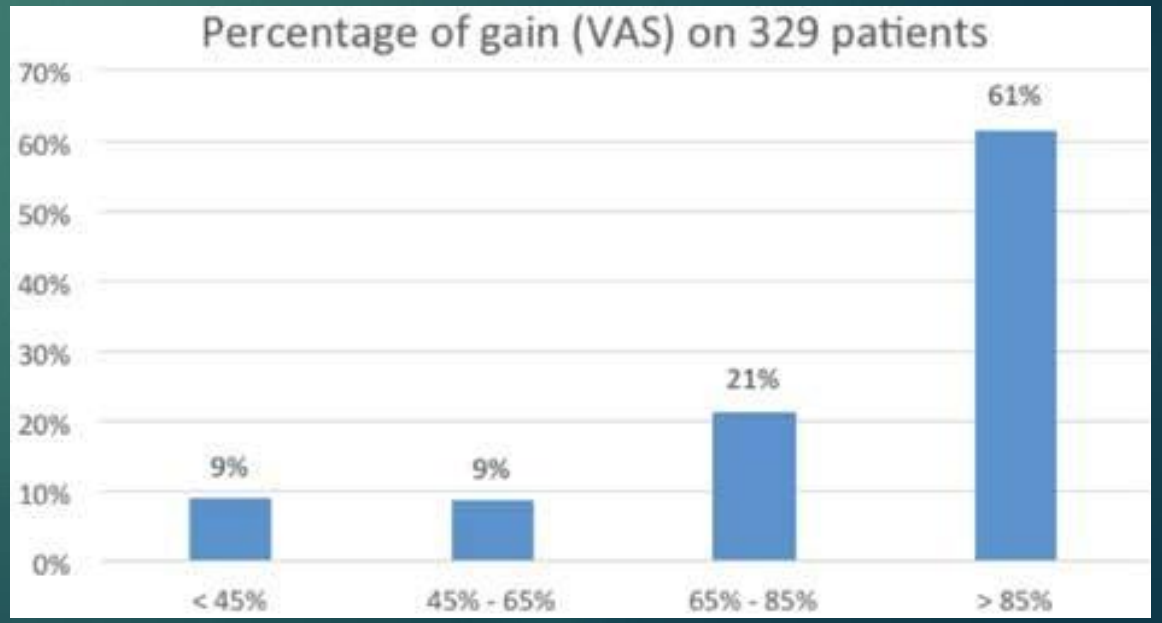
Results (3)

VAS (Visual Analog Scale): statistically significant difference (P=<0.001) *before* and *after* treatment





