



Dr Giles Yeates

Consultant Clinical Neuropsychologist & Tai Ji Instructor

# **TAI JI FOR COMPLEX HEALTH CONDITIONS**

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# OVERVIEW

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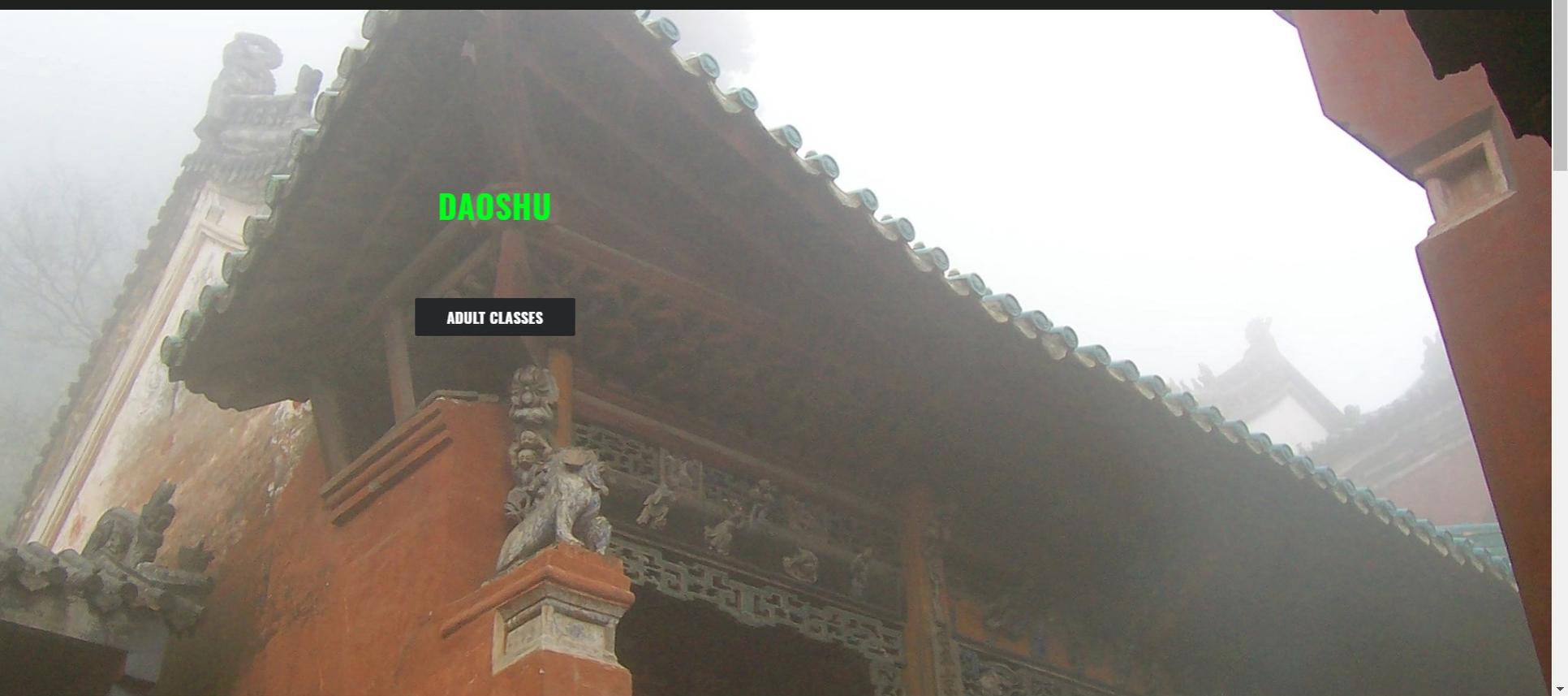
- My journey to clinical Taiji
- Tai Ji & Evidence-Base
- Internal Experience in Tai Ji: Flow States
- Fatigue Management from an Eastern Perspective



# TAI JI

## ✦ Experiential Exercise....





# DAOSHU

ADULT CLASSES



Daoshu: Wudang Arts, Oxford, UK  
Create Page @Username

- Home
- About
- Photos
- Videos
- Events
- Posts
- Services
- Shop
- Groups
- Notes
- Offers
- Jobs



Liked Following Share

Send Message

Create Live Event Offer Job

Create Post

Write a post...

COVID-19 Up... Photo/Video Get Messages

Set up Frequently Asked Questions

- Suggested Groups
- Qigong is a Way of Being... T...  
13K members • 140 posts a day  
Join
  - Yang Family Tai Chi Group  
14K members • 50 posts a day  
Join
  - Tàijiquán (Yang, Cheng,...  
3.2K members • 8 posts a day  
Join



The Wu-tang Clan



100 Eyes in Marco Polo

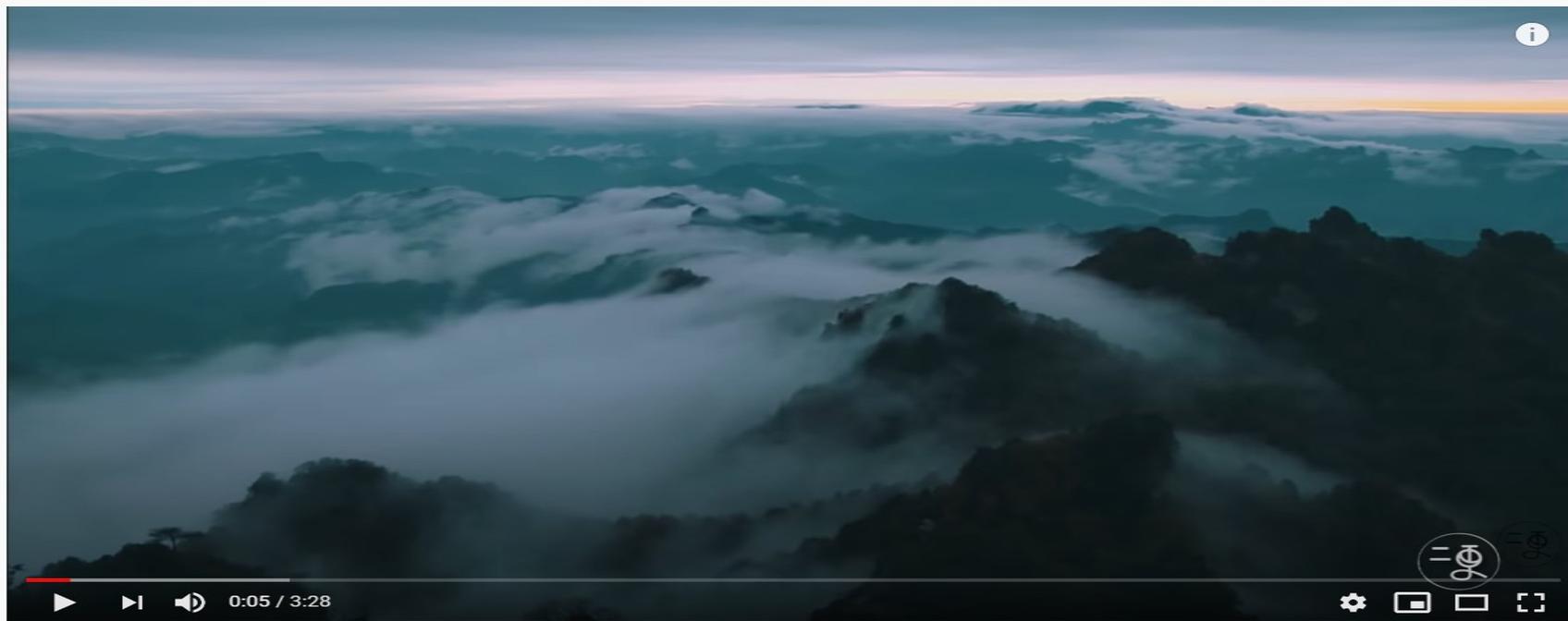
Wudang Monks & Nuns  
in Film, TV & Popular  
Culture



