

Use of Chinese Qigong in prevention and rehabilitation

中國氣功在疾病預防及復康中的應用

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Outlines of presentation 演講綱要

- Qigong exercise 氣功鍛煉
- Use of Qigong in prevention and rehabilitation for chronic fatigue syndrome (CFS)

氣功在慢性疲勞綜合症的預防和康復

– Five Elements Balance Qigong 五行平衡功

- Phase I study (short-term effect) 第I期研究（短期效果）
- Phase II study (long-term and anti-aging effect)
第II期的研究（長期和抗衰老的效果）

– Baduanjin（八段錦）

- Regulation of HPA axis and anti-aging effect
HPA軸的調節和抗衰老的作用

- Conclusion 結論
- Future research 未來的研究



Qigong exercise

氣功鍛煉



What is Qigong? 氣功是什麼？

- Qigong is an ancient art of self-healing exercise
氣功是一種古老的自愈練習
 - Mind regulation (調神)
 - Body regulation (調身)
 - Breath regulation (調息)
- Qigong includes
 - Gentle mind-body exercise
 - Meditation
- 氣功包括：
 - 輕柔的身心運動
 - 冥想

(Manek & Lin, 2012)

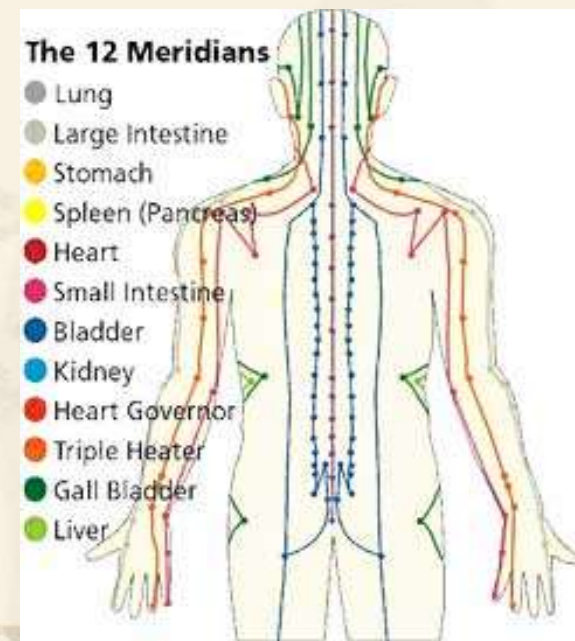


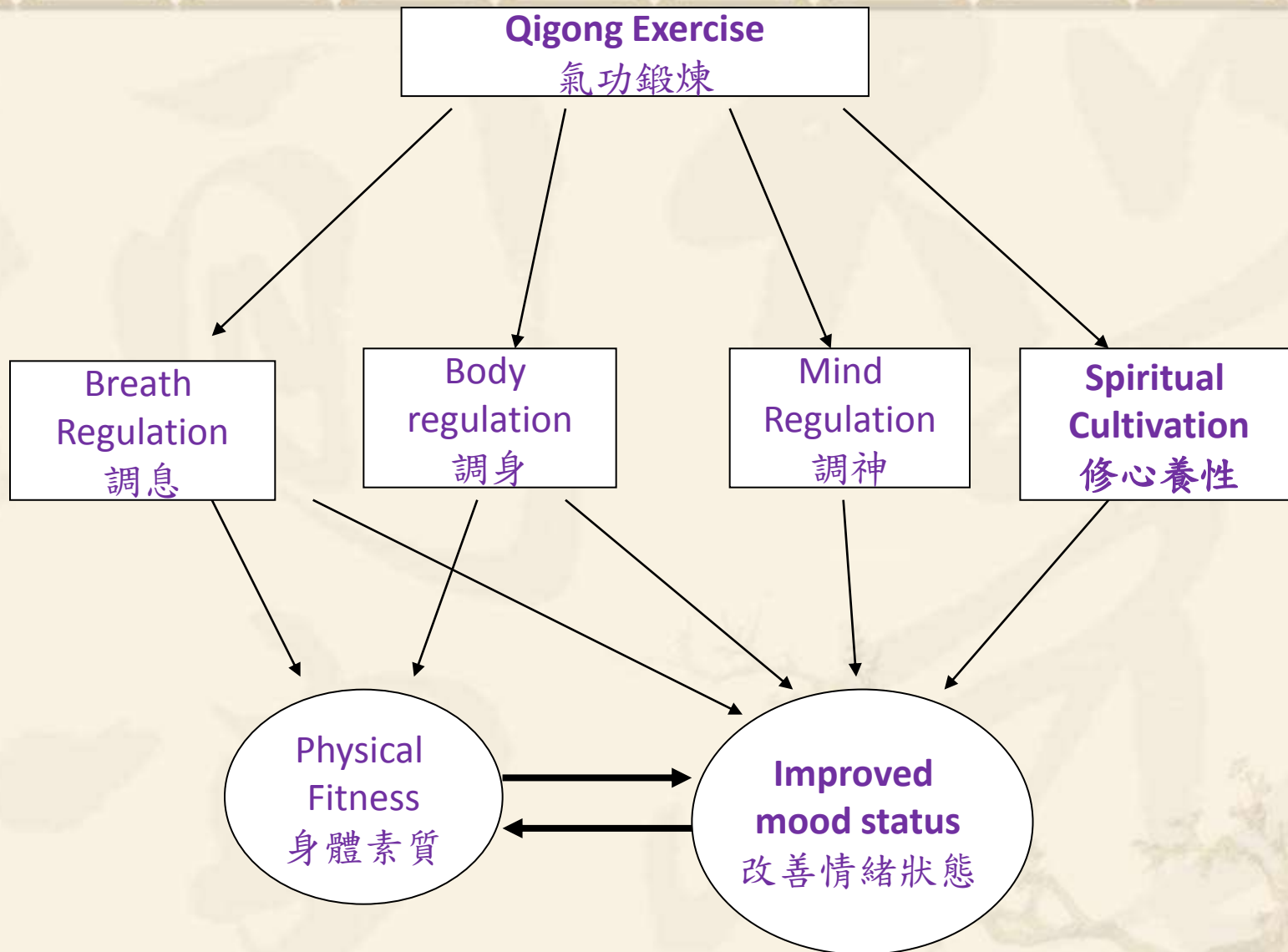
Traditional Chinese Medicine (TCM)

