ACP 2017 Back Pain Guidelines
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With comments from yours truly. Also see <Pain.TXT>

I explain that pain medicines and muscle relaxants don't make you get better quicker, they just temporarily control the pain. And, the only thing that will make them get better quicker is vigorous stretching, military Drill Instructor or Personal Trainer type stretches. Meds may help cover up the pain enough to allow better stretching. Also, warming up first helps with the stretching. I recommend 10 minutes of cardio/aerobic exercise first, better than heating pad is it warms up the deep muscles as well as the superficial ones. Simply going out on a walk for 10 minutes will work.


Benefits and Comparative Benefits of Pharmacologic Therapies Acute or Subacute Low Back Pain

þ Acetaminophen
Low-quality evidence showed no difference between acetaminophen and placebo for pain intensity or function through 4 weeks or between acetaminophen and NSAIDs for pain intensity or likelihood of experiencing global improvement at 3 weeks or earlier.(13,14)

Background Regular paracetamol is the recommended first-line analgesic for acute low-back pain; however, no high-quality evidence supports this recommendation. We aimed to assess the efficacy of paracetamol taken regularly or as-needed to improve time to recovery from pain, compared with placebo, in patients with low back pain. Methods We did a multicentre, double-dummy, randomised, placebo controlled trial across 235 primary care centres in Sydney, Australia, from November 11, 2009, to March 5, 2013. We randomly allocated patients with acute low-back pain in a 1:1:1 ratio to receive up to 4 weeks of regular doses of paracetamol (three times per day; equivalent to 3990 mg paracetamol per day), as-needed doses of paracetamol (taken when needed for pain relief; maximum 4000 mg paracetamol per day), or placebo. Randomisation was done according to a centralised randomisation schedule prepared by a researcher who was not involved in patient recruitment or data collection. Patients and staff at all sites were masked to treatment allocation. All participants received best-evidence advice and were followed up for 3 months. The primary outcome was time until recovery from low-back pain, with recovery defined as a pain score of 0 or 1 (on a 0–10 pain scale) sustained for 7 consecutive days. All data were analysed by
intention to treat. This study is registered with the Australian and New Zeland Clinical Trial Registry, number ACTN 12609000966291. Findings 550 participants were assigned to the regular group (550 analysed), 549 were assigned to the as needed group (546 analysed), and 553 were assigned to the placebo group (547 analysed). Median time to recovery was 17 days (95% CI 14–19) in the regular group, 17 days (15–20) in the as-needed group, and 16 days (14–20) in the placebo group (regular vs placebo hazard ratio 0·99, 95% CI 0·87–1·14; as-need vs placebo 1·05, 0·92–1·19; regular vs as-needed 1·05, 0·92–1·20). We recorded no difference between treatment groups for time to recovery (adjusted p=0·79). Adherence to regular tablets (median tablets consumed per participant per day maximum 6; 4·0 [IQR 1·6–5·7] in the regular group, 3·9 [1·5–5·6] in the as-needed group, and 4·0 [1·5–5·7] in the placebo group), and number of participants reporting adverse events (99 [18·5%] in the regular group, 99 [18·7%] in the as-needed group, and 98 [18·5%] in the placebo group) were similar between groups. Interpretation Our findings suggest that regular or as needed dosing with paracetamol does not affect recovery time compared with placebo in low-back pain, and question the universal endorsement of paracetamol in this patient group. Funding National Health and Medical Research Council of Australia and GlaxoSmithKline Australia.


BACKGROUND: Non-steroidal anti-inflammatory drugs (NSAIDs) are the most frequently prescribed medications worldwide and are widely used for patients with low-back pain. Selective COX-2 inhibitors are currently available and use for patients with low-back pain. OBJECTIVES: The objective was to assess the effects of NSAIDs and COX-2 inhibitors in the treatment of non-specific low-back pain and to assess which type of NSAID is most effective. SEARCH STRATEGY: We searched the MEDLINE and EMBASE databases and the Cochrane Central Register of Controlled Trials up to and including June 2007 if reported in English, Dutch, German. We also screened references given in relevant reviews and identified trials. SELECTION CRITERIA: Randomised trials and double-blind controlled trials of NSAIDs in non-specific low-back pain with or without sciatica were included. DATA COLLECTION AND ANALYSIS: Two review authors independently extracted data and assessed methodological quality. All studies were also assessed on clinical relevance, from which no further interpretations or conclusions were drawn. If data were considered clinically homogeneous, a meta-analysis was performed. If data were lacking for clinically homogeneous trials, a qualitative analysis was performed using a rating system with four levels of evidence (strong, moderate limited, no evidence). MAIN RESULTS: In total, 65 trials (total number of patients = 11,237) were included in this review. Twenty-eight trials (42%) were considered high quality. Statistically significant effects were found in favour of NSAIDs compared to placebo, but at the cost of statistically significant more side effects. There is moderate evidence that NSAIDs are not more effective than paracetamol for acute low-back pain, but paracetamol had fewer side effects. There is moderate evidence that NSAIDs are not more effective than other drugs for acute low-back pain. There is strong evidence that various types of NSAIDs including COX-2 NSAIDs, are equally effective for acute low-back pain. COX-2 NSAIDs had statistically significantly fewer side-effects than traditional NSAIDs. AUTHORS' CONCLUSIONS: The evidence from the 65 trials included in this
review suggests that NSAIDs are effective for short-term symptomatic relief in patients with acute and chronic low-back pain without sciatica. However, effect sizes are small. Furthermore, there does not seem to be a specific type of NSAID which is clearly more effective than others. The selective COX-2 inhibitors showed fewer side effects compared to traditional NSAIDs in the RCTs included in this review. However, recent studies have shown that COX-2 inhibitors are associated with increased cardiovascular risks in specific patient populations.

p NSAIDs

Moderate-quality evidence showed that NSAIDs were associated with a small improvement in pain intensity compared with placebo (14, 15), although several randomized, controlled trials (RCTs) showed no difference in likelihood of achieving pain relief with NSAIDs compared with placebo (16–18). Low-quality evidence showed a small increase in function with NSAIDs compared with placebo (19). Moderate-quality evidence showed that most head-to-head trials of one NSAID versus another showed no differences in pain relief in patients with acute low back pain (14). Low-quality evidence showed no differences in pain between cyclooxygenase (COX)-2-selective NSAIDs versus traditional NSAIDs (14).


