


 THE HONG KONG  
 POLYTECHNIC UNIVERSITY  
 香港理工大学


 康復治療科學系  
 Department of Rehabilitation Sciences

## Review of Neglect Management in Stroke

### 中風单侧忽略處理

方乃权

香港理工大学康复治疗科学系

二零零八年十一月十七日

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## 感知能力障碍

- 知觉是指大脑将感觉信号在感觉通路中经过复杂的加工处理后传到中枢神经，最终引起知觉，包括对各种感觉刺激的分析及对不同刺激的辨别能力，感知能力障碍一般可分为三大类：
- 1) 视觉感知失调 (Visual Perceptual Disorders)
- 2) 失认症 (Agnosia)
- 3) 失用症 (Apraxia)

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## 失认症 (Agnosia)

- 失认症是指患者不能认识经由某一感觉（如视觉、听觉和触觉）辨察的事物，是由于脑部受损使患者对经由视觉、听觉和触觉等途径获得的信息丧失了正确的分析和识别能力，即感觉皮质整合功能发生了障碍。
- (1) 单侧忽略 (Unilateral Neglect)
- (2) 躯体失认症 (Anosognosia)
- (3) Gerstmann 综合症
- (4) 视觉失认症
- (5) 触觉失认症 (实体丧失)

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## 单侧忽略 (Unilateral Neglect, UN)

- 又称半侧忽略, 行为不注意 (Behavioral inattention), 躯体失认症 (Body agnosia)
- 偏瘫的常见现象, 由简单的偏侧视觉忽略到躯体失认或目光不注意, 或者头部不到中线。
- 占脑卒中左侧偏瘫患者13% to 81%不等, 示乎筛选标准而定 (Pierce & Buxbaum, 2002)。
- 左脑卒中47%右脑卒中72% (脑卒中后三天)。
- 左脑卒中26%-52%右脑卒中20%-0% (脑卒中后两月)。
- 会伴随其他感知能力障碍。

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## 单侧忽略臨床觀察



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## HKJOT (2007)

HKJOT 2007,17(1):23-

### RELIABILITY AND VALIDITY OF THE CHINESE BEHAVIORAL INATTENTION TEST HONG KONG VERSION (CBIT-HK) FOR PATIENTS WITH STROKE AND UNILATERAL NEGLECT

Kenneth N.K. Fong<sup>1</sup>, Mariko K.L. Chan<sup>2</sup>, Billy B. Chan<sup>2</sup>, Peggie P.K. Ng<sup>2</sup>, Mei Ling Fung<sup>2</sup>, May H.M. Tsang<sup>2</sup> and Kathy K.Y. Chow<sup>2</sup>

**Objective:** One of the explanations for the wide range in the reported incidence of unilateral neglect is probably the lack of agreement regarding evaluation methods. The aim of this study was to investigate the reliability and validity of the newly developed Chinese Behavioral Inattention Test Hong Kong version (CBIT-HK) for research purposes, and for patients with stroke and unilateral neglect in Hong Kong.

**Methods:** Fourteen consecutive subacute patients with stroke were selected to determine the external reliabilities and new cutoff scores, and 54 subacute right hemisphere patients were given evaluations including the CBIT-HK, a clock drawing test, and a functional assessment battery to find out the internal reliability and concurrent validity of the test battery.

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**B部分 測驗結果**

微視測試結果	積分	分界點	結論	行為測試結果	積分	分界點	結論
1、劃線	<u>36</u>	34	合格/不合格	1、瀏覽圖片	<u>9</u>	5	合格/不合格
2、刪字母	<u>40</u>	32	合格/不合格	2、打電話	<u>9</u>	7	合格/不合格
3、刪星星	<u>34</u>	51	合格/不合格	3、讀菜譜	<u>9</u>	8	合格/不合格
4、抄寫圖形和線條	<u>4</u>	3	合格/不合格	4、閱讀文章	<u>9</u>	5	合格/不合格
5、二分線段	<u>9</u>	7	合格/不合格	5、報時和設置時間	<u>9</u>	8	合格/不合格
6、代表性繪圖	<u>3</u>	2	合格/不合格	6、整理硬帶	<u>9</u>	8	合格/不合格
總分	<u>146</u>	129	合格/不合格	7、抄寫地址和句子	<u>9</u>	4	合格/不合格
				8、找地圖	<u>9</u>	8	合格/不合格
				9、整理卡片	<u>9</u>	8	合格/不合格
				總分	<u>81</u>	61	合格/不合格

**常规测试 Conventional subtest**

劃線

ABCDEFGHIKLNOPQRSTUVWXYZ  
 BOHUNASRPHFAFOTLACJMOEBCHEWSTRT  
 NOSRVXTPEFDHPTSLJPLFENOCNOSRVXTPE  
 GLPTYTRIBEDMRKEDLPQFZRGLPTYTRIBS  
 HMEBGRDEINRSVLERFGOSEHCRHMEBGRDEI

