

EBM Meeting

Tennis Elbow

報告者: R3 許中原
指導醫師: 陳星諭醫師



Outline

- Background
- Introduction of EBM pyramid and appraisal
- Scenario
- Ask(PICO)
- Acquire
- Appraisal(VIP)
- Apply
- Audit



Background

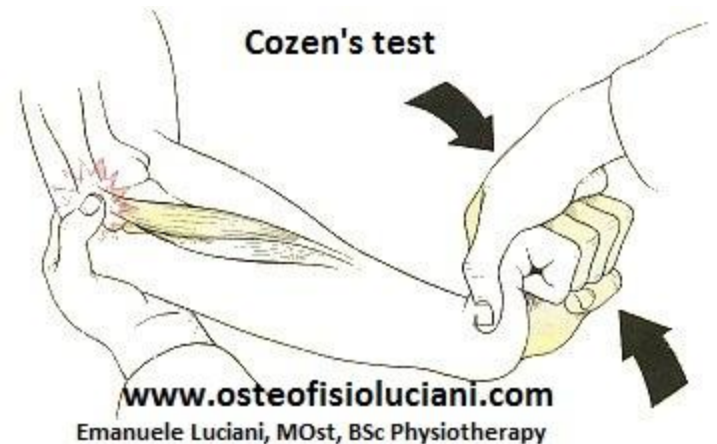
Lateral epicondylitis, or “tennis elbow,” is a common musculotendinous degenerative disorder of the extensor origin at the lateral humeral epicondyle.



- Repetitive occupational or athletic activities involving wrist extension and supination are thought to be causative.
- The typical symptoms include lateral elbow pain, pain with wrist extension, and weakened grip strength.



The diagnosis is made clinically through history and physical examination(local tenderness, resisted isometric test , Cozen's test)





- Most patients improve with nonoperative measures, such as activity modification, physical therapy, and injections.
- A small percentage of patients will require surgical release of the extensor carpi radialis brevis tendon.



INDICATIONS FOR ORTHOPEDIC REFERRAL

- Severe pain or marked dysfunction for six months or longer
- Failure of conservative management, including properly performed physical therapy, to improve symptoms or function over six months
- Patient uninterested in pursuing nonoperative treatment options (eg, alternative treatments) for chronic tendinopathy



Acupuncture

Results from a few small randomized trials suggest acupuncture may provide some short term relief, but there is no evidence of sustained benefit.

Uptodate Epicondylitis (tennis and golf elbow) This topic last updated: Jun 18, 2014.



FIVE STEPS TO PRACTICE EBM (5 A)

➤ **Formulate an answerable question. (Ask: PICO)PICO**

提問：由個案的臨床資料提出可回答的臨床問題

➤ **Track down the best evidence. (Acquire)**

尋找最佳的實證文獻〔各種文獻資料庫，包括發表及未發表的資料〕

➤ **Critically appraise the evidence for validity, impact, and applicability.(Appraisal)**

評估最佳實證醫學文獻的可信度、臨床重要性、以及可應用性

➤ **Integrate with our clinical expertise and patient values. (Apply)**

整合並應用於實際患者的治療決策〔臨床應用〕

➤ **Evaluate our effectiveness and efficacy. (Audit)**

溝通：以簡單病人可以聽懂的語言，告知各種處置之可能利益與風險。〔效果評估〕

The Evidence Pyramid

Level of Evidence I~V

Randomized Controlled Trials (RCT) ~ I

SR RCT

I 隨機控制對照研究
Double Blinded RCT

研究設計與證據強度

Modify from: Oxford Center for EBM

II 世代研究

III 病例對照研究

IV 病例報告及系列

V 個人意見、動物及試管研究

Animal, test tube research



統計方法

Meta-analysis

統合分析

圖示結果

Forest plot

Meta - analysis

研究設計與證據強度 (Bias, Robust)

Hierarchy of evidence: arranges study designs by their susceptibility to bias. (Robust)

Grade of Recommendation	Level of Evidence	Therapy
[A] From: Oxford Center for EBM	1a	Systematic review (with homogeneity) of RCTs
	1b	Single RCT (randomized controlled trial)
	1c	‘All-or-none’ 推翻現有的(治療)
[B] 研究設計與證據的強度 Evidence-Based Medicine: How to Practice and Teach EBM. 2nd ed. David L. Sackett, Sharon E. Straus, W. Scott Richardson, William Rosenberg, R. Brian Haynes. Churchill Livingstone. 2000, p173-177 Guideline 證據等級 (Levels of Evidence) : 臨床指引(Guideline) 建議的形成是根據文獻的證據等級而來，建議強度與證據等級有關，但建議強度並非表示建議的重要性。	2a	Systematic review of cohort studies
	2b	Cohort study or poor RCT
	2c	‘Outcomes’ research
	3a	Systematic review of case-control studies
	3b	Case-control study
[C]	4	Case series
[D]	5	Expert opinion, physiology, bench research



APPRAISAL (VIP)

➤ Validity

Oxford CEBM Clinical Appraisal Tool

➤ Impact

RRR (relative risk reduction) NNT (number needed to treat)

NNH (number needed to harm), Impact factor of journals

➤ Practicability (applicability)