Crouching Tiger, Hidden Dragon (2001)



The Karate Kid Remake (2010)



[Kung fu] The most powerful kung fu in universe | More China

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# ACQUIRED BRAIN INJURY (TRAUMATIC BRAIN INJURY, STROKE, INFECTIONS, HYPOXIA. POST-TUMOUR SURGERY)

“I NEED MY BODY AND MIND TO WORK AGAIN..”

- × **Body:** a need for ongoing physio beyond the limits of professional provision, but also cognitive and emotional challenges to the practice of exercises advised by physios. Barriers to community participation in exercise opportunities
- × **Mind:** struggles with anxiety, depression, adjustment to injury but traditional psychotherapy not an appealing format
- × **Fatigue:** Devastating impact on both of the above. Current fatigue management strategies work on conserving energy, rather than increasing it via non-pharmacological means
- × **Spirit:** neglected dimension of neuro-rehabilitation. How to respond to people of all faiths and none?

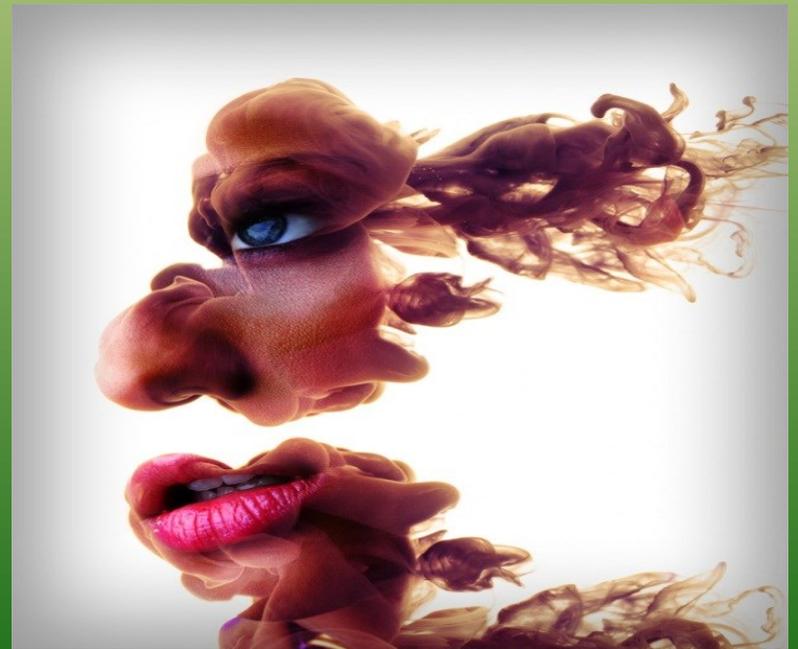


# “I’M IN PIECES, NOT WHO I WAS.....”

✘ May speak to forms of distress and disruptions to self-experience:

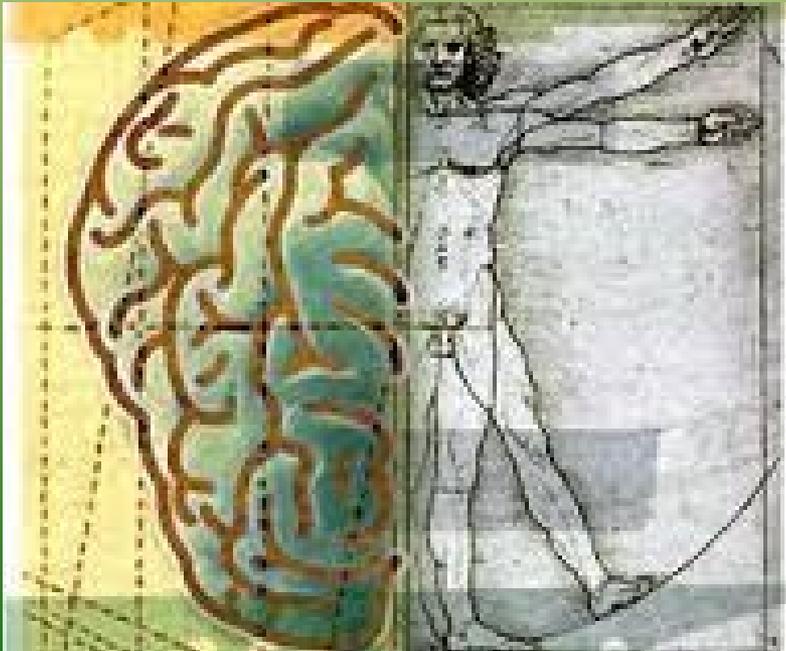
+ Fragmentation

+ Inertia



# THE NEED FOR A MIND-BODY COMMUNITY INTERVENTION?

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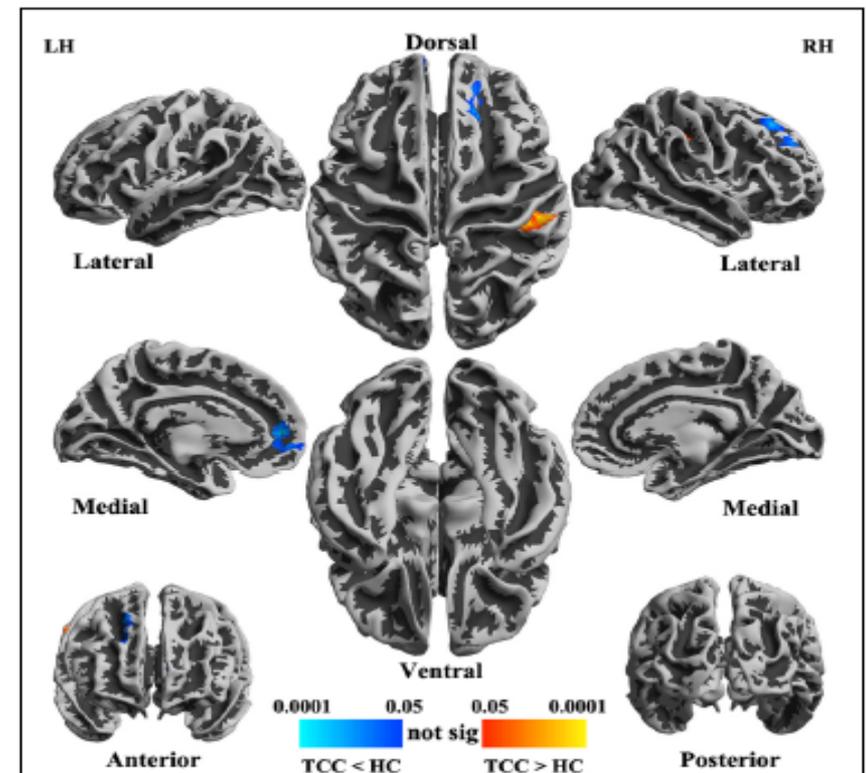


