Mattress type for improving outcomes for chronic low-back pain: a systematic review

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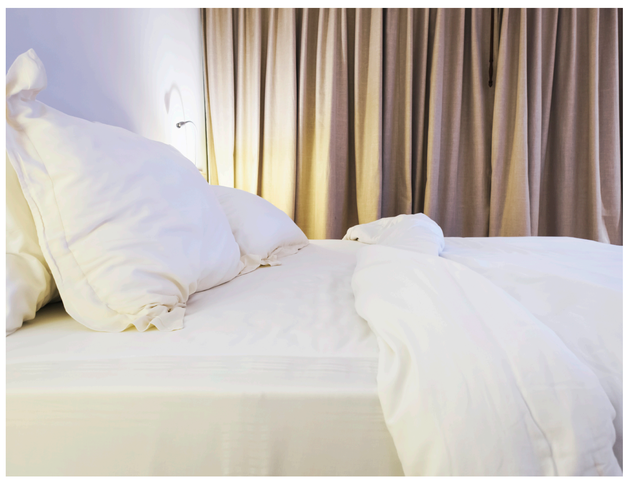
Introduction

People believe that certain mattress types have a positive effect on back pain, and especially a hard mattress is commonly believed to have a positive therapeutic effect.

The term "orthopaedic mattress" was introduced after a survey of Orthopaedic Surgeons in the 1970's [1]. It has no medical meaning or defined standard, but to those with back pain it is often perceived to have potential medical benefit [2].



Evidence supporting the use of a firm mattress is lacking. Mattress companies advertise and market their products claiming health benefits with little more than anecdotal evidence in the form of customer quotes [3 4].

Three million mattresses and beds are sold in the UK every year. Up to 30% of the sales are people trying to help alleviate their back pain, 35% of those sold do not meet the expectation of the purchaser [2]. In 2009 the total sales of mattresses in the US was estimated to be $5.8 billion [5].

Aims

To systematically review the evidence to determine the effectiveness of mattresses in the treatment of chronic low-back pain.

Methods

Electronic databases were searched completed to find eligible studies including Central, MEDLINE, EMBASE, PsycINFO, CINAHL, AMED, PEDro, conference proceedings, trial registers and reference lists up to November 2011. Studies were included that evaluated mattress(s) when used as an intervention for adults with chronic low-back pain. No restrictions were applied to the study type.

Two reviewers independently assessed studies for inclusion and risk of bias, clinical relevance and extracted data. Primary outcomes were selected a priori based on clinical relevance and the Cochrane Back Review Group guidelines [6].

Systematic review registration CRD42011001344 PROSPERO

Results

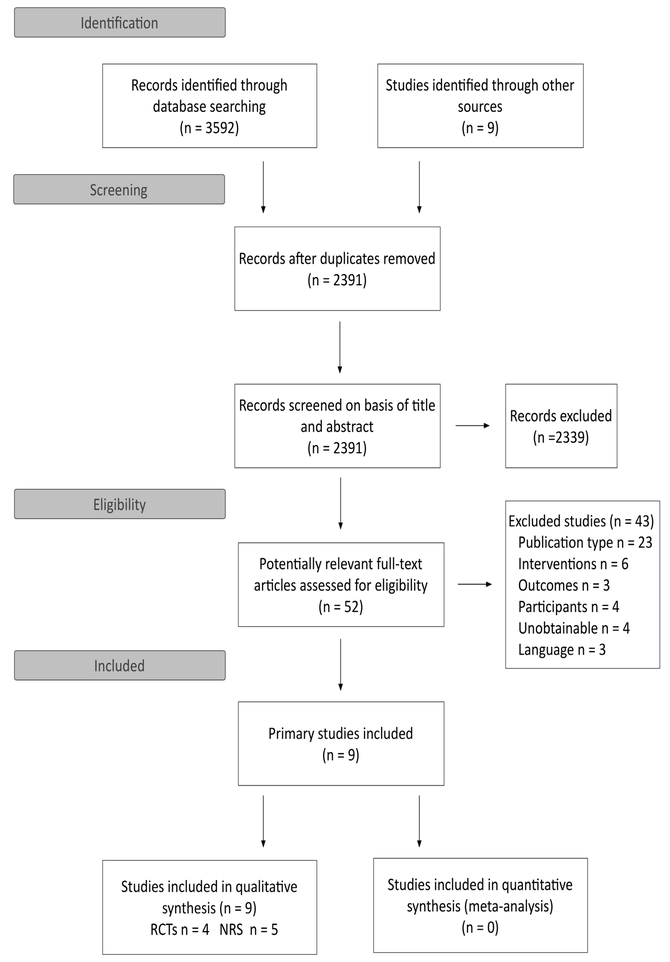
Nine published studies were found which reported interventions aimed at reducing low-back pain by using different mattresses totalling 674 people in all included studies. Of which four studies were randomised controlled trials (RCTs) with 512 participants, five were non-randomised studies (NRS) with 162 participants.

Eight studies were at high risk of bias and due to poor reporting of many of the studies it was not possible to make a clear judgement of risk.

One randomised controlled trial (RCT) suggests chronic low-back pain related disability might be reduced when using a medium-firm mattress when compared to a firm mattress but overall the study failed to reach statistical significance.

As a result of factors related to study design, variation in interventions and within-study biases meta-analysis was not possible, thus reducing confidence in the magnitude of effects and ability to draw robust conclusions.

Meta-analysis was not completed due to differences in the trial designs, in particular heterogeneity of the mattress type. A narrative synthesis was used to summarise and describe the results.



Adapted from: Moher et al, 2009 [7]
Flow diagram for study selection

Conclusions

This is the first systematic review investigating the effect of mattresses on chronic low-back pain.

There is no high quality evidence currently available to the support advice to use a particular type of mattress for the treatment of chronic low-back pain.

One RCT at low risk of bias suggests chronic low-back pain related disability might be reduced when using a medium-firm mattress when compared to a firm mattress.

Based upon the current body of evidence, we are still truly unable to advise patients on what is the best mattress for them to purchase or indeed if mattresses have any real effect in managing chronic low-back pain.

Further information

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References

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