AIM: The efficacy and safety of oral lornoxicam (LNX) as early treatment of acute sciatica/lumbo-sciatica was compared with placebo and diclofenac in a 5-day double-blind, randomised study. METHODS: Male or female patients (n = 171) aged 18–70 years with acute sciatica or lumbo-sciatica [acute sciatica defined as typical radiation of pain along the sciatic nerve (including radiating pain below the knee) and worsening of pain as defined by Lasegue’s leg-raising test (< 60 degrees) within 72 h and previous attack ceased > 3 months previously; lumbo-sciatica defined as symptoms of sciatica with concurrent lumbar pain and predefined minimum pain score]. The dosage of study treatment was 8–24 mg/day LNX, 100–150 mg/day diclofenac or placebo. The primary end-point was the difference in pain intensity difference from baseline to 6 h (PID(0-6 h)) after the first dose of study treatment. Secondary end-points were pain relief, the cumulative sums of pain intensity difference and total pain relief on day 1 and on days 2–4. RESULTS: In total, 164 patients completed the study. Significant differences in PID between LNX and placebo were seen in the time interval 3–8 after the first dose including PID(0-6 h) (p = 0.015). Secondary end-points favoured LNX vs. placebo, but in general were not significantly different. LNX and diclofenac had similar analgesic effect. Incidence and severity of adverse events were comparable for the three treatments; overall tolerability was rated as very good/good by 93% of the patients. CONCLUSION: These data indicate that the analgesic efficacy of LNX is superior to placebo and similar to diclofenac in acute sciatica/lumbo-sciatica.


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associated with increased cardiovascular risks in specific patient populations

17: [Goldie, I. (1968). "A clinical trial with indomethacin (indomee(R)) in lo

on pain in patients with acute lumbago-sciatica." J Oslo City Hosp 30(5): 65-
68.]

diclofenac-K 12.5 mg tablets: a flexible dose, ibuprofen 200 mg and placebo-
controlled clinical trial." Int J Clin Pharmacol Ther 41(9): 375-385.]

OBJECTIVE: To assess efficacy and safety of diclofenac-K 12.5 mg tablets in th

Page: 4
tablets every 4-6 hours as needed (maximum 6 tablets/day) for 7 days. The primary efficacy outcome for the initial dose was TOTPAR-3, the summed total pain relief over the first 3 hours. Secondary initial dose outcomes included TOTPAR-6, summed pain intensity differences SPID-3 and SPID-6, time to rescue medication or remedicate, and the End of First Dose global efficacy assessment. The primary efficacy outcome for the flexible multiple dosing regimen was the End of Study global efficacy assessment. Secondary outcomes for multiple dosing included time to rescue medication over the entire study, the End of Day global efficacy assessments (daily over Days 1-7), pain intensity differences on the VAS measured at Visit 2 and 3, and change in Eifel algofunctional index. Safety/tolerability was assessed by recording adverse events. RESULTS: Diclofenac-K 12.5 mg demonstrated superiority vs placebo on the primary efficacy parameter and almost all secondary initial dose outcomes. With respect to the initial dose, diclofenac-K 12.5 mg was also significantly superior to ibuprofen 200 mg on SPID-3. Ibuprofen 200 mg was superior to placebo only on the End of First Dose global efficacy assessment. The flexible multiple dosing regimens of diclofenac-K and ibuprofen were both significantly superior to placebo on the End of Study global efficacy assessment, time to rescue medication over the entire study period, the End of Day global efficacy assessment on Days 1-2, pain intensity difference on the VAS at Visit 3 and the Eifel algofunctional index. Visit 3 (also at Visit 2 in diclofenac-K 12.5 mg group). Both active treatment were as well tolerated as placebo. CONCLUSIONS: The flexible multiple dosing regimen of diclofenac-K 12.5 mg (initial dose of 2 tablets followed by 1-2 tablets every 4-6 hours, max. 75 mg/day) is an effective and safe treatment of acute low back pain.

[KC comment: using just 200 mg ibuprofen? Come on, that's just an unfair comparison. Ibuprofen's probably just as good.]

**Skeletal Muscle Relaxants (SMRs)**

Moderate-quality evidence showed that SMRs improved short-term pain relief compared with placebo after 2 to 4 and 5 to 7 days (20, 21). Low-quality evidence showed no differences between different SMRs for any outcomes in patients with acute pain (20). Low-quality evidence showed inconsistent finding for the effect on pain intensity with a combination of SMRs plus NSAIDs compared with NSAIDs alone (20, 22, 23).


BACKGROUND: The use of muscle relaxants in the management of non-specific low back pain is controversial. It is not clear if they are effective, and concern have been raised about the potential adverse effects involved. OBJECTIVES: The aim of this review was to determine if muscle relaxants are effective in the treatment of non-specific low back pain. SEARCH STRATEGY: A computer-assisted search of the Cochrane Library (Issue 3, 2002), MEDLINE (1966 up to October 2002) and EMBASE (1988 up to October 2002) was carried out. These databases we searched using the algorithm recommended by the Cochrane Back Review Group. References cited in the identified articles and other relevant literature were screened. SELECTION CRITERIA: Randomised and/or double-blinded controlled...
trials, involving patients diagnosed with non-specific low back pain, treated with muscle relaxants as monotherapy or in combination with other therapeutic modalities, were included for review. DATA COLLECTION AND ANALYSIS: Two authors independently carried out the methodological quality assessment and data extraction of the trials. The analysis comprised not only a quantitative analysis (statistical pooling) but also a qualitative analysis ("best evidence synthesis"). This involved the appraisal of the strength of evidence for various conclusions using a rating system based on the quality and outcomes of the studies included. Evidence was classified as "strong", "moderate", "limited", "conflicting" or "no" evidence. MAIN RESULTS: Thirty trials met the inclusion criteria. Twenty-three trials (77%) were of high quality, 24 trials (80%) were on acute low back pain. Four trials studied benzodiazepines, 11 non-benzodiazepines and two antispasticity muscle relaxants in comparison with placebo. Results showed that there is strong evidence that any of these muscle relaxants are more effective than placebo for patients with acute LBP on short term pain relief. The pooled RR for non-benzodiazepines versus placebo after 4 days was 0.80 [95% CI; 0.71 to 0.89] for pain relief and 0.49 [95% CI; 0.25 to 0.95] for global efficacy. Adverse events, however, with a relative risk of 1.50 [95% CI; 1.14 to 1.98] were significantly more prevalent in patients receiving muscle relaxants and especially the central nervous system adverse effects (RR 2.04; 95% CI; 1.23 to 3.37). The various muscle relaxants were found to be similar in performance. AUTHORS' CONCLUSIONS: Muscle relaxants are effective in the management of non-specific low back pain, but the adverse effects require that they be used with caution. Trials are needed that evaluate if muscle relaxants are more effective than analgesics or non-steroidal anti-inflammatory drugs. MUSCLE RELAXANTS FOR NON-SPECIFIC LOW-BACK PAIN: Muscle relaxants are effective for short-term symptomatic relief in patients with acute and chronic low back pain. However, the incidence of drowsiness, dizziness and other side effects is high. Muscle relaxants must be used with caution and it must be left to the discretion of the physician to weigh the pros and cons and to determine whether or not a specific patient is a suitable candidate for a course of muscle relaxants. Large high quality trials are needed that directly compare muscle relaxants to analgesics or NSAIDs and future studies should focus on reducing the incidence and severity of side effects.