# TAI JI: HISTORY & EVIDENCE-BASE



# EXPERIENCED TAI JI PRACTITIONERS IN THE GENERAL POPULATION

- ✘ In *general population*, long term TJ practitioners are characterised by:
  - + Increased bone density, muscle strength, flexibility, stamina, reduced blood pressure (Jahnke et al., 2012)
  - + Superior cognitive (executive) functioning (Wei et al., 2013; 2014)
  - + Cerebral re-organisation (Wei et al., 2013 2014)



**FIGURE 2 | Statistical maps ( $p$ -value corrected) of cortical surfaces showing group differences in functional homogeneity measured by 2dReHo in  $fsaverage5$  standard space. In TCC experts (compared to healthy control subjects), blue colors indicate decreases in 2dReHo, while red colors indicate increases in 2dReHo.**

# TAI JI & COMPLEX HEALTH CONDITIONS

- ✘ Simultaneous physical and psychological gains (for reviews see Jahnke et al 2012; Wang et al., 2004; 2010; Yeates, 2015; 2018; Zhang et al., 2012):
  - + Cardiac rehabilitation
  - + Breast cancer patients
  - + Osteoporosis
  - + Fibromyalgia
  - + Rheumatoid Arthritis
  - + Elderly patients in falls services = reduced rates of falling and reduced anxiety
  - + Mental health (depression in older adults; anxiety in working age)





# THE WARRIOR'S JOURNEY

The onset of a neurological condition is always an unwanted intrusion into a person's life, which can make one powerless, either immediately or slowly over time. A stroke for example, literally means to be struck down or attacked. So this is a martial language.

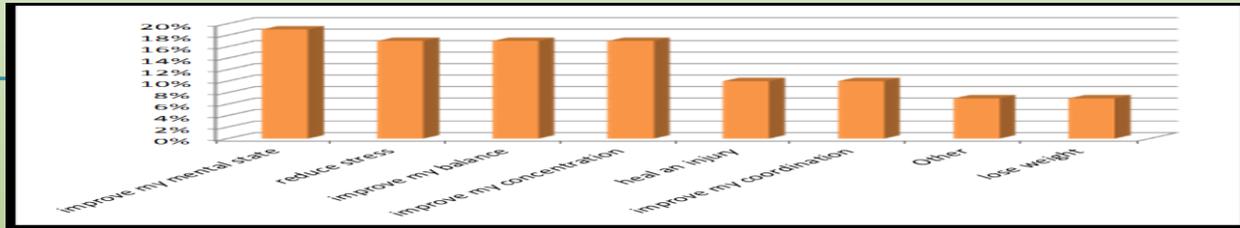
The training of a martial artist is an ancient story or archetype – we have always had warriors in our society, people who have dedicated their lives to the development of both mind and body beyond the norm to support personal and social justice. In many cultures, warriors have also always been skilled people of learning and healing.

For internal martial arts such as Tai Chi, or the advanced levels of many more styles, the warrior's journey is primarily a psychological one..... The internal martial artist would view self-defence as 'defence against the self': finding an internal emotional balance, relaxing the mind and body (internal martial arts only work with relaxed muscles and coordinated whole-body movements) and perhaps using the practice to experience oneself as part of something bigger.

So the warrior's journey is relevant and perhaps a useful resource for life with a neurological condition....Initial steps to put oneself back together again... can resemble a Rocky training montage in the early phase, while the longer process of finding and maintaining internal balance can resemble the path of an Eastern sage or spiritual master.

The hardships and challenges that many people with neurological conditions have to manage are unknown to most people who have good health, and so can be compared to the trials undertaken by a mythical warrior. Tai Chi, framed in this way, can be a meaningful part of neuro-rehabilitation and the management of a neurological condition beyond the standard provision of rehabilitation services

# CONSISTENT GAINS FOR NEURO-DISABILITY:



× **Balance:** Stroke survivors (Au-Yeung et al., 2009; Hwang et al., 2018); Multiple Sclerosis (small effect size, Burschka et al., 2014); people with Parkinsons Disease (Gao et al., 2014; Li et al., 2012; Hackney & Earhart, 2008; Khuzema et al., 2020; Li et al., 2020); Cerebellar Ataxia (Winser et al., 2017; 2018a).

**Coordination:** Multiple Sclerosis (small effect size, Burschka et al., 2014).

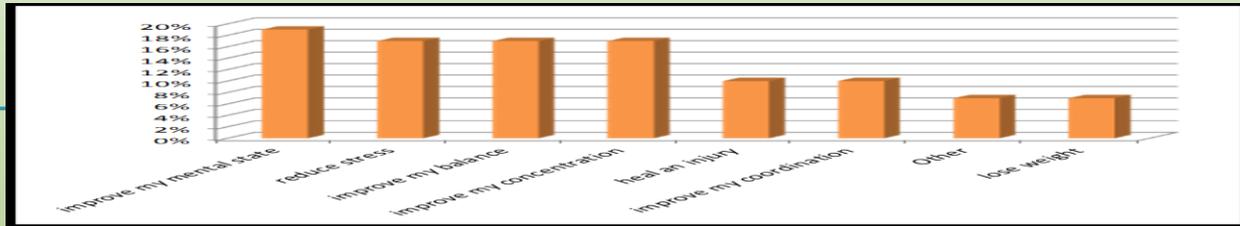
**Postural Control:** people with Parkinsons Disease (see reviews by Ni et al., 2014; Toh, 2013; Yang et al., 2014; Zhou et al., 2015).

**Mobility:** Motor Functioning in stroke survivors compared to a balance control intervention (Xie et al., 2018); differing aspects of mobility for people with Parkinson's Disease (Gao et al., 2014; Li et al., 2012; Hackney & Earhart, 2008; Khuzema et al., 2020; Li et al., 2020). Multiple Sclerosis and perceived physical functioning (small sample, Tavee et al., 2011).