Scenario

張先生今年四十多歲，無其他慢性病史，從事搬運工十多年了。近半年總覺得右手肘及前臂外側隱隱的痠痛，拿重一點的東西或擰毛巾時症狀更加明顯，於是到長庚醫院針傷科門診就診。



ASK

- P** Tennis elbow/lateral epicondylitis
- I** Traditional chinese medicine/Acupuncture/manipulation
- C** Corticosteroid Injection
- O** Pain release, PFGS score improve

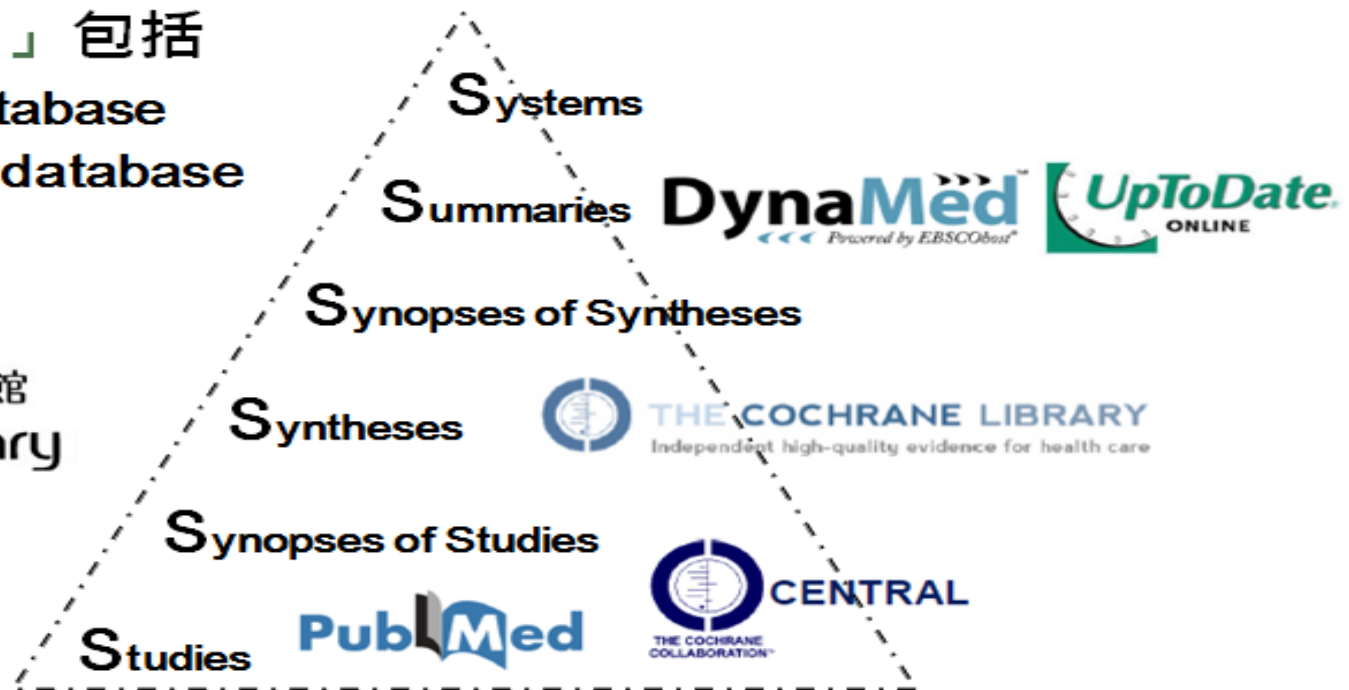
這是一個「治療型」的問題



Aquire

- ▶ 「搜索資源」包括
 - Primary database
 - Secondary database
 - 本土資料

華藝線上圖書館
airiti Library





keywords

P

Tennis elbow, humeral lateral epicondylitis, epicondyl pain

I

Traditional chinese medicine, herb, acupuncture, manipulation

C

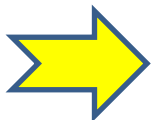
Placebo, no treatment, Physical therapy, activity modification, steroid injection

O

Efficacy, side effect, benefit, Pain release, PFGS score improve

MeSH

(Tennis Elbow[Mesh] or lateral epicondylitis or epicondyl pain) and (traditional chinese medicine[Mesh] or acupuncture or herb or manipulation) and review



UpToDate®

Search results for "Tennis Elbow or lateral epicondylitis"

All Topics

Adult

Pediatric

Patient

Graphics

Epicondylitis (tennis and golf elbow)

Other treatments

Initial management

Summary and recommendations

Antiinflammatory treatments

Epidemiology and risk factors

Evaluation of elbow pain in adults

Confirmatory tests

Differential diagnosis

Examination

Etiology and presentation

Summary and recommendations

Elbow injuries in the child or adolescent athlete

Differential diagnosis

Summary

Diagnostic imaging

History

Physical examination

Osteochondritis dissecans (OCD): Clinical manifestations and diagnosis

Differential diagnosis

Clinical manifestations

Summary

Management

Definition

Welcome, Chang Gung Memorial Hospital North

Log in

Patient Info

What's New

PCUs

Calculators

Drug Interactions

Collapse Results

Hide Topic Outline

KEY WORD:

Tennis Elbow or lateral epicondylitis

RESULT:

All(15) Fit(3)

• Bracing

• Splints

• Physical therapy and eccentric exercise

SECONDARY MANAGEMENT

RADIOGRAPHIC FINDINGS

ANTIINFLAMMATORY TREATMENTS

• Nonsteroidal antiinflammatory drugs (NSAIDs)

• Glucocorticoid injections

• Iontophoresis

OTHER TREATMENTS

搜尋過程 Pubmed

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Article types

Clinical Trial
Review
More ...