Gain = (VAS pre-op – VAS post-op)/ VAS pre-op

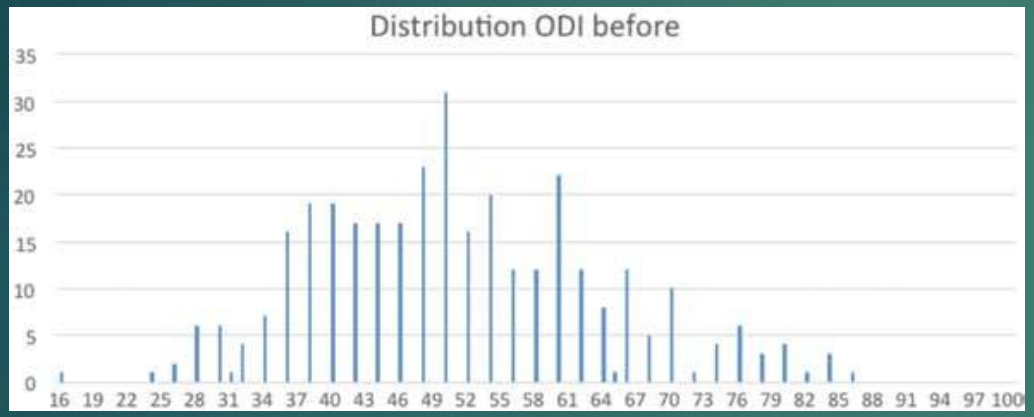


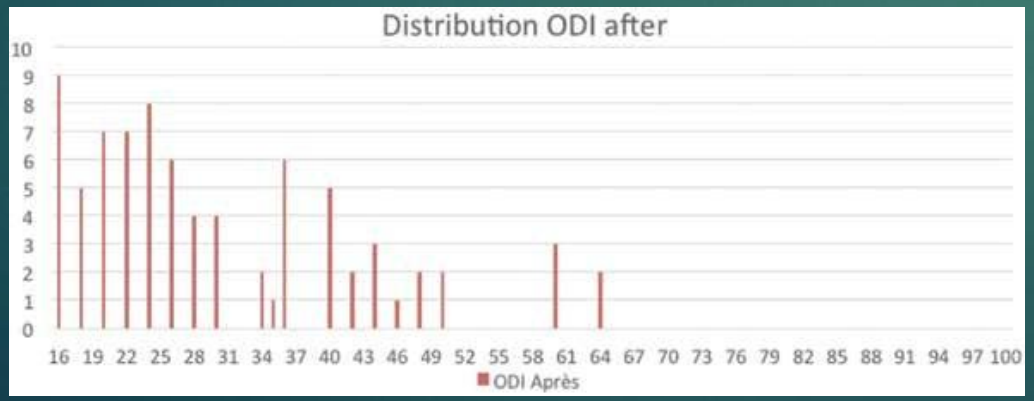
Review at 2 years follow-up (Retrospective)

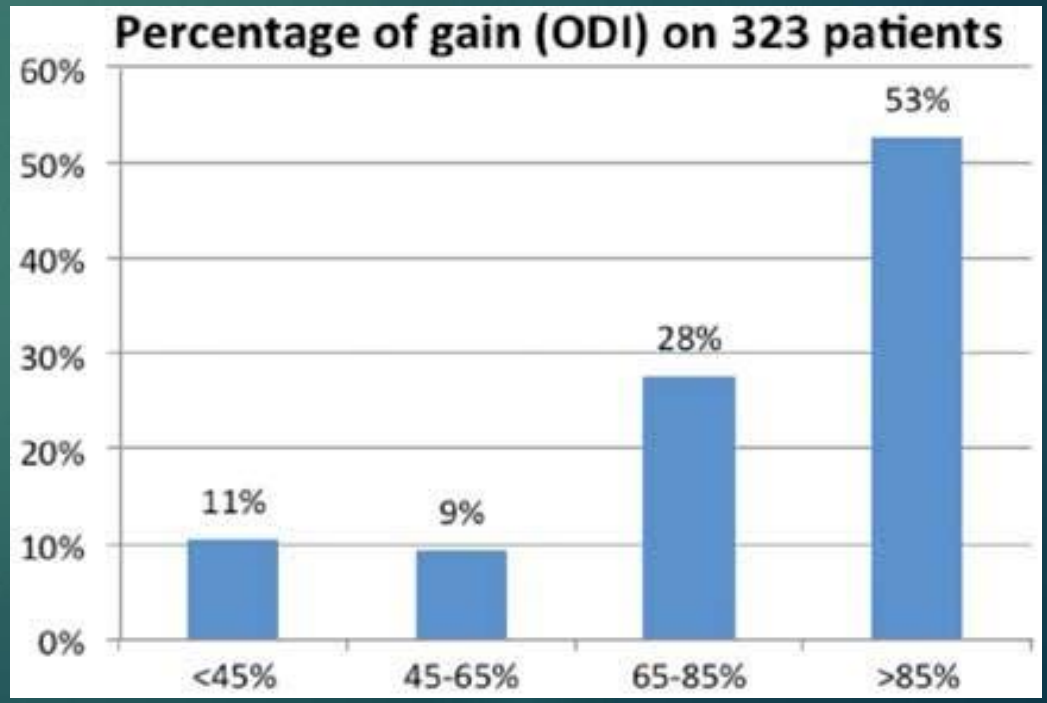
Results (4)

ODI (Odwestry): statistically significant difference (**P=<0.001**) *before* and *after* treatment

Gain = (ODI pre-op – ODI post-op)/ ODI pre-op







Review at 2 years follow-up (Retrospective)

Complications: Retroperitoneal approach (6,88%)

1 Hémorragie per-opératoire
2 Ejaculations rétrogrades (réversible après 3mois)
6 Hématomes rétropéritonéaux
10 Séromes lymphatiques
2 Hématomes de parois abdominale
1 Sténose uréthérale
1 diastasis abdominal

Complications: Device (4,57%)

3 mobilisations d'implant <2mm
4 mobilisation de PE < 4mm
6 impactions de l'implant (asymptomatique)
3 sciatiques post opératoires: fragment d'os/disque postéro-latéral suite à l'impaction de l'implant.
2 Fissures vertébrales (asymptomatique ; 2niveaux)

Review at 2 years follow-up (Retrospective)

Conclusion

- TDR seems to be EFFECTIVE and SAFE.
- 81% patients are satisfied with good and excellent results on quality of life at 2-years follow-up.
- None of the complications were threatening life.