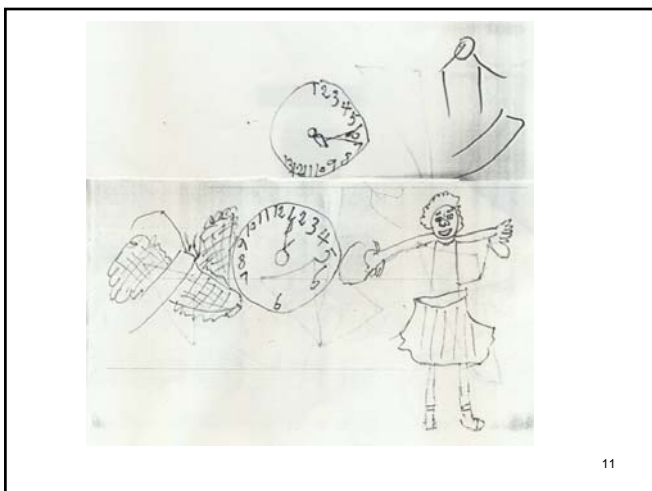
E & R

刪字母

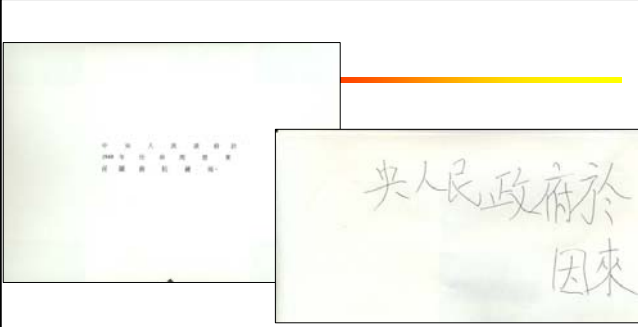
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二分線段

**圖形抄寫**



中央人民政府於  
 1949年任命周恩來  
 任國務院總理:



行为测试 Behavioral subtest  
- 句子抄寫 Sentence Copying

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### 单侧忽略的可能原因

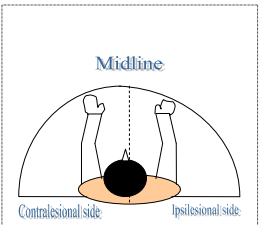
- Attention-arousal hypothesis
- Representational hypothesis
- Disengagement/Extinction hypothesis

- 1) Allocating attention in general 脑损害部位整体不注意
- 2) Distortion of contralateral spatial representation 不能辨认对侧一半的空间内的物体
- 3) Difficulty in allocating attention to to contralateral sensory stimuli 两侧身体感觉不对称

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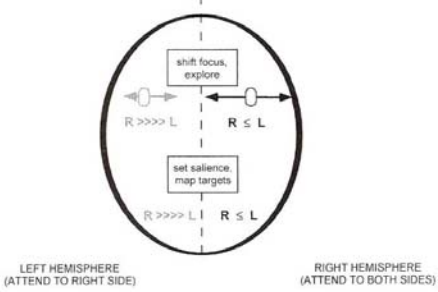
### 单侧忽略的空間層次

- 1) Within personal space (body parts) 身體
- 2) Peripersonal space (within reaching space) 個體範圍
- 3) Extrapersonal space (beyond peripersonal space) 其他空間範圍



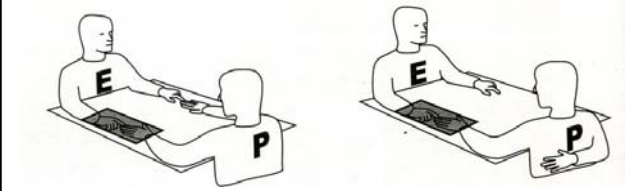
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### 左右腦部空間部門互相競爭力 Competition between R & L spatial sectors



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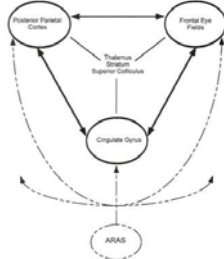
### Extinction



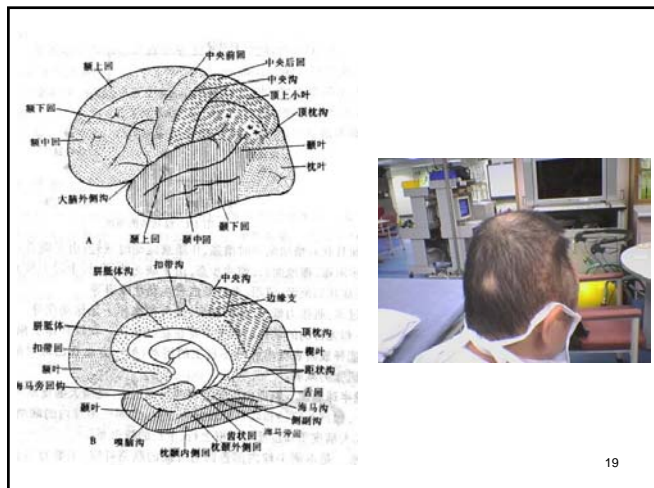
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### 發生原因 Etiology

- Etiology of unilateral neglect: posterior parietal lobe, frontal lobe, cingulate gyrus, thalamus, and basal ganglia



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### 大脑中动脉(上端)(MCA) 影响区域:额叶和顶叶的外侧面

- 意念性失用症
- 缺乏判断能力
- 病理性重复行为
- 领域从属性
- 削弱行为的组织能力
- 沮丧
- 情绪不稳定
- 失控
- 神情漠然
- **右半球机能失调**
- 左边单侧身体忽略
- 左边单侧视觉忽略
- 躯体失认症
- 视觉空间关系失调
- 左边单侧意念性运动失用症
- **左半球机能失调**
- 双边意念性运动失用症
- 表达失语症
- 挫折耐力低