中國傳統醫藥

- Qigong focuses on the balance between yin and yang, as well as smoothing the circulation of qi (vital energy) in meridian system (Qi vital energy channel) of the human body

氣功注重陰陽平衡，疏通人體的經絡系統中的氣或能量循環







Health benefits of Qigong exercise 氣功鍛煉對健康的益處

Advantages of Qigong exercise

氣功鍛煉的優點


- Simple and easy to be learnt
- Less physical and cognitive demanding
- Slow
- Can do anytime and anywhere
- Low cost-effective

- 簡單易學
- 需要較少的體力和腦力
- 緩慢
- 能在任何時候和任何地方鍛煉
- 低成本效益



RCTs on Qigong and Chronic Fatigue Syndrome

氣功與慢性疲勞綜合症的隨機對
照試驗





Five Elements Balance Qigong

五行平衡功

Phase I Study

第I階段研究

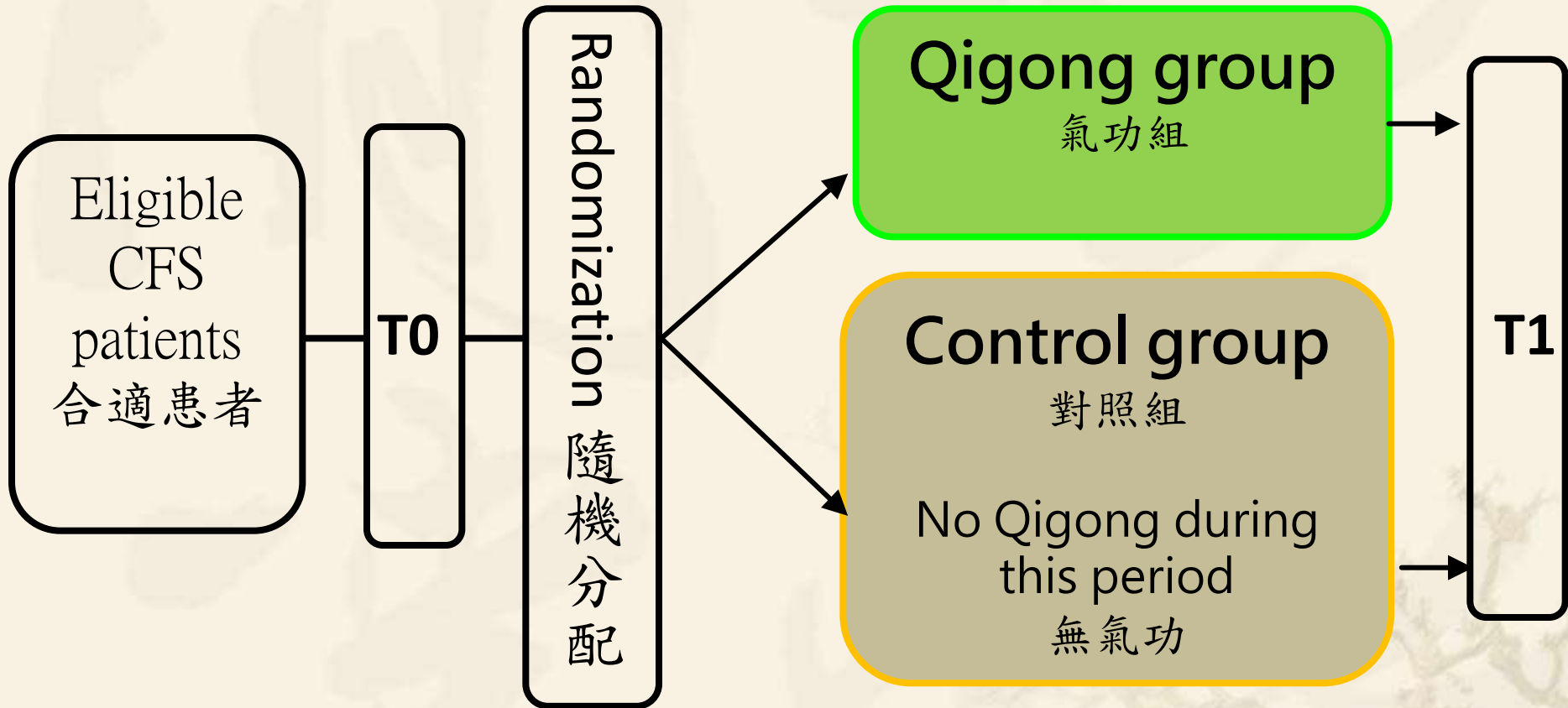


Objectives 目標

- To assess the efficacy of the Qigong exercise on physiological, psychological well-being, and quality of life for the adult CFS patients in Hong Kong.

評估氣功鍛煉對香港慢性疲勞綜合症成人患者生理，心理健康和生活質量的療效。

Study design 研究設計



Intervention 干預

- 10 sessions wu xing ping heng gong class
10節五行平衡功班
- 2 hours per session, and twice a week for 5 weeks
每節2小時，每週兩次，連續5週
- Self practice (15 – 30 minutes per day) at home
在家自我練習（每天15 – 30分鐘）