Outline

- Introduction: Low back pain
- Results at 2 years follow-up
- **Results at 10 – 15 years follow-up**

Review at 10 - 15 years follow-up

Review at 10 - 15 years follow-up (Retrospective)

Goal

Efficency and safety of TDR even 10 years later?
Mobility?
ADJ?

Materials (1)

- 120 patients operated of TDR
- between 2002 and 2006
- VAS and ODI
- X-Ray (mobility, ADJ, ...)

Review at 10 - 15 years follow-up (Retrospective)

Materials (2)

- ODI and VAS pre-op.
- ODI and VAS at 10 - 15 years follow-up.

N= 33 out

1 Alzheimer
6 no will of participation
4 deceased (other causes)
22 lost (no adress, no phone number)

72% = 87 patients over 120 patients

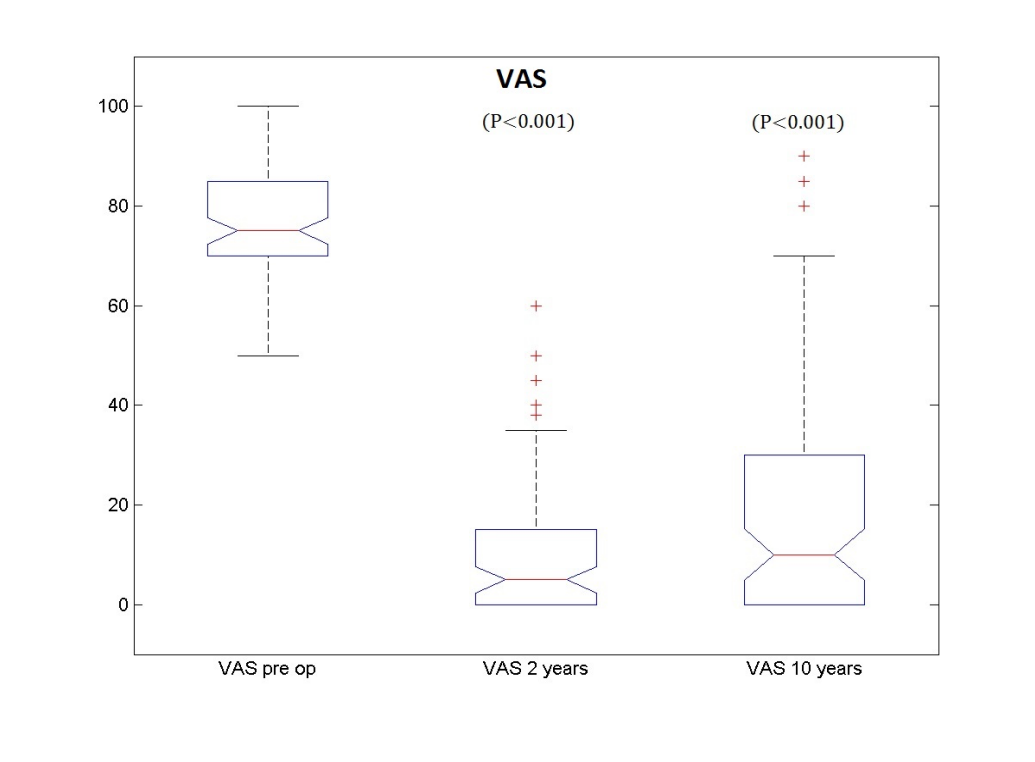
But 4 patients were not in the first review (no ODI and VAS at 2y follow-up)

