

The Effects of Curcuminoids on Musculoskeletal Pain: A Systematic Review

Thesis submitted in fulfilment of the Master of Clinical Science

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Table of Contents

List of Tables	VII
List of Figures	VII
Abstract	VIII
Declaration.....	X
Acknowledgements.....	XI
Chapter 1: Introduction	1
1.1 Overview	1
1.2 Structure of the thesis	3
1.3 Historical context- Curcuminoids and Turmeric	4
1.4 Polyphenols	5
1.4.1 Polyphenols and inflammation	6
1.4.2 Polyphenols, inflammation and pain	7
1.5 Curcuminoids- the Polyphenols in Turmeric	8
1.6 Postulated Bioactive effects of Curcuminoids	9
1.7 Bioavailability of Curcuminoids	10
1.7.1 Adjuvants	10
1.7.2 Nanoparticle preparations.....	11
1.7.3 Complexation.....	11
1.7.4 Non-Curcuminoid portion of turmeric extract.....	11
1.8 Pain and Definitions.....	12

1.9 The Effects of Curcuminoids on Inflammation	14
1.10 Outcome measures relevant to musculoskeletal pain	14
1.11 Validated measures of function.....	16
1.12 Evidence-based medicine and systematic reviews	19
1.12.1 The Principles of systematic review	20
1.12.2 Systematic Reviews assist in establishing evidence-based medicine guidelines.	22
1.13 Gap in the literature	23
Chapter 2: Systematic Review Methodology	26
2.1 Review Objective	26
2.2 Criteria for considering studies for this review	26
2.2.1 Types of intervention(s)	26
2.2.2 Types of comparator	26
2.2.3 Types of outcomes.....	26
2.2.4 Types of studies.....	27
2.3 Method of the review.....	27
2.3.1 Search strategy.....	27
2.3.2 Assessment of methodological quality	31
2.3.3 Data extraction.....	32
2.3.4 Data synthesis	32
Chapter 3: Results	33
3.1 Description of studies.....	33

3.2 Methodological quality	33
3.3 Systematic review findings.....	37
3.3.1 Curcuminoids vs placebo.....	37
3.3.2 Curcuminoids versus Placebo: Measurement of Pain Outcomes	41
3.3.3 Curcumin versus Placebo: Measurement of Function Outcomes	42
3.3.4 Curcuminoids versus Placebo: Adverse events	43
3.3.5 Curcuminoids versus a Positive/Active control.....	43
3.3.6 Curcumin versus a Positive/Active Control: Measurement of Pain Outcomes	46
3.3.7 Curcuminoids versus a Positive/Active Control: Measurement of Function Outcomes	47
3.3.8 Curcuminoids versus a Positive/Active Control: Adverse Events.....	48
3.3.9 Herbomineral combinations including curcuminoids versus placebo, mixed or singular active controls	48
3.3.9 Herbomineral combinations including curcuminoids versus placebo, mixed or singular active controls: Measurement of Pain Outcome	54
3.3.10 Herbomineral combinations including curcuminoids versus placebo, mixed or singular active controls: Measurement of Function Outcome	56
3.3.11 Herbomineral combinations including curcuminoids versus placebo, mixed or singular active controls: Adverse events.....	56
Chapter 4: Discussion and Conclusions	58
4.1 Introduction.....	58
4.1.2 Structure of the discussion.....	58

4.2 Heterogeneity of Included Studies	59
4.2.1 Characteristic Variation	59
4.2.2 Site of musculoskeletal condition and heterogeneity	59
4.2.3 Duration of intervention and heterogeneity	59
4.2.4 Dose/frequency or level of intervention	60
4.2.5 Variation of comparator or treatment	60
4.2.6 Differences in recording outcomes.....	61
4.3 Risk of bias in included studies	62
4.4 Curcumin or turmeric and use in acute pain states	63
4.5 Curcuminoid or turmeric use in chronic pain states	64
4.6 VAS/NRS and pain assessment- general	66
4.7 VAS- statistical significance versus clinical significance	66
4.8 Dose/effect and duration of effect	68
4.9 WOMAC and function assessment	70
4.10 Safety of Curcuminoids	71
4.11 Significance of the findings	72
4.12 Limitations of the review	72
4.13 Recommendations	75
4.13.1 Recommendations for practice	75
4.13.2 Recommendations for primary research	76
4.13.3 Future secondary research	79