PURPOSE: The objective of this placebo-controlled trial was to determine the efficacy and safety of carisoprodol (Soma, MedPointe Pharmaceuticals, Somerset NJ, USA), a centrally acting skeletal muscle relaxant used to treat acute, painful musculoskeletal conditions, at a dosage of 250 mg three times daily at bedtime in patients with acute, painful muscle spasm of the lower back.
METHODS: This was a 7-day, multicenter, randomized, double-blind, placebo-controlled, parallel-group study. Qualified patients were randomly assigned to treatment with carisoprodol 250-mg tablets (n = 277) or matching placebo (n = 285). The coprimary efficacy endpoints were patient-rated global impression of change and patient-rated relief from starting backache scored on a 5-point rating scale. The primary analysis was on study Day 3. Four secondary endpoint were also assessed: (1) the Roland-Morris Disability Questionnaire (RMDQ), (2)
time to symptom improvement, (3) patient-rated medication helpfulness, and (4) physician assessment of range of motion. RESULTS: Carisoprodol was significant more effective than placebo for patient-rated global impression of change (2.2 vs. 1.70; p < 0.0001) and patient-rated relief from starting backache (1.83 vs 1.12; p < 0.0001). Patients experienced clinical improvement with or without sedation. Onset of moderate or marked improvement was 3 days with carisoprodol compared to 6 days with placebo (p < 0.0001). No patient discontinued treatment with carisoprodol because of drowsiness, and there were no serious adverse events or clinically significant effects on laboratory values or vital signs. CONCLUSIONS: In this study, patients with acute muscle spasm of the lower back had significantly greater and more rapid relief from starting backache, and had improved functional status, as measured by the RMDQ, during treatment with carisoprodol 250-mg tablets compared to placebo. Patients experienced clinical improvement with or without sedation.

22: [Pareek, A., et al. (2009). "Aceclofenac-tizanidine in the treatment of acute low back pain: a double-blind, double-dummy, randomized, multicentric, comparative study against aceclofenac alone." Eur Spine J 18(12): 1836-1842.] Tizanidine and aceclofenac individually have shown efficacy in the treatment of low back pain. The efficacy and tolerability of the combination have not yet been established. The objective of the study was to evaluate the efficacy and safety of aceclofenac-tizanidine fixed dose combination against aceclofenac alone in patients with acute low back pain. This double-blind, double-dummy, randomized, comparative, multicentric, parallel group study enrolled 197 patients of either sex in the age range of 18-70 years with acute low back pain. The patients were randomized to receive either aceclofenac (100 mg)-tizanidine (2 mg) b.i.d or aceclofenac (100 mg) alone b.i.d for 7 days. The primary efficacy outcomes were pain intensity (on movement, at rest and at night; on V scale) and pain relief (on a 5-point verbal rating scale). The secondary efficacy outcomes measures included functional impairment (modified Schober's test and lateral body bending test) and patient's and investigator's global efficacy assessment. aceclofenac-tizanidine was significantly superior to aceclofenac for pain intensity (on movement, at rest and at night; P < 0.05) and pain relief (P = 0.00) on days 3 and 7. There was significant increase in spinal flexion in both the groups from baseline on days 3 and 7 with significant difference in favour of the combination group (P < 0.05). There were significantly more number of patients with excellent to good response for the aceclofenac-tizanidine treatment as compared to aceclofenac alone (P = 0.00). Both the treatments were well tolerated. In this study, aceclofenac-tizanidine combination was more effective than aceclofenac alone and had a favourable safety profile in the treatment of acute low back pain.