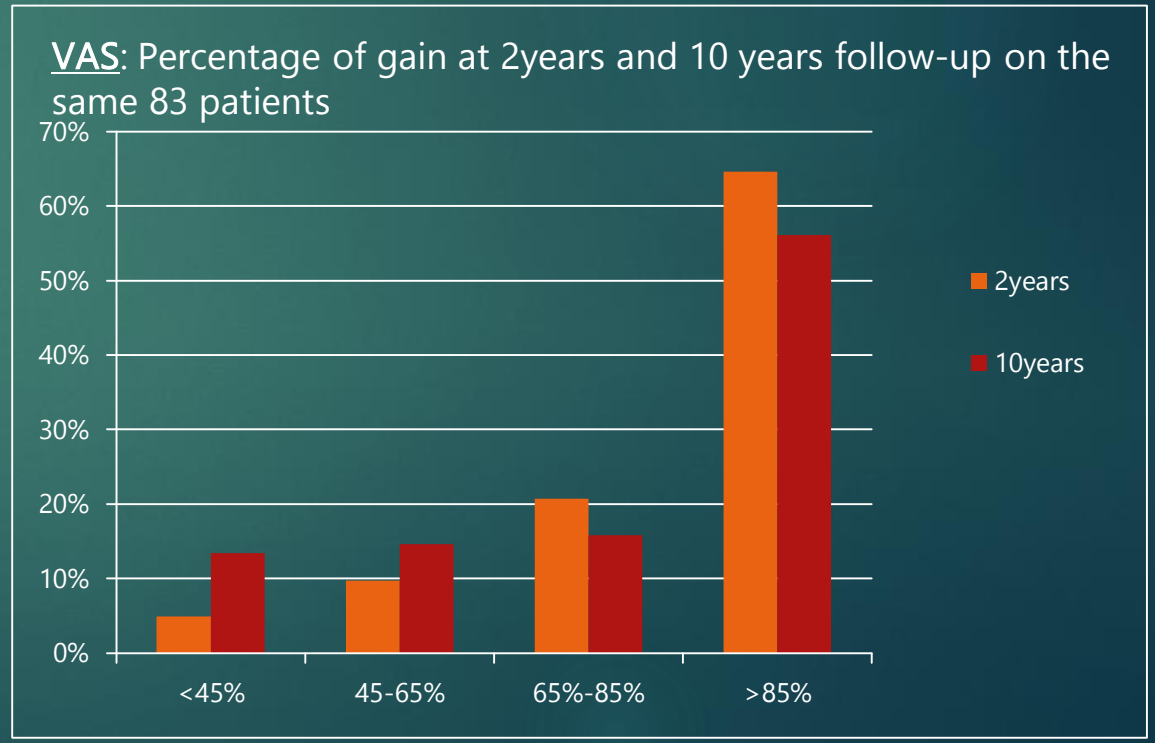
Review at 10 - 15 years follow-up (Retrospective)

Results (1)

VAS (Visual Analog Scale): statistically significant difference (P=<0.001) *before* and *after* treatment

