EBM Journal Club Acupuncture for Acute Stroke

報告醫師: R3 劉耕豪 指導醫師: 顏宏融醫師

Cerebral Vascular Accident

- Stroke is the second leading cause of death in the world. Cochrane Database Syst Rev. 2005 Apr 18;(2):CD003317. Review.
- Due to an aging population, dietary changes, and work-related stress, stroke morbidity is on the rise and the age at first occurrence is getting younger.
- According to the latest data issued by the American Heart Association (AHA), each year approximately 610,000 people experience a new stroke and 185,000 a recurrent stroke.
- Besides resultant mortality, the high incidence (>50%) of poststroke disability brings a heavy burden to patients and their caregivers.
- In the United States, the total societal and healthcare costs have risen from \$53.6 billion in 2004 2 to \$68.9 billion in 2009.

Stroke. 2010 Apr;41(4):e171-9. Epub 2010 Feb 18. Review.

Leading Causes of Death in Taiwan

	十大死因	平均發生情形	
1.	·惡性腫瘤 4	每12分48秒有一人死亡	-
2	.心臟疾病	每33分32秒有一人死て	-
3	.腦血管疾病	每51分52秒有一人死	Ż
			1
	4.肺炎	每59分有一人死亡	$\left(\right)$
	4.肺炎 5.糖尿病	每59分有一人死亡 每1時 4分 1秒有一人死亡	
	4.肺炎 5.糖尿病 6.事故傷害	每59分有一人死亡 每1時 4分 1秒有一人死亡 每1時 18分49秒有一人死亡	
	4.肺炎 5.糖尿病 6.事故傷害 7.慢性下呼吸道疾病	每59分有一人死亡 每1時4分1秒有一人死亡 每1時18分49秒有一人死亡 每1時41分8秒有一人死亡	
	4.肺炎 5.糖尿病 6.事故傷害 7.慢性下呼吸道疾病 8.慢性肝病及肝硬化	 每59分有一人死亡 每1時4分1秒有一人死亡 每1時18分49秒有一人死亡 每1時41分8秒有一人死亡 每1時47分有一人死亡 	
	4.肺炎 5.糖尿病 6.事故傷害 7.慢性下呼吸道疾病 8.慢性肝病及肝硬化 9.高血壓性疾病	 每59分有一人死亡 每1時4分1秒有一人死亡 每1時18分49秒有一人死亡 每1時41分8秒有一人死亡 每1時47分有一人死亡 每2時5分55秒有一人死亡 	
	 4.肺炎 5.糖尿病 6.事故傷害 7.慢性下呼吸道疾病 8.慢性肝病及肝硬化 9.高血壓性疾病 10腎炎、腎病症候群及腎病素 	每59分有一人死亡 每1時4分1秒有一人死亡 每1時18分49秒有一人死亡 每1時41分8秒有一人死亡 每1時47分有一人死亡 每2時5分55秒有一人死亡 每2時8分2秒有一人死亡	

Background definitions

- Diagnosis of stroke
 - Clinical features: WHO definition
 - A focal neurological impairment of sudden onset, and lasting more than 24 hours (or leading to death) and of presumed vascular origin
 - Brain images
 - Computed tomography (CT)
 - Magnetic resonance imaging (MRI)

Stage of Stroke

- Traditionally, acute, subacute, and chronic phases after stroke are distinguished. The time ranges characterizing these three phases strongly vary in literature.
- Mostly, the first <u>three to seven days</u> are referred to as the acute phase. The <u>first one to</u> <u>six months</u> are defined as the subacute phase, and the chronic phase begins after <u>three or six</u> <u>months</u> in most studies

BMC Neurology 2011, **11**:34

Stroke Severity

- National Institutes of Health Stroke Scale (NIHSS)
 - a method, developed by the National Institutes of Health (NIH), to gauge the severity of a stroke.
- Stroke severity (increasing NIHSS score) may predict discharge to rehabilitation or nursing facility
 - based on cohort study of 546 patients with treated with rt-PA for acute ischemic stroke
 - patients with symptomatic intracerebral hemorrhage (after rt-PA) were never discharged to home

Arch Neurol 2004 Jul;61(7):1061

Outcome of Stroke

- Natural history of recovery of motor function after stroke
 - A 1-year community-based study in Auckland, New Zealand (680 patients)
 - Initially, 88% presented with a hemiparesis
 - Persisting deficit declined to 71% at 1 month, 62% at 6 months
 - Recovery of motor function was associated with the stroke severity but not with age or sex
 - Patients with a mild motor deficit at onset were 10 times more likely to recover their motor function than those with a severe stroke.
 - Motor function is confined to patients whose motor deficit at onset is either mild or moderate.

Stroke. 1988;19:1497-1500

Acupuncture for Acute Stroke

- Stroke is responsible for increasingly high rates of mortality and disability worldwide.
- Around 10,000 cases of stroke in CGMH annually.
- Acupuncture is widely accepted by Chinese people.

To assess the effectiveness of acupuncture in patients with acute stroke

Step 1: Asking (問) Was acupuncture for acute stroke effective?

	PICO identification					
Ρ	Problem / Patient	Acute stroke (<1m)				
I	Intervention	Acupuncture				
С	Comparison	Placebo/Sham acupuncture Open control				
0	Outcome	Less neurological deficit Improved motor function Independent daily activities				

Step 2: Assessing (查)



http://earthgodandrapiddoc.blogspot.com/2011/04/ebm5s.html

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Efficiency for searching strategy



19	ŦÌ	<u>First Consult</u>	Database	Elsevier		
20	Ŧi	HDCN	Database	Medtext, Inc.		
21	ŧi	Journal Citation Report(JCR) : Science Edition	Database	Thomson		使用人數:林口4人。
22	Ŧ i	Journals@Ovid Full Text	Database	OVID	1993-	系統使用人數17人,單本電子 期刊使用人數2人。
23	Ηī	Karger電子資源	Database	Karger		
24	+ i	MD Consult	Database	Elsevier		
25	+i	<u>Medline+Journals @ ovid</u>	Database	OVID	1948-	使用人數:林口25人;基隆5人; 嘉義4人;高雄6人。
26	+ i	Micromedex(CCIS) 2.0版	Database	Thomson		使用人數:林口15人;基隆 10人;嘉義10人;高雄15人。
27	+ i	Nursing Consult	Database	Mosby		
28	🕀 🗊	Nursing Index (Mosby's Index)	Database	Mosby		
29	+i	Oxford Scholarship Online Collection 牛津線上學術電子書	Database	Oxford University Press		
30	+i	ProQuest Health and Medical Complete	Database	Proquest		
31	+i	PubMed	Database	National Library of Medicine, NLM	1948-	
32	+i	PubMed (Intranet)	Database	National Library of Medicine, NLM	1948-	
33	ŦÌ	Reference Manager	Database	Thomson		
34	+ i	Regional Business News	Database	EBSCO		
35	Ŧi	<u>Rehabilitation & Sports Medicine</u> <u>Source(試用至4/8)</u>	Database	EBSCO		NEW
36	ŧi	<u>Rehabilitation Reference Center(試用</u> 至4/30)	Database	EBSCO		NEW
37	+ i	Science Direct	Database	Elsevier	1995-	
38	+ i	Scopus	Database	Elsevier		
39	+ i	SDOS	Database	Elsevier		
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41	+ i	Web of Science(SCIE)	Database	Thomson	1991-	線上使用人數5人。
201	2/3/13		Acupunct	ure for Acute Stroke		12