### 体大脑后动脉(PCA)

影响区域:右颞叶和枕叶的外侧面和  
后区, 胼胝干后面和进入中脑和丘

脑的动脉

- 同侧半边偏盲
- 视觉失认症 (视觉物体失认, 颜色失认)
- 记忆障碍
- 偶然的对边半感觉麻木
- **右半球的机能失调**
- 皮质眼盲
- 视觉空间失调
- 左右混淆
- **左半球的机能失调**
- 手指失认症
- 难名失语症
- 失写症
- 失算症
- 失书症

### MCA & PCA Damage (Mort et al., 2003)

- PCA: Angular gyrus of inferior parietal lobe (IPL)
- PCA: Mid portion of superior temporal gyrus (STG)
- MCA: Parahippocampal region (medial surface of temporal lobe)

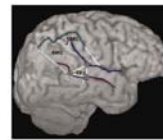
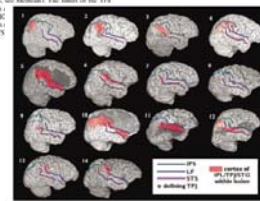


Fig. 3 Lateral view. Anatomical parcellation of a 10-year-old patient's brain (see above, see Methods). The bases of the MCA, PCA, angular gyrus, STG, temporal gyrus, 4 = calcarine sulcus, LP (lateral and STG)



### Brain Injury (2001)

BRAIN INJURY, 2001, VOL. 15, NO. 5, 443-453



Relationship of motor and cognitive abilities to functional performance in stroke rehabilitation

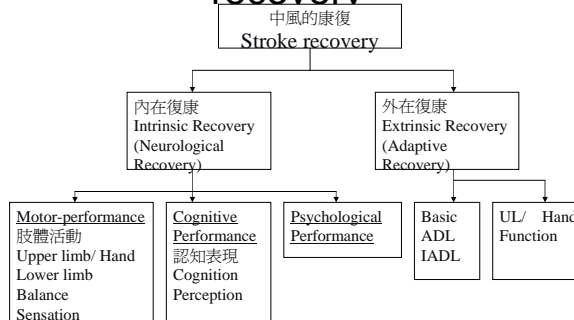
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(Received 2 June 2000; accepted 8 August 2000)

This study explored the relationships between the motor and cognitive abilities, and the functional performance of patients with stroke. Motor and cognitive abilities were measured by the Fugl-Meyer Assessment (FMA) and the Neuro-behavioural Cognitive Status Examination (NCSEx), and functional performance was measured by the Functional Independence Measure (FIM). All assessments were conducted at admission, after 2 and 4 weeks, and at discharge. A total of 37 patients with first stroke at

### Relationship of variables in recovery



## 认知康复：实证 Evidence-based cognitive rehabilitation

参考: Cicerone, Dahlberg, Malec et al. (2005)

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实践标准  
Practice Standards

实践指南  
Practice Guidelines

实践选择  
Practice Options

级 I prospective RCT

级 II prospective cohort studies, retrospective case-control studies, clinical series with case controls

级 III clinical series without case controls, single-subject design

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### 实践标准 (I级)

干预

例子:

视觉空间康复

Visuospatial

rehabilitation

建议

中风右半球受损与视觉空间相关的症状

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### 实践指南 (II级)

干预

例子: 视觉扫描训练

Scanning training

建议

建议为偏身忽略的脑卒中患者使用

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### 实践选择 (III级)

干预

例子: 包括肢体活动或者电子技术为辅助的视觉扫描训练

Inclusion of limb activation or electronic technologies for visual scanning training

建议

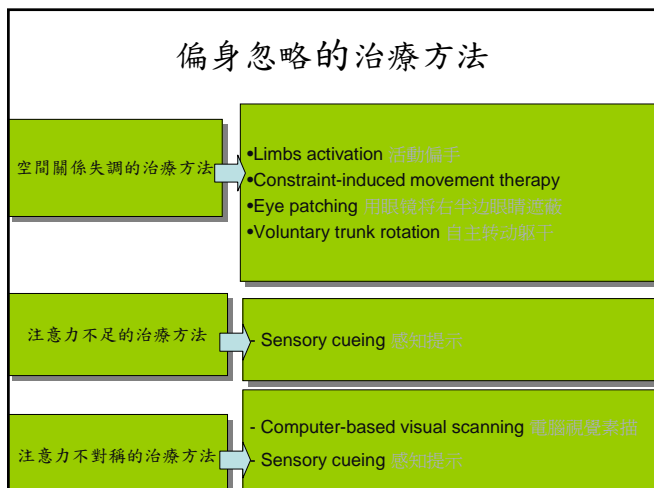
建议为偏身忽略的脑卒中患者使用

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### 单侧忽略训练 - 一般处理

- 不断让患者集中注意他所忽略的一侧。
- 站在患者忽略的一侧训练患者和他谈话；
- 向他忽略侧提供触觉、扣打、按摩、冷等感觉刺激；
- 将患者急需的物体故意放在患者的忽略侧，让患者用另一侧手越过中线去取；
- 让患者向健侧翻身，鼓励他用病侧上肢或下肢向前探，若患者没有足够的运动功能去完成动作，可让他用健手帮助病手；
- 在患者忽略侧内用颜色鲜艳的物体或手电筒光提醒他对该侧的注意；阅读时为避免漏读，可在忽略侧的极端放上颜色鲜艳的规尺，或让患者用手摸着书的边缘，从边缘处开始阅读。