Gain = (VAS pre-op – VAS post-op)/ VAS pre-op



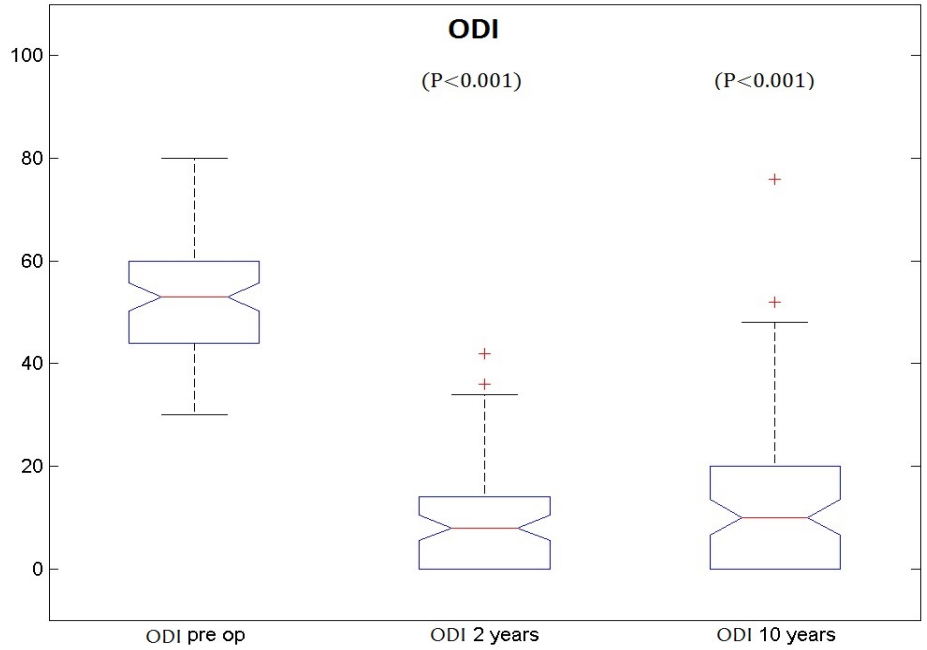


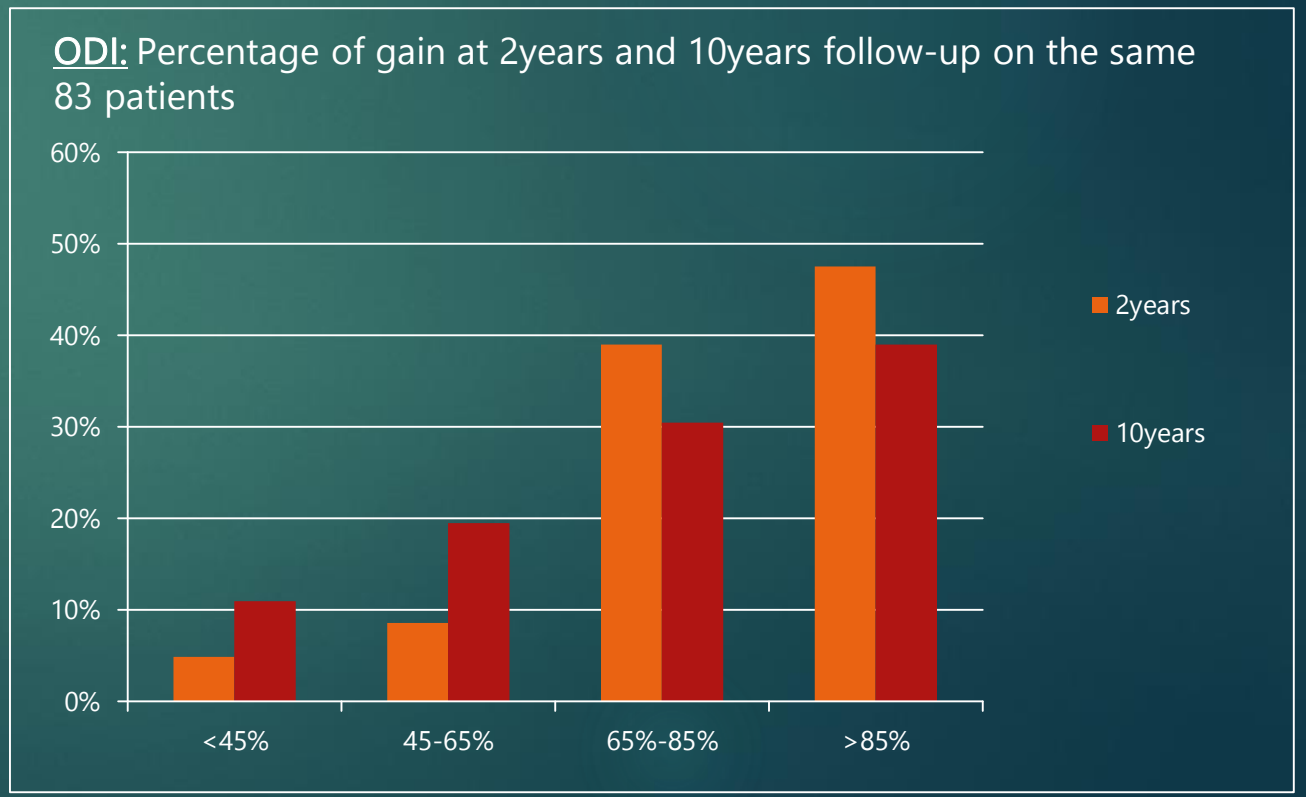
Review at 10 - 15 years follow-up (Retrospective)