**Aerobic Endurance:** Older stroke survivors (Taylor-Piliae et al., 2014)

**Incidence & Fear of Falling:** Older stroke survivors (Huang et al., 2019; Taylor-Piliae et al., 2014; Xie et al., 2018); People with Parkinsons Disease (Gao et al., 2014); Mild Cognitive Impairment (Sunokarat et al., 2017)

# CONSISTENT GAINS FOR NEURO-DISABILITY:



**Pain:** People with Multiple Sclerosis (Tavee et al., 2011).

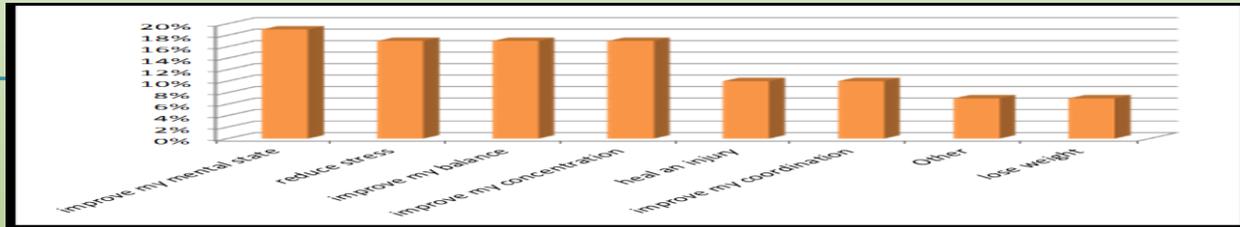
**Fatigue/Energy Levels:** Stroke/Cerebro Vascular Disorder (daytime energy levels improvement discernible from a sleep quality questionnaire measure, Wang et al., 2010); Multiple Sclerosis (small sample, Tavee et al., 2011); Mixed ABI case studies (Yeates, 2019a,b,c).

**Psychological Functioning:** Stroke survivors and depression (Wang et al., 2010; Xie et al., 2018); anxiety (see meta-analysis by Qin et al., 2016) and self-efficacy (Hwang et al., 2018); Multiple Sclerosis and depression (small effect size, Burschka et al., 2014); mood and self-esteem for survivors of Traumatic Brain Injury (but small sample size, Blake & Batson, 2009), Mixed ABI case studies (Yeates, 2019a,b,c).

**Quality of Life:** Stroke survivors (see meta-analysis by Qin et al., 2016); Life satisfaction in people with Multiple Sclerosis (Burschka et al., 2014), Mixed ABI case studies (Yeates, 2019a,b,c).

**Functional Independence:** Cerebellar Ataxia (Winser et al., 2017; 2018a).

# REVIEWS & META-ANALYSES



**Parkinsons Disease:** Balance and mobility improvements found in meta-analyses by Jin et al., 2020; Mazzarin et al. 2017; Ni et al. 2014; Radder et al. 2017; Toh 2013; Yang et al. 2014; Zhou et al. 2015) in addition to depressive symptoms and quality of life (Jin et al., 2020).

## **Stroke:**

- × **Lyu et al. (2018):** beneficial effect on activities of daily living, balance, limb motor function, walking quality, mood, and sleep from low quality evidence-based studies
- × **Qin et al (2016):** compared to physically-orientated rehabilitation, significant gains in the areas of balance function, gait speed, anxiety and quality of life
- × **Ding (2010)** Confers advantageous gains to stroke survivors in the domains of balance, mobility, quality of life, anxiety and depression
- × **Zou et al. (2018);** Baduanjin qi gong produces gains in balance and other aspects of physical functioning plus reduction in depression
- × Gains in balance is the most replicated finding across studies, concluded in reviews by Wu et al. (2018); Li et al. (2018; Zou et al. (2018)
- × **Across Neurological Conditions:** strongest evidence for increased balance and reduction in falls in people with Parkinsons Disease and Stroke, weaker evidence for other neurological conditions (Winser et al., 2018).

# OMISSIONS IN THE MEDICAL TAI JI LITERATURE

- ✘ Mental health measures secondary to physical outcome measures. No clear conceptualised mediating psychological dimension?
- ✘ Diversity in patients physical, cognitive, and emotional needs? Adaptations? Elephant in the literature?



# THE INTERNAL DIMENSION OF TAI JI

## 嬰兒現形圖

此時丹熟更須忘母情嬰兒

氣穴法名無盡藏  
藏包於寂寂包空  
我問空中誰氏子  
他云是你主人翁

行住坐卧  
抱璞守雌  
綿綿若存  
念茲在茲

夫蟾蟾之真  
孕蟾蟾之子  
傳其情交葉  
精此其氣何  
其神隨物大  
小俱得其真

潛龍今已化飛龍  
變現神通不可窮  
一朝跳出珠光外  
一身直到紫微宮

神水溶液  
統濶根株  
內外無虛  
長養聖履

他日雲飛方見真人朝上帝



# NEIDAN: INNER ALCHEMY

## 嬰兒現形圖

此時丹熟更須忘母情嬰兒

氣穴法名無盡藏

藏包於寂寂包空

我問空中誰氏子

他云是你主人翁

行住坐卧

抱璞守雌

綿綿若存

念茲在茲

夫媾媾之真  
孕蟻蛉之子  
傳其情交葉  
精混其氣柯  
其神隨物大  
小俱得其真

潛龍今已化飛龍  
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一朝跳出珠光外  
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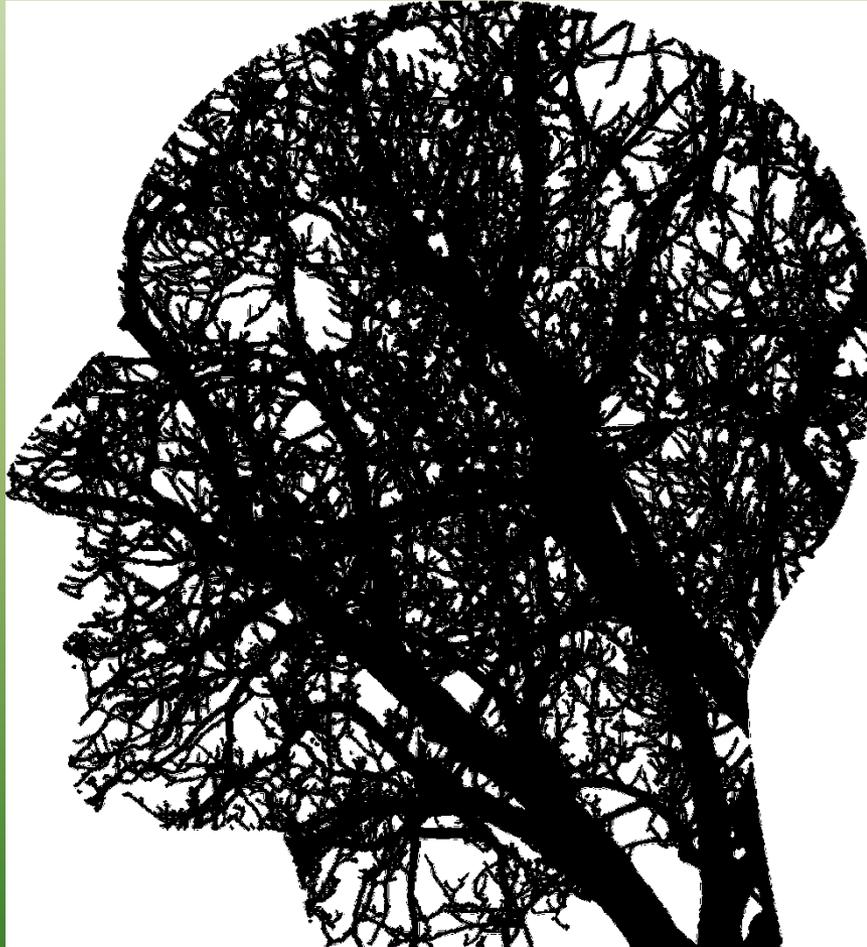
神水溶液  
統濫根株  
內外無虛  
長養聖服

他日雲飛方見真人朝上帝









# INTERNAL DIMENSION OF TAI JI: FLOW STATE EXPERIENCE

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✦ Experiential Exercise....