Text availability

Abstract
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Publication dates

5 years
10 years
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Species

Humans
Other Animals

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Results: 1 to 20 of 41

☐ [Treating lateral epicondylitis with physiotherapy: a systematic review](#)

1. [Treating lateral epicondylitis with physiotherapy: a systematic review](#)

Olaussen M, Holmedal BMJ Open. 2013 Oct 29;3(10):e005888. PMID: 24171937 [PubMed]

PMID: 24171937 [PubMed]

[Related citations](#)

☐ [Lateral epicondylitis: a systematic review](#)

2. [Lateral epicondylitis: a systematic review](#)

Ahmad Z, Siddiqui N, M Bone Joint J. 2013 Sep;95-B(9):958-9. PMID: 23997125 [PubMed]

PMID: 23997125 [PubMed]

[Related citations](#)

☐ [Effect of acupuncture on lateral epicondylitis: a systematic review](#)

3. [Effect of acupuncture on lateral epicondylitis: a systematic review](#)

Bastos JL, Pires ED, S J Acupunct Meridian Stud. 2013 Jun;6(2):105-11. PMID: 23787286 [PubMed]

PMID: 23787286 [PubMed]

[Related citations](#)

☐ [Does effectiveness of exercise therapy and mobilisation techniques offer guidance for the treatment of lateral and medial epicondylitis? A systematic review](#)

4. [Does effectiveness of exercise therapy and mobilisation techniques offer guidance for the treatment of lateral and medial epicondylitis? A systematic review](#)

Hoogvliet P, Randsdorp MS, Dingemanse R, Koes BW, Huisstede BM. Br J Sports Med. 2013 Nov;47(17):1112-9. doi: 10.1136/bjsports-2012-091990. Epub 2013 May 24. Review. PMID: 23709519 [PubMed - indexed for MEDLINE]

Br J Sports Med. 2013 Nov;47(17):1112-9. doi: 10.1136/bjsports-2012-091990. Epub 2013 May 24. Review. PMID: 23709519 [PubMed - indexed for MEDLINE]

PMID: 23709519 [PubMed - indexed for MEDLINE]

[Related citations](#)

☐ [Is spinal manipulation effective for pain? An overview of systematic reviews](#)

5. [Is spinal manipulation effective for pain? An overview of systematic reviews](#)

Posadzki P. Pain Med. 2012 Jun;13(6):754-61. doi: 10.1111/i.1526-4637.2012.01397.x. Epub 2012 May 23. Review. PMID: 22611111 [PubMed - indexed for MEDLINE]

KEY WORD:

(Tennis Elbow[Mesh] or lateral epicondylitis) and (traditional chinese medicine[Mesh] or acupuncture or herb or manipulation) and review

RESULT:

All(41) Fit(2)

(n) and (traditional chinese medicine)

[Search](#)

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[Display Settings option -](#)

Search terms

alleviation of lateral epicondylitis with corticosteroid therapy [BMJ Open. 2013]

[See more...](#)

Articles in PubMed

epicondylitis with corticosteroid therapy [BMJ Open. 2013]

[Clin Evid (Online). 2011]

review with procedural sedation for musculoskeletal disorders [Musculoskelet Disord. 2008]

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Search details



搜尋過程 The cochrane library

Search

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Medical Terms / MeSH

Browse



Title, Abstract, Keywords

(Tennis Elbow or lateral

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(Word variations have been

Clear

All Results (62)

☒ Cochrane Reviews (2)☐ All☒ Review☐ Protocol☐ Other Reviews (8)☐ Trials (50)☐ Methods Studies (0)☐ Technology Assessments (2)☐ Economic Evaluations (0)☐ Cochrane Groups (0)☒ All☐ Current Issue

Cochrane Database of Systematic Reviews

Issue updated daily throughout monthThere are 2 results from 8647 records
(traditional chinese medicine or acupuncture
Reviews'[Select all](#) | [Export all](#) | [Export selected](#)**Acupuncture for lateral elbow pain**

Sally Green , Rachelle Buchbinder

Online Publication Date: January 2013

**Non-steroidal anti-inflammatory drugs (NSAIDs) for treating lateral elbow pain in adults**

Porjai Pattanittum , Tari Turner , Sally Green and Rachelle Buchbinder

Online Publication Date: May 2013

[Export selected](#)

Me

Methodology

Dx

Diagnostic

Ov

Overview

Cc

Conclusions changed

Ns

Review

KEY WORD:

(Tennis Elbow or lateral epicondylitis) and
(traditional chinese medicine or acupuncture
or herb or manipulation) and review

RESULT:

All(2) Fit(1)

Results Tools

Options

All

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Next

Search Information

You searched:

limit 1 to "review articles" [Limit not valid in ACP Journal Club,DARE,CCTR; records were retained]

- Search terms used:

acupuncture

chinese

elbow

epicondylitis

herb

lateral

lateral epicondylitis

manipulation

medicine

tennis

tennis elbow

traditional

traditional chinese

medicine

Search Returned:

66 text results

Deduplicate

Sort By:

-

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Filter By

Add to Search History

+Selected Only(0)

1. ☐ Acupuncture for lateral elbow pain.