4.14 Conclusion	80
References	82
Appendix I: Critical Appraisal Instrument	101
Appendix II: Data Extraction Instrument.....	102
Appendix III: Excluded studies	104
Appendix IV: Characteristics of included studies	106

List of Tables

Table 1: Assessment of methodological quality of included studies	36
Table 2: Curcuminoids vs Placebo-controlled studies.....	39
Table 3: Curcumin Vs Active control studies.....	44
Table 4 Curcuminoid/complex mixture vs placebo or active control.....	50

List of Figures

Figure 1: Prisma Flow Diagram	35
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Abstract

Musculoskeletal pain creates a serious burden on quality of life across the globe. Its management represents a significant economic cost and monopolizes the time and attention of practitioners involved in medicine and complementary health. Substantial numbers of people use nutraceuticals and traditional remedies to assist in musculoskeletal pain management and improvement of function. Curcuminoids are one group of nutraceuticals which are gaining in popularity and being used for treating musculoskeletal pain. Curcuminoids are extracted from turmeric, which itself is a traditional botanical remedy. The aim of this thesis was to assess the effects of the use of curcuminoids on musculoskeletal pain through a systematic review of the available evidence.

A database search was conducted for studies that assessed the effects of use of curcuminoids by themselves or in combination with other materials on musculoskeletal pain of clinical or experimental origin. It included CINAHL, Embase Cochrane Central, Pubmed, Scopus, Psychinfo and Clinicaltrials.gov. Alternate, traditional medicine and complementary medicine databases including NCCAM and NICM were searched for additional studies.

Locations for the search for unpublished studies included: Mednar, Proquest theses and dissertations, Grey Source, Index to Theses, and Trove (Theses).

The reference lists of all identified reports and articles were searched for additional studies. Studies in English language with human subjects using any form of control including placebo, treatment as usual and before and after measurements were considered for inclusion in the review.

No time limit was imposed on studies for inclusion in the systematic review.

Methodological quality of included studies was assessed using the Joanna Briggs Institute (JBI) critical appraisal checklist, and research data was extracted using the JBI Meta-Analysis of Statistics Assessment and Review Instrument (MAStARI) data extraction instruments.

Thirteen randomized controlled trials including 1101 participants were included in this review. The overall quality of included studies was variable. Treatment duration ranged from 10 days to 32 weeks in the studies and included different dosages and presentations of curcuminoids and differing comparators. A high level of heterogeneity between studies and characteristics precluded meta-analysis of findings; therefore, a narrative analysis was presented.

The major finding from the review was that there is currently insufficient evidence to support the effectiveness of the use of curcuminoids in musculoskeletal pain states. Interpretation of this finding needs to be considered in the context of significant limitations imposed by the variable quality of relevant studies, small sample sizes and the small number of relevant studies available for examination. The systematic review found that in the studies examined, the frequency or severity of adverse events relating to the use of curcuminoids was not significantly different from placebo or other study comparators. The findings from the systematic review support the claims of safety in the literature. The absence of long-term follow-up across all studies means that comment on the long-term effect of and safety of the use of curcuminoids in musculoskeletal pain requires further clarifying research.

Declaration

I, Andrew Gaffey, certify that this work contains no material that has been accepted for the award of any other tertiary institution, and, to the best of my knowledge and belief, contains no material previously published or written by any other 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 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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Andrew Benedict Gaffey

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