Results (2)

ODI (Odwestry): statistically significant difference (P=<0.001) *before* and *after* treatment

Gain = (ODI pre-op – ODI post-op)/ ODI pre-op





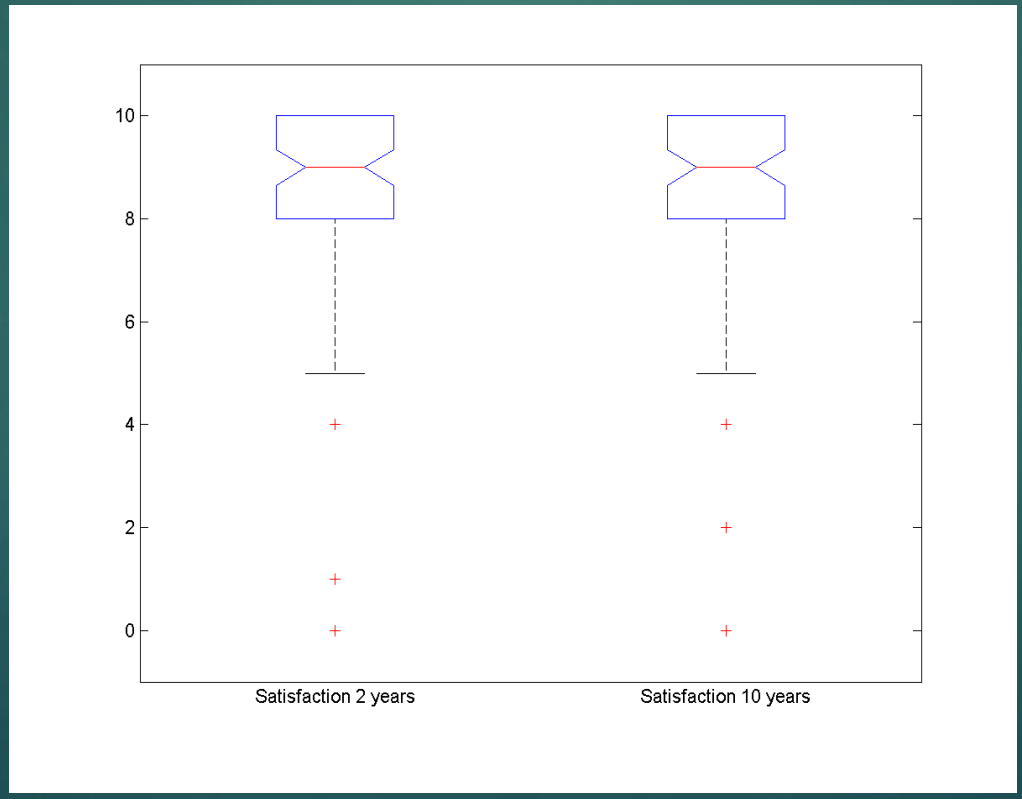
Review at 10 - 15 years follow-up (Retrospective)

Good results:

At 2 years: 87%
At 10 years: 70%

Bad results:

At 2 years: 13%
At 10 years: 30%



But **Satisfaction** score is the same.

Review at 10 - 15 years follow-up (Retrospective)

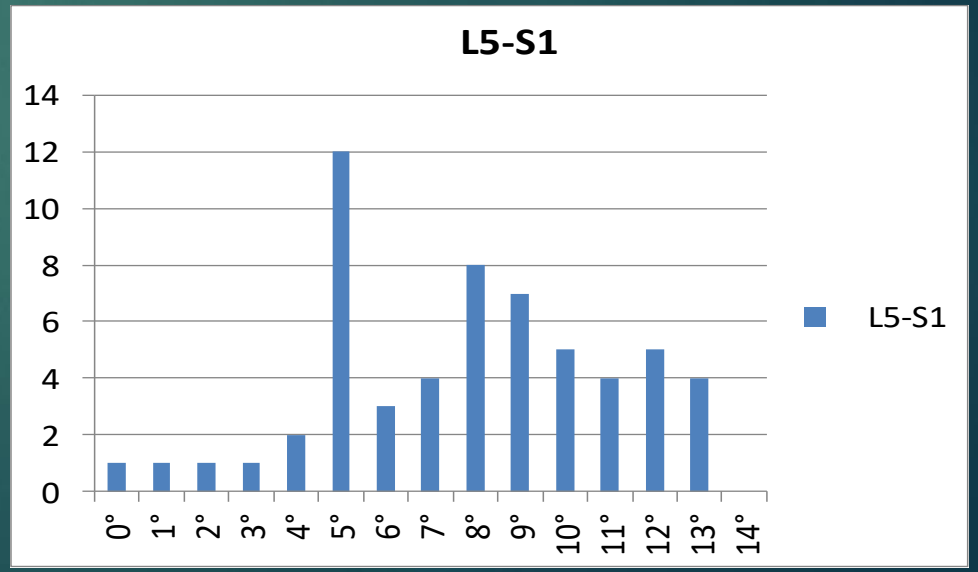
Results (3)