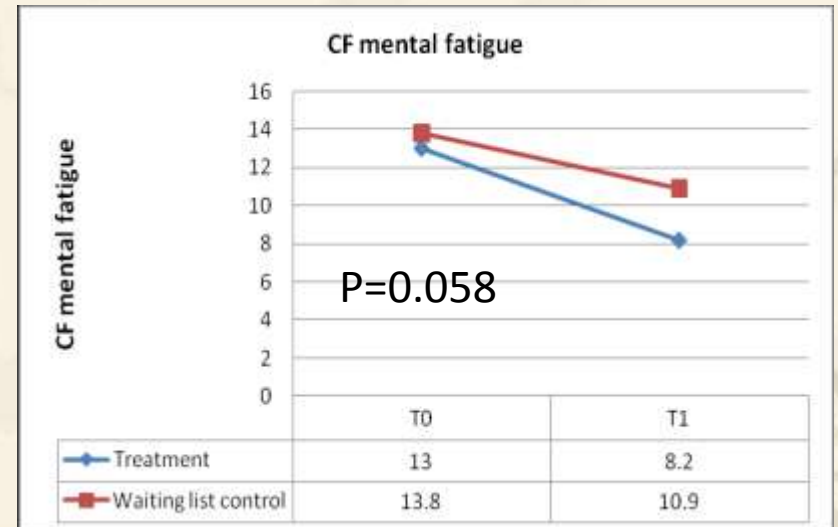
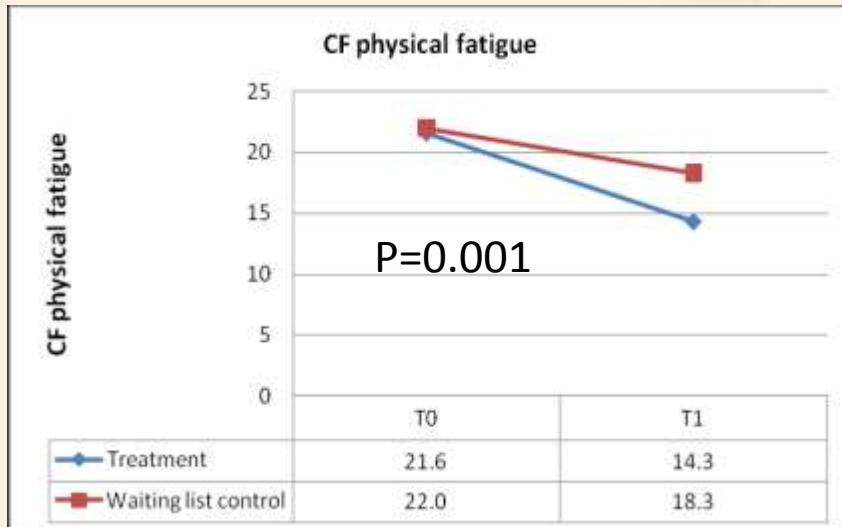
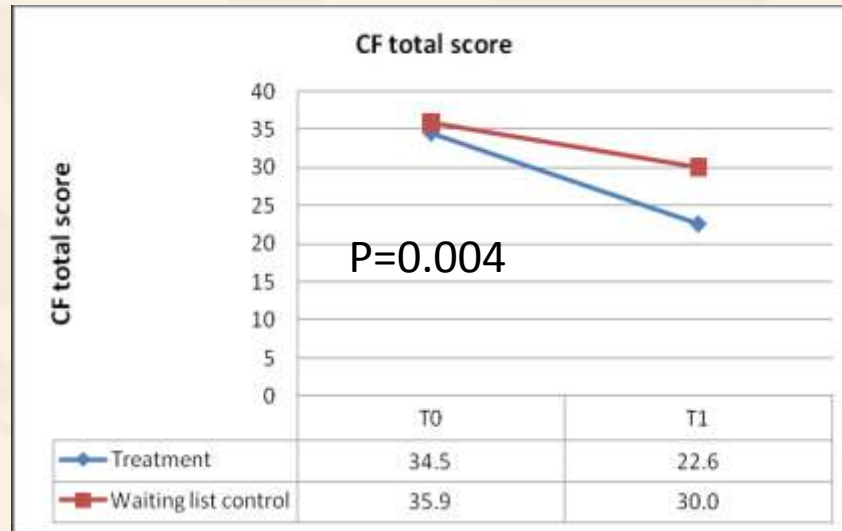


Table 1. Patients' demographic information (n = 114)

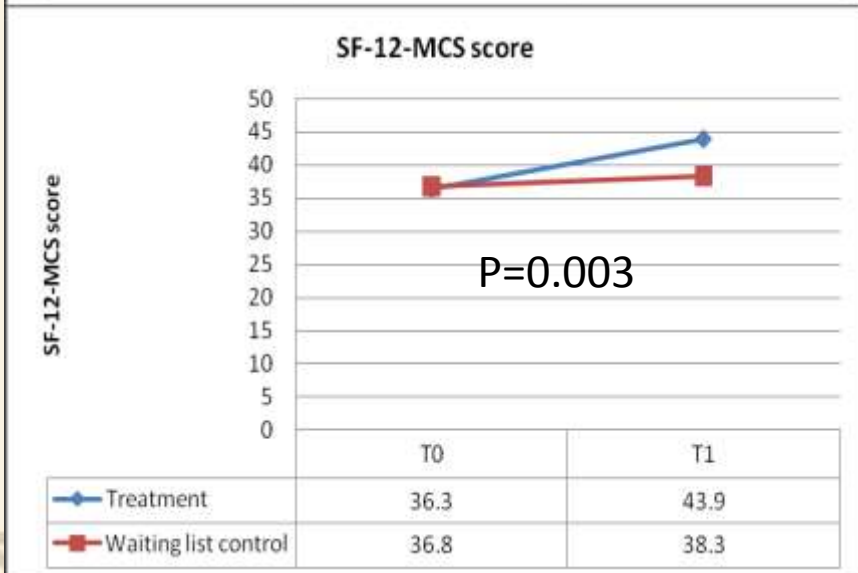
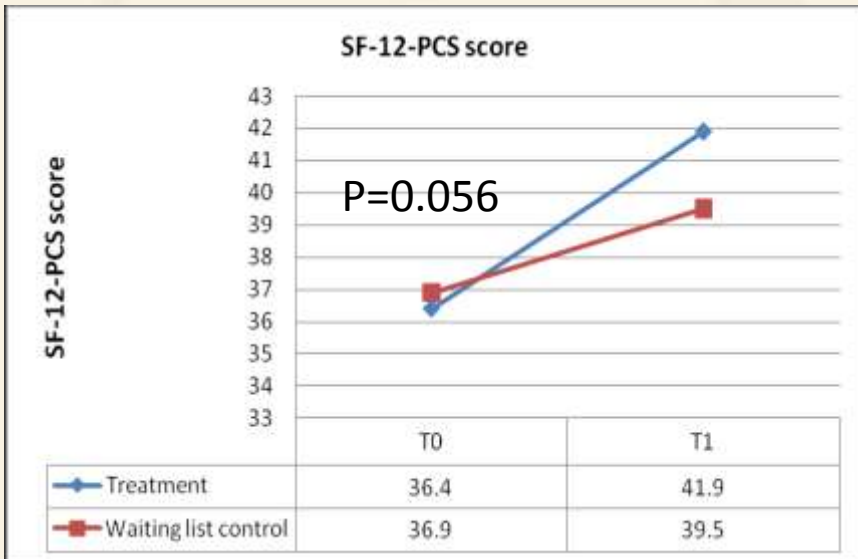
| Demographic | Intervention (n = 56) | | Control (n = 58) | | p |
|--------------------------|-----------------------|------------|------------------|------------|------|
| | Mean (SD) | N (%) | Mean (SD) | N (%) | |
| Age (years) | 45.2 (8.1) | | 46.0 (7.0) | | .588 |
| Gender | | | | | .931 |
| Male | | 16 (28.6) | | 17 (29.3) | |
| Female | | 40 (71.4) | | 41 (70.7) | |
| Employment | | | | [2] | .748 |
| Full-time | | 42 (75.0%) | | 40 (71.4%) | |
| Part-time | | 4 (7.1%) | | 3 (5.4%) | |
| Retired | | 3 (5.4%) | | 3 (5.4%) | |
| Housewife | | 3 (5.4%) | | 7 (12.5%) | |
| Unemployed | | 4 (7.1%) | | 3 (5.4%) | |
| Exercise habit | | | | [2] | .630 |
| Not do exercise | | 15 (26.8%) | | 17 (30.4%) | |
| Do exercise occasionally | | 27 (48.2%) | | 22 (39.3%) | |
| Do exercise regularly | | 14 (25.0%) | | 17 (30.4%) | |
| Number of family member | | | | [2] | .161 |
| None | | 8 (14.3%) | | 3 (5.4%) | |
| 1 - 2 | | 25 (44.6%) | | 22 (39.3%) | |
| At least 3 | | 23 (41.1%) | | 31 (55.4%) | |

