

# The Effectiveness of Surgical versus Conservative Treatment for Symptomatic Unilateral Spondylolysis of the Lumbar Spine in Athletes.

A thesis submitted by

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## Contents

Chapter 1: Background to the study / systematic review .....	10
1.1 Introduction .....	10
1.2 Spondylolysis and unilateral spondylolysis in adults and athletes.....	10
1.3 Systematic review background .....	13
1.3.1 The evolution of systematic reviews as part of the evidence based healthcare movement .....	13
1.3.2 Systematic review features .....	14
1.4 Systematic review methodology: The essential steps .....	15
1.4.1 Developing the review question and inclusion criteria .....	15
1.4.2 Constructing a search strategy and searching for evidence .....	17
1.4.3 Study selection and critical appraisal.....	19
1.4.4 Data extraction and synthesis.....	19
1.4.5 Presenting and interpreting findings .....	20
1.4 Motivation and objectives.....	20
Chapter 2: Method of the Systematic Review .....	22
2.1 Inclusion criteria .....	22
2.1.1 Types of participants.....	22
2.1.2 Types of intervention(s) and comparators.....	23
2.1.3 Types of studies.....	23
2.1.4 Types of outcomes .....	23
2.2 Search strategy .....	25
2.3 Assessment of quality of included studies.....	26
2.4 Data collection .....	27
2.5 Data analysis and synthesis method.....	27
Chapter 3: Results from the Systematic Review .....	29
3.1 Description of studies.....	29
3.1.1 Search and study selection.....	29
3.1.2 Key characteristics of included studies .....	30
3.1.3 Methodological quality of included studies.....	38
3.2 Findings .....	40
3.2.1 Return to sport .....	40
3.2.2 Overall pain and function .....	42

3.2.2.1 Oswestry Disability Index Measure (ODI) .....	43
3.2.2.2 Short Form 36 Survey (SF-36) .....	45
3.2.2.3 Modified Henderson Assessment .....	48
Chapter 4: Discussion .....	49
4.1 Summary of findings .....	49
4.2 Knowledge gaps .....	50
4.3 Limitations.....	50
4.4 Reflection on the results of this review compared to similar reviews .....	52
Chapter 5: Conclusion: Implications for practice and research .....	54
5.1 Implications for practice .....	54
5.2 Implications for research .....	54
References.....	56
Appendices .....	58

## List of Tables

Table 1: An example of the use of the PICO mnemonic.....	16
Table 2: Example of a logic grid used during the literature search.....	18
Table 3: Characteristics of included studies .....	31
Table 4: Outcome measures in included studies.....	37
Table 5: Results of critical appraisal based on JBI MASTARI tool for appraising descriptive studies.....	39
Table 6: Ratio of study participants able to return to sport following surgical and conservative treatment.....	41
Table 7: Results for all patient in studies where ODI was included as an outcome measure .....	44
Table 8: Results for all patients in studies where SF-36 Physical Component of Health was included as an outcome measure.....	46
Table 9: Results for all patients in studies where SF-36 Mental Component of Health was included as an outcome measure .....	47

## List of Figures

Figure 1: PRISMA Flow Diagram of Search and Study Selection Process .....	30
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## **Abstract**

### **Background**

Spondylolysis is a common cause of low back pain in athletes. It remains unclear whether athletes with unilateral spondylolysis who undergo surgical repair are able to return to the sports field as effectively or faster than if they had conservative treatment.

### **Objectives**

To determine the effectiveness of surgical fixation, performed after a trial period of conservative management, compared to the effectiveness of conservative management only for unilateral spondylolysis in athletes.

### **Inclusion criteria**

#### ***Types of participants***

Athletes with symptomatic unilateral spondylolysis of the lumbar spine.

#### ***Types of intervention(s)***

Surgical interventions which attempted a direct repair of the pars interarticularis, compared to conservative management.

#### ***Types of studies***

Experimental and epidemiological study designs were considered for inclusion.

#### ***Types of outcomes***

The primary outcome of interest in this review was the ability to return to sport. The effectiveness of surgery on pain and overall function were secondary outcomes of interest.

### **Search strategy**

A three-step search strategy that aimed to find both published and unpublished studies was utilized. The search was limited to studies published in the English language between 1 January 1970 and 1 September 2013.

### **Methodological quality**

The studies were critically appraised using one of the standardized critical appraisal

instruments from The Joanna Briggs Institute.

### **Data collection**

Details describing each study and results on effectiveness in promoting the outcomes of interest were extracted from papers included in the review using the standardized data extraction tool from The Joanna Briggs Institute.

### **Data synthesis**

Due to the heterogeneity of the included studies, the results for similar outcome measures were not pooled in statistical meta-analysis. A narrative and tabular format was used to synthesize the results of identified and included studies.

### **Results**

Five studies reporting results for the outcomes of interest were critically appraised and included in the review. Due to the paucity of data, studies were included regardless of whether their participants were exclusively athletes with unilateral spondylolysis or adults (athletes and non-athletes) with unilateral and bilateral spondylolysis. Sub-group analysis was used to distinguish the findings for the main participant group of interest, namely athletes with unilateral spondylolysis.

### **Conclusions**

The limited evidence on the effectiveness of surgical treatment versus conservative treatment for unilateral spondylolysis in athletes does not allow any conclusions to be drawn about the relative effectiveness of surgery versus conservative treatment for facilitating rapid return to sport or a high level of post injury sporting level/performance. It does suggest however, that for adult athletes for whom conservative treatment has not been successful, surgery is likely to enable return to sport, reduce pain and promote overall function.

### **Implication for practice**

Adult athletes that have failed conservative treatment who suffer pain and compromised functionality (including inability to play regular sport) can consider surgery to reduce their pain, increase their function and enable return to sport (Grade B). It does however remain unclear as to what level of sport they will be able to return to post surgery (Grade B).

### **Implications for research**

A prospective case series design focused specifically on unilateral spondylolysis is required. Future research needs to be more specific in identifying athletes and the specific sports they participate in. More clarity is also required when describing return to sport as an outcome measure.

### **Keywords**

athletes, conservative treatment, pars interarticularis, spondylolysis, surgical treatment

## Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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