

EVIDENCE 証

Hospital Authority Head Office
Medical Services Development Division

Clinical Effectiveness Unit
Issue 12, 2001

▪ Evidence Based Reviews on Back Pain and Neck Pain

1. *The Swedish Council on Technology Assessment in Health Care (SBU) Report*

The SBU's first report on back pain was published in 1991. The current report complements the earlier one by systematically reviewing the scientific studies published during the 1990s - with an almost 10-folds increase in randomised and/or controlled studies. The project group consisted of 13 people and had taken almost 4 years to produce the report which covers 800 pages and 2000 references. Approximately 80% of the studies referenced in the current report were published after the first report was completed.

Among the many treatment options suggested, SBU reviewed evidence for and against them and graded the strength of evidence as:

- i) Strong evidence - findings concur in several RCTs of high quality
- ii) Moderate evidence - findings concur in one RCT of high quality and one or more RCTs of low quality, or findings concur in several studies of low quality
- iii) Limited evidence - based on one RCT (of high or low quality) or contradictory findings in several studies
- iv) No evidence - no RCT or other types of studies of satisfactory scientific quality

Evidence for treatment of low back pain

	Acute	Chronic
Rest/bed rest	Strong evidence against	
Traction	Limited evidence	Strong evidence against
Antidepressants	No evidence	Moderate evidence against
Biofeedback	No evidence	Moderate evidence against
Epidural steroid injections - No nerve root pain	No evidence	Moderate evidence against
Cold	No evidence	No evidence
Heat	No evidence	No evidence
Injections in triggerpoints	No evidence	No evidence
Injections in ligaments	No evidence	No evidence
Injections in facet joints	No evidence	No evidence
Massage	No evidence	No evidence
Shortwave diathermy	No evidence	No evidence
Ultrasound	No evidence	No evidence
Acupuncture	No evidence	Limited evidence
Corsets	No evidence	Limited evidence
Back exercises	No evidence	Strong evidence for
Health resorts	No evidence	Strong evidence for
Multidisciplinary treatments	No evidence	Strong evidence for
All forms of surgery - except for herniated disc	No evidence	No evidence
Back school	Limited evidence	Limited evidence
TENS	Limited evidence	Limited evidence
Epidural steroid injections - nerve root pain	Limited evidence	Limited evidence
Colchicine	Limited evidence	
Cortisone	Limited evidence	
Behavioural therapy	Limited evidence	Strong evidence for
Manual therapy	Moderate evidence for	Strong evidence for
Paracetamol	Moderate evidence for	
Muscle relaxants, anti-inflammatory drugs (NSAIDs)	Strong evidence for	
Continued activity	Strong evidence for	
Surgery for herniated disc		Strong evidence for

Usual definition: pain \leq 6 weeks = acute; and pain \geq 12 weeks = chronic

Evidence for treatment of neck pain

	Acute	Chronic
Surgery for - herniated disc - fusion, other	Moderate evidence against No evidence	No evidence No evidence
Acupuncture	No evidence	Strong evidence against
Traction	Limited evidence against	Moderate evidence against
Neck support	Limited evidence against	Limited evidence against
Steroids injections	No evidence	Limited evidence
Infra-red light	Limited evidence	No evidence
Electromagnetic therapy	Limited evidence	No evidence
TENS	Limited evidence	No evidence
Cold spray and stretching	Limited evidence	No evidence
Patient education	Limited evidence	No evidence
Manual therapy-alone	Limited evidence	No evidence
Drugs, muscle relaxants	Limited evidence	Limited evidence
Laser therapy	Limited evidence	Limited evidence
Manual therapy-program	Moderate evidence for	
Physical exercise	Moderate evidence for	Moderate evidence

In summary

- i) Pain in the back or neck is common and seldom a sign of serious illness. Research seldom explains why they occur or how long they will last. Although it is not always possible to cure them, treatment methods are available which can effectively relieve pain in most people. It is important to know which methods can help and which methods have been shown by scientific studies to have no effect.
- ii) Data currently available do not reveal any specific, individual risk factors for back pain. The only exception would be sciatica resulting from herniated discs, a disorder that appears more frequently in people aged 40 to 45 years. Heavy physical labour, poor working environment and repetitive, monotonous work of fixed posture are linked to back and neck pain.
- iii) Research has contributed little to assess preventive interventions against back pain.
- iv) Strong scientific evidence shows that bed-rest is not effective in acute low back pain. Patients should stay active, return to work and exercise at an appropriate and increasing intensity.