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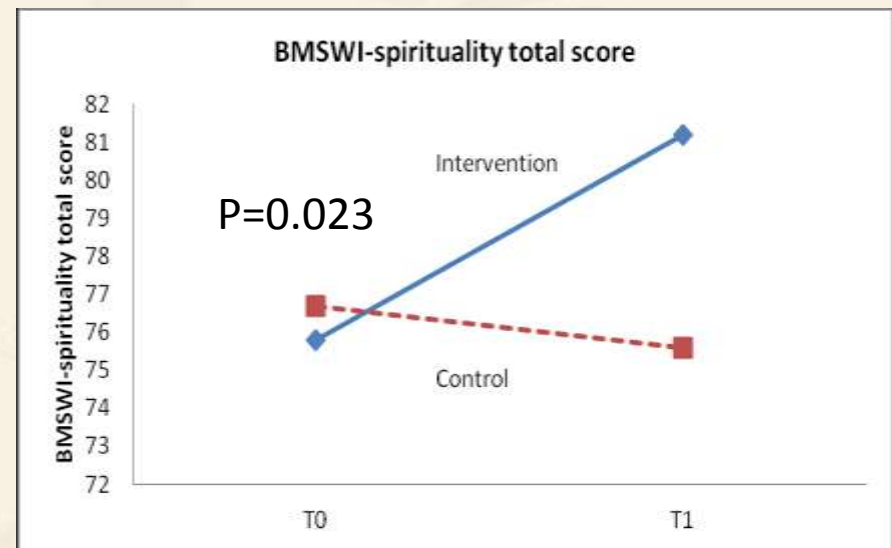
Fatigue level 疲勞程度



SF-12 生活質素量表



Spiritual wellbeing 精神健康



Conclusion for Phase I study

第 I 期研究結論

- Qigong exercise had short-term effects in
 - Reducing fatigue
 - Improving quality of life
 - Improving the spiritual wellbeing

氣功鍛煉有短期效果

- 減少疲勞
- 提高生活質量
- 改善精神健康

- Qigong exercise was an effective therapy for the treatment of CFS in Chinese population in Hong Kong.

氣功鍛煉是治療香港成年人慢性疲勞綜合症的有效治療方法

(Chan JSM, et al. (Abstract) Annals of Behavioral Medicine, s224, 2011)



Phase II study
第II階段研究



Improvement of study design

研究設計的改進

- Extended follow up and added more time points
 - T2 (post-Qigong 3 months)
- 延長跟進時間
 - 增加氣功班3個月後的時間點
- Added the biomarker: telomerase activity
新增生理指標：端粒酶活性
- Collected the data on Qigong self-practice at home
收集在家氣功自我練習的數據

Objectives 目標

- To assess the long-term effects of qigong exercise on fatigue and quality of life

評估氣功鍛煉對疲勞和生活質量的長期影響

- To assess the impact of qigong exercise on telomerase activity (an anti-aging biomarker)

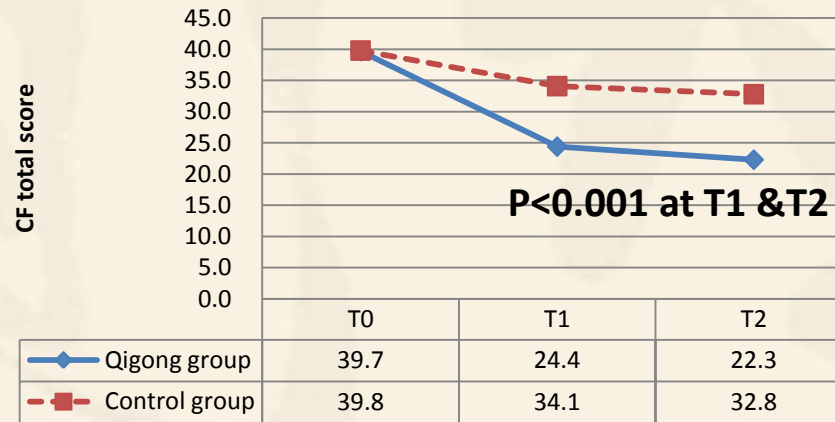
為了評估氣功鍛煉對端粒酶活性的影響（抗衰老的生理指標）

Table 2. Patients' demographic information (n=137)