4¥	圖示	题名	類型	出版商	收錄年代	其他註記
No.	Icons	Title	Туре	Publisher	Full Text Coverage	Other Info.
1	Ŧi	Access Medicine	Database	McGraw-Hill		使用人數:林口5人;基隆2 人;嘉義2人;高雄3人。
2	Ŧi	Access Pharmacy	Database	McGraw-Hill		使用人數:林口8人;基隆3 人;嘉義4人;高雄5人。
3	Ŧi	Access Surgery	Database	McGraw-Hill		使用人數:林口5人;基隆1 人;嘉義2人;高雄2人。
4	+ i	Biomedical Benchmark	Database	ECRI Institute		
5	+ i	<u>Books@Ovid</u>	Database	OVID		系統使用人數3人,單本電子書 使用人數1人。
6	±1	Business Source Complete	Database	EBSCO		
7	ĦĪ	DynaMed	Database	EBSCO		
8	ŧi	EBM Reviews (ALL)	Database	OVID		使用人數:林口4人;基隆2人; 嘉義2人;高雄4人。
9	ŦÌ	EBMRACP Journal Club	Database	OVID	1991-	使用人數:林口4人;基隆2人; 嘉義2人;高雄4人。
10	Ŧi	EBMRCochrane Central Register of Controlled Trials	Database	OVID		使用人數:林口4人;基隆2人; 嘉義2人;高雄4人。
11	ŦÌ	<u>EBMRCochrane Database of</u> <u>Systematic Reviews</u>	Database	OVID		使用人數:林口4人;基隆2人; 嘉義2人;高雄4人。
12	ŧi	EBMRCochrane Methodology Register	Database	OVID		使用人數;林口4人;基隆2 人;嘉義2人;高雄4人。
13	ŧi	EBMRDatabase of Abstracts of Reviews of Effects	Database	OVID		使用人數:林口4人;基隆2人; 嘉義2人;高雄4人。
14	Ŧi	EBMRHealth Technology Assessment	Database	OVID		使用人數:林口4人;基隆2 人;嘉義2人;高雄4人。
15	Ŧi	EBMRNHS Economic Evaluation Database	Database	OVID		使用人數:林口4人;基隆2 人;嘉義2人;高雄4人。
16	+ [i]	EBMR資料庫(實證醫學競賽用)	Database	OVID		NEW
17	+ī	<u>Ebook Library(EBL)(試用至3/31)</u>	Database	Ebooks Corporation		
18	+i	EndNote	Database	Thomson		

Table 2Proportions of citations of 128 systematic reviews by point of caresummaries over time (ordered by ranking at nine months) and hazard ratiosbetween top performer (Dynamed) and other summaries

Summary	At 3 months (%)	At 6 months (%)	At 9 months (%)	HR (95% CI)
Dynamed	77	84	87	Reference
EBM Guidelines	18	31	41	0.22 (0.17 to 0.29)
UpToDate	23	27	29	0.14 (0.09 to 0.21)
eMedicine	7	9	12	0.05 (0.03 to 0.09)
Clinical Evidence	0	1	4	0.03 (0.01 to 0.05)

R Banzi, Speed of updating online evidence based point of care summaries: prospective cohort analysis, *BMJ*. 2011 Sep 23;343:d5856.



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Evidence-based Journals

編號	圖示	題名	類型	出版商	收錄年代	其他註記
No.	Icons	Title	Туре	Publisher	Full Text Coverage	Other Info.
1	+i	Access Medicine	Database	McGraw-Hill		使用人數:林口5人;基隆2 人;嘉義2人;高雄3人。
2	+ i	Access Pharmacy	Database	McGraw-Hill		使用人數:林口8人;基隆3 人;嘉義4人;高雄5人。
з	Ŧi	Access Surgery	Database	McGraw-Hill		使用人數:林口5人;基隆1 人;嘉義2人;高雄2人。
4	+ i	Biomedical Benchmark	Database	ECRI Institute		
5	+ i	<u>Books@Ovid</u>	Database	OVID		系統使用人數3人,單本電子書 使用人數1人。
6	+ i	Business Source Complete	Database	EBSCO		
7	Ηī	DynaMed	Database	EBSCO		
8	Ŧ i	EBM Reviews (ALL)	Database	OVID		使用人數:林口4人;基隆2人; 嘉義2人;高雄4人。
9	+ī	EBMRACP Journal Club	Database	OVID	1991-	使用人數:林口4人;基隆2人; 嘉義2人;高雄4人。
10	+i	EBMRCochrane Central Register of Controlled Trials	Database	OVID		使用人數:林口4人;基隆2人; 嘉義2人;高雄4人。
11	Ŧi	EBMRCochrane Database of Systematic Reviews	Database	OVID		使用人數:林口4人;基隆2人; 嘉義2人;高雄4人。
12	ŧi	EBMRCochrane Methodology Register	Database	OVID		使用人數:林口4人;基隆2 人;嘉義2人;高雄4人。
13	Ŧi	EBMRDatabase of Abstracts of Reviews of Effects	Database	OVID		使用人數;林口4人;基隆2人; 嘉義2人;高雄4人。
14	+ i	EBMRHealth Technology Assessment	Database	OVID		使用人數:林口4人;基隆2 人;嘉義2人;高雄4人。
15	+i	EBMRNHS Economic Evaluation Database	Database	OVID		使用人數:林口4人;基隆2 人;嘉義2人;高雄4人。
16	+ i	EBMR資料庫(實證醫學競賽用)	Database	OVID		NEW
17	+ i	<u>Ebook Library(EBL)(試用至3/31)</u>	Database	Ebooks Corporation		
18	+ i	EndNote	Database	Thomson		

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2012/3/13

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6. 🔲		Table of Contents
Database	EBM Reviews - Cochrane Database of Systematic Reviews	Abstract Reference
Accession Number	00075320-10000000-02401	C. P. J. Chu, J. M. L.
Author	Zhang, Shihong; Liu, Ming; Asplund, Kjell; Li, Lin	Find Citing Articles
Group Name	Cochrane Stroke Group	EBM Topic Review
Title	Acupuncture for acute stroke.	
Source	Cochrane Database of Systematic Reviews. 1, 2009.	
Date of Most Recent Amendment	07-14-2008 Updated	
Date of Most Recent Substantive Amendment	11-10-2004	
Keywords	ISCHAEMIC/UNSPECIFIED STROKE, TRANSIENT ISCHAEMIC ATTACK; Treatment; Medical therapy; Complementary and Alternative therapies; HAEMORRHAGIC STROKE; Treatment; Medical therapy; Complementary and Alternative therapies; Humans; *Acupuncture Therapy; Acute Disease; Randomized Controlled Trials as Topic; *Stroke/tp (therapy)	
Abstract	Background	
	Acupuncture-like sensory stimulation activates multiple efferent (nerve) pathways leading to altered activity in numerous neural systems. Acupuncture is widely accepted by Chinese people and it is increasingly requested by patients and their relatives in Western countries.	
	Objectives	
	To assess the effectiveness and safety of acupuncture in patients with acute stroke.	
	Search strategy	
	We searched the Cochrane <mark>Stroke</mark> Group trials register (last searched August 2003), the Chinese <mark>Stroke</mark> Trials Register (August 2003), the Chinese <mark>Acupuncture</mark> Trials Register (August 2003), the Cochrane Controlled Trials Register (), MEDLINE (1966 to 2003), EMBASE (1980 to 2003), Alternative Medicine Database (1985 to 2003), CINAHL (1982 to 2003) and the Chinese Biological Medicine Database (1981 to	
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19	ŦÌ	<u>First Consult</u>	Database	Elsevier		
20	Ŧi	HDCN	Database	Medtext, Inc.		
21	Ŧi	Journal Citation Report(JCR) : Science Edition	Database	Thomson		使用人數:林口4人。
22	H i	Journals@Ovid Full Text	Database	OVID	1993-	系統使用人數17人,單本電子 期刊使用人數2人。
23	+i	Karger電子資源	Database	Karger		
24	+i	MD Consult	Database	Elsevier		
25	+i	<u>Medline+Journals @ ovid</u>	Database	OVID	1948-	使用人數:林口25人;基隆5人; 嘉義4人;高雄6人。
26	ŧi	Micromedex(CCIS) 2.0版	Database	Thomson		使用人數:林口15人;基隆 10人;嘉義10人;高雄15人。
27	+ i	Nursing Consult	Database	Mosby		
28	🕂 İ	Nursing Index (Mosby's Index)	Database	Mosby		
29	Ŧī	Oxford Scholarship Online Collection 牛津線上學術電子書	Database	Oxford University Press		
30	+i	ProQuest Health and Medical Complete	Database	Proquest		
31	ŧi	PubMed	Database	National Library of Medicine, NLM	1948-	
32	+ i	PubMed (Intranet)	Database	National Library of Medicine, NLM	1948-	
33	H i	Reference Manager	Database	Thomson		
34	Ŧi	Regional Business News	Database	EBSCO		
35	+i	<u>Rehabilitation & Sports Medicine</u> <u>Source(試用至4/8)</u>	Database	EBSCO		NEW
36	H i	<u>Rehabilitation Reference Center(試用</u> 至4/30)	Database	EBSCO		(TEU)
37	+ i	Science Direct	Database	Elsevier	1995-	
38	+ i	Scopus	Database	Elsevier		
39	+i	SDOS	Database	Elsevier		
40	+i	UpToDate Online	Database	Uptodate		《不提供院外連線
41	Ŧi	Web of Science(SCIE)	Database	Thomson	1991-	線上使用人數5人。
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Original Journals