# IMPERMANENCE & CHANGE.....

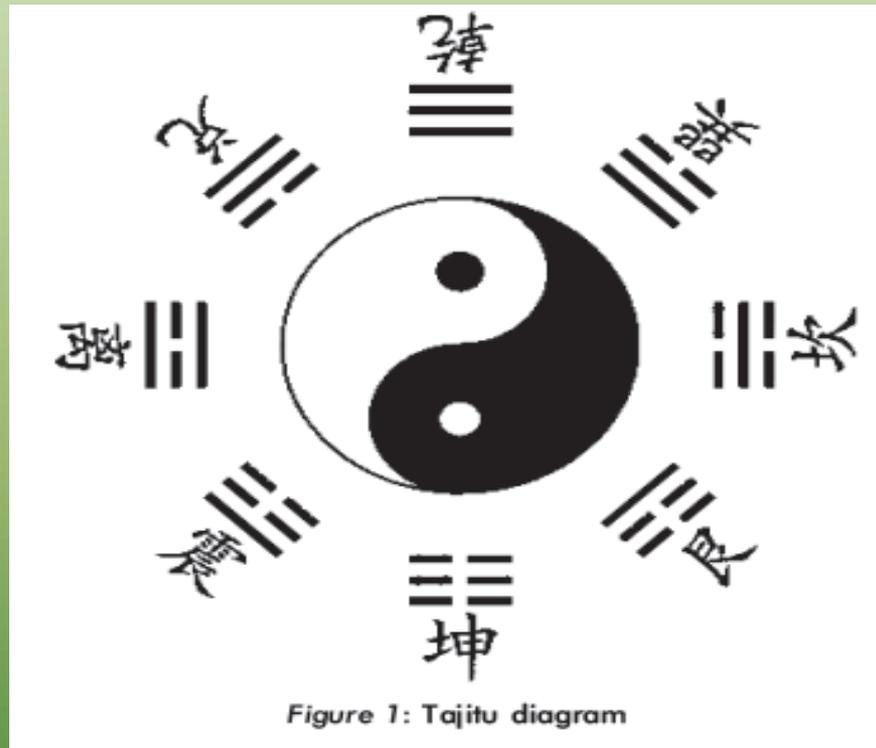
“Once upon a time, I, Chuang Chou, dreamt I was a butterfly fluttering hither and thither, to all intents and purposes a butterfly. I was conscious only of my happiness as a butterfly, unaware that I was Chou.

Soon I awoke, and there I was, veritably myself again. Now I do not know whether I was then a man dreaming I was a butterfly, or whether I am now a butterfly, dreaming I am a man.

Between a man and a butterfly there is necessarily a distinction. The transition is called the transformation of material things”. Chuang Tzu, cited in Merton, 1968.



# STILLNESS IN CHANGE & IMPERMANENCE .....



So is there really a “this” and “that”? Or is there really no “this” and no “that”? When there is no more separation of “this” and “that”, we have what is called the still-point of the Dao. (Zhuangzi Qiwulun, cited in Merton, 1969)

# LIMINAL EXPERIENCE

- ✘ “The term liminal finds its origin in the Latin *limen*, referring to a boundary or threshold. It may be likened to the threshold of a doorway, or place of transition from one state to another, a between state that leads to change, something new”.
- ✘ “A new set of circumstances involve the dissolution of a former identity and the formation of a new identity. Between these two states, the condition of liminality suspends a person or system in what may appear to be an amorphous or ill-defined state”
- ✘ “The sense of being between, a withdrawal of one thing and an approach to another, being between remembrance and anticipation, or departure and arrival, all imparted feelings of fluidity and unpredictability to the liminal experience. It is a realm of possibility. “
- ✘ Anthropological studies of rites of passage in multiple cultures marking key times of transition; artistic experience, the value of such for the psychotherapy process



Elliot, B. (2011). Arts-based and narrative inquiry in liminal experience reveal platforming as basic social psychological process. *The Arts in Psychotherapy*, 38, 96-103.

# FLOW.....

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Be like water . . . empty your mind, be formless, shapeless like water. If you put water in the cup, it becomes the cup. You put water in the bottle, it becomes the bottle. You put it in the teapot, it becomes the teapot. Now, water can flow or it can crash. Be water my friend. (Little & Lee, 2000, TV documentary)

We are always in a process of becoming and nothing is fixed. Have no rigid system in you, and you'll be flexible to change with the ever changing. Open yourself and flow, my friend. Flow in the total openness of the living moment. If nothing within you stays rigid, outward things will disclose themselves. Moving, be like water. Still, be like a mirror. Respond like an echo. (Lee, 2000, p. 13).



# FLOW.....

- ✘ Studied in Western Positive Psychology, Mihály Csíkszentmihályi (1990, 1997):
- ✘ Intense states of absorption in the domains of sport, music, creativity, and work.
- ✘ Flow states are routinely described by practitioners as involving the dissolving of a self-state and loss of normal self-boundaries (loss of reflective self-consciousness), distortion of temporal experience, a merging of action and awareness where intention is not effortful and the activity concerned seems to flow forth of its own accord.
- ✘ Practitioners feel intense well-being, ecstatic experiences at the time, and part of something bigger than themselves. Importantly, those experiencing flow states in a particular activity have attained some level of mastery over that activity through practice and experience, such that there is a dimension of automaticity and diminution of effort.
- ✘ Practitioners across diverse fields consistently use a metaphorical language of creativity and action flowing forth, hence Csíkszentmihályi's term flow states.



# TAI JI

## ✦ Experiential Exercise....



# 6 MONTH WEEKLY TAI JI GROUP PILOT

- ✘ 9 participants with ABI (aimed for 10-12):
  - + 5 Stroke; 2 TBI; 2 post-tumour resection
  - + Years post-injury: 3-12
  - + 8:1 male: female;
  - + ages: 28-69
  - + Intentional sampling to represent a range of physical, cognitive and emotional needs
- ✘ Measures of a) anxiety, b) depression, c) fatigue, d) QoL taken pre and post-intervention & a-c repeated every 4 sessions
- ✘ Qualitative focus group conducted at mid- and end points.