23: [Friedman, B. W., et al. (2015). "Naproxen With Cyclobenzaprine, Oxycodone/Acetaminophen, or Placebo for Treating Acute Low Back Pain: A Randomized Clinical Trial." Jama 314(15): 1572-1580.] IMPORTANCE: Low back pain (LBP) is responsible for more than 2.5 million visit to US emergency departments (EDs) annually. These patients are usually treated with nonsteroidal anti-inflammatory drugs, acetaminophen, opioids, or skeletal muscle relaxants, often in combination. OBJECTIVE: To compare functional outcomes and pain at 1 week and 3 months after an ED visit for acute LBP among
patients randomized to a 10-day course of (1) naproxen + placebo; (2) naproxen
cyclobenzaprine; or (3) naproxen + oxycodone/acetaminophen. DESIGN, SETTING, A
PARTICIPANTS: This randomized, double-blind, 3-group study was conducted at an
urban ED in the Bronx, New York City. Patients who presented with nontraumatic
nonradicular LBP of 2 weeks' duration or less were eligible for enrollment upo
ED discharge if they had a score greater than 5 on the Roland-Morris Disability
Questionnaire (RMDQ). The RMDQ is a 24-item questionnaire commonly used to
measure LBP and related functional impairment on which 0 indicates no function
impairment and 24 indicates maximum impairment. Beginning in April 2012, a tot
of 2588 patients were approached for enrollment. Of the 323 deemed eligible fo
participation, 107 were randomized to receive placebo and 108 each to
cyclobenzaprine and to oxycodone/acetaminophen. Follow-up was completed in
December 2014. INTERVENTIONS: All participants were given 20 tablets of
naproxen, 500 mg, to be taken twice a day. They were randomized to receive
either 60 tablets of placebo; cyclobenzaprine, 5 mg; or oxycodone, 5
mg/acetaminophen, 325 mg. Participants were instructed to take 1 or 2 of these
tablets every 8 hours, as needed for LBP. They also received a standardized 10
minute LBP educational session prior to discharge. MAIN OUTCOMES AND MEASURES:
The primary outcome was improvement in RMDQ between ED discharge and 1 week
later. RESULTS: Demographic characteristics were comparable among the 3 groups
At baseline, median RMDQ score in the placebo group was 20 (interquartile rang
[IQR],17-21), in the cyclobenzaprine group 19 (IQR,17-21), and in the
oxycodone/acetaminophen group 20 (IQR,17-22). At 1-week follow-up, the mean RM
improvement was 9.8 in the placebo group, 10.1 in the cyclobenzaprine group, a
11.1 in the oxycodone/acetaminophen group. Between-group difference in mean RM
improvement for cyclobenzaprine vs placebo was 0.3 (98.3% CI, -2.6 to 3.2; P =
.77), for oxycodone/acetaminophen vs placebo, 1.3 (98.3% CI, -1.5 to 4.1; P =
.28), and for oxycodone/acetaminophen vs cyclobenzaprine, 0.9 (98.3% CI, -2.1
3.9; P = .45). CONCLUSIONS AND RELEVANCE: Among patients with acute,
nontraumatic, nonradicular LBP presenting to the ED, adding cyclobenzaprine or
oxycodone/acetaminophen to naproxen alone did not improve functional outcomes
pain at 1-week follow-up. These findings do not support use of these additiona
medications in this setting. TRIAL REGISTRATION: clinicaltrials.gov Identifier
NCT01587274.

b Systemic Corticosteroids
Low-quality evidence showed no difference in pain or function between a single
intramuscular injection of methylprednisolone or a 5-day course of prednisolon
compared with placebo in patients with acute low back pain (24, 25).

Department patients with non-radicular low back pain." J Emerg Med 31(4): 365-
370.]
Although not recommended for low back pain, the efficacy of systemic
corticosteroids has never been evaluated in a general low back pain population.
To test the efficacy of systemic corticosteroids for Emergency Department (ED)
patients with low back pain, a randomized, double-blind, placebo-controlled
trial of long-acting methylprednisolone was conducted with follow-up assessmen
1 month after ED discharge. Patients with non-traumatic low back pain were
included if their straight leg raise test was negative. The primary outcome wa
a comparison of the change in a numerical rating scale (NRS) 1 month after discharge. Of 87 subjects randomized, 86 were successfully followed to the 1-month endpoint. The change in NRS between discharge and 1 month differed between the two groups by 0.6 (95% confidence interval -1.0 to 2.2), a clinically and statistically insignificant difference. Disability, medication use, and healthcare resources utilized were comparable in both groups. Corticosteroids seem not to benefit patients with acute non-radicular low back pain.


BACKGROUND: Although oral corticosteroids are commonly given to emergency department (ED) patients with musculoskeletal low back pain (LBP), there is little evidence of benefit. OBJECTIVE: To determine if a short course of oral corticosteroids benefits LBP ED patients. METHODS: DESIGN: Randomized, double-blind, placebo-controlled trial. SETTING: Suburban New Jersey ED with 80,000 annual visits. PARTICIPANTS: 18-55-year-olds with moderately severe musculoskeletal LBP from a bending or twisting injury <= 2 days prior to presentation. Exclusion criteria were suspected nonmusculoskeletal etiology, direct trauma, motor deficits, and local occupational medicine program visits. PROTOCOL: At ED discharge, patients were randomized to either 50 mg prednisone daily for 5 days or identical-appearing placebo. Patients were contacted after days to assess pain on a 0-3 scale (none, mild, moderate, severe) as well as functional status. RESULTS: The prednisone and placebo groups had similar demographics and initial and discharge ED pain scales. Of the 79 patients enrolled, 12 (15%) were lost to follow-up, leaving 32 and 35 patients in the prednisone and placebo arms, respectively. At follow-up, the two arms had similar pain on the 0-3 scale (absolute difference 0.2, 95% confidence interval [CI] -0.2, 0.6) and no statistically significant differences in resuming normal activities, returning to work, or days lost from work. More patients in the prednisone than in the placebo group sought additional medical treatment (40% vs. 18%, respectively, difference 22%, 95% CI 0, 43%). CONCLUSION: We detected no benefit from oral corticosteroids in our ED patients with musculoskeletal LBP.

Other Therapies
Evidence was insufficient to determine effectiveness of antidepressants, benzodiazepines (26, 27), antiseizure medications, or opioids versus placebo in patients with acute or subacute low back pain.


INTRODUCTION Patients with acute and chronic low backache form a substantial proportion of those referred to the Department of Physical Medicine and Rheumatology at the Newcastle General Hospital, and in the past a number of muscle relaxants have been tried in the treatment of these conditions with doubtful benefit. A new muscle relaxant, diazepam (Valium), which is a derivative of the benzodiazepine series and an analogue of chlordiazepoxide (Librium), has recently become available, and it was decided to test the efficacy of this drug in cases of acute backache by means of a double-blind controlled trial. This was felt necessary because recent reports of trials wit
this drug have mainly presented clinical impressions rather than the results of a controlled study.

SUMMARY This paper reports the results of a double-blind controlled trial of diazepam (Valium) in a group of 50 in-patients with severe low backache under standard conditions of rest in bed. It would appear that in this condition diazepam is not superior to a placebo. It must be pointed out that a recommended, but arbitrary, dosage of diazepam was used in this trial and that this may have influenced results.