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### 偏身忽略治療手法

- Cueing Approach 提示手法
- Recruitment Approach 參與/招募手法

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- ### 偏身忽略治療
- 1) Alerting treatment, scanning treatments (Weiberg et al., 1979; Gordon et al., 1985)
  - 2) Constraint-induced therapy (Pierce & Buxbaum, 1992)
  - 3) Prism treatment (Rossi et al., 1990; Rossetti et al., 1998)
  - 4) Vestibular stimulation (Rode, 1998)
  - 5) Optokinetic stimulation (Karnath, 1996)
  - 6) Motor activation (Robertson & North, 2002)
  - 7) Motor imagery, neck vibration (Karnath et al., 1993)
  - 8) Trunk rotation (Richards et al., 1993; Wiart et al., 1997; Fong et al., 2007)
  - 9) Eye patching (Beis et al., 1999; Tsang et al., 2008)
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### Disability and Rehab (in press)

informa

RESEARCH PAPER

#### Occupational therapy treatment with right half-field eye-patching for patients with subacute stroke and unilateral neglect: A randomised controlled trial

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<sup>1</sup>Occupational Therapy Department, Kwai-Tsin Hospital, Kwai-Tsin, Hong Kong; <sup>2</sup>School of Medicine, The Chinese University of Hong Kong, Hong Kong, and <sup>3</sup>Department of Rehabilitation Science, The Hong Kong Polytechnic University, Hong Kong

Accepted 10/11

**Abstract**

**Purpose:** The right half-field eye-patching technique has been reported to be effective in reducing unilateral neglect (UN) and improving functional ability in stroke patients. This study investigated the efficacy of conventional treatment with right half-field eye-patching in treating subacute stroke patients with UN, using a randomised controlled trial.

**Method:** Thirty-five inpatients with subacute stroke were recruited and randomised into intervention and control groups. The patients in the intervention group received 8 weeks of conventional occupational therapy with modified right half-field eye-patching. Those in the control group received 8 weeks of conventional treatment only. Sessions, who were blind to the treatment, assessed the groups using the behavioural inattention test (BIT) and the functional independence measure (FIM) on admission and at 8 weeks.

**Results:** Patients treated with right half-field eye-patching had significantly ( $p=0.046$ ) higher BIT gain (mean = 25.06, SD = 10.11) than those treated with the conventional treatment (mean = 6.25, SD = 10.349). There was no significant difference ( $p=0.667$ ) in FIM gain between patients in both groups.

**Conclusion:** Right half-field eye-patching improved stroke patients' impairment level in terms of UN, but the potential benefits in important tests were not confirmed by improvements in function.

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- ### 文獻- Ipsilateral half-field eye-patching
- Beis et al. (1999) 比较用眼镜将右半边眼睛遮蔽，一只眼睛遮蔽和没有保护。 22 个病人随机分配入组，一半补丁，干扰连续三个月的时期。结果表明用眼镜将右半边眼睛遮蔽的一组在FIM的独立能力评分有显著改进，但是没有提到改善左边视野注意得分与其它组别比较的结果。
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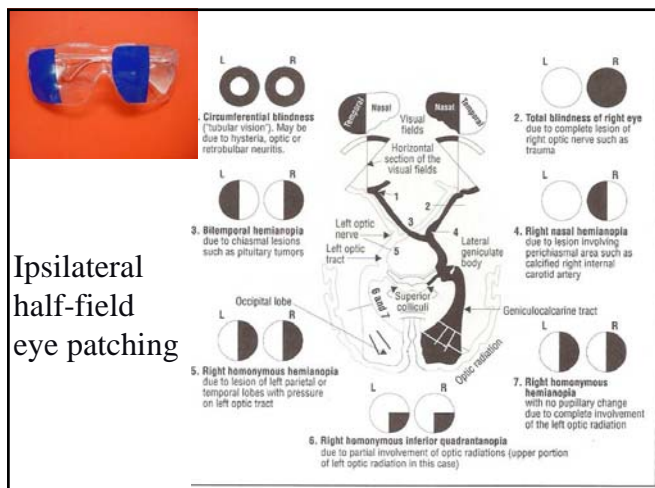


Table III. Paired *t* test to compare BIT and FIM gain within the control and intervention groups (*N* = 34).

Dependent variables	Control ( <i>N</i> = 17)			Intervention ( <i>N</i> = 17)		
	Mean	SD	<i>p</i> -Value	Mean	SD	<i>p</i> -Value
Pre BIT	8.29	10.349	0.004*	25.06	30.13	0.004*
Post BIT	12.41	14.209	0.002*	16.00	14.20	0.009*

\*Denotes a significance level of  $p \leq 0.05$ .

Table V. Independent sample *t* test to compare differences in FIM gain between the control and intervention groups (*N* = 34).

Dependent variables	Control ( <i>N</i> = 17)		Intervention ( <i>N</i> = 17)		<i>p</i> -Value
	Mean	SD	Mean	SD	
IM gain	12.41	14.209	16.00	14.209	0.027*
Showering	4.59	1.94	5.82	1.71	0.027*
Bathing	2.12	1.27	3.00	1.22	0.047*
Dressing - upper body	3.41	1.58	4.53	1.77	0.061
Dressing - lower body	2.35	1.46	3.47	1.66	0.019*
Toileting	2.47	1.77	3.47	1.76	0.094
Bladder management	2.88	2.09	3.18	2.01	0.678
Bowel management	2.88	1.93	3.59	1.97	0.300
Bed chair transfer	2.71	1.57	3.59	1.62	0.117
Toilet transfer	2.12	1.54	2.94	1.68	0.145
Tub transfer	1.94	1.56	2.82	1.85	0.142
Stairs	1.65	1.32	2.12	1.36	0.314
Comprehension	4.94	1.30	5.06	1.20	0.785
Expression	4.84	1.25	5.35	1.17	0.328
Social interaction	5.12	1.32	5.24	1.25	0.791
Problem solving	4.00	1.58	4.47	1.18	0.333
Memory	4.35	1.69	4.76	1.30	0.432

\*Denotes a significance level of  $p \leq 0.05$ .