MOBILITY

Under 4° of mobility, we postulate that there is no benefit of having the prosthesis.
Le Huec and al. established a threshold of mobility at 3°(1)

L5-S1 graph shows the number of patient by degree (58 cases).

- 4 cases have a mobility under 4° on L5-S1 level (7%).
- The average of ROM on L5-S1 level in our review is 8° (0° -> 13°).



(1) N Pais, X. Thevenot, A. Cogniet, J. Rigal, J_C Le Huec. Maverick total disc arthroplasty performs well at 10 years follow-up: A prospective study with HRQL and balance analysis. *Eur Spine J (avril 2017) DOI 10.1007/s00586-017-5065-z.*

Review at 10 - 15 years follow-up (Retrospective)

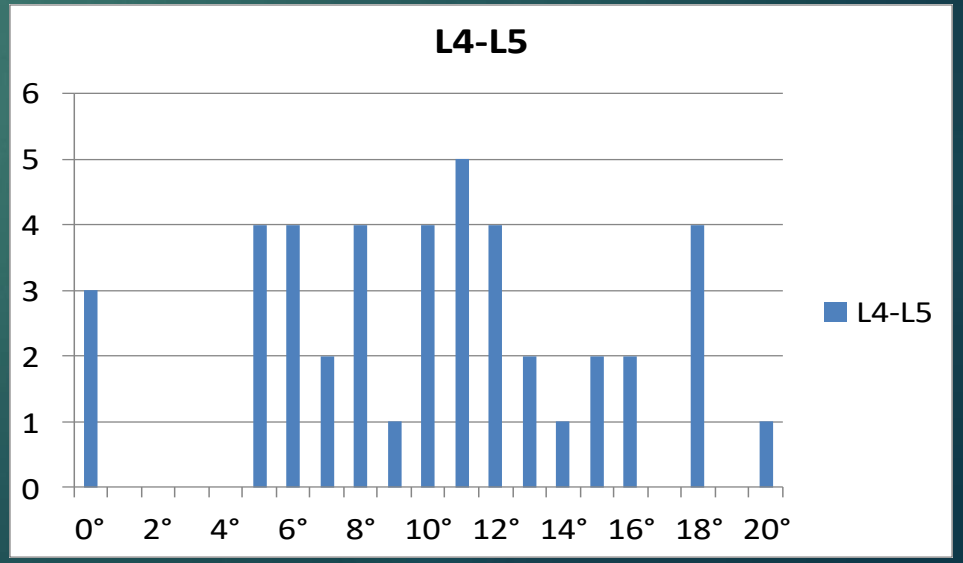
Results (4)

MOBILITY

Under 4° of mobility, we postulate that there is no benefit of having the prosthesis.
Le Huec and al. established a threshold of mobility at 3°(1)

L4-L5 graph shows the number of patient by degree (43 cases).

- 3 cases have a mobility under 4° on L4-L5 level (7%).
- The average of ROM on L4-L5 level in our review is 11° (0° -> 20°).



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Conclusion

- TDR seems to be EFFECTIVE and SAFE even 10-15 years later.
  - 81% patients are satisfied with good and excellent results on quality of life at 2-years follow-up.
  - 70% patients are satisfied with good and excellent results on quality of life at 10-15years follow-up.
- The spine stays FLEXIBLE.
  - Mobility in L5-S1 and L4-L5 level is greater than 4° of ROM (93%) at 10-15 years follow-up.
- No severe complication were identified even 10-15 years later.