Comparative Benefits of Nonpharmacologic Therapies, Acute or Subacute Low Back Pain

Exercise

Low-quality evidence showed no difference between exercise therapy and usual care for pain or function in patients with acute or subacute pain (11); additional trials reported inconsistent results (73-75). Moderate-quality evidence showed no clear differences between different exercise regimens in more than 20 head-to-head RCTs in patients with acute low back pain.


BACKGROUND: Many nonpharmacologic therapies are available for treatment of low back pain. PURPOSE: To assess benefits and harms of acupuncture, back schools, psychological therapies, exercise therapy, functional restoration, interdisciplinary therapy, massage, physical therapies (interferential therapy, low-level laser therapy, lumbar supports, shortwave diathermy, superficial heat application, transcutaneous electrical nerve stimulation, and ultrasonography), spinal manipulation, and yoga for acute or chronic low back pain (with or without leg pain). DATA SOURCES: English-language studies were identified through searches of MEDLINE (through November 2006) and the Cochrane Database Systematic Reviews (2006, Issue 4). These searches were supplemented by hand searching of reference lists and additional citations suggested by experts. STUDY SELECTION: Systematic reviews and randomized trials of 1 or more of the preceding therapies for acute or chronic low back pain (with or without leg pain) that reported pain outcomes, back-specific function, general health status, work disability, or patient satisfaction. DATA EXTRACTION: We abstract information about study design, population characteristics, interventions, outcomes, and adverse events. To grade methodological quality, we used the OXMs criteria for systematic reviews and the Cochrane Back Review Group criteria for individual trials. DATA SYNTHESIS: We found good evidence that cognitive-behavioral therapy, exercise, spinal manipulation, and interdisciplinary rehabilitation are all moderately effective for chronic or subacute (>4 weeks' duration) low back pain. Benefits over placebo, sham therapy, or no treatment averaged 10 to 20 points on a 100-point visual analogue pain scale, 2 to 4 points on the Roland-Morris Disability Questionnaire, or a standardized mean
difference of 0.5 to 0.8. We found fair evidence that acupuncture, massage, yo (Viniyoga), and functional restoration are also effective for chronic low back pain. For acute low back pain (<4 weeks' duration), the only nonpharmacologic therapies with evidence of efficacy are superficial heat (good evidence for moderate benefits) and spinal manipulation (fair evidence for small to moderate benefits). Although serious harms seemed to be rare, data on harms were poorly reported. No trials addressed optimal sequencing of therapies, and methods for tailoring therapy to individual patients are still in early stages of development. Evidence is insufficient to evaluate the efficacy of therapies for sciatica. LIMITATIONS: Our primary source of data was systematic reviews. We included non-English-language trials only if they were included in English-language systematic reviews. CONCLUSIONS: Therapies with good evidence of moderate efficacy for chronic or subacute low back pain are cognitive-behavior therapy, exercise, spinal manipulation, and interdisciplinary rehabilitation. For acute low back pain, the only therapy with good evidence of efficacy is superficial heat.

AIMS: To investigate if a standardised physical exercise programme given in addition to a brief intervention at a spine clinic had an effect on return to work. METHODS: A total of 246 patients sick-listed 8-12 weeks for non-specific low back pain were offered a brief intervention programme at the spine clinic with examination, information, reassurance, and encouragement to engage in physical activity as normal as possible, before they were randomised into an intervention group (n = 124) and a control group (n = 122). Patients in the intervention group participated in a physical exercise programme at the spine clinic. RESULTS: During the 2-year follow-up, there were no significant differences between the groups on sick leave, pain, use of analgesics, psychological distress, coping strategies, fear-avoidance beliefs, self-report disability, or walking distances. However, both groups increased return to work reported less pain and better function, and reduced fear-avoidance beliefs for physical activity during the follow-up period. Fear-avoidance beliefs for work were not changed. CONCLUSIONS: A physical exercise programme for low back pain patients given after a brief intervention at a spine clinic did not have any additional effect on sick leave or fear-avoidance beliefs. Both groups reported less pain, better physical function, and increased return to work during follow-up. The treatment at the spine clinic did not contain a vocational rehabilitation programme directed towards individual work-related problems, which might explain no change in fear-avoidance beliefs for work.

[KC Comment: Are all exercise programmes created equal? I don't think so (say with appropriate singsong tone of voice and emphasis on the "think"). So I ignore the findings of this study and prescribe specific non-wimpy personal-trainer type hardcore stretching to my patients, ones that have helped me (almost instant relief with each set of 20 reps of 3 exercises). I demonstrate to them to make sure they understand. No evidence, but many, many anecdotes, including my personal experience.]

addition to first-line care for acute low back pain: a randomized controlled trial." BMC Med 8: 10.]

BACKGROUND: Low back pain is a highly prevalent and disabling condition worldwide. Clinical guidelines for the management of patients with acute low back pain recommend first-line treatment consisting of advice, reassurance and simple analgesics. Exercise is also commonly prescribed to these patients. The primary aim of this study was to evaluate the short-term effect of adding the McKenzie method to the first-line care of patients with acute low back pain.

METHODS: A multi-centre randomized controlled trial with a 3-month follow-up was conducted between September 2005 and June 2008. Patients seeking care for acute non-specific low back pain from primary care medical practices were screened. Eligible participants were assigned to receive a treatment programme based on the McKenzie method and first-line care (advice, reassurance and time-contingent acetaminophen) or first-line care alone, for 3 weeks. Primary outcome measures included pain (0-10 Numeric Rating Scale) over the first seven days, pain at 1 week, pain at 3 weeks and global perceived effect (-5 to 5 scale) at 3 weeks. Treatment effects were estimated using linear mixed models.

RESULTS: One hundred and forty-eight participants were randomized into study groups, of whom 138 (93%) completed the last follow-up. The addition of the McKenzie method to first-line care produced statistically significant but small reductions in pain when compared to first-line care alone: mean of -0.4 points (95% confidence interval, -0.8 to -0.1) at 1 week, -0.7 points (95% confidence interval, -1.2 to -0.1) at 3 weeks, and -0.3 points (95% confidence interval, -0.5 to -0.0) over the first 7 days. Patients receiving the McKenzie method did not show addition effects on global perceived effect, disability, function or on the risk of persistent symptoms. These patients sought less additional health care than those receiving only first-line care (P = 0.002).