Table IV. Independent sample *t* test to compare differences in BIT gain between the control and intervention groups (*N* = 34).

Dependent variables	Control ( <i>N</i> = 17)		Intervention ( <i>N</i> = 17)		<i>p</i> -Value
	Mean	SD	Mean	SD	
BIT gain	8.29	10.349	25.06	30.13	0.046*
Line crossing	3.59	5.23	3.06	1.1	0.569
Letter cancellation	2.65	6.52	10.00	12.78	0.037*
Star cancellation	1.88	5.02	8.65	13.13	0.001
Figure and shape copying	-0.02	0.66	1.35	3.46	0.148
Line bisection	-0.02	2.46	-0.78	1.60	0.329
Representational drawing	0.18	0.88	0.18	1.19	1.000

\*Denotes a significance level of  $p \leq 0.05$ .

between the two groups. Second, the method's effectiveness in improving the functional ability of FIM could estimate how important the comparison

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### Clinical Rehab (2007)

*Clinical Rehabilitation* 2007; 29: 729-741

**The effect of voluntary trunk rotation and half-field eye-patching for patients with unilateral neglect in stroke: a randomized controlled trial**

**Research:** Mei Fang Department of Rehabilitation Sciences, The Hong Kong Polytechnic University, Kowloon, Hong Kong; Pei Ho, Mei Jui Ho, Kaito YF Cheung, Cheryl Hui, Liang Frances Sui Chiu, Yiu PF Wong, David YL Chan Department of Physical Therapy, Caritas of Yuen Long Hospital, Yuen Long, New Territories, and Chaiyaporn CH Chan Department of Rehabilitation Sciences, The Hong Kong Polytechnic University, Kowloon, Hong Kong, SAR

Received 8th September 2006; returned for revision 26th November 2006; revised manuscript accepted 12th December 2006

**Objective:** To investigate the effectiveness of voluntary trunk rotation and half-field eye-patching to treat patients with unilateral neglect in stroke.

**Design:** Pre-test, day 60 follow-up, single-blind randomized controlled trial.

**Setting:** Single-site inpatient rehabilitation hospital.

**Subjects:** Sixty subacute patients with right hemisphere stroke having unilateral neglect within eight weeks post stroke consented to participate between November 2003 and July 2006. They were randomly assigned to three comparison groups.

**Interventions:** Nineteen patients received daily experimental training in voluntary trunk rotation (TR) for 1 hour five times a week for 30 days. Twenty patients received the same kind of treatment together with half-field eye-patching (TR + EP). Fifteen patients in the control group received conventional training with the same contact time.

**Main outcome measures:** Patients were assessed on days 0, 30 and 60 using the Behavioral Inattention Test, the Clock Drawing Test, and the Functional Independence Measure.

**Results:** No significant differences between voluntary trunk rotation (TR), voluntary trunk rotation and half-field eye-patching (TR + EP) and controls were found in functional performance and neglect measures at day 30 ( $p = 0.042-0.994$ ) and follow-up ( $p = 0.002-0.911$ ) at  $p < 0.05$  using Bonferroni correction.

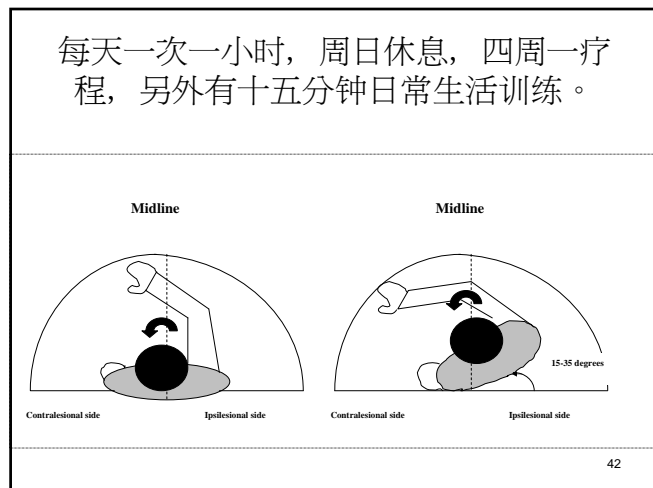
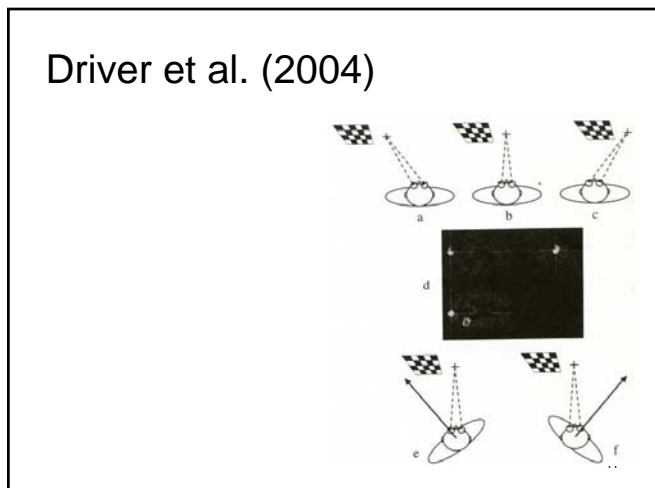
**Conclusions:** The results of this study do not support the use of voluntary trunk rotation alone or with half-field eye-patching to improve functional performance or reduce unilateral neglect in subacute patients with stroke.