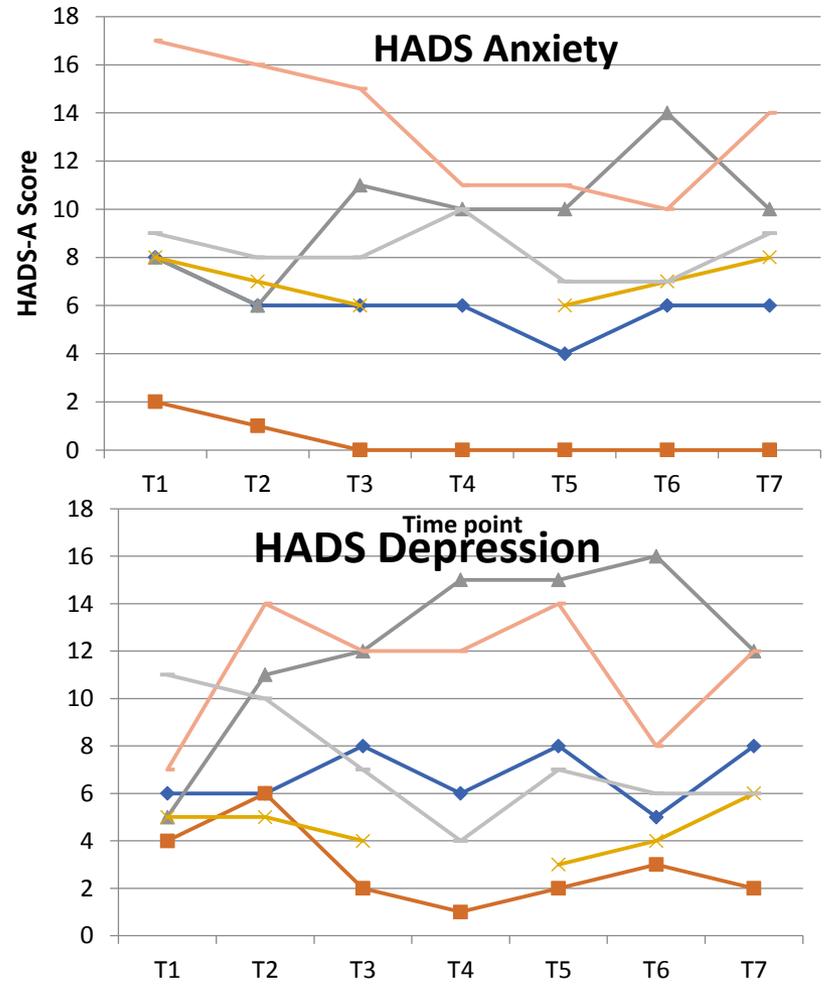
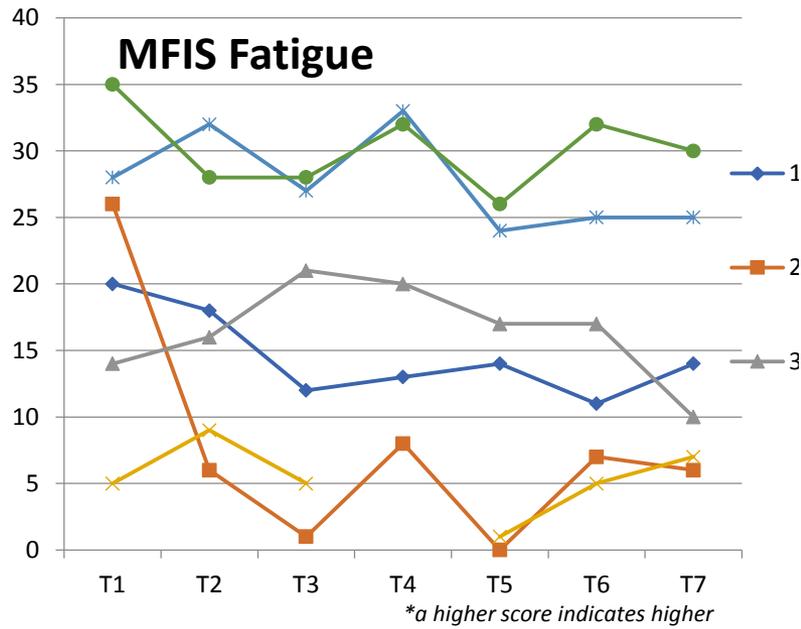


## 6 Month Tai Chi Group

(7 participants: ABI Survivors, 18mo post injury+)



Yeates et al (in prep) ABI 6 mo Weekly Taiji Group



# Evidence for Positive Impact of Mind-Body Interventions on Neurological Fatigue?

- Absence of fatigue measures in study protocols, sleep quality qnaires...
- Mindfulness
  - Grosman et al (2010) MS & fatigue, depression, QoL
  - Johansson et al (2012) stroke & TBI: fatigue
- Yoga
  - Yeates et al (2014). Yoga for small group of mixed ABI survivors = anxiety & fatigue
  - Boehm et al. (2012). Meta analysis: small positive effect on fatigue.
  - Rolland (2014) systematic review of Parkinsons Disease = mood & sleep quality
  - Cramer et al (2014) evidence across studies = mood & fatigue
- Tai Chi/Qi Gong
  - *Consistent finding of fatigue gains in breast cancer, arthritis*
  - Xiang et al. (2017). Meta-analysis: Cancer-related fatigue and vitality stronger effect across studies than multiple-sclerosis fatigue
  - Courtois et al (2015); Alraek et al (2011) tai chi, qi gong and fibromyalfia, CFS
  - Lyu et al (2018) Meta-analysis of stroke studies = +ve effect sleep quality & depression
  - Wang et al (2010) Large N stroke study = +ve effect sleep quality & depression
  - Gemmell & Leathem (2006) increased energy ratings on visual analogue scales
  - Burschka et al. (2014). Fatigue, depression & multiple sclerosis
  - Yeates (2019; in press A; in press b; Yeates et al., in prep) mixed ABI group





Fatigue's gating/moderating effect on mind, mood, cognition, physical functioning; reciprocal relationships