CONCLUSIONS: When added to the currently recommended first-line care of acute low back pain, a treatment programme based on the McKenzie method does not produce appreciable additional short-term improvements in pain, disability, function or global perceived effect. However, the McKenzie method seems to reduce health utilization although it does not reduce patient's risk of developing persistent symptoms. TRIAL REGISTRATION: Australian New Zealand Clinical Trials Registry: ACTRN12605000032651.

[KC note: ditto. I prescribe non-personalized stretching exercises: 20 reps each of twists, side stretches, and toe touches, 3-4x/day. For each of these, I advise and show traction on the head to get that extra little bit of stretch. One size fits all, whether neck spasm, upper or lower back spasm. Even a single set of stretches usually makes people feel significantly better.]

75: [Pengel, L. H., et al. (2007). "Physiotherapist-Directed Exercise, Advice, or Both for Subacute Low Back PainA Randomized Trial." Ann Intern Med 146(11): 787-796.] Back pain is 1 of the most frequent reasons for consultation with a general practitioner (1, 2). Most treatment guidelines provide advice for patients on managing acute or recent-onset low back pain but not chronic pain (3). This reflects the view that acute low back pain is typically self-limited and that only a small proportion of persons develop chronic pain. However, a recent systematic review of the prognosis of acute low back pain (4) showed that this view is inaccurate: Pain and disability are typically ongoing, and recurrences
are common. Thus, effective treatments for patients whose pain and disability persist beyond the acute phase are needed. We are interested in the subacute phase, which is the transition period from acute (duration <6 weeks) to chronic (duration >3 months) low back pain. All treatment guidelines (3) endorse advice as a treatment for subacute low back pain, and advice is the most frequently administered treatment in general practice (1). Exercise is the most common treatment for low back pain (2, 5, 6), and some guidelines recommend it for subacute low back pain (3). However, a systematic review of treatment for subacute low back pain (7) concluded that no high-quality evidence exists for the efficacy of any intervention. To address this knowledge gap, we conducted factorial randomized, placebo-controlled trial of the effect of exercise, advice, or both on pain, function, and global perceived effect.

Editors' Notes

Context
Exercise and advice are common treatments for patients with subacute low back pain, but their effectiveness is unclear.

Contribution
In this trial, 259 adults with subacute low back pain received 12 real or sham physiotherapist-directed exercise sessions and 3 real or sham advice sessions over 6 weeks. Compared with sham exercise and sham advice, patients who received real exercise and real advice had the most benefit at 6 weeks. However, only a small benefit on patient-reported function persisted at 12 months.

Implication
Compared with no exercise or advice, a combination of physiotherapist-directed exercise and advice seems to improve pain and function in the short term for patients with subacute low back pain.

—The Editors

[KC notes: This makes more sense. But I tell my patient that many physical therapists prescribe wimpy old-lady exercises like lying on your back and pulling up your knees. Pshaw. I tell my patients to stretch until it hurts, and then 10% past this: no pain, no gain. I explain that for the twists, it should send a neuropathic shiver of pain up and down your entire back and neck; if you get this, you know you're doing it right.]

Acupuncture
Low-quality evidence showed that acupuncture resulted in a small decrease in pain intensity compared with sham acupuncture with nonpenetrating needles, but there were no clear effects on function (76-78). Low-quality evidence showed that acupuncture slightly increased the likelihood of overall improvement compared with NSAIDs (76, 79-83).


OBJECTIVES: Although acupuncture has been frequently used for acute nonspecific low back pain (LBP), relevant systematic reviews indicate sparse and inconclusive evidence. This systematic review aimed at critically evaluating the evidence for/against acupuncture for acute LBP. METHODS: We searched Medline, Central, Embase, 2 Chinese databases, relevant journals, and trial registries for the randomized-controlled trials of acupuncture that involved needling for
acute/subacute LBP. Risk of bias was assessed using the assessment tool from the Cochrane Back Review Group and the adequacy of acupuncture intervention was evaluated by 2 independent reviewers. The studies according to the control type were combined using a random-effects model. RESULTS: A total of 11 randomized-controlled trials (n=1139) were included. Compared with nonsteroidal anti-inflammatory drugs, acupuncture may more effectively improve symptoms of acute LBP (5 studies; risk ratio, 1.11; 95% confidence interval: 1.06, 1.16). For pain, there exists inconsistent evidence that acupuncture is more effective than medication. Compared with sham acupuncture, acupuncture may more effectively relieve pain (2 studies; mean difference, -9.38; 95% confidence interval: -17.00, -1.76) but not function/disability. Acupuncture appears to be associated with few side effects but the evidence is limited. DISCUSSION: The current evidence is encouraging in that acupuncture may be more effective than medication for symptom improvement or relieve pain better than sham acupuncture in acute LBP. The present findings should be confirmed by future studies that overcome the methodological limitations of the studies evaluated in our review. ["Extraordinary claims require extraordinary proof." cf the works of Scottish philosopher David Hume (1711-1776).]


OBJECTIVE: To assess the efficacy of Yamamoto's acupuncture method on pain, drug intake, functional capacity and quality of life for the treatment of acute non-specific low back pain (ANLBP). METHODS: A prospective, randomised, parallel-group, double-blind, placebo-controlled trial was performed in 80 men and women with ANLBP who were randomly assigned to five acupuncture sessions (intervention group (IG), n=40) and to five non-penetrating acupuncture sessions (sham group (SG), n=40). Patients were evaluated at baseline and at 3, 7, 14, 21 and 28 days. The measurements used were: visual analogue scale (VAS) for cumulative pain (before intervention, VAS1) and immediate pain (after intervention, VAS2); function (Roland-Morris Disability Questionnaire (RM)); quality of life (SF-36 improvement rating; and number of anti-inflammatory tablets taken. The primary endpoint was a decrease of at least 2 cm in VAS1. RESULTS: Pain VAS improved significantly in the IG from day 14 onwards compared with the SG, but the difference did not reach the prespecified clinically relevant value of 2 cm. The IG was significantly superior to the SG in the following outcomes: cumulative pain, function, pain (SF-36) and vitality (SF-36) at days 14, 21 and 28 (p<0.05); limitation in physical aspects (SF-36) at all times (p=0.007 and p=0.02); and functional capacity (SF-36) at days 21 and 28 (p<0.05). The IG also took significantly fewer anti-inflammatory tablets than the SG (p=0.004) at all evaluation times and the improvement rating was better than the SG (p<0.001). CONCLUSIONS: Yamamoto's new scalp acupuncture was more effective than sham treatment with regard to decrease in pain and anti-inflammatory intake as well as improving functional status and quality of life for patients with ANLBP. CLINICALTRIALSGOV: NCT 01124955. [Interesting, but not extraordinary proof.]