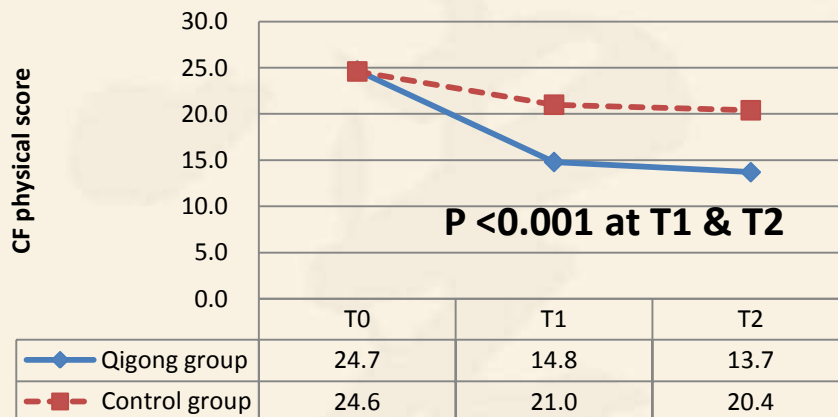
| Demographic | Intervention (n = 72) | | Control (n = 65) | | P* |
|------------------------|-----------------------|------------|------------------|------------|------|
| | Mean (SD) | N (%) | Mean (SD) | N (%) | |
| Age (years) | 42.4 (6.7) | | 42.5 (6.4) | | .979 |
| Gender | | | | | .198 |
| Female | | 52 (72.2%) | | 53 (81.5%) | |
| Employment | | | | | .629 |
| Full-time | | 55 (76.4%) | | 52 (80.0%) | |
| Part-time | | 3 (4.2%) | | 1 (1.5%) | |
| Housewife | | 9 (12.5%) | | 10 (15.4%) | |
| Unemployed | | 4 (5.6%) | | 1 (1.5%) | |
| Other | | 1 (1.4%) | | 1 (1.5%) | |
| Education | | | | | .142 |
| Form 1 to 5 | | 23 (31.9%) | | 26 (40.0%) | |
| Form 6 to 7 | | 7 (9.7%) | | 7 (10.8%) | |
| Tertiary or University | | 34 (47.2%) | | 19 (29.2%) | |
| Master or above | | 7 (9.7%) | | 13 (20.0%) | |
| Other | | 1 (1.4%) | | 0 | |

Fatigue Scale 疲勞程度 (n=137)

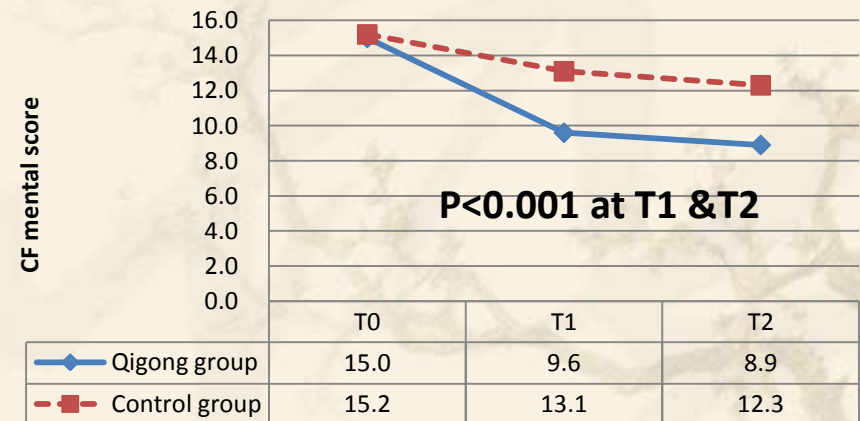
CF total score



CF physical score



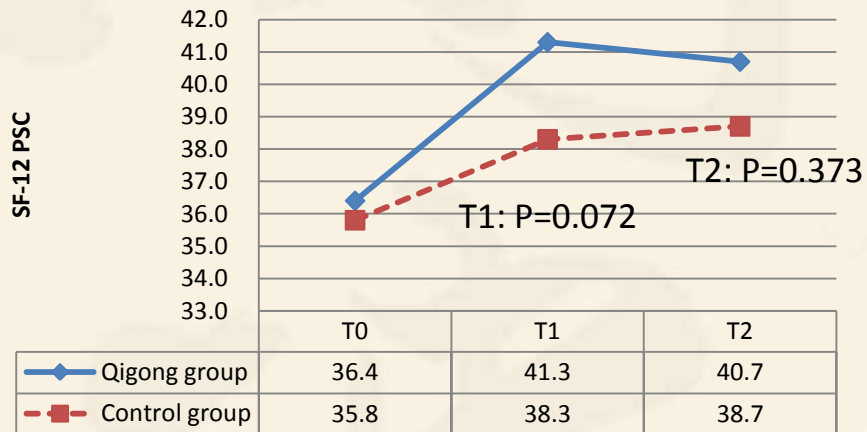
CF mental score



Comparison of Chalder's Fatigue (CF) scale between two groups (n = 137)

SF-12生活質素量表(n=137)