[Source: SBU. *Back Pain, neck pain: an evidence based review*. Stockholm: Swedish Council on Technology Assessment in Health Care, 2000.; Report from the Swedish Council on Technology Assessment in Health Care. *Back pain. Intl J of Technol Assess Health Care* 2000;16(3):929-43.]

2. The Cochrane Back Group made conclusions nearly identical with SBU

Conservative treatments for acute low back pain		Conservative treatments for chronic low back pain	
Evidence for effectiveness	Advice to stay active NSAIDs Muscle relaxants Analgesics	Evidence for effectiveness	Back schools Behavioural treatments Exercise therapy Multidisciplinary programmes NSAIDs
Unclear effectiveness (no, limited or contradictory evidence for effectiveness)	Acupuncture Back schools Behavioural treatment Colchicine Electro myographic biofeedback Epidural steroid injections Facet joint injections Ligament injections Lumbar supports Multidisciplinary programmes Physical treatments Spinal manipulation Traction Transcutaneous electrical nerve stimulation (TENS) 'Trigger point' injections	Unclear effectiveness (no, limited or contradictory evidence for effectiveness)	Advice to stay active Analgesics Antidepressants Bedrest Colchicine Epidural steroid injections Ligament injections Lumbar supports Muscle relaxants Physical treatments Spinal manipulation Transcutaneous electrical nerve stimulation (TENS) 'Trigger point' injections
Evidence for ineffectiveness	Bedrest Exercise therapy	Evidence for ineffectiveness	Acupuncture Electro myographic biofeedback Facet joint injections Traction

Adopted from the 2000 Nov issue of "Effective Health care" - a thematic update on low back pain, which was based largely on systematic reviews undertaken by the Cochrane Back Group.

[Source: NHS Centre for Review and Dissemination. *Acute and chronic low back pain. Effective Health Care* 2000 Nov;6(5).]

▪ **Active lifestyle interventions on weight reduction is beneficial in preventing and managing hypertension in obese normotensive and hypertensive people**

1. Weight loss reduces blood pressure in normotensive obese persons and lessens their risk of developing hypertension.

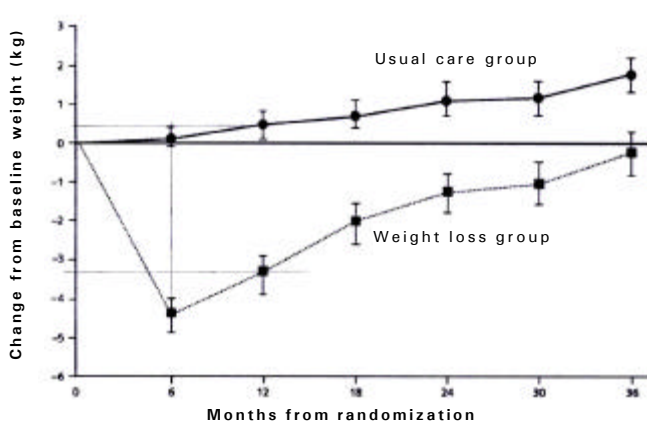
The TOHP-I study: 95 men and women aged between 30 to 54 years and had diastolic BP of 80 to 89 mmHg and systolic BP <160 mmHg were randomised to lifestyle modification interventions aimed at weight loss or usual care (control) for 18-months. During active intervention, body weight decreased by 2.4kg in the weight loss group and increased by 1.1kg in the control group ($p < 0.001$). At 7 years, body weight changes became similar but the incidence of hypertension was 18.9% in the weight loss group vs 40.5% in controls. By logistic regression analysis, the odds of hypertension was reduced by 77% (OR 0.23; 95%CI 0.07 to 0.76; $p = 0.02$) in the weight loss group compared with the controls.