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Clinical Study Categories Category: Therapy	Systematic Reviews	Medical Genetics Topic: All				
Scope: Broad						
Results: 5 of 287	Results: 5 of 33	Results: 5 of 16				
[Randomized controlled clinical trials for electroacupuncture treatment of urinary incontinence in stroke patients]. [Zhen Ci Yan Jiu. 2011]	An Overview of Complementary and Alternative Medicine Therapies for Anxiety and Depressive Disorders: Supplement to Efficacy of [2011]	Proteomic analysis of serum proteins in acute ischemic stroke patients treated with acupuncture. [Exp Biol Med (Maywood). 2011]				
[Observation on therapeutic effect of acupuncture combined with medicine on mild cognition disorders in patients with post-strok [Zhongguo Zhen Jiu. 2012]	Sickle cell disease. [Effects of electroacupuncture at "Z and "Neiguan" (PC 6) on expressio [Clin Evid (Online). 2011] cerebral infarction rats1. [Zhongg					
[Efficacy observation of Thoroughfare Vessel theory in acupuncture for post-stroke dγsphasia]. [Zhongguo Zhen Jiu. 2011]	Acupuncture for functional recovery after stroke: a systematic review of sham-controlled randomized clinical trials. [CMAJ. 2010]	Effect of electroacupuncture therapy on the expression of Na(v)1.1 and Na(v)1.6 in rat after acute cerebral ischemia. [Neurol Res. 2010]				
[Comparative study on curative effects of stroke treated with acupuncture bγ NIRS]. [Zhongguo Zhen Jiu. 2011]	[Acupuncture therapy for apoplectic aphasia: a systematic review]. [Zhongguo Zhen Jiu. 2010]	[Effects of electroacupuncture on cerebral Bcl-2 and caspase-3 expression after cerebral ischemia reperfusion in rats1. [Zhen Ci Yan Jiu. 2009]				
[Simple motor aphasia caused by cerebral infarction treated with blood-pricking at Yamen (GV 15) combined with language tr[Zhongguo Zhen Jiu. 2011]	Contralateral acupuncture versus ipsilateral acupuncture in the rehabilitation of post-stroke hemiplegic pat [BMC Complement Altern Med. 2010]	Effect of electroacupuncture on the expression of Nav1.1 in rat after acute cerebral ischemia. [Neurol Res. 2010]				
See all (287)	See all (33)	See all (16)				

Re	sults: 1 to 20 of 33	<< First	< Prev Page	1 of 2	Next >	Last >>	Free Full Text (10)
1 .	An Overview of Complementary and Alternative Medicine TI Supplement to Efficacy of Complementary and Alternative M Disorder [Internet].	nerap <mark>ies for /</mark> ledicine Ther	Anxiety and D rapies for Pos	epressiv ttrauma	/e Disori tic Stres	ders: <u>s</u>	Review (26) Manage Filters
	Williams JW, Gierisch JM, McDuffie J, Strauss JL, Nagi A. Washington (DC): Department of Veterans Affairs; 2011 Aug. PMID: 22238805 [PubMed] Books & Documents Related citations						4 free full-text articles in PubMed Central Review Acupuncture for functional
1 2.	<u>Sickle cell disease.</u> Meremikwu MM, Okomo U.						recovery after stroke: a sys [CMAJ. 2010] Review Contralateral acupuncture versus ipsi [BMC Complement Altern Med. 2010]
	Clin Evid (Online). 2011 Feb 14;2011. pii: 2402. PMID: 21718552 [PubMed - in process] Related citations						Sickle cell disease. [Clin Evid (Online). 2009]
	Acupuncture for functional recovery after stroke: a syste	matic review	of sham-con	rolled ra	andomiz	ed	See all (4)
3.	clinical trials. Kong JC, Lee MS, Shin BC, Song YS, Ernst E.						Find related data
	CMAJ. 2010 Nov 9;182(16):1723-9. Epub 2010 Sep 27. Review. PMID: 20876268 [PubMed - indexed for MEDLINE] Free PMC Artic Related citations	le					Database: Select 💌
	[Acupuncture therapy for apoplectic aphasia: a systematic	tic review].				_	
4.	Pang Y, Wu LB, Liu DH. Zhongguo Zhen Jiu 2010 Jul 30(7):612-6. Review, Chinese						Search details
	PMID: 20862949 [PubMed - indexed for MEDLINE] Related citations						systematic[sb] AND (("acupuncture"[MeSH Terms] OR "acupuncture"[All
5 .	Contralateral acupuncture versus ipsilateral acupuncture patients: a systematic review.	in the rehat	<u>pilitation of po</u>	st-strok	e hemip	<u>)legic</u>	Fields] OR "acupuncture Stherapy"[MeSH Terms] OR Z
	Kim MK, Choi TY, Lee MS, Lee H, Han CH. BMC Complement Altern Med. 2010 Jul 30;10:41. Review. PMID: 20673364 [PubMed - indexed for MEDLINE] Free PMC Artic Related statistics	le					Search See more
	2012/3/13 A	cupuncture	for Acute St	roke			25

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	Cupping for stroke renabilitation: a systematic review.
6.	Lee MS, Choi TY, Shin BC, Han CH, Ernst E.

J Neurol Sci. 2010 Jul 15;294(1-2):70-3. Review. PMID: 20435319 [PubMed - indexed for MEDLINE] Related citations

- Acupuncture in poststroke rehabilitation: a systematic review and meta-analysis of randomized trials.
- Wu P, Mills E, Moher D, Seely D.
 Stroke: 2010 Apr;41(4):e171-9. Epub 2010 Feb 18. Review
 PMID: 20167912 [PubMed indexed for MEDLINE] Free Article Related citations
- [Systematic evaluation of acupuncture for treatment of post-stroke spastic paralysis].
- Qi YZ, Fu LX, Xiong J, Wang ZL, Mou J, Lu YM. Zhongguo Zhen Jiu. 2009 Aug;29(8):683-8. Review. Chinese. PMID: 19947279 [PubMed - indexed for MEDLINE] <u>Related citations</u>
- [Meta-analysis on acupuncture for treatment of depression in patients of poststroke].
- Zhang JB, Ren L, Sun Y. Zhongguo Zhen Jiu. 2009 Jul;29(7):599-602. Review. Chinese. PMID: 19835133 [PubMed - indexed for MEDLINE] <u>Related citations</u>
- The effectiveness and safety of acupuncture therapy in depressive disorders: systematic review and meta-
- 10. analysis.

Zhang ZJ, Chen HY, Yip KC, Ng R, Wong VT. J Affect Disord. 2010 Jul;124(1-2):9-21. Epub 2009 Jul 26. Review. PMID: 19632725 [PubMed - indexed for MEDLINE] <u>Related citations</u>

Complex traditional Chinese medicine for poststroke motor dysfunction: a systematic review.

Junhua Z, Menniti-Ippolito F, Xiumei G, Firenzuoli F, Boli Z, Massari M, Hongcai S, Yuhong H, Ferrelli R, Limin H, Fauci A, Guerra R, Raschetti R.
 Stroke. 2009 Aug;40(8):2797-804. Epub 2009 Jun 25. Review.
 PMID: 19556527 [PubMed - indexed for MEDLINE] Free Article

26

Turn Off Clear

- Q systematic[sb] AND (acupuncture AND acute stroke) (33) PubMed
- ${f Q}_{f a}$ acupuncture AND acute stroke (460)

PubMed

See more...

Step 3: Appraisal (讀)

Acupuncture for acute stroke.

Zhang SH, Liu M, Asplund K, Li L. Cochrane Database Syst Rev. 2005 Apr 18;(2):CD003317. Review. PMID: 15846657 [PubMed - indexed for MEDLINE] Related citations

Acupuncture for functional recovery after stroke: a systematic review of sham-controlled randomized clinical trials. Kong JC, Lee MS, Shin BC, Song YS, Ernst E.

CMAJ. 2010 Nov 9;182(16):1723-9. Epub 2010 Sep 27. Review. PMID: 20876268 [PubMed - indexed for MEDLINE] Free PMC Article Related citations

Acupuncture in poststroke rehabilitation: a systematic review and meta-analysis of randomized trials.

Wu P, Mills E, Moher D, Seely D. Stroke. 2010 Apr;41(4):e171-9. Epub 2010 Feb 18. Review. PMID: 20167912 [PubMed - indexed for MEDLINE] Free Article Related citations

VIP method

- Validity
 - Similar objective/purpose (PICO)
 - Database survey
 - Methodological quality
 - Bias analysis
- Impact
 - Patient number
 - Size of the effect
- Applicability

Acupuncture for acute stroke (Review)

Zhang S, Liu M, Asplund K, Li L

[Intervention Review]

Acupuncture for acute stroke



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Editorial group: Cochrane Stroke Group. Publication status and date: Edited (no change to conclusions), published in Issue 4, 2008. Review content assessed as up-to-date: 10 November 2004.