SF-12 Physical component summary



SF-12 mental component summary

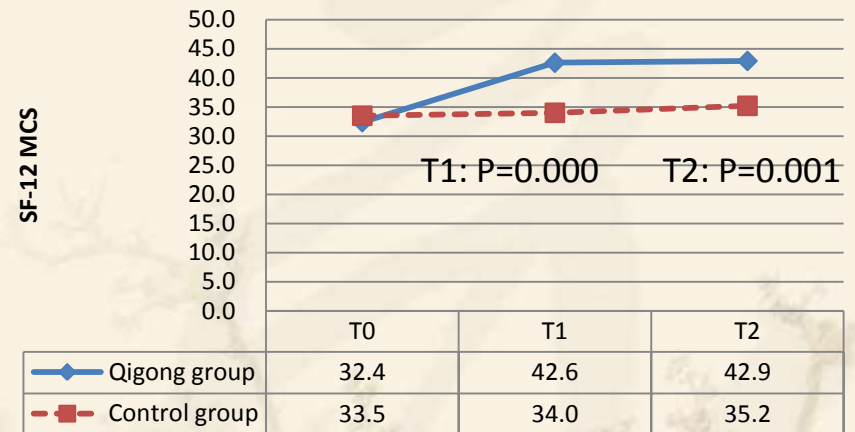


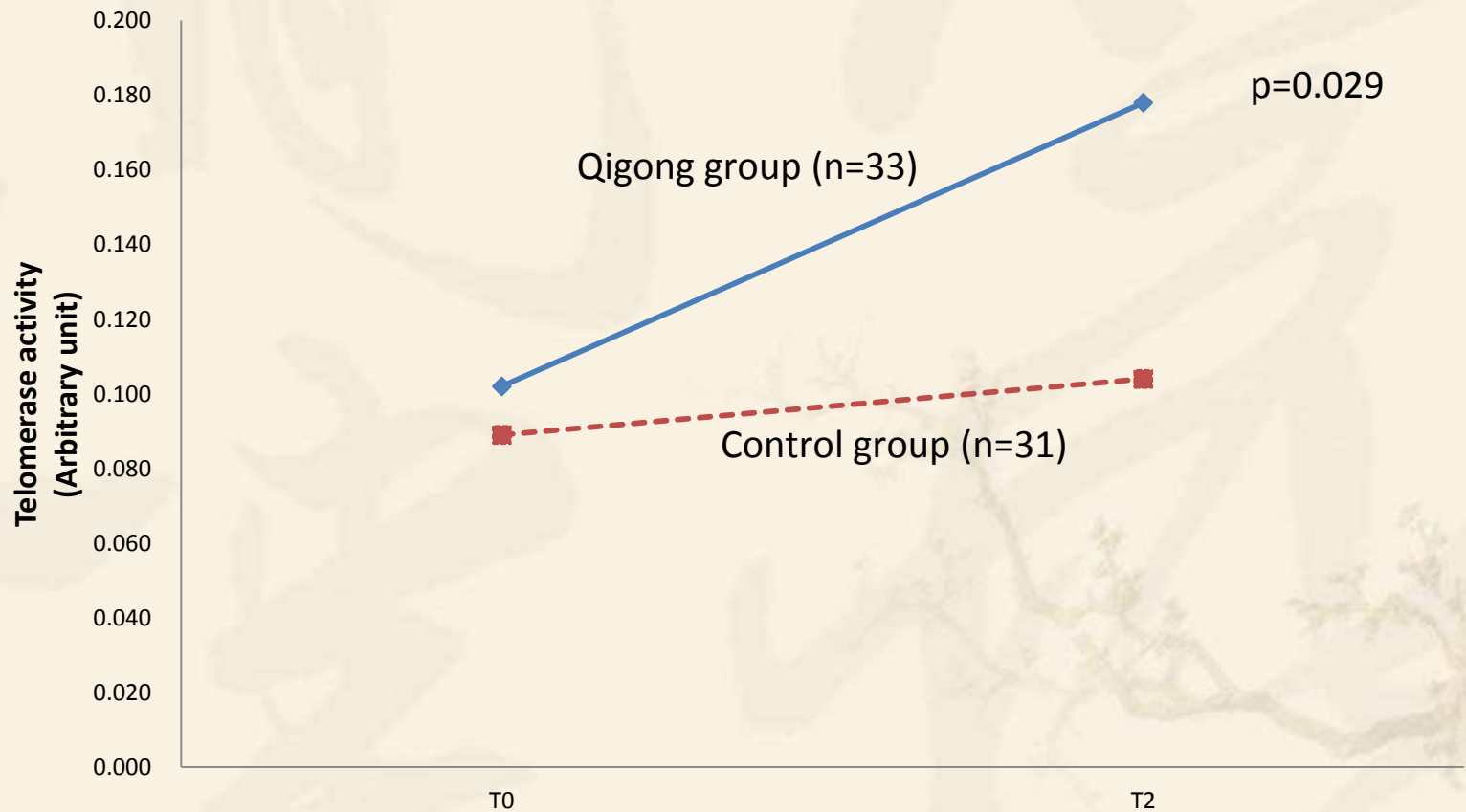
Table 3. Telomerase activity (n=64)

表3. 端粒酶活性

| Telomerase activity (Arbitrary unit) | Baseline (T0) | Post-3 month (T2) | <i>Time * group effect</i> | |
|---|------------------|----------------------|----------------------------|----------------|
| | Mean (SD) | Mean (SD) | Effect size (d) | |
| Intervention group (n = 33) | 0.102 (0.051) | 0.178 (0.201)* | 0.52 | F= 5.03 |
| Control group (n = 31) | 0.089 (0.036) | 0.104 (0.059) | 0.31 | P=0.029 |

*P < 0.05

Telomerase activity 端粒酶活性 (n = 64)



Just published article on RCT of Qigong, CFS and telomerase activity

剛發表的關於氣功，CFS和端粒酶活性的文章

ann. behav. med.

DOI 10.1007/s12160-012-9381-6

ORIGINAL ARTICLE

A Randomized Controlled Trial of Qigong Exercise on Fatigue Symptoms, Functioning, and Telomerase Activity in Persons with Chronic Fatigue or Chronic Fatigue Syndrome

Rainbow T. H. Ho, Ph.D. • Jessie S. M. Chan, M.P.H. •
Chong-Wen Wang, Ph.D. • Benson W. M. Lau, Ph.D. •
Kwok Fai So, Ph.D. • Li Ping Yuen, B.C.M. •
Jonathan S. T. Sham, M.D. • Cecilia L. W. Chan, Ph.D.