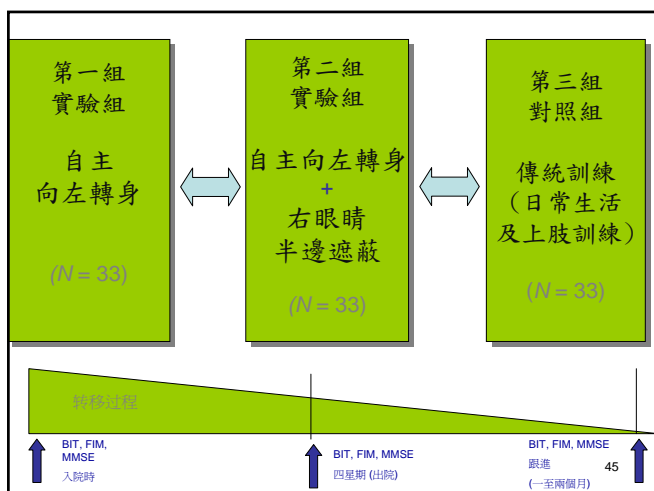
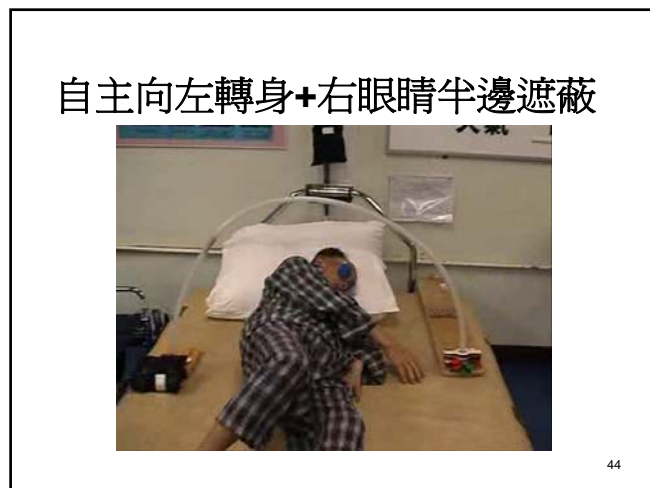
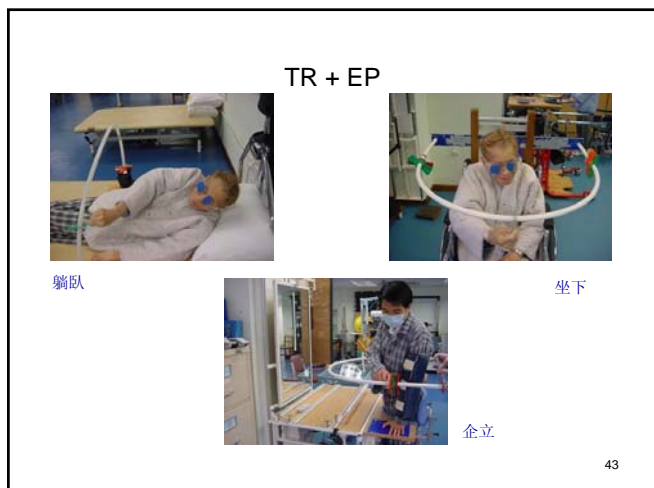
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### 文献

- Wiart et al. (1997) 研究11位急性的病人，干扰组用具体的设备帮助他们随意躯干转动。结果显示干扰组在半身忽略测验和FIM的得分上有明显的改进，及差别在续后一个月可以保持。

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- 評定方法(单盲)
- 1) 偏身忽略测试-香港中文版 (CBIT-HK) (Behavioral Inattention Test);
  - 2) 日常生活独立能力评分 (Functional Independence Measure) (FIM);
  - 3) 简短智能测验 (MMSE)
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- 評定次數
- 有三次, 分別在:
  - 1) 入院时(干预前);
  - 2) 四周 (干预后);及
  - 3) 八周到两个月 (跟进)。
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Table 2 Outcome measures from baseline to post-intervention for all groups