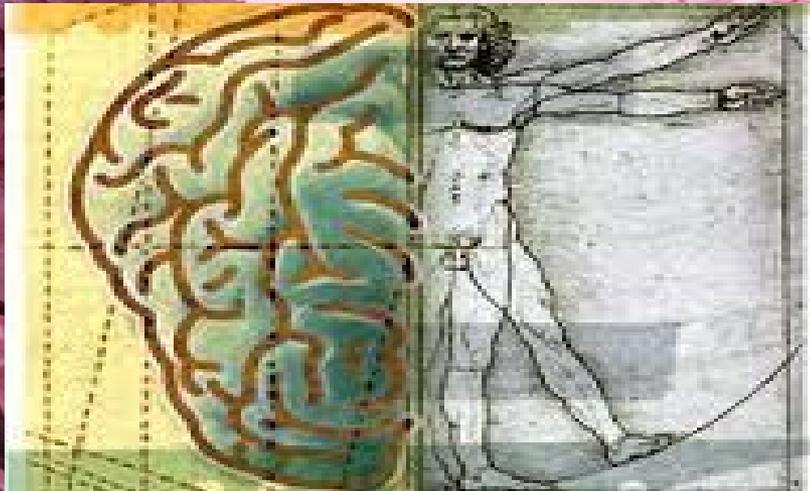
Fatigue

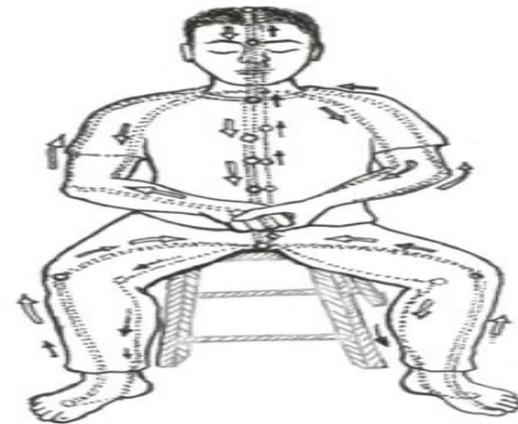
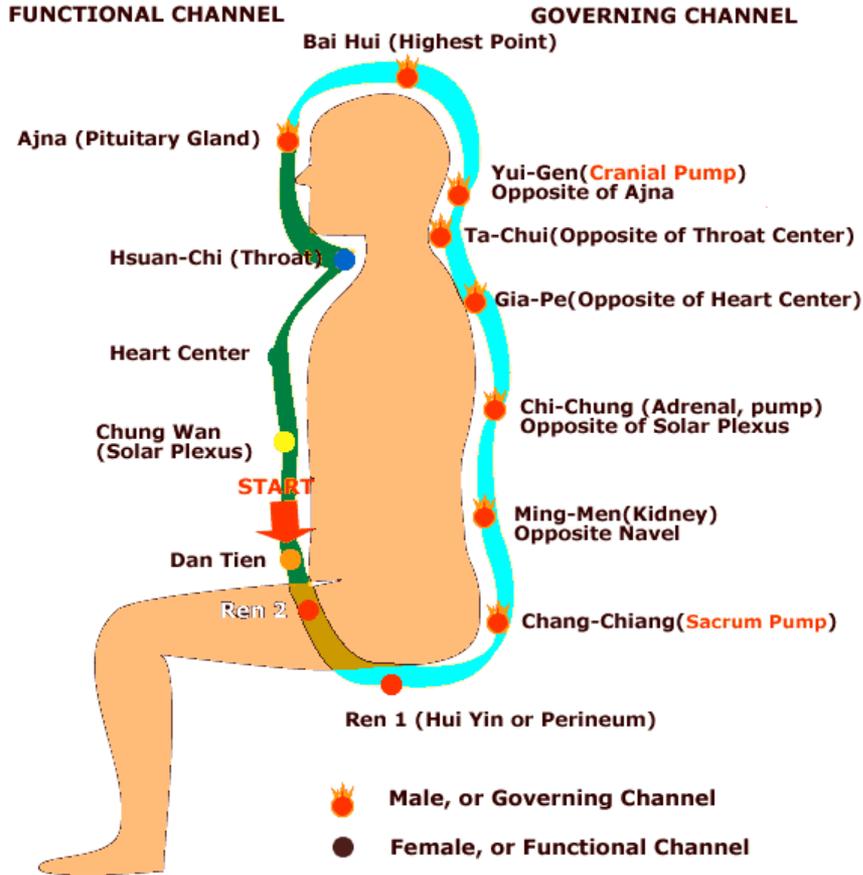
Energy

Vitality



Common Ingredients:  
Regulated Breathing, Stretching & Gaze/Attentional Focus





圖形現兒嬰

他日雲飛方見真人朝上帝

氣穴法名無盡藏

行在生財

藏包於寂寂包容

抱璞守雌

我問空中誰氏子

綿綿若存

他云是你主人翁

念藏在茲

夫嫩增家

孕婦胎之子

傳其術靈

持其氣為

其神隨天

小兒得真氣

潛龍今已化龍

變現神通不可窮

一朝跳出球光外

湧身直到紫微宮

神水冷液

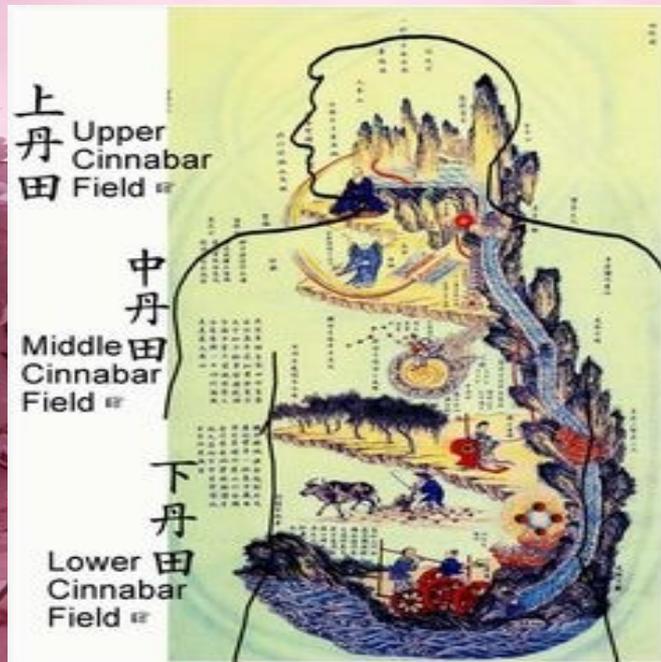
純灌根株

內外無塵

長養靈服

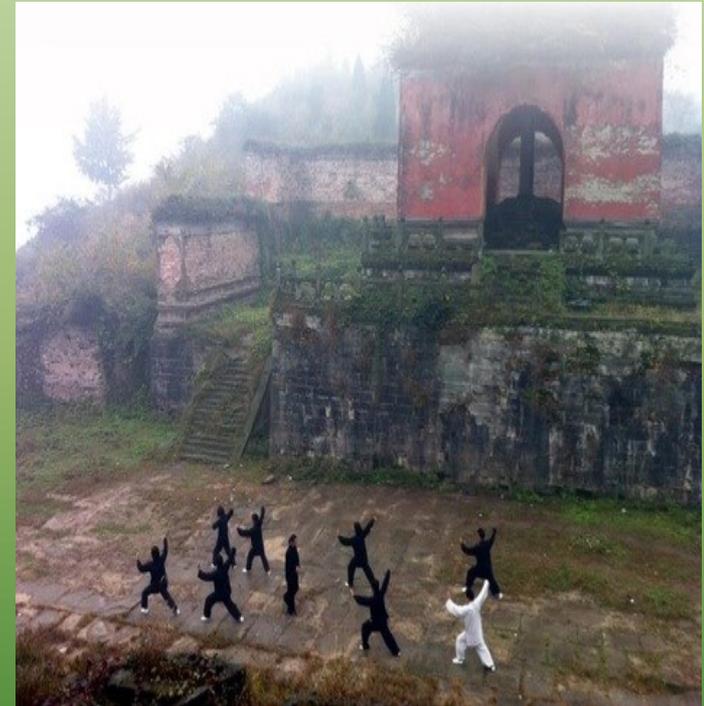
此時丹契更須悉孝情嬰兒

Unique Concept in Eastern Frameworks:  
Stagnant Qi/Energy, requires stimulation and circulation



# GOING FORWARD...

- ✘ The holistic contribution of Flow States and mind-body practices to the lives of people with neuro-disability is promising
- ✘ In particular these practices may break new ground in:
  - + Management of fatigue
  - + Optimising of psychological health
  - + Functional movement
  - + Social participation
  - + The possibility of transcendent experience for those of all faiths and none.