Citation: Zhang S, Liu M, Asplund K, Li L. Acupuncture for acute stroke. *Cochrane Database of Systematic Reviews* 2005, Issue 2. Art. No.: CD003317. DOI: 10.1002/14651858.CD003317.pub2.

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Objectives

- 1. To determine whether, in patients with acute ischemic stroke or cerebral hemorrhage, acupuncture, compared with control, can increase the proportion of patients alive and not needing help in everyday activities without causing undue harm.
- To assess, in patients with acute ischemic stroke or cerebral hemorrhage, the effects of acupuncture compared with control on impairment, quality of life and death from all causes.

Methods: Search strategy

- Cochrane Stroke Group trials register (last searched August 2003)
- Chinese Stroke Trials Register (August 2003)
- Chinese Acupuncture Trials Register (August 2003)
- Cochrane Controlled Trials Register (The Cochrane Library, Issue 3, 2003)
- MEDLINE (1966 to 2003)
- EMBASE (1980 to 2003)
- Alternative Medicine Database (AMED) (1985 to 2003)
- CINAHL (1982 to 2003)
- Chinese Biological Medicine Database (CBM) (1981 to 2003)
- Reference lists of two recent systematic reviews

Methods: Selection criteria

- Type of studies
 - Truly or quasi-randomised unconfounded controlled clinical trials
- Type of participants/interventions
 - Patients with acute ischemic and/or hemorrhagic stroke
 - Needling started within 30 days after stroke onset
 - Control interventions: placebo/sham acupuncture or no treatment (open control)

Outcome measures

Primary outcome measures	Secondary outcome measures
Death or dependency Barthel Index (BI) ≦ 60 Modified Rankin Scale (MRS) 3–6	Changes in neurological deficit score Specific impairment: Motricity Index (肌力指數) Motor Assessment Scale Global neurological deficit: National Institute of Health Stroke Scale (NIHSS) Canadian Neurological Scale (CNS) European Stroke Scale (ESS) Scandinavian Stroke Scale (SSS)
Death or requiring institutional care Extensive family support	Death from all causes
Adverse events	Quality of life (QOL)

Quality assessment: Internal validity

- 1. Method of randomisation
 - (truly or quasi-randomised)
- 2. Adequate allocation concealment
- 3. Blinding
 - (both of participants and outcome assessors)
- 4. Intention to treat (ITT) analysis
- 5. Number lost to follow up



 no usable data were available (18 trials: Jiang 1998;Li 1999; Li 2000a; Li 2000b; Li 2001; Liu 2001; Liu 2002a; Liu 2002b; Lv 2003; Tang 1996; Wang 2001; Xu 1997; Xu 2001; Yang 2001; Zhang 1996; Zhao 2000; Zhou 2000; Zhou 2002)

- confounding with drug therapy or rehabilitation treatment (four trials: Ma 1999; Pei 2001; Yun 2000; Zheng 1996)
- **3.** questionable randomisation (two trials: Cai 2002a; Zhang 1999)
- 4. comparing two different methods of acupuncture (Li 1989)
- 5. questionable data (two trials: Fu 2001; Yu 2003)
- unclear point from stroke onset that acupuncture began (Liu 2003)
- acupuncture using adhesive surface electrodes (Wong 1999)

Analysis 1.3. Comparison I Acupuncture versus control, Outcome 3 Changes of global neurological deficit score at the end of treatment period.

Review: Acupuncture for acute stroke

Comparison: I Acupuncture versus control

Duration of acupuncture treatment ranged from 7 days to 10 weeks

Outcome: 3 Changes of global neurological deficit score at the end of treatment period

Study or subgroup	Acupuncture		Control		Std. Mean Difference	Weight	Std. Mean Difference
	N	Mean(SD)		Mean(SD)	IV,Random,95% CI		IV,Random,95% CI
I Acupuncture versus sham	acupuncture						
Gosman-Hedstrom 1998	19	9.27 (9.23)	34	9.17 (7.37)	+	14.4 %	0.01 [-0.55, 0.57]
Subtotal (95% CI)	19		34		+	14.4 %	0.01 [-0.55, 0.57]
Heterogeneity: not applicable	0						
Test for overall effect: $Z = 0$.	04 (P = 0.97)						
2 Acupuncture versus open	control						
Cai 2002	35	8.4 (3.4)	41	5.2 (3.5)	•	14.6 %	0.92 [0.44, 1.39]
Duan 1997	47	12.02 (3.17)	45	6.12 (2.05)	•	14.5 %	2.18 [1.66, 2.70]
Gosman-Hedstrom 1998	18	9.27 (9.23)	33	11.07 (6.88)	+	14.3 %	-0.23 [-0.80, 0.35]
Huang 2002	20	7.4 (2.3)	15	4.5 (1.8)	+	13.7 %	1.35 [0.60, 2.10]
Si 1998	20	8.2 (3.4)	22	5.1 (3.4)	-	14.1 %	0.89 [0.26, 1.53]
Wu 2002	50	8.2 (0.73)	52	5.69 (0.89)	-	14.3 %	3.05 [2.48, 3.63]
Subtotal (95% CI)	190		208		•	85.6 %	1.36 [0.44, 2.29]
Heterogeneity: Tau ² = 1.25;	Chi ² = 77.21, df	= 5 (P<0.00001);	l ² =94%				
Test for overall effect: Z = 2.	88 (P = 0.0039)						
Total (95% CI)	209		242		ب	100.0 %	1.17 [0.30, 2.04]
Heterogeneity: Tau ² = 1.29;	Chi ² = 96.41, df	= 6 (P<0.00001);	l ² =94%				
Test for overall effect: $Z = 2$.	63 (P = 0.0085)						
012/3/13				-10	0 -5 0 5 10	1	36
, -, -,				Faur	Eavours control	ncture	

Analysis I.4. Comparison I Acupuncture versus control, Outcome 4 Motor function at the end of acupuncture treatment period.

Review: Acupuncture for acute stroke

Comparison: I Acupuncture versus control

Outcome: 4 Motor function at the end of acupuncture treatment period

Study or subgroup	Acupuncture		Control		Std. Mean	Difference Weight	Std. Mean Difference
	N	Mean(SD)	N	Mean(SD)	IV,Random,	95% CI	IV,Random,95% CI
I Acupuncture versus sh	am acupuncture						
Hopwood 2003	47	44.76 (22.78)	45	47.74 (26.44)	•	25.5 %	-0.12 [-0.53, 0.29]
Johansson 2001	44	4.68 (3.02)	48	5 (2.34)	-	25.5 %	-0.12 [-0.53, 0.29]
Subtotal (95% CI)	91		93		•	51.0 %	-0.12 [-0.41, 0.17]
Heterogeneity: $Tau^2 = 0$.	0; $Chi^2 = 0.00$, df	= I (P = 1.00); I	2 =0.0%				
Test for overall effect: Z =	= 0.81 (P = 0.42)						
2 Acupuncture versus op	pen control						
Johansson 1993	33	73.8 (4.9)	37	62.1 (5.8)	· ·	24.3 %	2.14 [1.55, 2.74]
Yu 1993	33	25.06 (15.57)	30	6.48 (14.63)	-	24.7 %	1.21 [0.67, 1.75]
Subtotal (95% CI)	66		67		•	49.0 %	1.67 [0.76, 2.58]
Heterogeneity: $Tau^2 = 0$.	35; Chi ² = 5.16, d	f = 1 (P = 0.02);	$ ^2 = 8 \%$				
Test for overall effect: Z :	= 3.59 (P = 0.000	34)					
Total (95% CI)	157		160		+	100.0 %	0.76 [-0.25, 1.77]
Heterogeneity: $Tau^2 = 1$	00: Chi ² = 53.59.	df = 3 (P<0.000	01); I ² =949	<u>%</u>			
Test for overall effect: Z =	= 1.48 (P = 0.14)						
					• • •		
2012/3/13				-	10 -5 0	5 10	37
				Fa	vours control	Favours acupuncture	

Analysis 1.5. Comparison I Acupuncture versus control, Outcome 5 Motor function at the end of follow up (> 3 months).