Outcome measures	TR (n = 19)	TR + EP (n = 20)	Control (n = 15)	P-value
<b>BIT</b>				
Conventional				
Day 0	73.6 (33.7)	58.8 (36.0)	60.4 (39.6)	
Day 30	100.9 (38.1)	87.1 (40.2)	78.6 (48.2)	0.301
Change	27.3 (22.8)	28.4 (25.9)	18.2 (25.5)	
Behavioural				
Day 0	29.9 (18.2)	27.2 (23.7)	26.9 (20.4)	
Day 30	44.2 (20.8)	44.6 (27.3)	40.4 (26.0)	0.870
Change	14.3 (11.5)	17.4 (12.9)	13.5 (15.5)	
<b>Total BIT</b>				
Day 0	102.8 (50.9)	85.9 (58.0)	89.3 (57.5)	
Day 30	145.6 (57.7)	131.7 (66.1)	119.1 (74.1)	0.506
Change	42.9 (32.8)	45.8 (34.1)	29.7 (39.8)	
<b>CDT</b>				
Day 0	0.3 (0.7)	1.1 (2.2)	1.3 (2.0)	
Day 30	1.9 (2.6)	2.0 (2.4)	2.3 (2.9)	0.994
Change	1.7 (2.6)	0.8 (2.0)	0.9 (2.9)	
<b>FIM/MM</b>				
Self-care				
Day 0	12.5 (7.2)	15.5 (7.2)	15.1 (6.7)	
Day 30	25.4 (8.2)	23.5 (8.0)	21.1 (6.7)	0.349
Change	7.9 (6.0)	7.6 (5.6)	6.0 (4.2)	
Significance				
Day 0	4.6 (2.1)	3.5 (1.8)	3.4 (1.6)	
Day 30	7.4 (3.9)	6.3 (3.8)	5.0 (3.1)	0.178
Change	2.8 (2.4)	2.8 (2.8)	1.6 (2.9)	
Transfer				
Day 0	6.9 (3.4)	5.9 (3.9)	5.5 (2.9)	
Day 30	11.5 (6.5)	9.6 (4.8)	7.9 (4.4)	0.114
Change	4.6 (3.4)	3.9 (3.3)	2.4 (3.1)	
<b>Locomotion</b>				
Day 0	2.8 (1.4)	2.6 (2.2)	2.4 (1.6)	
Day 30	4.9 (3.3)	4.8 (3.4)	3.1 (2.2)	0.042
Change	3.1 (3.0)	2.2 (2.8)	0.7 (1.2)	
<b>Total FIM/MM</b>				
Day 0	31.8 (12.1)	27.9 (14.1)	26.5 (11.0)	
Day 30	50.2 (19.4)	44.3 (18.7)	37.1 (16.4)	0.131
Change	18.3 (12.2)	16.4 (11.6)	10.6 (6.8)	

Values are mean (SD).  
\*Significant differences: <math>P < 0.05</math>. P denotes overall group differences by ANOVA; change = day 30-day 0.  
TR, trunk rotation group; TR + EP, trunk rotation plus eye-patching group; BIT, Behavioural Inattention Test; CDT, Clock Drawing Test; FIM/MM, Functional Independence Measure - Motor Measure.

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### 结论

- 自主向左轉身干预组在提高功能表现方面有明显的效果。各组在FIM的行动得分有明显差异，尤其在移位，马桶转移，行动，上下楼梯和FIM肢体总分方面第1组(自愿躯干旋身)和第3组(对照组)的再比较有明显的差异，结果并且可能在续后一个月保持。但在减低忽略則沒有分別。
- 结果证明自主转身治疗活动对改善半身忽略病人的功能活动方面来说，对比传统的日常生活活动，可以更为有效。


### Force use of the hemiparetic arm after sensory cueing reduces neglect and improves motor function in subacute right hemisphere stroke patients:

#### A randomized controlled trial

提示及手部強迫活動: 中風忽略治療隨機臨床對照研究

Fong et al. (in preparation)

振動及聲音提示器  
放在患側上肢(左側)



研究題目: 感知提示訓練改善腦中風偏身忽略研究

偏身忽略提示手錶的操作

```

    graph TD
      A[研究員為病人的患手(忽略手)戴上提示手錶設備。] --> B[設備會發出「震動」感覺信號，以及和震動同時並進或者組合聽覺(蜂鳴器)的響聲的形式。並且以預先設定每 15 分鐘的時間輸出信號提示給病人。]
      B --> C[「震動」感覺信號會在預先設定的 10 秒時間內連續震動。]
      C --> D[設備上有一枚按鈕，每當病人意識到這些提示時，必須盡快用患手在 10 秒時間內按設備上的按鈕將提示關閉。]
      D --> E[病人按上按鈕，信號立即關上。]
      E --> F[設備開始記錄手部的運動數量，可以連續記錄最多 4 個小時。]
      B --> G[每個信號與信號之間的間隔長度可以透過與電腦的聯繫調整。]
      C --> H[一個在設備背面的按鈕可調整每個信號的震動時間。]
      D --> I[如果按鈕沒有被按上，信號將在連續發出 10 秒之後關上。]
      E --> J[病人沒有按上按鈕，信號在 10 秒之後關上。]
  
```

### 提示及手部強迫活動

- 使用提示器三星期，每日三小時，一星期五天
- 聲音: 大約 67 DBA
- 震動頻率: 196 Hz (11760RPM) (與手機相似)
- 重量: 91.2g
- 內置計步器紀錄兩平面動作量(2 axes)
- 紀錄點數: 2 sec (user-specific)

### 隨機分四組: 有及沒有忽略

Figure 1 Diagrammatic representation of 2-way factorial design

	Group A	Group B	
Group 1	A <sub>1</sub> Conventional training and intervention for hemiplegic patients with neglect	B <sub>1</sub> Conventional training and intervention for hemiplegic patients without neglect	提示器+運動
Group 2	A <sub>2</sub> Conventional training only for hemiplegic patients with neglect	B <sub>2</sub> Conventional training only for hemiplegic patients without neglect	安慰機
	Hemiplegic patients with Neglect	Hemiplegic patients without Neglect	

### 評估工具

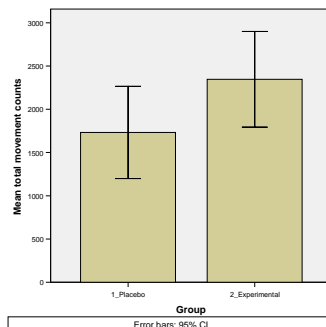
- 在第1天, 21天 and 42天用以下工具測試:
- (1) 偏身忽略测试 (BIT) – 常规测试(Wilson et al., 1986);
- (2) 日常生活独立能力评分 – Motor Measure (FIM-MM) (UDSMR, 1994);
- (3) 简短智能测验 (CMMSE) (Chiu et al., 1994);
- (4) 偏瘫上肢功能测试(FTHUE-HK) (Fong et al., 2004);
- (5) Fugl-Meyer Assessment (FMA) (Fugl-Meyer & Jaasko, 1980);
- (6) 活動量 Motor activity profile from pedometers