Green, S. M. Nynke. A. Fitzgerald, Patrick M.

EBM Reviews - Cochrane Database of Systematic Reviews

Cochrane Musculoskeletal Clinical Review [Systematic Review]

AN: 00075320-1000000000

View Abstract

2. ☐ Surgery for lateral elbow pain.

Buchbinder, Rachele. Jo. Smidt, Nynke.

EBM Reviews - Cochrane Database of Systematic Reviews

Cochrane Musculoskeletal Clinical Review [Systematic Review]

AN: 00075320-1000000000

View Abstract

3. ☐ Botulinum toxin for shoulder pain.

Singh, Jasvinder A. Fitzgerald, Patrick M.

EBM Reviews - Cochrane Database of Systematic Reviews

搜尋過程 EBM reviews

KEY WORD:
(Tennis Elbow or lateral epicondylitis) and
(traditional chinese medicine or acupuncture
or herb or manipulation) and review

RESULT:
All(66) Fit(1)

+ My Projects

Table of Contents

Abstract Reference

Complete Reference



搜尋過程 本土資料庫

| 文章 | 出版品 | 所有欄位



▼ 更多選項

查詢歷史

常用關鍵字: B&B 調節焦

CEPS期刊
51CJTD中國大陸期刊
1090CJTD中國大陸碩博
18

依下方條件來精確結果

學科分類

- 醫學與生命科學 (49)
- 應用科學 (1)
- 社會科學 (1)

年代

- 2012年以後 (1)
- 2010年以後 (14)
- 2009 (7)

▼ 展開

出版品名稱

- 中國誤診學雜誌 (4)
- 陝西中醫 (4)
- 中國中醫急症 (3)
- 中國民族民間醫藥 (3)
- 甘肅中醫學院學報 (3)
- 中國中醫骨傷科雜誌 (2)
- 現代中西醫結合 (2)

查詢 (網球肘) = 所有欄位
查詢表達式: [ALL]:網球

篇名. 關鍵字. 摘要

每頁 10筆

☐ 書目匯出

- ☐ 1 推拿与火
史清钊(Qing
遼寧中醫雜誌
肱骨外上髁炎，推拿，火針，個案比較，terms elbow，massage，acupuncture，comparison
預覽摘要

- ☐ 2 針灸結合推拿治療肱骨外上髁炎52例臨床觀察
倪淼璐；
黑龍江醫藥 23卷4期 (2010/07), 655-656
針灸；推拿；肱骨外上髁炎；
預覽摘要

KEY WORD:

(網球肘or肱骨外上髁炎) and (中醫or針灸or推拿)

RESULT:

All(51) Fit(1)