Review: Acupuncture for acute stroke

Comparison: I Acupuncture versus control

Outcome: 5 Motor function at the end of follow up (> 3 months)

Study or subgroup	Acupuncture		Control		Std. M	ean Difference	Weight	Std. Mean Difference
	N	Mean(SD)	N	Mean(SD)	IV,Rand	om,95% Cl		IV,Random,95% CI
I Acupuncture versus sha	am acupuncture							
Hopwood 2003	34	68.99 (24.49)	33	67.5 (26.35)		•	47.3 %	0.06 [-0.42, 0.54]
Johansson 2001	32	6.03 (3.05)	45	6.31 (3.2)		•	52.7 %	-0.09 [-0.54, 0.37]
Subtotal (95% CI)	66		78			•	100.0 %	-0.02 [-0.35, 0.31]
Heterogeneity: $Tau^2 = 0.0$	0; Chi ² = 0.19, df	= I (P = 0.66);	l ² =0.0%					
Test for overall effect: Z =	= 0.11 (P = 0.91)							
2 Acupuncture versus op	en control							
Subtotal (95% CI)	0		0				0.0 %	0.0 [0.0, 0.0]
Heterogeneity: not applic	able							
Test for overall effect: not	t applicable							
Total (95% CI)	66		78			1	100.0 %	-0.02 [-0.35, 0.31]
Heterogeneity: $Tau^2 = 0.0$	0; Chi ² = 0.19, df	= 1 (P = 0.66);	$ ^2 = 0.0\%$					
Test for overall effect: Z =	= 0.11 (P = 0.91)							
					-10 -5	0 5 10	1	
				Favour	rs acupuncture	Favours contro	ol	
2012/3/13			Acup	uncture for Ac	ute Stroke			38

Authors' Conclusions

- Acupuncture appeared to be safe but without clear evidence of benefit.
- The number of patients is too small to be certain whether acupuncture is effective for treatment of acute ischemic or hemorrhagic stroke.
- Larger, methodologically-sound trials are required.

Disadvantages

No update studies

Review content assessed up-to-date: 10 Nov 2004

Database not being surveyed completely

– No CNKI, Wan Fang database

• Small sample size (30-167 participants)

Acupuncture for functional recovery after stroke: a systematic review of sham-controlled randomized clinical trials

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Previously published at www.cmaj.ca

∞∞ See related commentary by Wu, page 1711

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CMAJ 2010. DOI:10.1503/cmaj.091113

ABSTRACT

Background: <u>Acupuncture</u> is frequently advocated as an adjunct treatment <u>during stroke rehabilitation</u>. The aim of this review was to <u>assess its effectiveness</u> in this setting.

Methods: We searched <u>25 databases</u> and <u>12 major Korean</u> <u>traditional medicine journals</u> from their inception to October 2009. We included <u>randomized controlled trials</u>, with <u>no language restrictions</u>, that compared the effects of acupuncture (with or without electrical stimulation) with <u>sham acupuncture</u>. We assessed the <u>methodologic quality</u> of the trials using the Cochrane risk-of-bias criteria and the PEDro (Physiotherapy Evidence Database) scale. Appendix 1 (as supplied by the authors): The information of Asian databases and Journals searched.

Database

URL

Korean Databases (13)

Korean Studies Information	http://kiss.kstudy.com/	
DBPIA	http://www.dbpia.co.kr/	
Korea Institute of Science and Technology Information	http://society.kisti.re.kr/main.html	
Research Information Centre for Health Database	http://www.richis.org/	
Korean Medical Database	http://kmbase.medric.or.kr/	
KoreaMed	http://www.koreamed.org/	
National Digital Library	http://www.dlibrary.go.kr/	
Korea Knowledge Portal	https://www.knowledge.go.kr/	
The National Library of Korea	http://nl.go.kr/	
Korean Library Information System Network	http://nl.go.kr/kolisnet/index.php	
Korean Traditional Knowledge Portal	http://www.koreantk.com/	
Research Information Service System	http://www.riss4u.net/	
Korean National Assembly Library (NDSL)	http://www.ndsl.kr/index.do	

Chinese Medical Databases (4)

China Academic Journal China Doctor/Master Dissertation Full Text DB China Proceedings Conference Full Text DB China Core Newspapers Database www.cnki.co.kr

Japanese Databases (4)

Japan Science and Technology Agency Science Link Japan Journal @rchive National Institute of Informatics Scholarly and Academic Information Portal http://www.jstage.jst.go.jp/browse/ http://sciencelinks.jp/ http://www.journalarchive.jst.go.jp/english/top_en.php http://ci.nii.ac.jp/

Major Korean traditional medicine journals (12)

Journal of Meridian & Acupoint Journal of Korean Institute of Herbal Acupuncture Korean Journal of Oriental Internal Medicine Journal of Korean Oriental Medicine Korean Journal of Oriental Physiology and Pathology Journal of Oriental Rehabilitation Medicine Oriental Pharmacy and Experimental Medicine The Journal of Korean Acupuncture and Moxibustion Society Journal of Oriental Neuropsychiatry Journal of Sasang Constitutional Medicine The Korean Journal of Joongpoong



Table 1: Summary of randomized sham-controlled trials included in systematic review of acupuncture for functional recovery after stroke										
Study	Study design	Patient population	Experimental treatment	Control treatment	Outcome measures					
Acute to s	ubacute stage]								
Gosman- Hedstrom et al. ¹³	Single-blind, parallel 3-arm	104 patients; rehabilitation < 1 wk after stroke	(A) Acupuncture twice weekly for 10 wk + manual and electrical stimulation; follow-up at 3 d, 3 wk, 3 mo, 12 mo ($n = 37$)	Duration of act ranged from	upuncture treatr 7 days to 10 wee • Nottingham Health Profile					
Schuler et al. ¹⁴	Single-blind, parallel 3-arm	120 patients; rehabilitation 3–35 d after stroke	(A) Acupuncture twice weekly for 4 wk + electrical stimulation; follow-up at 4 wk and 6 mo (<i>n</i> = 41)	(B) Sham electro- acupuncture (surface electrodes on acupuncture points with visual stimulation) ($n = 40$) (C) Control (no additional treatment) ($n = 39$)	• European Stroke Scale • Barthel Index					
Hopwood et al. ¹⁵	Single-blind, parallel 2-arm	105 patients; rehabilitation 4–10 d after stroke	(A) Acupuncture 3 times weekly for 4 wk + electro- acupuncture and scalp acupuncture (100 Hz electric stimulation); follow-up at 3, 6, 12, 24 and 52 wk (<i>n</i> = 57)	(B) Sham transcutaneous electrical nerve stimulation (with no current flow) (<i>n</i> = 48)	 Barthel Index Motoricity Index Nottingham Health Profile 					
Xie et al. ¹⁶	Single-blind, parallel 2-arm	64 patients; rehabilitation < 2 wk after stroke	(A) Electro-acupuncture once daily for 7–10 d (1 cycle) total 2 or 3 cycles; follow-up at 10 and 20 d (<i>n</i> = not reported)	(B) Sham acupuncture (nonpenetrating, at same acupoints) ($n = not$ reported)	 National Institutes of Health Stroke Scale Fugl–Meyer Assessment Modified Barthel Index 					
Naeser et al. ¹⁷	Double-blind, parallel 2-arm	16 patients; rehabilitation for spasticity 1–3 mo after left hemisphere infarction	(A) Acupuncture 5 times weekly for 4 wk + electro- acupuncture and scalp acupuncture; follow-up at 4 wk (n = 10)	(B) Sham acupuncture (penetrating) + sham electrical stimulation (electrical stimulation not conducted) (n = 6)	 Boston Motor Inventory Boston Motor Inventory with analysis of CT scan of lesion site 					
Park et al. ¹⁸	Double-blind, parallel 2-arm	116 patients; rehabilitation < 4 wk after stroke	(A) Acupuncture 9–12 treatments for 2 wk; follow- up at 2 wk (<i>n</i> = 56)	(B) Sham acupuncture (nonpenetrating on nonacupuncture points) (<i>n</i> = 60)	 Barthel Index National Institutes of Health Stroke Scale Motoricity Index EQ-5D Nottingham Extended Activities of Daily Living Modified Ashworth Scale 					
Huang et al. ¹⁹	Single-blind, parallel 3-arm	120 patient; rehabilitation 14–90 d after ischemic stroke	 (A) Electro-acupuncture (Back Shu) once daily 6 times weekly for 4 wk; follow-up at 4 wk (n = 40) (B) Electro-acupuncture (n = 40) 	(C) Sham electro- acupuncture (penetrating on nonacupuncture points) (n = 40)	 Barthel Index Neural Deficit score 					

