

# Influence of the last instrumented inferior vertebra on the quality of life in patients operated for adult deformity



## Raquis Unit



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# Introduction

- One of the questions that in the planning of the surgery is kept in mind is ... Where to finish the instrumentation?
- The indications are different depending on the vertebra in which it will end.

## L5

- L5 and pelvis not included in the curve (within the context of a deformity)
- Healthy L5-S1 disc
- No facet arthrosis

## S1

- Listesis L5-S1
- Previous Laminectomy L5-S1
- Channel or foraminal stenosis L5-S1
- Oblique exit of L5
- Important degenerative changes
- Calcification

## ILIAC

- The choice to include the iliacs in the instrumentation is more a matter of experience than of precise indications as such ... since this is intended to achieve a better fusion, a greater correction of the lordosis and a lower percentage of pseudoarthrosis



One of the consequences of instrumentation is functional limitation. In this article it is verified that the greater number of instrumented levels there is a greater functional limitation with a test validated in English.

### Functional Limitations Due to Lumbar Stiffness in Adults With and Without Spinal Deformity

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#### **Influencia de la fijación sacro-pélvica en las limitaciones funcionales de pacientes intervenidos por deformidad del adulto (DA). Efecto en los subdominios del SRS-22**

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The extension of fixation to the pelvis does not significantly affect the functional limitation of patients operated on for deformity.

The aim of our study that was to analyze the quality of life of our patients according to the last instrumented inferior vertebra.

# Material and Method

Retrospective analysis of a prospective database of three patient cohorts that were divided into three groups according to their last instrumented inferior vertebra (LIIV)

**Group 1: Iliac**

**Group 2: S1**

**Group 3: L5**

## The inclusion criteria

Age > 30 years  
SVA > 5 cm  
Cobb > 20°  
Instrumented levels > 4  
Min 1 year follow-up

## Health related quality of life test

VAS  
ODI  
SRS-22

## STATISTIC ANALYSIS

Analysis of variance (ANOVA)  
Kruskall Wallis  
U Mann-Whitney  
T Student

# Results

N=160 patients

**Group 1 (Iliac) =71**

**Group 2 (S1) = 61**

**Group 3 (L5) =28**

## Basal characteristics

	<b>Group 1 (Iliac)</b>	<b>Group 2 (S1)</b>	<b>Group 3 (L5)</b>	<b>p-value</b>
<b>Age*</b>	69 (62-75)	64 (57-73)	58 (39,25-71,75)	<0,05
<b>Gender (F)</b>	61 (85,9)	39 (63,9)	23 (82,1)	<0,05
<b>BMI*</b>	27,73 (25-31)	28,67 (24,80-32,65)	24,79 (24,60-28,34)	0,789
<b>Instrumented level*</b>	8 (8-14)	6 (4-7)	6 (5-7)	<0,05
<b>Surgery time (min)*</b>	390 (330-510)	300 (260-360)	330 (240-412,50)	<0,05

Values expressed in means and standard deviations. p-value calculated with the analysis of variance (ANOVA)

\* Variables not normal in the Groups. Data expressed in median and interquartile range. p-value calculated with the Kruskal Wallis test

Re-surgery  
percentage

**Group 1 (Iliac)=38%**

**Group 2 (S1)=29,5%**

**Group 3 (L5)=21,4%**

We observe that group differs from others

The age variable differs in group 3, in terms of gender, the group is 1, which also has the largest number of instrumented levels and the longest surgery time.

The BMI is similar in the three groups

Variable	Age*			Gender			Instrumented level*			Surgery time (min)*		
	Group 1 (Iliac)	Group 2 (S1)	Group 3 (L5)	Group 1 (Iliac)	Group 2 (S1)	Group 3 (L5)	Group 1 (Iliac)	Group 2 (S1)	Group 3 (L5)	Group 1 (Iliac)	Group 2 (S1)	Group 3 (L5)
Group 1 (Iliac)		0,124	<0,05		<0,05	0,641		<0,05	<0,05		<0,05	<0,05
Group 2 (S1)			0,026			0,084			0,800			0,773
Group 31 (L5)												

p-value calculated with the Student's T test  
 \* p-value calculated with the Mann Whitney U test

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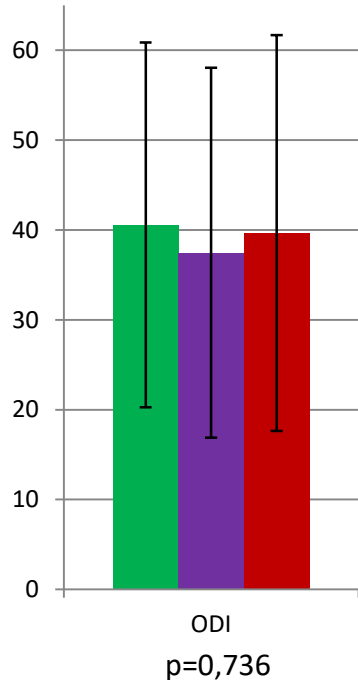
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**Group 1 (Iliac)**  
**Group 2 (S1)**  
**Group 3 (L5)**

When analyzing the final values of the 3 groups of patients. About ODI there are no statistically significant differences between the groups but the level of disability is high. About VAS there are no statistically significant differences. In the SRS22 there are no statistically significant differences between the groups although the final values are good.



Questionario	Group 1 (Iliac)	Group 2 (S1)	Group 3(L5)	p-value
VAS_Back*	4 (1,75-7)	4 (1-6,75)	5 (1,75-7)	0,863
VAS_Leg*	5 (1-8,50)	3 (1-5,50)	3,50 (2,00-8,00)	0,189

Questionario	Group 1 (Iliac)	Group 2 (S1)	Group 3(L5)	p-value
SRS22_Function*	3,00 (2,20-3,60)	2,80 (2,40-3,40)	2,80 (2,40-3,20)	0,886
SRS22_Dolor*	3,00 (2,20-3,90)	2,90 (2,40-3,40)	3,20 (2,70-4,00)	0,974
SRS22_Selfimage	3,18 (0,80)	3,07 (0,71)	3,24 (0,72)	0,345
SRS22_Mentalhealth*	3,80 (2,80-3,90)	3,80 (2,65-4,00)	3,20 (2,70-4,00)	0,451
SRS22_Satisfaction*	4,50 (4,00-5,00)	4,00 (3,50-4,50)	4,50 (4,00-4,86)	0,295
SRS22_Total	3,21 (0,82)	3,19 (0,68)	3,14 (0,67)	0,946

Values expressed in means and standard deviations. p-value calculated with the analysis of the variance (ANOVA) \* Non-normal variables in the Groups. Data expressed in median and interquartile range. p-value calculated with the Kruskal Wallis test

# Discussion

- In our sample of patients it was not found that LIIV had an influence on the health related quality of life, despite the differences between the groups.
- This may be logical since it can be avoided that younger people (Group 3: L5) have the indication of the instrumentation that iliac due to the limitation that occurs in the day to day of these patients.
- Although it is greater than the percentage of re-surgery in group 1 (iliac), the quality of life of these patients is good, this may be due to the fact that the expectations of these patients are not so great as not to have other litigating factors.



# Conclusions

- There are no differences in the quality of life in the function of life in our sample of patients
- The quality of life is good when observing the values of the questionnaires, except in the ODI and we see that the limitation is greater in group 1 (Iliaco)
- Search for specific questionnaires to evaluate the relationship between the functional limitation that causes life and the quality of life

## Disclosures

None of the authors has any potential conflict of interest.