Authors' objectives
To determine the incidence of adverse events associated with acupuncture.

Searching
MEDLINE, EMBASE, the Cochrane Library and CISCOM were searched from their inception to July 1999. The search terms used were 'acupuncture', 'electroacupuncture', 'acupressure', 'moxibustion', 'adverse effects', 'side effects' and 'complications'. The authors also contacted (by letter) ten leading professional acupuncture organisations for further material. In addition, the authors searched their own files and examined the bibliographies of all articles for further reports. Articles published in any language were considered.

Study selection
Study designs of evaluations included in the review
Prospective surveys. The duration of the included studies, where reported, ranged from one month to ten years.

Specific interventions included in the review
Acupuncture or related techniques. The actual interventions examined in the included studies were needle acupuncture, electroacupuncture, cupping, moxibustion, laser acupuncture, indwelling needles, Japanese needle acupuncture with or without electric stimulation, and press needles.

Participants included in the review
The authors do not specify any participant inclusion or exclusion criteria. The participants in the included studies were primary care, clinical trial, and specialised acupuncture clinic patients.

Outcomes assessed in the review
Adverse events. The actual outcomes assessed in the included studies were pain, tiredness, bleeding, feeling of faintness, nausea, other minor adverse effects, and potentially serious adverse effects.

How were decisions on the relevance of primary studies made?
The studies were selected for inclusion by agreement of the two authors.

Assessment of study quality
The authors do not report a formal method for assessing validity. However, it was reported that the data were extracted and the validity of the data was assessed according to the following predefined criteria: sample studied (period), type(s) of acupuncture, the definition of adverse event and the method of evaluation, and the most commonly reported events (percentage of consultations unless stated). Both authors read all the articles and assessed the validity of the data independently.

Data extraction
Both authors read all the articles and extracted the data independently. The categories of data extracted from the retrieved reports included the following: study identification, sample size, types of patients, duration of study, types of acupuncture, definition of adverse events, method of evaluation, and findings.

Methods of synthesis
How were the studies combined?
A qualitative narrative synthesis was undertaken.
How were differences between studies investigated?
There was no formal assessment of heterogeneity. However, the authors did discuss differences between the studies in the text of the review.

Results of the review
Nine studies described in 10 publications were included. The total sample size for the 7 studies that provided the data was 17,925.

Pain (5 studies): needle pain occurred in 0.2 to 45% of the patients. Pain due to aggravation of the presenting complaint was reported in 2 studies, as 59 and 3%, respectively.

Tiredness (3 studies): tiredness occurred in 2.3 to 41% of the patients.

Bleeding (6 studies): bleeding, petechia, ecchymosis, or haematoma occurred in 0.03 to 38% of the patients.

Feelings of faintness, dizziness, or syncope (6 studies): feelings of faintness, dizziness, or syncope occurred in 0.02 to 7% of the patients.

Nausea (3 studies): the incidence of nausea for the 2 studies that provided such data was 0.01 and 0.2%, respectively.

Other minor adverse effects (3 studies): other minor adverse effects included unusual feelings of relaxation in 86% of patients in one study; tension, skin eruptions or oedema, and cyanosis with breathlessness in one study; and dizziness in another study. Potentially serious adverse effects (2 studies): one study reported two cases of pneumothorax and two cases of needle fracture requiring surgical removal of the fragment (incidence of 0.001% for both); the other study reported a case of burn injury after moxibustion (incidence of 0.01%).

Authors’ conclusions
Serious adverse events associated with acupuncture are rare. However, the incidence of minor adverse events may be considerable. Those responsible for establishing competence in acupuncture should consider how to reduce these risks.

CRD commentary
The review question was clearly stated and was supported by the inclusion criteria. However, the authors did not specify any predefined inclusion or exclusion criteria relating to the participants or their disease status. The literature search was comprehensive: a number of databases were searched and details of the search terms and search dates were given; relevant organisations were contacted; and references from the retrieved papers were followed-up.

The validity of the included studies was not formally assessed. The authors presented appropriate study details in a table, although there were no details of the participants’ characteristics and disease status. Thus, it is unknown to what population the results of this review are applicable. The data were synthesised in an appropriate narrative format, according to the type of adverse effect. In addition, the sources of heterogeneity were discussed. Details regarding the review process were provided. The authors’ conclusions follow on from the results, but should be viewed with some caution given the above limitations.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors state that ‘further research should confirm that both serious and minor adverse events are rare in clinical practice in different settings and determine how rates of adverse events relate to standards of training’. The authors ‘recommend that the methodology for such studies be standardised, perhaps using symptom checklists’.

Bibliographic details

**PubMedID**

11331060

**Other publications of related interest**

This additional published commentary may also be of interest. Cummings TM. 'Serious adverse events following acupuncture are reassuringly rare'. FACT 2001;6:112-3.

**Indexing Status**

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.