Table 2 Q	uali	ity a	ssessr	nent	and i	interr	nal va	lidity	of r	ando	mize	d clinica	l trial	s incl	udec	l in tl	ne sys	stema	atic review	
						PEDro Scale item			s*	Rang		lange: 4-9		Cochrane risk of biast					Validity of	1.00000000000
Study	57	А	В	с	D	E	F	G	н	Me	an:	<mark>6.6</mark> к	L	м	N	0	Ρ	Q	(quality/degree of confidence)‡	of success of blinding
Gosman- Hedstrom et al. ¹³		1	1	0	1	0	0	1	1	1	1	1	Y	U	Y	Y	Y	Y	3/85	NR
Schuler et al. ¹⁴		1	1	0	1	1	0	0	0	1	1	1	U	U	Y	Y	Y	U	0/-	NR
Hopwood et al. ¹⁵		1	1	1	1	0	0	1	1	1	1	1	Y	Y	Y	Y	Y	Y	3/90	NR
Xie et al. ¹⁶	4	1	1	0	0	1	0	0	0	0	1	1	U	U	Υ	U	U	U	3/88	NR
Naeser et al. ¹⁷		1	1	0	1	1	0	1	1	0	1	0	U	U	Y	Ν	U	U	4/93	Performed; successful
Park et al. ¹⁸		1	1	1	1	1	0	1	1	1	1	1	Y	Y	Y	Y	Y	Y	2/75	Performed; successful
Huang et al. ¹⁹	6	1	1	0	1	1	0	0	1	0	1	1	U	U	Y	N	U	U	3/55	NR
Wayne et al. ²⁰		1	1	1	1	1	0	1	0	1	1	1	Y	Y	Y	Y	Y	Y	3/85	Performed; successful
Schaechter et al. ²¹		1	1	0	0	1	0	1	1	0	1	0	U	U	Y	Y	Y	U	0/-	Performed; successful
Fink et al. ²²		1	1	0	1	1	0	1	0	0	1	1	U	U	Y	N	N	U	3/88	Performed; successful

Note: NR = not reported, PEDro = Physiotherapy Evidence Database.

*PEDro Scale items: A = eligibility criteria specified, B = randomization, C = allocation concealment, D = groups similar at baseline, E = blinded subjects, F = blinded therapist, G = blinded assessors, H = adequacy of follow-up, I = ITT analysis, J = between-group comparison, K = point and variability measures; 1 = item positive, 0 = item negative or unknown.

†Cochrane risk of bias: L = Was the allocation sequence adequately generated?, M = Was allocation adequately concealed?, N = Was knowledge of the allocated intervention adequately prevented during the study?, O = Were incomplete outcome data adequately addressed?, P = Are reports of the study free of suggestion of selective outcome reporting?, Q = Was the study apparently free of other problems that could put it at a high risk of bias?; Yes (Y) = low risk of bias, No (N) = high risk of bias, Unclear (U) = uncertain risk of bias.

*Acupuncture validity indicated by quality of acupuncture technique (0 = could not assess, 1 = completely different from previously described technique, 2 = different from previously described technique, 3 = similar to previously described technique, 4 = exactly or almost exactly the same as previously described technique) and degree of confidence, using 100-mm visual analogue scale, that acupuncture was applied in an appropriate manner (0% = complete absence of evidence that acupuncture was appropriate, 100% = total certainty that acupuncture was appropriate, - = could not assess).

	Acupunct	ure	Shar	n acupun	cture	Standardized mean difference (95% CI) 0.23 (–0.23 to 0.70)		
Study	Mean (SD)	Total 37	Mea	an (SD)	Total 34			
Gosman-Hedstrom ¹³	38.18 (24.77)		32	(27.34)				
Hopwood ¹⁵	5.8 (5.0)	47	5.2	(5.15)	45	0.12 (-0.29 to 0.53)		
Huang ¹⁹	29.48 (17.25)	40	8.36	5 (14.38)	20	1.27 (0.69 to 1.86)		
Schuler ¹⁴	13.6 (24.22)	41	16.6	(23.24)	40	-0.13 (-0.56 to 0.31)		
Xie ¹⁶	41.21 (22.08)	32	21.62	2 (17.19)	32	0.98 (0.46 to 1.50)		
Overall		197			171	0.47 (-0.02 to 0.96)		

At Activities of daily living (Parthal Index) after intervention periods



B: Subanalysis for activities of daily living

	A	cupunct	ure	Shar	n acupur	octure	Standardized mean	
Study	Me	an (SD)	Total	Me	an (SD)	Total	difference (95% CI)	
Gosman-Hedstrom ¹³	38.18	3 (24.77)	37	32	(27.34)	34	0.23 (-0.23 to 0.70)	
Hopwood ¹⁵	5.8	(5.0)	47	5.2	(5.15)	45	0.12 (-0.29 to 0.53)	
Schuler ¹⁴	13.6	(24.22)	41	16.6	(23.24)	40	-0.13 (-0.56 to 0.31)	
Overall			125			119	0.07 (-0.18 to 0.32)	



C: Activities of daily living (Barthel Index) after follow-up

	1	Acupuncture			m acupur	ncture	Standardized mean		
Study	Me	an (SD)	Total	Me	ean (SD)	Total	difference (95% CI)		
Gosman-Hedstrom ¹³	41.94	1 (25.78)	37	37.1	7 (26.28)	34	0.18 (-0.29 to 0.65)		
Hopwood ¹⁵	9.4	(4.39)	47	9	(4.64)	45	0.09 (-0.32 to 0.50)		
Schuler ¹⁴	14.5	(35.43)	41	13	(29.78)	40	0.05 (-0.39 to 0.48)		
Overall			125			119	0.10 (-0.15 to 0.35)		



	Acupunct	ure	Sham acupu	ncture	Standardized mean		
Study	Mean (SD)	Total	Mean (SD)	Total	difference (95% CI)		
Gosman-Hedstrom ¹³	9.27 (9.23)	37	9.17 (7.37)	34	0.01 (-0.45 to 0.48)		
Schuler ¹⁴	5 (19.56)	41	5.7 (19.42)	40	-0.04 (-0.47 to 0.40)		
Xie ¹⁶	6.45 (3.1)	32	4.17 (3.72)	32	0.66 (0.15 to 1.16)		
Overall		110		106	0.20 (-0.23 to 0.62)		



E: Subanalysis for global neurologic defect

	Acupunct	Acupuncture Sham acupuncture Stan		Standardized mean		
Study	Mean (SD)	Total	Mean (SD)	Total	difference (95% CI)	
Gosman-Hedstrom ¹³	9.27 (9.23)	37	9.17 (7.37)	34	0.01 (-0.45 to 0.48)	
Schuler ¹⁴	5 (19.56)	41	5.7 (19.42)	40	-0.04 (-0.47 to 0.40)	
Overall		78		74	-0.01 (-0.33 to 0.30)	<i>l</i> ² = 0%



Authors' Conclusions

 Our meta-analyses of data from rigorous randomized sham-controlled trials did not show a positive effect of acupuncture as a treatment for functional recovery after stroke.

Disadvantages

- Small sample size (16 120 participants)
 - Although one of the benefits of meta-analysis is that a synthesis of inadequately powered studies can yield interesting findings, a large number of studies would be required in order to show conclusive findings.
 - Researchers should ensure that their efficacy trials are powered appropriately.
 CMAJ. 2010;182(16):1711
- Sham control only

Comments, Opinions, and Reviews

Acupuncture in Poststroke Rehabilitation A Systematic Review and Meta-Analysis of Randomized Trials

Ping Wu, MD, MSc; Edward Mills, MSc, PhD; David Moher, MSc, PhD; Dugald Seely, ND, MSc

Background and Purpose—Acupuncture is a low-risk treatment with purported claims of effectiveness for poststroke rehabilitation. To comprehensively assess the efficacy of acupuncture in poststroke rehabilitation we conducted a systematic review and meta-analysis of all randomized clinical trials of acupuncture for poststroke rehabilitation.
 Methods—We searched 7 English and 2 Chinese databases from inception to September 2009. Eligible studies included randomized clinical trials that evaluated the clinical efficacy of acupuncture in adult patients with disability after stroke. We extracted data on trial quality, protocol, and outcomes assessed. A summary OR was calculated based on pooled dichotomous results. I² was used to infer heterogeneity and we conducted metaregression to determine if specific covariates explained heterogeneity. (Stroke. 2010;41:e171-e179.)

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Types of outcome measures

Generalized or specific motor impairments:

- Motor impairment scales
 - Motor Assessment Scale (MAS)
 - Rivermead Index (RMI)
 - Boston Motor Inventory test
 - Fugl-Meyer Assessment (FMA)
 - Brunnstrom-Fugl-Meyer test (BFM)
- Generalized stroke scales
 - Scandinavian STROK Scale (SSS)
 - Chinese Stroke Score (CSS)
 - New Chinese Herbal Medicines in Stroke (UNCHMS)
 - Modified Edinburgh-Scandinvian Stroke Scale (MESSS)
 - NIH stroke scale (NIHSS)
- Disability assessments
 - Barthel ADL Index (BI)
 - Functional Independence Measure (FIM)
 - Sunnaas ADL index (SADLI)



Figure 1. Flow chart depicting studies included in the systematic review.

