Medium-firm mattresses reduced pain-related disability more than firm mattresses in chronic, nonspecific low-back pain

Kovacs FM, Abraira V, Peña A, et al. **Effect of firmness of mattress on chronic non-specific low-back pain: randomised, double-blind, controlled, multicentre trial.** Lancet. 2003;362:1599-604.

QUESTION

What is the effect of different firmnesses of mattresses on the clinical course of chronic, nonspecific, low-back pain and disability?

DESIGN

Randomized (allocation concealed)*, blinded {patients, clinicians, data collectors, outcome assessors, data analysts, and monitoring committee}†,* controlled trial with follow-up at 90 days.

SETTING

Spain.

PATIENTS

313 adults who were ≥ 18 years of age (73% women), had ≥ 3 months of chronic low-back pain, and had pain while lying in bed or on rising. Exclusion criteria were referred pain; habitual prostration; possible systemic disease, inflammatory disease, or cancer; diagnosis or suspicion of fibromyalgia; pregnancy; habitually sleeping in a different bed ≥ 2 nights/wk; use of antiinflammatory medication with a 24-hour effect; or use of hypnotic analgesic, antiinflammatory, or relaxant medication from 1700 hours to the time at which pain on rising was assessed. 310 patients (99%) completed follow-up.

INTERVENTION

155 patients were allocated to medium-firm mattresses (European Committee for Standardization scale firmness rating 5.6 [1.0 = firmest and 10.0 = softest], and 158 patients were allocated to firm mattresses (firmness rating 2.3).

MAIN OUTCOME MEASURES

Self-reported pain intensity while lying in bed and on rising (visual analogue scale) and degree of disability (Roland Morris questionnaire).

MAIN RESULTS

Analysis was by intention to treat. Patients who used medium-firm mattresses were more likely to have improvements in pain-related disability than were patients who used firm mattresses (Table). The groups did not differ for improvement in pain while lying in bed or improvement in pain on rising (Table).

CONCLUSION

In patients with chronic, nonspecific low-back pain, medium-firm mattresses reduced pain-related disability more than firm mattresses, but did not affect pain while lying in bed or on rising.

Sources of funding: Kovacs Foundation. Mattresses were provided by FLEX.

For correspondence: Dr. F.M. Kovacs, Kovacs Foundation, Palma de Mallorca, Spain. E-mail kovacs@kovacs.org.

*See Glossary.

†Information provided by author.

Medium-firm mattress vs firm mattress for chronic, nonspecific low-back pain‡

Outcomes at 90 d	Medium-firm mattress	Firm mattress	RBI (95% CI)	NNT (CI)
Improvement in pain while lying in bed	83%	78%	6.1% (–6 to 15)	Not significant
Improvement in pain on rising	86%	80%	6.8% (–4 to 20)	Not significant
Improvement in pain-related disability	82%	68%	20% (7 to 30)	8 (5 to 23)

‡Abbreviations defined in Glossary; RBI, NNT, and CI calculated from control event rates and unadjusted odds ratios in article. Improvement = a positive change in pain intensity between baseline and 90 days.

COMMENTARY

Don't recommend a firm mattress for someone with chronic low-back pain. And, despite the findings of Kovacs and colleagues, don't recommend a medium-firm mattress, either. The ideal mattress, if such exists, is still unknown. Advice to sleep on a firm mattress to palliate persistent regional backache exits the ranks of the unproven and joins the ever-growing ranks of the disproved. Hundreds of other methods have suffered this fate. Based on the evidence, little more than over-the-counter analgesics (1) and advice to stay active (2) should be offered.

The firmer mattress has now lost its competitive edge, thanks to the findings of the trial by Kovacs and colleagues. The between-group differences are persuasive but must be interpreted cautiously because most study patients correctly perceived the firmness of their new mattress, meaning that blinding was unsuccessful. More impressive is that > 70% of patients had improvement in back pain regardless of the type of new mattress they received. This trial of a treatment method was itself a treatment. The nonspecific (Hawthorne and placebo) effects dwarfed the small between-group differences.

How is it that simply participating in the "trial" could be palliative? Clearly, participation overcame whatever thwarted recovery from many months of back pain. The context of the trial must have engendered a sufficient sense of wellness in patients such that they could downplay, ignore, or even forget their pain. The pain is in their backs, but the suffering is in their minds. There are less expensive means of coping than buying a new medium-firm mattress (3).

Nortin M. Hadler, MD
University of North Carolina at Chapel Hill and UNC Hospitals
Chapel Hill, North Carolina, USA

Arthur T. Evans, MD, MPH
Cook County Hospital and Rush Medical College
Chicago, Illinois, USA

References

1. **van Tulder MW, Scholten RJ, Koes BW, Deyo RA.** Nonsteroidal anti-inflammatory drugs for low back pain: a systematic review within the framework of the Cochrane Collaboration Back Review Group. Spine. 2000;25:2501-13.
2. **Hagen KB, Hilde G, Jamtvedt G, Winnem MF.** The Cochrane review of advice to stay active as a single treatment for low back pain and sciatica. Spine. 2002;27:1736-41.
3. **Hadler NM.** The Last Well Person. Montreal: McGill-Queens University Press; 2004.