### 治療方法

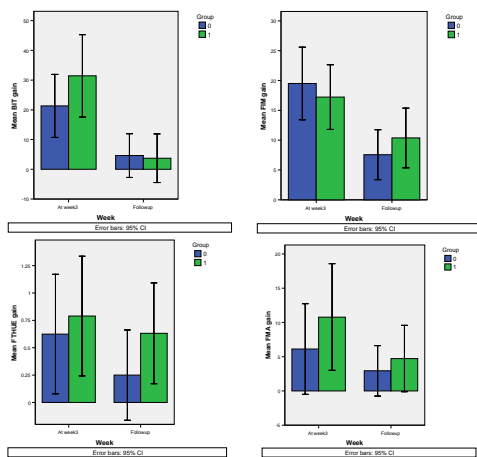


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干預組較安慰組使用提示器的患者活動量明顯增加



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### 研究結論

- 減少忽略的影響
- 訓練包含提示及參與/招募手法
- 可提升手部功能及參與
- 沒有證據顯示能改善日常生活功能

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### 改良式侷限誘發動作治療 CIMT



治療性活動之例子

- 每天需穿戴手套至少5小時(含治療時數)
- 盡量在日常生活中練習及使用患肢



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### 改良式侷限誘發動作治療 CIMT (1997 to 2007)

Study (n, no. of groups)	Time since onset of stroke	Restraint procedures	Amount of restraint
Boake 2007 (23,2)	<14 days	Mitt	90% of waking hours
Dromerick, 2000 (70, 2)	< 14 days	Padded mitten	Every weekday for 5 hours
Page 2005 (10,2)	< 14 days	Polystyrene-filled mitt with Velcro straps around the wrist	Every weekday for the 5 hours
Page 2001 (6,3)	1-6 months	Hand in a mesh polystyrene-filled mitt and arm in a cotton sling	At least 6 hours per day
Page 2002 (14,3)	1-6 months	Hand in a mesh polystyrene-filled mitt and arm in a cotton hemi-sling	Every weekday for the 5 hours
Alberts 2004 (10,2)	3-9 months	Hand placed in a mitt	90% of waking hours
Wolf 2006 (22,2)	3-9 months	Protective safety mitt	90% of waking hours daily
Brogardh 2006 (16,2)	> 6 months	Mitt	90% of waking hours for 12 days
Page 2004 (17,3)	> 12 months	Hand in a mesh polystyrene-filled mitt with Velcro straps around the wrist and arm in a cotton hemi-sling	Every weekday for the 5 hours
Sterr 2002 (15,2)	> 12 months	No balance problem: resting hand splint and arm sling	90% of waking hours
van der Lee 1999 (66,2)	> 12 months	With balance problem: half-elbow Resting hand splint and closed arm sling, attaching to the waist (during treatment time only)	Not to wear during traveling, sleeping, dressing or toileting.
Wittenberg 2003 (18, 2)	> 12 months	Hand splint and sling	During waking hours
Wu 2007a (26,2)	2 weeks - 31 months	Mitt with Velcro strap	Every weekday for 6 hours
Wu 2007b (47,2)	3 weeks - 37 months	Mitt	6 hours per day
Suputtitlada 2004	12-120 months	Glove	During therapy time

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### 檢查結果

- 中風階段
- 治療時間
- 侷限時間
- (Restraint time)

First Author	Session hour (T)	No of sessions (S)	Total no. of Treatment Hours (T X S)
Taub 1993	6	10 (in 2 weeks)	60
Dromerick 2000	2	10 (in 2 weeks)	20
Wu 2007a	2	15 (in 3 weeks)	30
Page 2001	1	30 (in 10 weeks)	30

First Author	Restraint time	Total restraint time (Hr)
Taub 1993	14 hrs X 10 days	140
Page 2002	5 hr X 5 days X 10 weeks	250
Wu 2007a	6 hr X 7 days X 3 weeks	126

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### 想像 Imagery



Figure 8.6 Where is the thickest rod?

Ref: Yekutieli, M. (2000). Sensory re-education of the hand after stroke. London: Whurr Publishers Ltd.

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### 辨認圖案 Pellenberg box



Figure 8.9 Using the Pellenberg box.

Ref: Yekutieli, M. (2000). Sensory re-education of the hand after stroke. London: Whurr Publishers Ltd.

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第一步 - 輔助劃圖, 患者須要看得到



Figure 8.2 Watching guided drawing.

第二步-認圖, 患者看不到



Figure 8.3 Which figure is the drawing?

Ref: Yekutieli, M. (2000). Sensory re-education of the hand after stroke. London: Whurr Publishers Ltd.

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### Review of Training

- 早期干預 Early intervention
- 功能導向 Task-specific (related to functions)
- 重複練習 Intensive and repetitive practice
- 感知提示 Sensory cueing
- 手部活動 Recruitment of upper extremity
- 肌肉神經手法協助 +/- Neuromuscular facilitation (because of PUSHER SYNDROME)

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### 沒有人懷疑OT的有用性, 但OT應多些實証去證明其有效性

Occupational therapy for patients with problems in activities of daily living after stroke (Review)

Legg IA, Drummond AE, Langhorne P



THE COCHRANE COLLABORATION®

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## 問題討論時間

謝謝!

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