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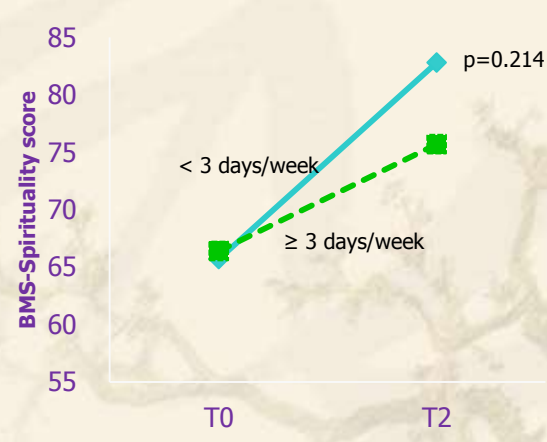
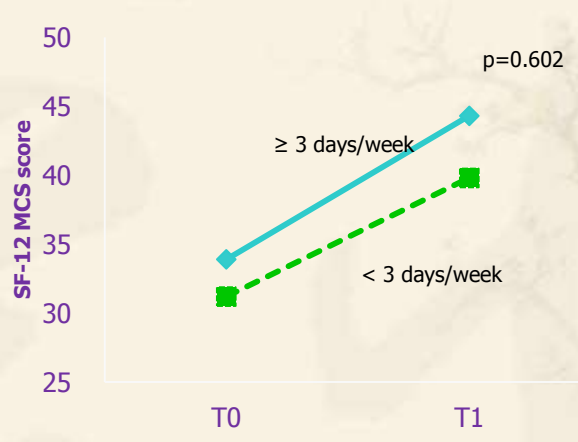
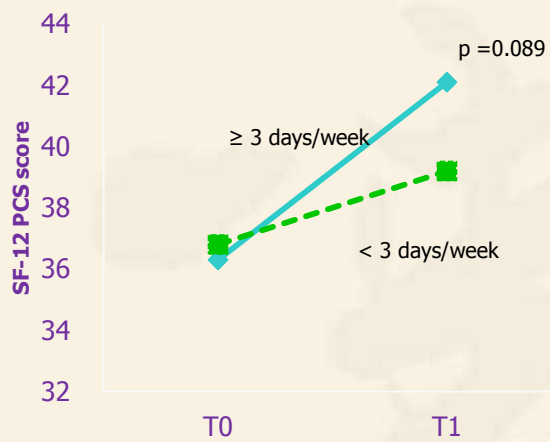
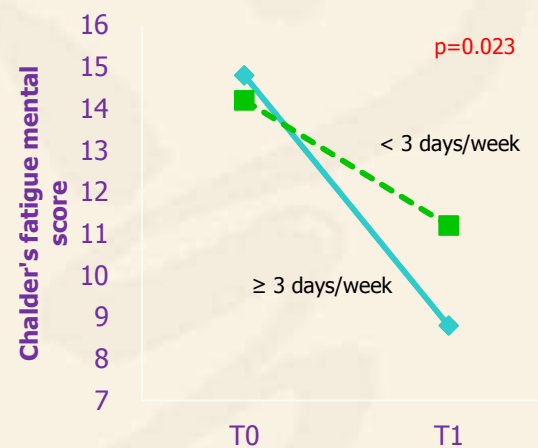
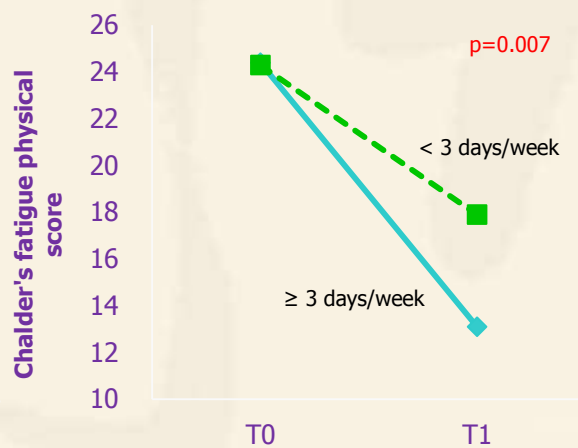
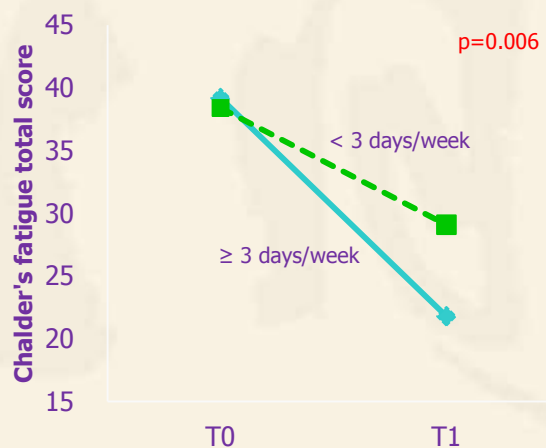
Optimal dosage of Qigong exercise in treatment of CFS

治療慢性疲勞綜合症的最佳氣功運動劑量



Comparison of outcomes between two sub-groups in Qigong group by weekly frequency of Qigong practice at T0 and T1

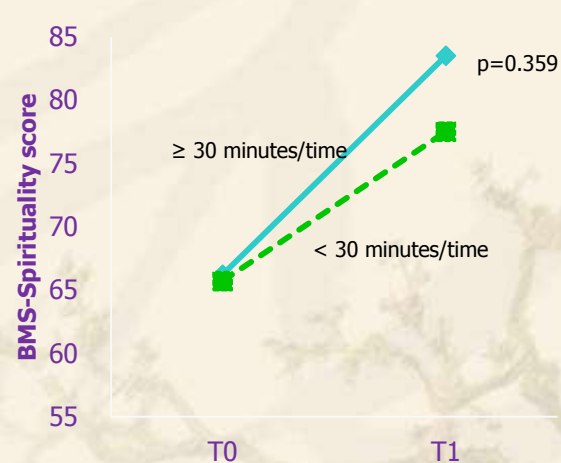
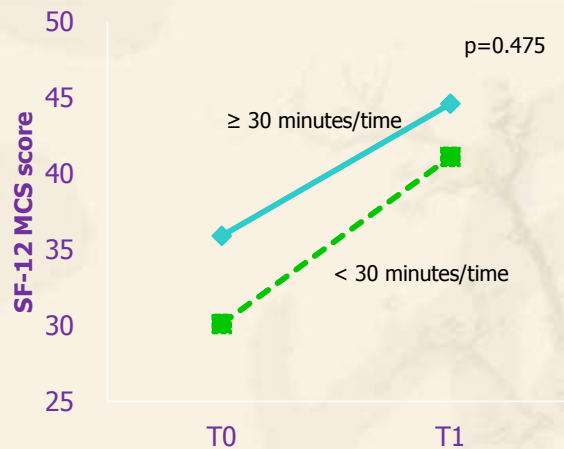
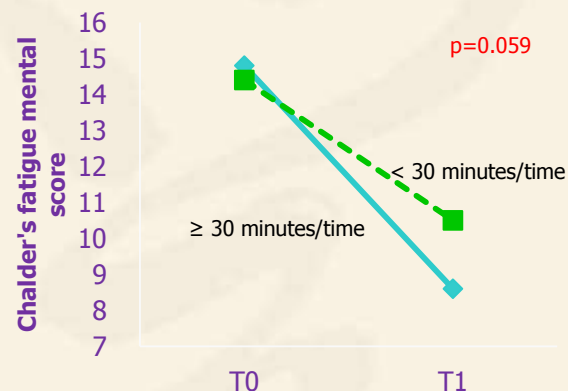
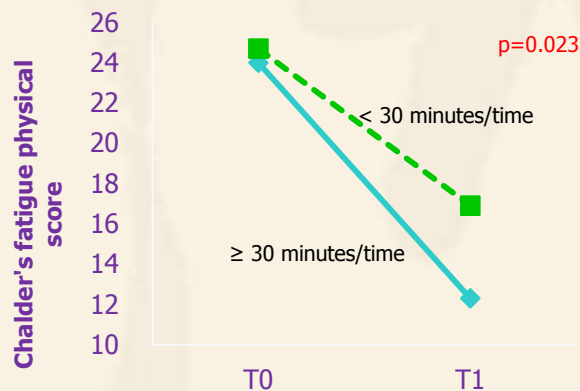
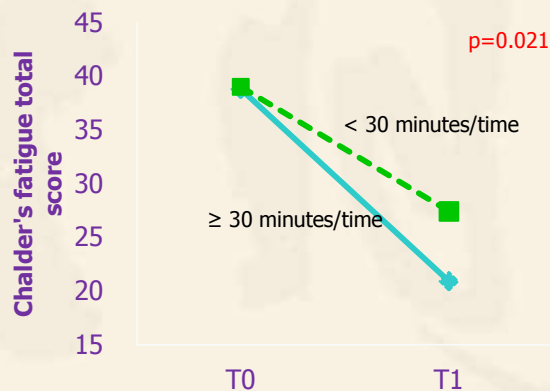
氣功組中每週鍛煉次數不同的小組比較