Reviews of the efficacy of acupuncture as a treatment for acute low back pain have concluded that there is insufficient evidence for its efficacy and that more research is needed to evaluate it. A multicentre randomized controlled trial was conducted at 4 primary-care centres in Spain to evaluate the effects of acupuncture in patients with acute nonspecific low back pain in the context of primary care. A total of 275 patients with nonspecific acute low back pain (diagnosed by their general practitioner) were recruited and assigned randomly to 4 different groups: conventional treatment either alone or complemented by sessions over a 2-week period of true acupuncture, sham acupuncture, or placebo acupuncture per patient. Patients were treated from February 2006 to January 2008. The primary outcome was the reduction in Roland Morris Disability Questionnaire scores of 35% or more after 2 weeks' treatment. The patients in 3 types of acupuncture groups were blinded to the treatments, but those who received conventional treatment alone were not. In the analysis adjusted for total sample (true acupuncture relative risk 5.04, 95% confidence interval 2.21-11.32; sham acupuncture relative risk 5.02, 95% confidence interval 2.26-11.16 placebo acupuncture relative risk 2.57 95% confidence interval 1.21-5.46), as well as for the subsample of occupationally active patients, all 3 modalities of acupuncture were better than conventional treatment alone, but there was no difference among the 3 acupuncture modalities, which implies that true acupuncture is not better than sham or placebo acupuncture.


[KC notes: Not sure if this is proof or not, but it's certainly not extraordinary proof.]


[KC notes: references 79-83 are in Chinese. This may be terribly parochial of me, but until there is extraordinarily high quality evidence that acupuncture helps, in English so I can assess the quality of the studies, I am not going to recommend acupuncture to any of my patients.]
Massage

Low-quality evidence showed that massage moderately improved short-term (1 week) pain and function compared with sham therapy for subacute low back pain (84), although 1 trial (85) showed no difference in pain or function at 5 weeks. Moderate-quality evidence showed that massage improved short-term pain relief and function compared with other interventions (manipulation, exercise therapy, relaxation therapy, acupuncture, or physiotherapy) for patients with subacute chronic low back pain, but effects were small (84, 86). Low-quality evidence showed that a combination of massage plus another intervention (exercise, exercise and education, or usual care) was superior to the other intervention alone for short-term pain in patients with subacute to chronic low back pain (84).


BACKGROUND: Low-back pain is one of the most common and costly musculoskeletal problems in modern society. Proponents of massage therapy claim it can minimize pain and disability, and speed return to normal function. OBJECTIVES: To assess the effects of massage therapy for non-specific low-back pain. SEARCH STRATEGY We searched MEDLINE, EMBASE, CINAHL from their beginning to May 2008. We also searched the Cochrane Central Register of Controlled Trials (The Cochrane Library 2006, issue 3), HealthSTAR and Dissertation abstracts up to 2006. There were no language restrictions. References in the included studies and in review of the literature were screened. SELECTION CRITERIA: The studies had to be randomized or quasi-randomized trials investigating the use of any type of massage (using the hands or a mechanical device) as a treatment for non-specific low-back pain. DATA COLLECTION AND ANALYSIS: Two review authors selected the studies, assessed the risk of bias using the criteria recommended by the Cochrane Back Review Group, and extracted the data using standardized forms. Both qualitative and meta-analyses were performed. MAIN RESULTS: Thirteen randomized trials were included. Eight had a high risk and five had a low risk of bias. One study was published in German and the rest in English. Massage was compared to an inert therapy (sham treatment) in two studies that showed that massage was superior for pain and function on both short and long-term follow-ups. In eight studies, massage was compared to other active treatments. They showed that massage was similar to exercises, and massage was superior to joint mobilization, relaxation therapy, physical therapy, acupuncture and self-care education. One study showed that reflexology on the feet had no effect on pain and functioning. The beneficial effects of massage in patients with chronic low back pain lasted at least one year after the end of the treatment. Two studies compared two different techniques of massage. One concluded that acupuncture massage produces better results than classic (Swedish) massage and another concluded that Thai massage produces similar results to classic (Swedish) massage. AUTHORS' CONCLUSIONS: Massage might be beneficial for patients with subacute and chronic non-specific low-back pain, especially when combined with exercises and education. The evidence suggests that acupuncture massage is more effective than classic massage, but this needs confirmation. More studies are needed to confirm these conclusions, to assess the impact of massage on return
to-work, and to determine cost-effectiveness of massage as an intervention for
low-back pain.

[KC notes: I buy that massage helps, but insurance won't pay for it.]

roptrotherapy in patients with subacute non-specific low back pain." Journal o
Back and Musculoskeletal Rehabilitation 19(4): 111-117.]

designed massage instrument for deep cross-friction massage in chronic non-

OBJECTIVE: To introduce a newly designed massage instrument, the Hand Grip T-b
(HT-bar) and use it to relieve chronic non-specific low back pain (nLBP) throu
deep cross-friction massage (roptrotherapy). METHOD: 22 subjects (9 males and
females, aged 51.6+-6.7) with chronic nLBP were allocated randomly to a
Roptrotherapy group (n=12) and a Transcutaneous Electrical Nerve Stimulation
(TENS) group (n=10). The Roptrotherapy group received deep cross-friction
massage with the HT-bar, which was made of metal and had a cylinder for
increasing weight and grooves for an easy grip. It was applied across the midd
and lower back for 20 minutes a day, 3 days a week for 2 weeks. The TENS group
received TENS for 20 minutes a day, 5 days a week for 2 weeks. The outcome was
measured on the pain numeric rating scale (PNRS), by the Oswestry disability
index (ODI), and by the Roland & Morris Disability Questionnaire (RMDQ) at pre
treatment, at immediate post-treatment and 2 weeks later. The application of t
HT-bar was assessed by a questionnaire to 19 therapists. RESULTS: At post-
treatment, immediately and 2 weeks later, both groups showed significant
improvement in PNRS, ODI and RMDQ. During the two weeks after post-treatment,
however, the Roptrotherapy group improved in PNRS, ODI and RMDQ, but the TENS
group did not. Over 80% of the therapists responded that the HT-bar was useful
and comfortable. CONCLUSION: This study suggests that deep cross-friction
massage can be a beneficial therapeutic technique and that the HT-bar can be a
useful instrument in deep cross-friction massage for chronic nLBP patients.