加入追蹤 全文下載

加入追蹤 全文下載

▶ 搜尋結果

搜尋結果 符合臨床問題



▶ 15 則 ▶ 3 則



▶ 2 篇 ▶ 1 篇 ▶▶ 0 篇

無全文



▶ 41 篇 ▶ 1 篇 ▶▶ 0 篇

無法
評讀



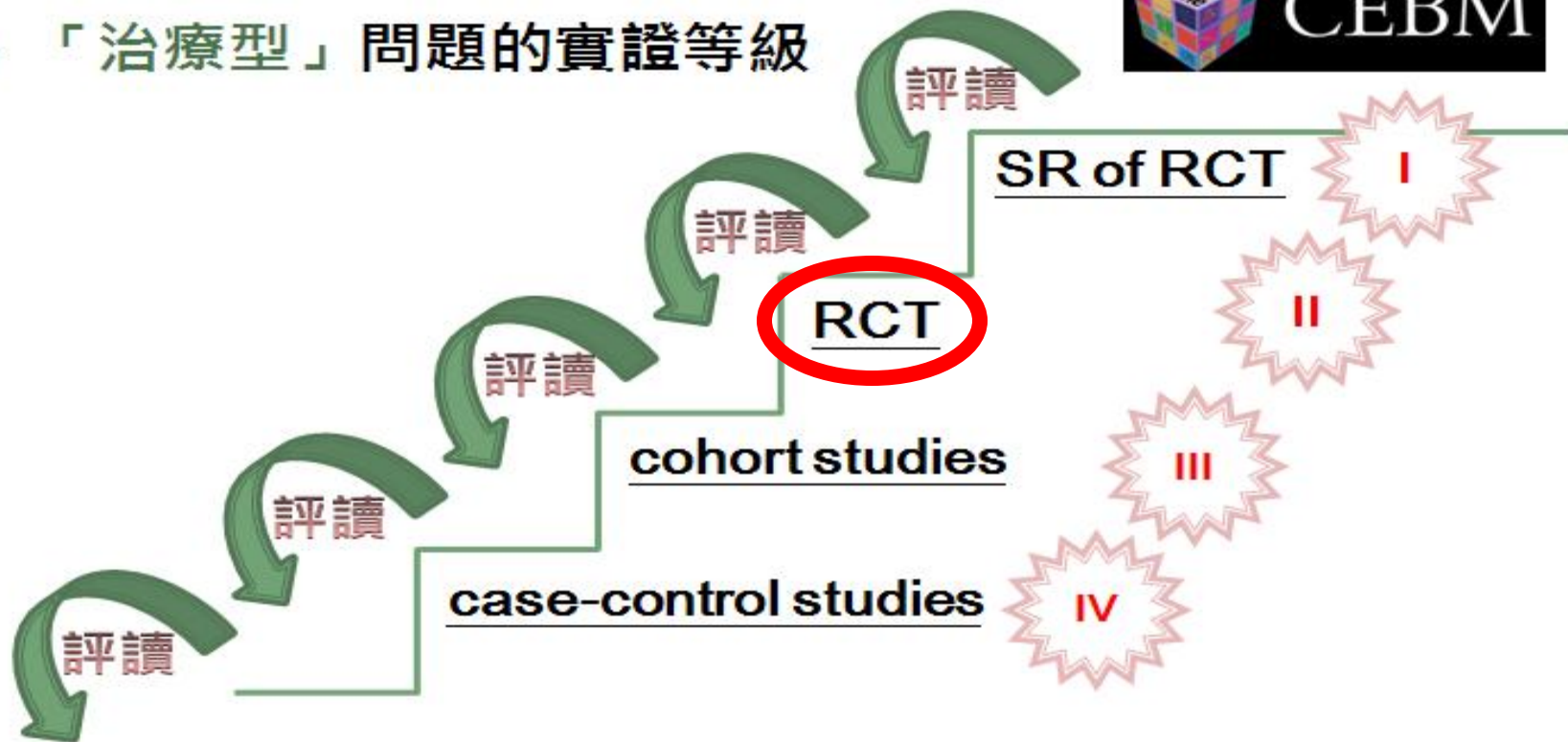
▶ 51 篇 ▶ 1 篇

發表時間
超過5年

CEBM LOE 2011 edition



「治療型」問題的實證等級





Rheumatology 2004;43:1085–1090

Advance Access publication 22 June 2004

doi:10.1093/rheumatology/keh247

Review

Impact factor:4.435

Acupuncture for the alleviation of lateral epicondyle pain: a systematic review

K. V. Trinh^{1,5}, S.-D. Phillips², E. Ho³ and K. Damsma⁴

There is strong evidence suggesting that acupuncture is effective in the short-term relief of lateral epicondyle pain.





ACRM
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REHABILITATION MEDICINE



Archives of Physical Medicine and Rehabilitation

journal homepage: www.archives-pmr.org

Archives of Physical Medicine and Rehabilitation 2013;94:2068-74



ORIGINAL ARTICLE

Muscle Energy Technique Versus Corticosteroid Injection for Management of Chronic Lateral Epicondylitis: Randomized Controlled Trial With 1-Year Follow-up



Sami Küçükşen, MD,^a Halim Yılmaz, MD,^b Ali Sallı, MD,^a Hatice Uğurlu, MD^a

From the ^aDepartment of Physical Medicine and Rehabilitation, Faculty of Medicine, Necmettin Erbakan University, Konya; and ^bDepartment of Physical Medicine and Rehabilitation, Konya Education and Research Hospital, Konya, Turkey.



▶ 這篇文獻的「PICO」

	這項研究的PICO	是否符合		我們的PICO
P	Lateral <u>Epicondylitis</u>	<input checked="" type="radio"/> YES	<input type="radio"/> NO	Tennis elbow/ <u>Lateral Epicondylitis</u>
I	Muscle Energy Technique	<input checked="" type="radio"/> YES	<input type="radio"/> NO	Acupuncture/manipulation
C	Corticosteroid Injection	<input checked="" type="radio"/> YES	<input type="radio"/> NO	Corticosteroid Injection
O	VAS, PFGS	<input checked="" type="radio"/> YES	<input type="radio"/> NO	VAS, PFGS



RCT Validity

▶ 文獻「評讀工具」是

- Randomized control trial
- Clinical Appraisal Tool

2005 edition



1. 病患分派是隨機的嗎？
2. 試驗開始組間特性是類似的嗎？
3. 除了被分派的介入治療外，其他治療方法是客觀一致的嗎？
4. 是否所有被分派的病患都列入計算且依其隨機分派的組別進行分析？
5. 成效測量是客觀的嗎？病患和醫師對接受何種治療保持盲化？

CAUTION CAUTION CAUTION CAUTION CAUTION

1. 病患分派是隨機的嗎？

Randomization

Patients were allocated sequentially into 2 parallel groups, MET and CSI, of 41 cases each. Equal randomization (1:1 allocation ratio) was undertaken according to a computer-generated randomization table.