p-values for interaction effect of group*time

Comparison of outcomes between two sub-groups in Qigong group by duration of Qigong practice per time at T0 and T1

氣功組中每次鍛煉時間不同的小組比較



p-values for interaction effect of group*time

Conclusions for Phase II study

第II期研究結論

- **Qigong exercise has both short-term and long-term effects in reducing physical and mental fatigue and improving mental functioning**
氣功鍛煉減少身體和心理疲勞，提高心理機能的短期和長期的影響


(Ho, R. T. H., et al, (Abstract) 2012; Annals of Behavioral Medicine. S283)

- **Qigong exercise has anti-aging effects on CFS patients.**
氣功鍛煉有抗衰老的作用。

(Ho, R. T. H., et al, (Article) 2012; Annals of Behavioral Medicine)

- **A practice regimen of at least 3 days per week and at least 30 minutes each time may produce better results.**
每週至少3天，每次至少30分鐘的練習可能會產生更好的效果。

(Chan, J. S. M., et al, (abstract) 2012; Annals of Behavioral Medicine. S282)



Baduanjin
八段錦



Intervention 干預

两手托天理三焦



左右開弓似射鵝



搖頭擺尾去心火



背後七顛百病消



調理脾胃須單舉



五勞七傷往後瞧



攢拳怒目增氣力



两手攀足固腎腰



- Sixteen sessions
- Twice a week for 8 weeks) of Baduanjin
- 1.5 hours each session

十六節八段錦

每週兩次，共8週

每節1.5個小時

Reduce salivary cortisol and increase telomerase activity

降低唾液皮質醇和增加端粒酶活性

| | Intervention (n = 75) | Control (n = 75) | P* |
|---------------------|-----------------------|------------------|------|
| | Mean (SD) | Mean (SD) | |
| Mean (Ln-cortisol) | | | |
| Before (T0) | 1.767 (0.908) | 1.398 (0.397) | .002 |
| After (T1) | 1.361 (0.339) | 1.380 (0.428) | .777 |
| T1 – T0 | -0.405 (0.987) | -0.018 (0.595) | .004 |
| AUC | | | |
| Before (T0) | 312.67 (438.65) | 129.20 (86.40) | .001 |
| After (T1) | 109.19 (39.32) | 115.71 (48.86) | .370 |
| T1 – T0 | -203.48 (444.03) | -13.49 (96.91) | .001 |
| Telomerase activity | | | |
| Before (T0) | 0.222 (0.120) | 0.262 (0.129) | .050 |
| After (T1) | 0.260 (0.195) | 0.157 (0.112) | .000 |
| T1 – T0 | 0.038 (0.203) | -0.105 (0.165) | .000 |

Correlation between fatigue with cortisol level or telomerase activity

疲勞與皮質醇水平或端粒酶活性的相關性

| | Intervention (n = 75) | | Control (n = 75) | | Total (n=150) | |
|---|--------------------------|------|---------------------|------|------------------|------|
| | R | P* | R | P* | R | P* |
| Mean (Ln-cortisol) After –Before (T1 – T0) | 0.302 | .008 | 0.008 | .947 | 0.294 | .000 |
| AUC After –Before (T1 – T0) | 0.375 | .001 | -0.040 | .732 | 0.387 | .000 |
| Telomerase activity After –Before (T1 – T0) | 0.198 | .089 | 0.224 | .053 | 0.033 | .685 |

Summary 總結 1

- Qigong has not only short-term and also long-term effects in
 - Reducing fatigue
 - Improving mental health氣功有短期和長期效果
 - 減少疲勞
 - 改善心理健康
- Qigong exercise has anti-aging effects
氣功鍛煉的抗衰老作用
- The optimal dosage of Qigong is
 - at least 3 days per week
 - at least 30 minutes each time最佳氣功運動量：
 - 每週至少3天
 - 每次至少30分鐘

Summary 總結 2

- Qigong exercise may reduce the cortisol level through regulating HPA axis activity and have anti-aging effect
氣功鍛煉可以通過調節HPA軸的活動降低皮質醇水平，並有抗衰老的作用
- There is a positive correlation between change of fatigue level and that of cortisol level after Qigong exercise
氣功鍛煉後，疲勞程度的變化和皮質醇水平的變化成正相關性
- The regulation of HPA axis activity may be one of mechanisms of Qigong exercise
調節丘腦 - 垂體 - 腎上腺軸的活性可能是氣功鍛煉的機制

Prescribing Qigong Exercise to Patients

給患者開氣功鍛煉的處方



“Exercise is the best medicine. Jump.”

Optimal dosage:

最佳劑量：

- More than 3 times per week
每週3次以上
- At least 30 minutes per time
每次至少30分鐘

Future research 未來的研究

- Recruit patients with diagnosed CFS
 - What is difference between Qigong with other exercise for CFS?
 - The mechanism of Qigong exercise is still unknown
 - More exploration of mechanism of Qigong exercise using large scale study with scientific method will be needed
 - For other population
-
- 招聘確診的慢性疲勞綜合症患者
 - 氣功與其他的運動的分別是什麼？
 - 氣功鍛煉的機制仍是未知
 - 將需要更多大規模的研究和用科學的方法探索氣功鍛煉的機制
 - 其他人群



Thank You !

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