Area of difficulty	Suggested adaptation
Mobility	Chair-based sequences and/or restricted standing TJ forms
Balance	Chair-based sequences and/or TJ forms that have minimal weight and direction changes
Hemiplegia	Use therapy bands, sticks and bilateral hand connection to mobilise mirroring upper-body movements, visual imagery of paralysed limb movement and focus on trunk movement to amplify functional movement of ipsilateral limbs
Fatigue	Do short sequences of instruction and movement, slowly increasing over time, with regular breaks
Dyspraxia	Use tactile feedback and physical adjustments rather than relying on visual demonstration alone
Communication	Emphasise visual and kinaesthetic teaching as opposed to verbally based
Attention	Do short sequences of instruction and movement, slowly increasing over time, with regular breaks; use key phrases and words for optimal alerting qualities
Episodic memory/new learning	Focus on errorless learning in class to minimise the introduction of mistakes into the learning process; for those who want to learn sequences at home, use DVDs/ internet videos to provide a guide between session times and promote a greater number of repetition learning experiences, also supporting the autonomous learning of a sequence through backwards chaining rather than traditional instruction
Topographical disorientation/ visuospatial difficulties in using allocentric or egocentric cues	Use grids marked on the floor to assist with changing directions of movement and posture shapes
Anxiety	Use relaxing music and short teaching sequences; teach body-tension reduction and breath regulation strategies at the beginning of the class; reduce the learning/ practice demands of the movements initially to increase confidence, then gently introduce progressively more challenging sequences
Low mood	Use shorter learning/practice phases; pace the progressive challenge of sequences as above, supporting achievements with praise and encouragement and emphasising the group fellowship and identity aspects of attendance; draw comparisons to embodied experience at the end of the session versus the beginning

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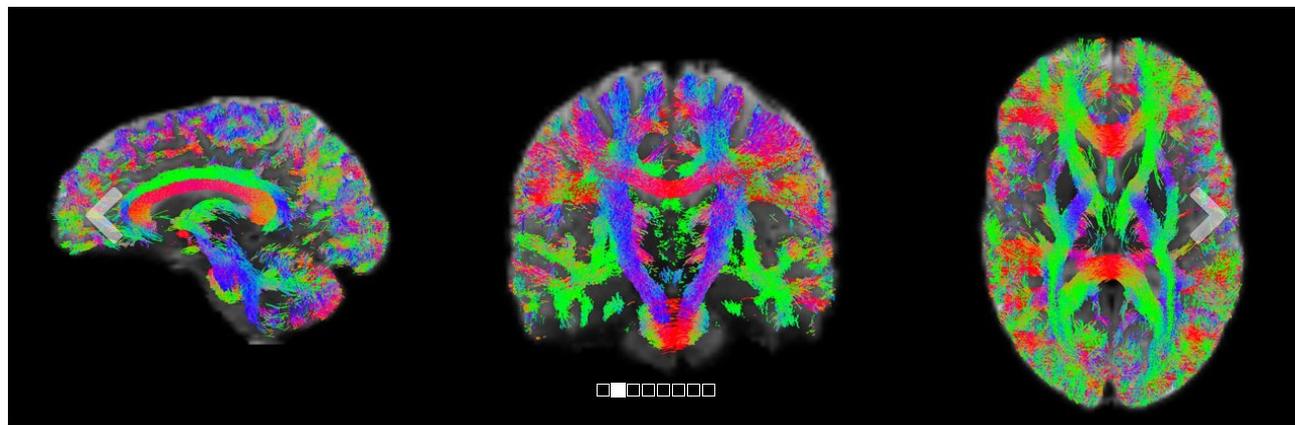
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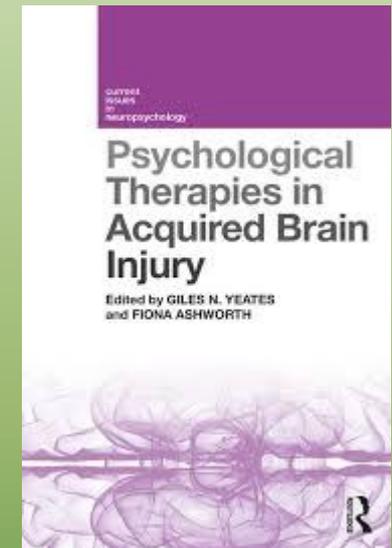
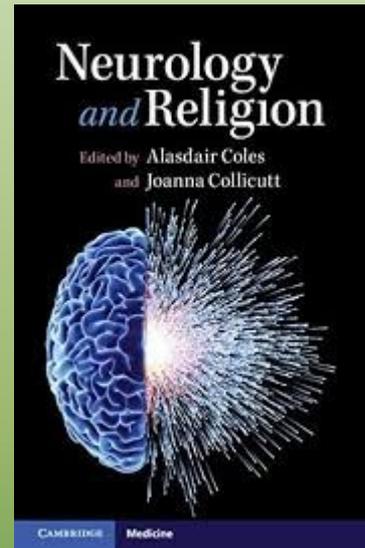
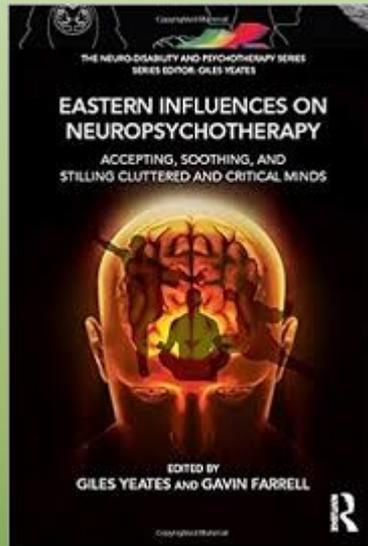
### Centre for Movement, Occupational and Rehabilitation Sciences (MOReS)

The Centre is a growing research centre which brings together three key ingredients - **research, education and care.**

MOReS is underpinned by a strong research team under four key research themes.

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## Extended Course on Tai Chi in Neurological Conditions

<https://www.udemy.com/course/tai-chi-in-neuro-rehabilitation/?referralCode=CC62CE0B67B8433118B1>

NeuroFlow Tai Chi

drgilesyeates@gmail.com

[www.neuro-flowgroup.com](http://www.neuro-flowgroup.com)

<https://www.facebook.com/NeuroFlow-Tai-Chi-1875885455991384/>

### **3 Minute Flow Blog & Reflections**

<https://www.facebook.com/pages/category/Personal-Blog/3-Minute-Flow-with-Dr-Giles-Yeates-2177962179194158/>

<https://www.youtube.com/playlist?list=UUD8YdWw5VI3EnleXvMQGoqA>

# Baduanjin 8 Brocade Qi Gong

- First transmission of practices from India to China
- Studied in stroke rehab literature – gains in physical functioning incl. balance plus reduction in depression (Zou et al., 2018)

