

**The effect of Pilates on patients'  
chronic low back pain.  
A pilot study.**

**Leanne Mac Intyre**

A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Physiotherapy.

## **DECLARATION**

**I, Leanne Mac Intyre, declare that this research report is my own work. It is being submitted for the degree of Master of Science in Physiotherapy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.**

.....

**DATE**

I dedicate this work to my husband Philip, to my parents, John and Lesley, to my grandmother, and also to Kevin and Sarah. Their unfailing encouragement through the entire masters programme, and faith in my ability to achieve my goals has been a strong motivation and is greatly appreciated.

## **ABSTRACT:**

The Pilates exercise method applies many of the principles of lumbar stabilisation that have been found to be effective in the treatment of chronic low back pain. Pilates has recently found its way into the physiotherapy setting, where it is being integrated into the rehabilitation of patients with low back pain. This study consisted of a randomised control trial using an intervention group that underwent a twelve-week Pilates programme, and control group that continued with standardised physiotherapy treatment as necessary. Baseline, three-week, and twelve-week scores for a Visual Analogue Scale for pain and the Roland Morris Disability Questionnaire were recorded and compared. The Pilates group showed significantly greater improvements in pain and functional disability mean scores when compared to the control group ( $p=0.059$  and  $p=0.026$  respectively). It therefore appears that Pilates can be recommended as an effective treatment modality for the reduction of pain and the improvement of functional disability for chronic low back pain sufferers.

## **ACKNOWLEDGEMENTS**

1. I should like to thank my supervisors, Prof Aimee Stewart and Lorraine Jacobs.
2. I could not have carried out this research without the permission and assistance of Joanne Enslin-de Wet.
3. Thanks to Dr Piet Becker of the Medical Research Council for providing assistance with the statistical analysis.
4. Thanks to Carine Pieters, Seung-Jee Ahn, Charlene Athinault-Thompson and Riverclub Pilates staff for their help during this project.

## TABLE OF CONTENTS

	<b>Page</b>
DECLARATION	ii
DEDICATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vi
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF APPENDICES	ix
LIST OF ABBREVIATIONS	x
CHAPTER 1            INTRODUCTION	1
CHAPTER 2            LITERATURE REVIEW	4
CHAPTER 3            METHOD	20
CHAPTER 4            RESULTS	25
CHAPTER 5            DISCUSSION	37
CHAPTER 6            CONCLUSION	45
REFERENCES	46

## LIST OF TABLES

Table		Page
1	Demographics of the study population	25
2	Baseline scores	26
3	Three-week scores	27
4	Twelve-week scores	27
5	Mean change in baseline to three-week VAS scores and the SD of the change in VAS scores	32
6	Mean change in baseline to three-week Roland Morris scores and the SD of the change in Roland Morris scores	33
7	Mean change in baseline to twelve-week VAS scores and the SD of the change in VAS scores	33
8	Mean change in baseline to twelve-week Roland Morris scores and the SD of the change in Roland Morris scores	34

## LIST OF FIGURES

<b>Figure</b>		<b>Page</b>
1	Baseline, three-week and twelve-week VAS scores for patients in Group A	28
2	Baseline, three-week and twelve-week VAS scores for patients in Group B	29
3	Baseline, three-week and twelve-week Roland Morris scores for patients in Group A	30
4	Baseline, three-week and twelve-week Roland Morris scores for patients in Group B	31
5	The number of patients in Groups A and B with a percentage change in VAS scores of <10%, 10-50% and >50%	35
6	The number of patients in Groups A and B with a percentage change in RM scores of <10%, 10-20% and >20%	36



## LIST OF APPENDICES

<b>Appendix</b>		<b>Page</b>
1	Visual Analogue Scale for Pain	52
2	Roland Morris Disability Questionnaire	53
3	Exercise chart	54
4	Patient information sheet	56
5	Consent form	58
6	Clearance certificate from the Ethics Committee	59

## **LIST OF ABBREVIATIONS**

CLBP= Chronic low back pain

LBP=Low back pain

NSAID=Non-steroidal anti-inflammatory drug

RCT=Randomised control trial

RM=Roland Morris Disability Questionnaire

SD=Standard deviation

SMT=Spinal manipulative therapy

VAS=Visual Analogue Scale