YES



2. 試驗開始組間特性是類似的嗎？

Table 1 Sociodemographic and clinical characteristics of the participants

Characteristics	MET (n=41)	CSI (n=41)	P
Age (y)	46.17±7.56	43.78±9.16	.142
Sex			
Women	23 (56.1)	22 (53.7)	.824*
Men	18 (43.9)	19 (46.3)	
Employment			
Manual labor	17 (41.5)	18 (43.9)	.972*
Nonmanual work	6 (14.6)	6 (14.6)	
Unemployed	18 (43.9)	17 (41.5)	
Affected elbow			
Dominant	33 (80.5)	31 (75.6)	.594*
Nondominant	8 (19.5)	10 (24.4)	
Duration of complaints (wk)	22.73±18.02 (12–78)	26.49±17.5 (12–96)	.158
PFGS [‡] (kg)	40.46±17.26	44.00±18.64	.495 [†]
VAS	7.39±1.07	7.17±1.07	.330 [†]
DASH	46.73±11.88	45.63±10.40	.666 [†]

NOTE. Values are mean ± SD, n (%), mean ± SD (minimum–maximum) or as otherwise indicated.

* Pearson chi-square.

† Mann-Whitney U.

‡ Affected side/unaffected side × 100



3. 除了被分派的介入治療外，
其他治療方法是客觀一致的嗎？



Interventions

Muscle energy technique

MET was applied immediately after informed consent and randomization for 4 consecutive weeks as described by Sucher and Glassman.²⁷ While stabilizing the patient's humerus distally with 1 hand, the subject's forearm was supinated with the operator's other hand until resistance or discomfort was detected. While the position was held, the patient briefly pronated the forearm (isometric contraction approximately 75% of maximal) against resistance for a period of 5 seconds, followed immediately by slightly increased supination until resistance was met once again. After periods of 5 seconds of relaxation, the procedure was repeated 5 times during a single treatment session (fig 1). This technique was applied in 2 sessions per week for 4 weeks. All intervention sessions were conducted by the same investigator (S.K.).

Corticosteroid injection

The CSI was performed with the patient's arm resting flexed on a firm surface, and the anatomic bony landmarks were identified. Under aseptic precautions, 1mL of triamcinolone acetate (40mg/mL) plus 1mL of 1% lidocaine (10mg/mL) were injected deep into the subcutaneous tissues and muscles, 1cm distal to the lateral epicondyle and aiming toward the area of maximum tenderness. Patients were informed of the possible adverse effects from the injection and were advised to avoid pain-provoking activities for 1 to 2 weeks after the injection.

If necessary, patients were allowed to use acetaminophen (except within 24h before the measurements), but the use of nonsteroidal anti-inflammatory medication was prohibited. The subjects were allowed to use the affected elbow in daily living activities.

4. 是否所有被分派的病患都列入計算且依其隨機分派的組別進行分析？

YES

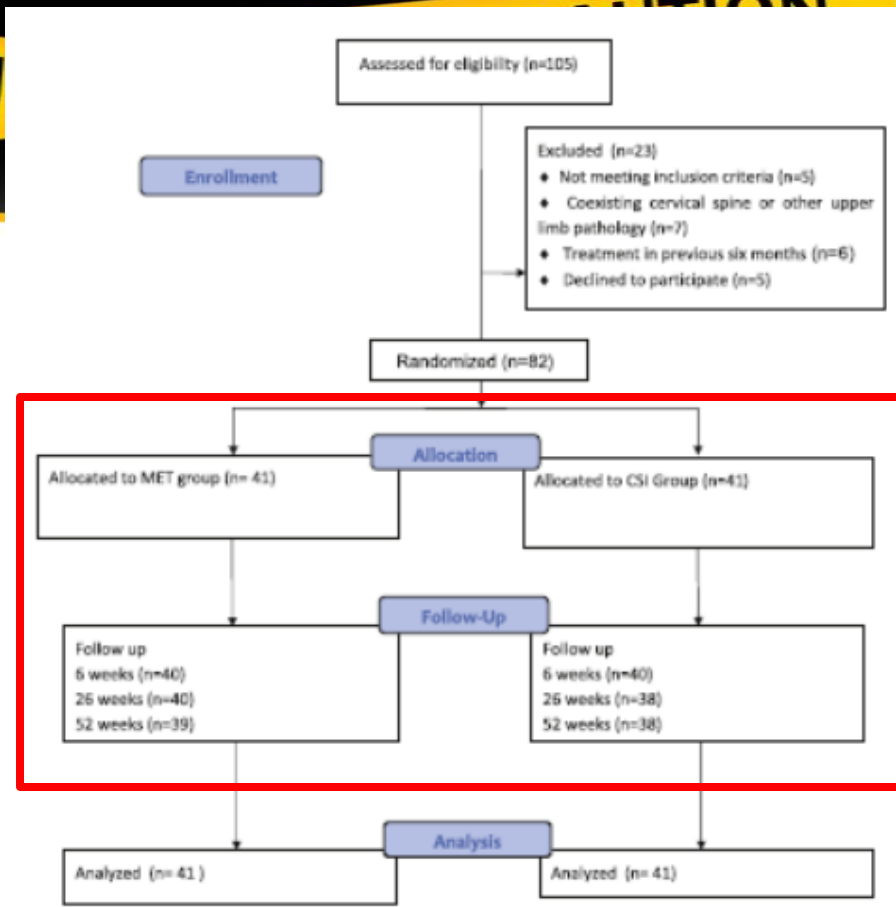


Fig 2 Flow diagram of participants through each stage of the study.