Table	1. General	Information of P	atient Chara	cteristics in	Each Tri	al					
Year	Author	Country or Area Where Trial Took Place	Language of Publication	No. of Participants	No. in Ac Group	No. in Control Groups	Type of Stroke	Subgroup Diagnosed by TCM Criteria	No. of Dropouts During Treatment	Poststroke Treatment Within 1 Month	Treatment Duration Weeks
1992	Naeser ²⁶	USA	English	16	10	6	Infarction	N	0	N	4
1993	Hu ²⁷	Taiwan	English	30	15	15	Infarction	N	0	Y	4
1993	Jahansson ²⁸	Sweden	English	78	38	40	Mix	Ν	18	Y	10
1996	Zhen ²⁹	China	Chinese	70	40	30	Hemorrhage	Y	0	Y	NA
1997	Kjendahl ³⁰	Norway	English	45	24	21	Mix	N	4	N	6
1998	Gosman- Hedstrom ³¹	Sweden	English	104	37	34/33	Infarction	N	2	Y	10
1998	Si ³²	China	English	42	20	22	Infarction	Ν	NA	Y	5
1998	Wang ³³	China	Chinese	160	80	80	Infarction	Ν	0	Y	6
1998	Yin ³⁴	China	Chinese	150	100	50	Infarction	Y	0	Y	4
1999	Jin ³⁵	China	Chinese	120	60	60	Infarction	Ν	0	Y	6
1999	Li ³⁶	China	Chinese	64	30	34	Hemorrhage	N	0	Y	4
1999	Lun ³⁷	China	Chinese	109	61	48	Mix	N	0	N	4
1999	Wong ³⁹	Taiwan	English	118	59	59	Mix	Ν	0	Y	2
1999	Zhang ³⁸	China	Chinese	241	145	96	Mix	Y	0	Y	4
2000	Liu ⁴⁰	China	Chinese	120	60	60	Infarction	N	4	N	3
2001	Chen41	China	English	37	21	16	Infarction	Ν	0	Y	4
2001	Johansson ⁴²	Sweden	English	99	48	51	Mix	N	9	Y	10
2001	Liu ⁴³	China	Chinese	160	120	40	Infarction	Y	0	Y	8
2001	Pei ⁴⁴	China	English	86	43	43	Infarction	N	NA	Y	4
2001	Tao ⁴⁵	China	Chinese	46	26	20	Mix	Ν	0	Y	4
2002	Jing ⁴⁶	China	Chinese	186	96	90	Hemorrhage	Y	NA	Y	3
2002	Su ⁴⁷	China	Chinese	83	43	40	Infarction	Ν	0	Y	4
2002	Sze ⁴⁸	Hong Kong	English	106	62	44	Mix	N	14	Y	10
2002	Zhou ⁴⁹	China	Chinese	183	149	34	Hemorrhage	Y	0	Y	4
2004	Alexander ⁵⁰	USA	English	32	16	16	Mix	N	3	Y	2
2004	Fink ⁵¹	German	English	25	13	12	Mix	N	NA	N	4
2004	Zhang ⁵²	China	Chinese	80	40	40	Mix	Y	0	Y	3

Year	Author	Country or Area Where Trial Took Place	Language of Publication	No. of Participants	No. in Ac Group	No. in Control Groups	Type of Stroke	Subgroup Diagnosed by TCM Criteria	No. of Dropouts During Treatment	Poststroke Treatment Within 1 Month	Treatment Duration Weeks
2005	Lei53	China	Chinese	69	43	26	Infarction	Y	0	N	7
2005	Park ⁵⁴	USA	English	116	56	60	Mix	N	18	Y	2
2005	Wang55	China	Chinese	120	60	60	Infarction	Ν	0	Y	4
2005	Wayne57	USA	English	33	16	17	Mix	Ν	9	N	10
2005	Zeng ⁵⁶	China	Chinese	101	49	52	Infarction	N	5	Y	4
2006	Ge ²¹	China	Chinese	46	25	21	Mix	N	0	Y	3
2006	Guo ⁵⁸	China	Chinese	76	51	25	Mix	N	0	Y	4
2006	Lj ²⁴	China	Chinese	120	60	60	Mix	N	0	N	8
2006	Liu ²⁰	China	Chinese	80	40	40	Mix	N	0	Y	4
2006	Rao ²³	China	Chinese	40	20	20	Infarction	Y	0	Y	4
2006	Xu ²²	China	Chinese	80	40	40	Mix	N	0	Y	8
2007	Guo ⁵⁹	China	Chinese	80	40	40	Mix	N	0	Y	NA
2007	Heieh ¹⁵	Taiwan	English	63	30	33	Infraction	N	0	Y	4
2007	Peng ¹⁷	China	Chinese	80	40	40	Infarction	N	0	Y	2
2007	Shi ⁶⁰	China	Chinese	86	43	43	Mix	N	0	Y	6
2007	Yang ²⁵	China	Chinese	100	50	50	Mix	N	0	Y	8
2007	Zhang ¹⁸	China	Chinese	206	103	103	Mix	N	0	Y	4
2007	Zhang ¹⁹	China	Chinese	220	110	110	Mix	N	0	Y	4
2007	Zhang ¹⁶	China	English	90	30	60	Mix	N	0	Y	4
2008	Hopwood V61	UK	English	105	57	48	Mix	Ν	13	Y	4
2008	Zhang ⁶²	China	Chinese	120	60	60	Infarction	N	0	Y	4-6
2008	Ge ⁶⁴	China	English	150	75	75	Mix	N	0	Y	3
2009	Lj65	China	English	63	31	32	Infarction	N	0	N	4
2008	Zhang ⁷⁰	China	English	90	45	45	Infarction	N	0	Y	4
2007	Shen ⁶⁸	China	Chinese	35	18	17	Infarction	N	0	Y	4
2009	Dai ⁶³	China	Chinese	145	72	73	Mix	N	0	N	8
2008	Liu ⁶⁷	China	Chinese	90	45	45	Mix	N	0	Y	4
2001	Yang ⁶⁹	China	Chinese	48	29	19	Infarction	N	0	Y	6
2009	Lin ⁶⁶	China	Chinese	56	37	19	Infarction	N	0	Y	3

Mix indicates either infarction or hemorrhage; N, no; Y, yes; NA; not available.