Spinal Manipulation

Low-quality evidence showed that spinal manipulation was associated with a sma
effect on function compared with sham manipulation; evidence was insufficient
determine the effect on pain (87, 88). Low-quality evidence showed no differen
in pain relief at 1 week between spinal manipulation and inert treatment
(educational booklet, detuned ultrasound, detuned or actual short-wave
diathermy, antiedema gel, or bed rest), although 1 trial showed better longer-
term pain relief (3 months) with spinal manipulation (89). Function did not
differ between spinal manipulation and inert treatment at 1 week or 3 months
(89). Moderate-quality evidence showed no difference between spinal manipulati
and other active interventions for pain relief at 1 week through 1 year or
function (analyses included exercise, physical therapy, or back school as the
comparator) (89, 90). Low-quality evidence showed that a combination of spinal
manipulation plus exercise or advice slightly improved function at 1 week
compared with exercise or advice alone, but these differences were not present at 1 or 3 months (89).

Superficial Heat

Moderate-quality evidence showed that a heat wrap moderately improved pain relief (at 5 days) and disability (at 4 days) compared with placebo (91). Low-quality evidence showed that a combination of heat plus exercise provided greater pain relief and improved RDQ scores at 7 days compared with exercise alone in patients with acute pain (92). Low-quality evidence showed that a heat wrap provided more effective pain relief and improved RDQ scores compared with acetaminophen or ibuprofen after 1 to 2 days (93). Low-quality evidence showed no clear differences between a heat wrap and exercise in pain relief or function (92).

[I tell people that, before they stretch, they should warm up. I tell them to do something cardio-aerobic first, not high-level, and that simply going out for a walk for 10 minutes will do. I explain that this helps loosen up muscles that local heat can't reach, such as the psoas muscles on the front of the back.]

Low-Level Laser Therapy

Low-quality evidence showed that a combination of low-level laser therapy (LLL) and NSAIDs largely decreased pain intensity and resulted in a moderate improvement in function (as measured by the ODI) compared with sham laser therapy plus NSAIDs in patients with acute or subacute pain (94).


OBJECTIVE: The objective of the study was to investigate clinical effects of low-level laser therapy (LLLT) in patients with acute neck pain with radiculopathy. DESIGN: Double-blind, randomized, placebo-controlled study. SETTING: The study was carried out between January 2005 and September 2007 at the Clinic for Rehabilitation at the Medical School, University of Belgrade, Serbia. PATIENTS AND INTERVENTION: Sixty subjects received a course of 15 treatments over 3 weeks with active or an inactivated laser as a placebo procedure. LLLT was applied to the skin projection at the anatomical site of the spinal segment involved with the following parameters: wavelength 905 nm, frequency 5,000 Hz, power density of 12 mW/cm², and dose of 2 J/cm², treatment time 120 seconds, at whole doses 12 J/cm². OUTCOME MEASURES: The primary outcome measure was pain intensity as measured by a visual analog scale. Secondary outcome measures were neck movement, neck disability index, and quality of life. Measurements were taken before treatment and at the end of the 3-week treatment period. RESULTS: Statistically significant differences between groups were found for intensity of arm pain (P = 0.003, with high effect size d = 0.92) and for neck extension (P = 0.003 with high effect size d = 0.94). CONCLUSION: LLLT gave more effective short-term relief of arm pain and increased range of neck extension in patients with acute neck pain with radiculopathy in comparison to the placebo procedure.
Lumbar Supports

Low-quality evidence showed no difference in pain or function between lumbar supports added to an educational program compared with an educational program alone or other active interventions in patients with acute or subacute low back pain (95).


STUDY DESIGN: Randomized clinical trial. OBJECTIVES: To evaluate the effectiveness of a back support plus education versus education alone in promoting recovery from a work-related low back disorder (WR-LBD) while simultaneously considering personal, health, and occupational factors and the impact of occupational factors on recovery. SUMMARY OF BACKGROUND DATA: No randomized studies of active industrial workers with low back disorders exist regarding the effectiveness of back supports plus education. METHODS: A total of 433 actively employed hourly union workers who had a recent diagnosis of a WR-LBD: 1) those who wore a specially designed back support plus received education on back health; and 2) those who received education on back health only. Demographic, health, medical, and occupational factors were obtained through interview or abstraction of computer files; individual ergonomic exposures were measured with a lumbar motion monitor. Outcomes evaluated over a 12-month period included: self-reported measures of back pain, back pain disability level, physical health, mental health, and administrative measures of recurrence, lost work time, and medical care utilization. RESULTS: There was no difference between the study groups with respect to mental or physical health, low back pain, back pain disability, neurogenic symptoms, lost work time, likelihood of recurrence of an episode of a back disorder, or other administrative measures of healthcare utilization or lost work time. However, significant decreases in low back pain, low back pain disability, neurogenic symptoms, and an increase in physical health were observed over the 12 months of observation in both study groups. The only occupational variable found to influence was plant group whereby service parts operations workers in the back support plus education group experienced a lower likelihood of WR-LBD recurrence. CONCLUSION: Although there was no overall effect on self-reported recovery or administrative measures of lost work time between the study groups, a back support plus health education may have some value in preventing recurrent WR-LBD in industrial workers who work in psychosocial environments and perform manual material handling tasks similar to those found in parts distribution centers.

Other Therapies

Evidence was insufficient to determine the effectiveness of transcutaneous electrical nerve stimulation (TENS), electrical muscle stimulation, inferential therapy, short-wave diathermy, traction, superficial cold, motor control exercise (MCE), Pilates, tai chi, yoga, psychological therapies, multidisciplinary rehabilitation, ultrasound, and taping.