5. 成效測量是客觀的嗎？病患和醫師對接受何種治療保持盲化？

the CONSORT statement⁴³ for randomized controlled trials. Since the nature of the MET intervention means that the blinding of the patients and practitioners is not possible, the assessor was blinded to the allocation of the treatment group. Val



Impact



長庚紀念醫院圖書館
Chang Gung Memorial Hospital Medical Library
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資料庫
Database



電子期刊
E-Journals



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E-Books



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Web Resources

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個人化服務

線上說明

離開/登入

登入者: 許中原

圖示說明:

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A to Z 劃號: [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [R](#) [S](#) [U](#) [W](#) [X](#) [Y](#) [Z](#) (60 筆)

J ->: [J0](#)

 檢索結果 2 筆  每頁筆數 50 第 筆

編號 No.	圖示 Icons	題名 Title	類型 Type	出版商 Publisher	收錄年代 Full Text Coverage	其他註記 Other Info.
1	 	Journal Citation Report(JCR): Science Edition	Database	Thomson		使用人數: 林口4人。
2	 	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。

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Journal Citation Reports[®]

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	SEARCH

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Abbreviated Journal Title: Enter J CELL PHYSIOL or J CELL * ([more examples](#))

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Sorted by: Journal Title ▼ SORT AGAIN

Journals 1 - 1 (of 1)

Page 1 of 1

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Page 1 of 1

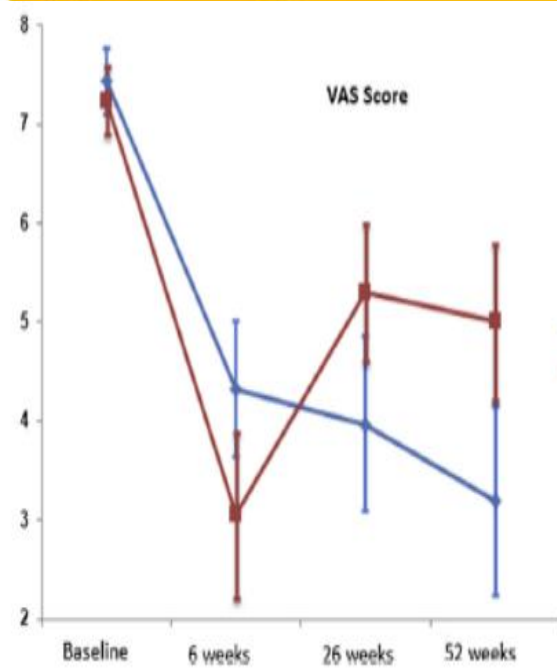


Fig 4 The course of the VAS pain scores across the study.

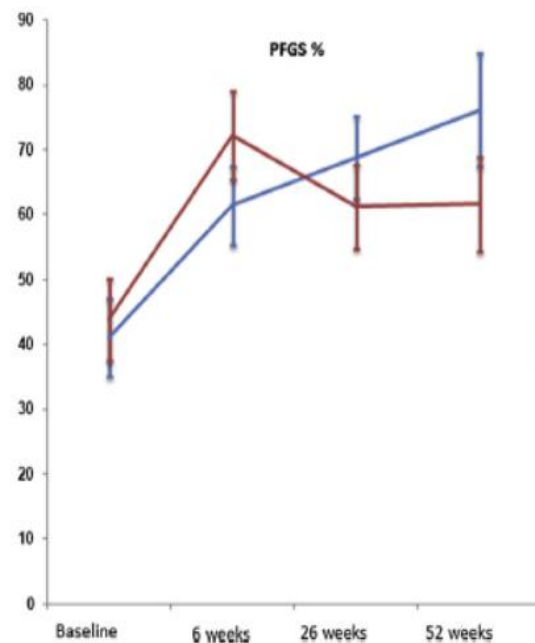


Fig 3 The course of the PFGS scores across the study (affected side is presented as percentage of the unaffected side).

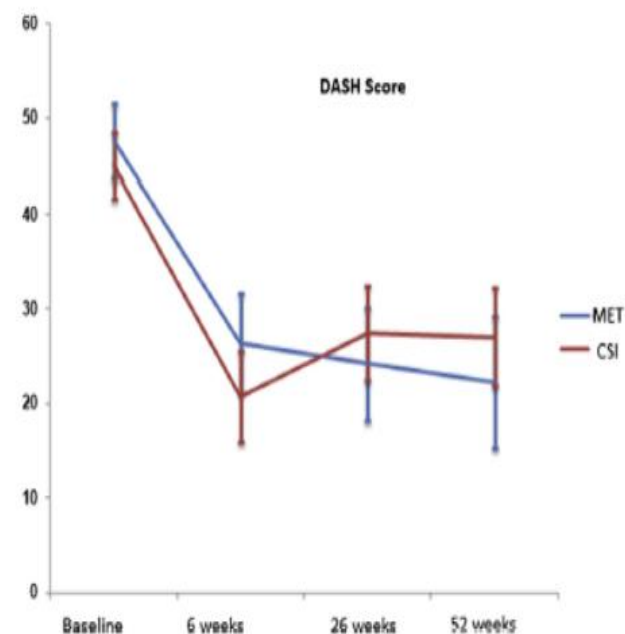


Fig 5 The course of the DASH scores across the study.