[Source: He J, Whelton PK, Appel LJ, Charleston J, Klag MJ. Long-term effects of weight loss and dietary sodium reduction on incidence of hypertension. *Hypertension* 2000 Feb;35(2):544-9.]

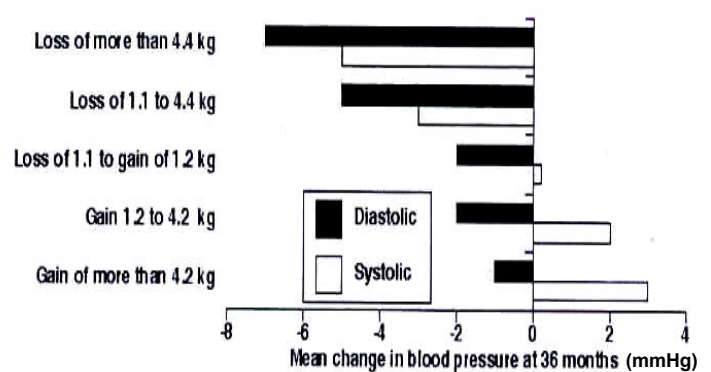
TOHP-II study: 1,191 participants (65.7% male, age 30 to 54) who had non-medicated diastolic BP of 83 to 89 mmHg and systolic BP <140 mmHg and were 110% to 165% of their ideal body weight at baseline were randomised to weight loss or usual care.

- i) Mean weight change differed significantly ($p = 0.001$) between the intervention and control groups at 6, 12, 18, 24, 30 and 36 months during study.
- ii) Blood pressure was significantly lower in the intervention group than in the control group at 6, 18 and 36 months.
- iii) The weight loss group had lower risk ratio for hypertension: 0.58 (95%CI 0.36 - 0.94) at 6 months, 0.78 (95%CI 0.62 - 1.00) at 18 months, 0.81 (95%CI 0.70 - 0.95) at 36 months.
- iv) Subgroup analyses showed that BP was highly related to the extent and duration of weight loss (figure 2). Those succeeded in sustaining weight loss of at least 4.5kg at 6 to 36 months had greatest reduction in blood pressure and had a relative risk for hypertension of 0.35 (95%CI 0.20 - 0.59).

[Source: Stevens VJ, Obarzanek E, Cook NR, Lee IM, Appel LJ, Smith West D et al for the Trials of Hypertension Prevention Research Group. Long-term weight loss and changes in blood pressure [colon] results of the Trials of Hypertension Prevention, Phase II. *Ann Intern Med* 2001 Jan 2;134(1):1-11.]



Mean change in weight over 36 months. Error bars represent 95% CIs.