		Table 1	I: Details of m	nethodological	criteria in ea	ch trial.													
		Year	Author	treatment group	control group	sample size calculati on	Randomiz ation described	Allocati on conceal ment describ ed	Patients	Descrip tion of withdra wals	Assess or Blinded	Ac rational e describ ed	Clear frequen cy of treatme nts	Depth of insertion or needle type	Practiti oner trainin g describ ed	Adverse events described	Follow-up evaluation		
		1992	Naeser MA ²⁶	electro-scalp-body-A	sham Ac	N	N	N	Y	Y	Y	Y	Y	N	N	N	N		
		1003	HU HH	electro-scalp-body-A	No Ar	N	N	N	N	~	N	~	×	×	×	×	v		
		1993	Jahansson K ²⁸	electro-body-Ac	No Ac	N	N	N	N	v	N	N	Y Y	v	N	N	Y		
		1996	Zhan JG ²⁹	body Ac	No Ac	N	N	N	N	Y	N	Y	N	Y	N	N	N		
		1997	Kiendahl A ²⁰	scalp-body-Ac	No Ac	N	N	N	N	Y	Y	N	Y	N	Y	N	Y		
		1998	Gosman-Hedstro	electro-scalp-body-A	sham Ac & No	N	×	×	~		×	× ×	×	×	N	N	×		
		1009	SI CHIR	electro-scalp-body-A	No.Ao		N				v						N		
		1998	Si GM	C electro both Ar	NO AC	N	N	N			N	, r	Y V		N	N	N		
		1998	Via K I ^M	electro-body-Ac	No Ac	N	N	N	N		N	, r	Y Y	, ,	N	N	N		
		1990	E all	electro-scalp-body-A	NO AC						N .				N		19		
		1999	Jin Z''	c	No Ac	N	N	N	N	Y	N	Y	Y	Y	N	N	N		
		1999	Li Jan	scalp Ac	No Ac	N	N	N	N	Y V	N	Y	Y	Y U	N	N	N		
		1303	Lun X	scep Ac	NO AC					<u> </u>	N.	-		1	N	N			
sample size calculati on	Randomiz ation describeo	z	Allocati on conceal ment describ ed	Patients blinded	Descr tion c withdr wals	ip of ra	Assess or Blindec	r ; i	Ac ational e lescrib ed	fr tr	Clear equen cy of eatme nts		Dept insert	th of ion or e type_	Pra or trai des e	ctiti ner inin g crib d	Advers event describ	se s jed	Follow-u evaluatic
		2002	Su L ⁴⁷	body Ac	No Ac	N	N	N	N	Y	N	Y	Y	N	N	N	N		
		2002	Sze FK ^{at}	body Ac	No Ac	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N		
		2002	Zhou S ⁴⁸	body Ac	No Ac	N	N	N	N	Y	N	Y	Y	Y	N	N	N		
		2004	Alexander DN ³⁰	scalp-body-Ac	No Ac	Y	N	N	N	Y	Y	Y	Y	N	Y	Y	N		
		2004	Fink M ⁵¹	body Ac	sham Ac	N	N	N	Y	N	Y	Y	Y	N	Y	N	Y		
		2004	Zhang X ¹²	body Ac	No Ac	N	N	N	N	Y	N	Y	N	N	N	Y	N		
		2005	Lei Z ^{ta}	body Ac	No Ac	N	N	N	N	Y	N	Y	Y	Y	N	N	N		
		2005	Park J*	body Ac	sham Ac	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N		
		2005	Wang Z**	electro-scalp-body-A	No Ac	N	N	N	N	Y	N	Y	Y	Y	N	N	N		
		2005	Wayne PM ⁵⁷	c	sham Ac	N	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N		
		2005	Co 7VII	body Ac	No Ac	N	Y U	Y	N	1 U	Y	Y U	Y	Y	N	Y N	Y H		
		2006	Gue Z 1 ⁽⁸⁾	Body Ac	No Ac	N	N	N	N	v	N	v	v	v	N	N	N		
		2005	LI SC ²⁴	scalp-body-Ac	No Ac	N	N	N	N	v	N	Y	Y	v	N	N	N		
		2006	Line Antin	electro-scalp-body-A	No Ar	N	N	N	N	v	N	v	v	~	N	N	N		
		2005	Reo P ²³	scalp-body-Ac	No Ac	N	Y	Y	N	v	Y	v	Y	v	N	Y	Y		
		2006	Xu YL ²²	scalp-body-Ac	No Ac	N	N	N	N	Y	N	Y	Y	Y	N	N	N		
		2007	Guo DY ⁵⁹	scalp-body-Ac	No Ac	N	Y	N	N	Y	Y	Y	Y	Y	N	N	Y		
		2007	Heich R ¹⁵	electro-body-Ac	No Ac	N	Y	N	N	Y	Y	Y	Y	Y	N	N	Y		
		2007	Peng L ¹²	electro-body-Ac	No Ac	N	N	N	N	Y	N	Y	Y	Y	N	N	Y		
		2007	Shi Y ⁴⁰	scalp-body-Ac	No Ac	N	Y	N	N	Y	N	Y	Y	Y	N	N	N		
		2007	Yang D ²⁹	body Ac	No Ac	N	N	N	N	Y	N	Y	Y	Y	N	N	N		
		2007	Zhang JL ¹⁴	Scalp Ac	No Ac	N	N	N	N	Y	N	Y	Y	Y	N	N	N		
		2007	Zhang JL ¹⁹	scalp-body-Ac	No Ac	N	N	N	N	Y	N	Y	Y	Y	N	N	N		
2	012/3/13	2007	Zhang W ¹⁸	Body-Ac	No Ac	N	N	N	N	Y	N	Y	Y	N	N	N	N		56
		2008	Hopwood V ⁶¹	scalp-body-Ac	Sham Ac	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y		
		2008	Zhang HF ^{rg}	Body-Ac	No Ac	N	Y	N	N	Y	N	Y	Y	Y	N	N	N		

Figure 2. Efficacy in poststroke rehabilitation with Ac compared with no Ac.

35 trials: in China → OR=4.49, 95% CI: 3.16 to 6.39 I²=69.8%

3 trials: outside of China →OR=3.33, 95% CI: 0.75 to 14.88 |²=2.49%



odds ratio (95% confidence interval)

38 trials: numeric data for meta-analysis → OR=4.33, 95% CI: 3.09 to 6.08 I²=72.4%

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Odds ratio meta-analysis plot [random effects]

Metaregression to identify specific covariates for heterogeneity

- 1. Country of origin
- 2. Manual acupuncture
- 3. Sham control
- 4. Randomization

 No significant effects of allocation concealment on heterogeneity

Figure 3. Funnel plot indicating potential for publication bias.



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Acupuncture for Acute Stroke

Author (Date)	No. of Studies Included	No. of Chinese Studies (Publication Dates)	No. of English Studies (Publication Date)	Results
Li ⁷	9	9	0	Improved limb strength:
(2002)		(1994–2000)		OR=2.45 (1.62-3.72)
				Improved neurological function:
				OR=2.90 (1.98-4.26)
Sze ⁶	14	4	9	Disability: 0R=0.49 (0.03-0.96)
(2002)		(1981–2000)	(1966-2001)	Motor change: 0R=1.01 (0.79-1.22)
				Interval to stroke >6 months
				No difference between real and sham Ac
Park	9	3	6	Results were not pooled and
(2001)5		(1990–1998)	(1969–1999)	reported separately
Wu ⁸	5	4	1	Improvement of global neurological deficit: 0R=6.55 (1.89-22.76)
(2006)		(1997–2001)	(1966–2005)	
This study	56	35 (1996–2009)	21 (1992–2009)	Clear clinical improvement: OR=4.33 (95% Cl: 3.09–6.08)

Table 2. Comparison of This Work With Other Systematic Reviews and Meta-Analyses

Figure 4. Comparison of OR results in 4 meta-analyses.

Forest (meta-analysis) plot of 4 meta-analysis



Authors' Conclusions

 Acupuncture may be effective in the treatment of poststroke rehabilitation, but poor study quality and the possibility of publication bias hinder the strength of this recommendation.

Disadvantages

- Data extraction
 - No subgroup of acute/subacute and chronic stroke
- No specific outcome measures
 - Overall, the outcomes assessed included motor impairment scales, generalized stroke scales, and disability assessments

Other strengths in this paper

- Identified a likely language bias in favor of positive findings, a finding consistent with reviews of Chinese medical literature.
- All the studies in which sham Ac was used, no differential effectiveness from true Ac was found.

Is sham acupuncture really sham?

• Characteristic factors are therapeutic actions or strategies that are theoretically derived, unique to a specific treatment, and believed to be causally responsible for the outcome.



Application of randomised controlled design to trial of non-pharmaceutical intervention such as acupuncture

Comparison of these Three Systematic Reviews and Meta-Analyses

	Stroke stage	Control group	No. of Studies included	No. of Chinese Studies (Publish)	No. of English Studies (Publish)	No. of patients (Acute)	Results	Journal	IF
Zhang (2005)	Acute	Sham /Open	14	8 (1993- 2002)	6 (1993- 2003)	1208	(-)	Coch- rane	6.186 (10/153)
Kong (2010)	Acute/ Chronic	Sham	10	2 (2004- 2008)	8 (1992- 2008)	711 (645)	(-)	CMAJ	9.105 (9/153)
Wu (2010)	Acute/ Chronic	Sham /Open	56	35 (1996- 2009)	21 (1992- 2009)	5298 (4553)	May be effec- tive	Stroke	5.756 (7/68) (13/185)

Step 4: Apply (用)

- Acupuncture appeared to be safe.
- Acupuncture for acute stroke (<30 days)
 - Likely effective for decreasing global neurological deficit (especially compare with open control)
 - Likely effective for improving poststroke motor function (only compare with open control)
 - May be effective in the treatment of poststroke rehabilitation
- It's reticent to strongly endorse acupuncture for acute stroke because of poor study quality.

Apply to acute stroke patient

醫療現況	病人意願
台灣的腦血管疾病排十大死因的 第三位,平均不到一小時就有一 人因腦血管疾病而死亡。 腦中風影響的不只患者一個人, 而是整個家庭。	雖針刺會有疼痛,但接受程度因 人而異,有的人很喜歡,有的人 很排斥。
生活品質	社會脈絡
對病人的生活品質不一定有幫助	中醫廣泛為國人所接受,佔健保 總額約4%。

Step 5: Auditing (審)

- 我提出的問題是否具有臨床重要性? 我是否明確的陳述了我的問題?
- 我是否已盡全力搜尋?
 我是否從大量的資料庫來搜尋答案?
- 我是否盡全力做評讀了?
 評讀後,我是否做出了結論?
- 我是否覺得這個進行實證醫學的過程是值得的?
- 我還有那些問題或建議?

Dr. Yen's comments

- Obviously, many of the previous data had some flaws and were not strong enough by the definition of EBM.
- After a thorough literature review, how would you design a clinical trial to evaluate the effectiveness of acupuncture for acute stroke?

Thanks for your attention