RRR (relative risk reduction) ?

NNT (number needed to treat)?

NNH (number needed to harm)?



Limitation

ROM?

sham MET control group?

standard implementation procedures?

Practicability

1. 我們的病人是否與研究中差異很大？

	我們的病人	研究中的病人族群
性別	男性	無限定
年齡	40	18-70
人種	台灣人	土耳其
疾病	無其他神經性疾病	無其他神經性疾病
其他資訊	無其他慢性疾病	無篩選其他慢性疾病



2.此治療在目前是否可行？

- ▶ 桃園長庚醫院有足夠的針傷科醫師可以提供此項醫療服務。



3.我們的病人是否可以從該項治療中獲益？

- ▶ 經過此項治療，局部疼痛、抓握能力、日常生活手部的活動功能皆會獲得改善。
- ▶ 若不治療，可能前臂伸肌腱會走向纖維化、鈣化，甚至完全斷裂。



4.我們的病人如何看待此治療結果？

- ▶ 病人的經濟、時間
- ▶ 病人對於治療的期望
- ▶ 病人對於治療副作用的顧慮
- ▶ 家屬的期望



Apply

局部類固醇注射可以快速而顯著的緩解疼痛，但研究顯示，其注射效果持續時間不長，患者反而可能因疼痛迅速緩解而增加肘部活動量及負重，造成高復發率；另有研究證實，類固醇會顯減少膠原蛋白的合成，進而減少肌腱張力及糖胺多醣基質的形成，增加肌腱退化及斷裂的機率，故相較於其他保守性療法，局部類固醇注射的長期預後不佳。



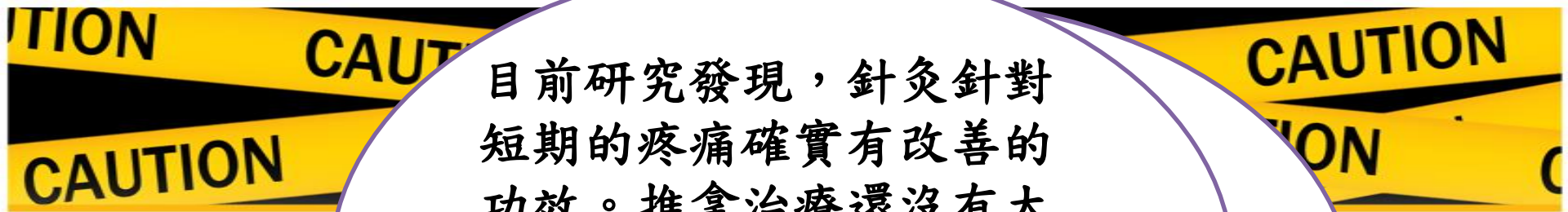
成本效益



衛生福利部中央健康保險署
NATIONAL HEALTH INSURANCE ADMINISTRATION,
MINISTRY OF HEALTH AND WELFARE

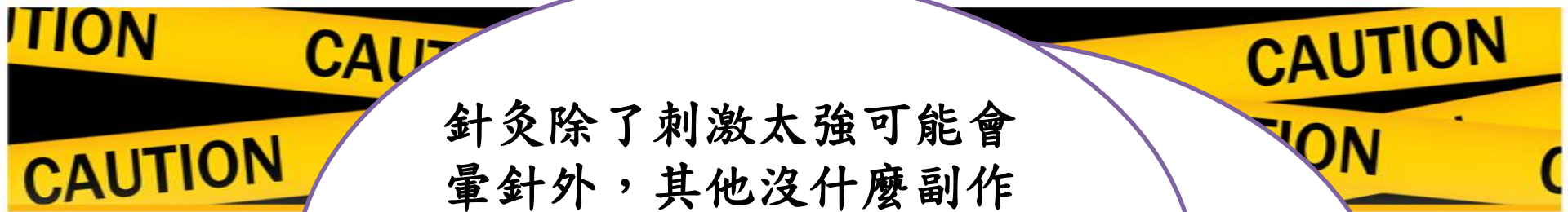


考慮到長期若進入3-4期不可逆的組織變化，伴隨肌腱的斷裂，務必手術治療，及術後復健。這樣可能就會超過我們手法治療的花費。



目前研究發現，針灸針對短期的疼痛確實有改善的功效。推拿治療還沒有大型的研究，但小型的研究發現推拿對於短期及長期的疼痛及抓握能力都有明顯的效果。





針灸除了刺激太強可能會
暈針外，其他沒什麼副作用。
手法治療在研究中也
沒顯示副作用。針灸或推
拿一個禮拜治療兩次，治
療四個禮拜就會有效果。



敬請指導