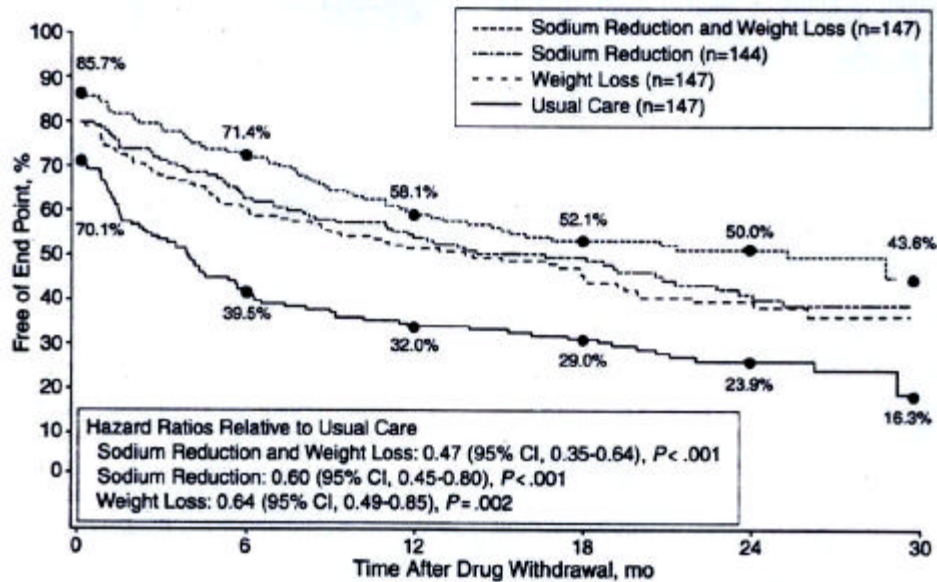


Adopted from: *Hypertension and weight loss. Bandolier[Online]. 2001 Feb;84-4. Available from: URL: <http://www.jr2.ox.ac.uk/Bandolier/band84/b84-4.html>*

2. Weight loss or sodium restriction reduces blood pressure and antihypertensive medication requirements in overweight hypertensive patients.

The TONE study: 585 obese men and women aged 60 to 80 years with BP <145/85 mmHg on a single antihypertensive medication or a single combination of a diuretics plus a nondiuretic agent were randomised to receiving lifestyle change counselling on (i) usual care (n = 147), (ii) sodium restriction (n = 144), (iii) weight loss (n = 147), or (iv) both sodium restriction and weight loss (n = 147). Advice on

diet and exercise was given weekly for the initial 4 months, then biweekly for another 4 months, then monthly thereafter. Interventions achieved reduction in body weight and urinary sodium excretion (see original paper for details). After 3 months of intervention, attempts were made to withdraw antihypertensive medication if BP could be maintained at <150/90 mmHg for over 6 weeks. This was successful in 87% of the control group and 93% in each of the intervention groups. Participants were monitored quarterly for 15 to 36 months (median 29 months) for the following end points: high BP, treatment with anti-hypertensive medication or cardiovascular events. The percentage of trial participants remaining free of trial end points declined progressively during follow-up but remained consistently higher in those assigned interventions.



[Source: Whelton PK, Appel LJ, Espeland MA, Applegate WB, Ettinger WH, Kostis JB et al. Sodium reduction and weight loss in the treatment of hypertension in older persons: a randomised controlled trial of nonpharmacologic interventions in the elderly (TONE). JAMA 1998 March 18; 279(11):839-46.]

The HOT study: A group of older, obese patients (BMI $\geq 27\text{kg/m}^2$) with stage II and III hypertension was randomised to received dietary advice for weight loss or control. Weight changes became significantly different between the two groups at 6 months but then gradually converged at approximately 21 months. From 6 months onwards, patients in the weight loss group required significantly fewer number of medication steps (HOT protocol) than the control group. The difference was maintained at 12, 18, 24 and 30 months.

[Source: Jones DW, Miller ME, Wofford MR, Anderson DC, Cameron ME, Willoughby DL et al. The effect of weight loss intervention on antihypertensive medication requirements in the hypertension optimal treatment (HOT) study. Am J Hypertens 1999;12(12 Pt 1-2):1175-80.]

“ 實EVIDENCE 証” Issue No. 11: Screening for Breast Cancer

Following the publication of Issue No.11, we received additional comments from Dr Miranda Chan and Dr HS Lam, both were members of the Review Panel for Issue No.11. Subsequently, they both wished to withdraw their names, which will, thus, not appear in all the future electronic and hard copies of “ 實EVIDENCE 証” Issue No. 11.

Editor, “ 實EVIDENCE 証”

Additional information and comments relative to this publication are welcome, and should be addressed to Dr SP Lim at splim@ha.org.hk. Reprint of this publication for research or further study is granted without prior permission from the Hospital Authority.