

## **A Two Year Study of the use of Yoga in a series of pilot studies as an adjunct to ordinary psychiatric treatment in a group of Vietnam War Veterans suffering from Post Traumatic Stress Disorder.**

**Authors:** Dr Janis Carter, MB BS DPM FRANZCP, Psychiatrist, Brisbane, Australia. *Therapy with Yoga. [www.therapywithyoga.com](http://www.therapywithyoga.com)*  
 email: [janiscarter@onaustralia.com.au](mailto:janiscarter@onaustralia.com.au)  
 Assoc. Prof. Gerard Byrne, MB BS PhD FRANZCP *Head of Department Psychiatry University of Queensland Australia*  
 Email: [g.byrne@psychiatry.uq.edu.au](mailto:g.byrne@psychiatry.uq.edu.au)

**Abstract:** The results of a two year sequence of pilot studies in one private psychiatric practice using yoga as augmentation to standard psychiatric treatment is described. The subjects are mostly Vietnam War Veterans suffering from Post Traumatic Stress Disorder in which depression is usually a significant feature. DSM IV criteria were used to make this diagnosis. All subjects are men. Towards the end of the study some subjects also undertook Qi Gong treatment, and others undertook Qi Gong Treatment alone. The subjects were tested for depression using the Hamilton Rating Scale for depression which was physician administered, and the self administered CES-D Scale for depression. The poses described by BKS Iyengar for depression in his 2001 publication *Yoga The Path to Holistic Health*, appear to be the most potent dose of yoga to effect improvement in these scales. There are other dimensions other than depression in Post Traumatic Stress Disorder including insomnia, flashbacks, proneness to anger which are not addressed in these scales, but which are nevertheless important aspects of this condition. Most patients have been very faithful to the Mind Body methods employed over this period of two years. Some participants are the same as the ones in the initial sample

### **1. Introduction**

In May 2002, the first author was accepted to present a seminar entitled *Yoga – Adjunct to Psychiatric Treatment and Yoga – Preventive Intervention*. This was a lecture and demonstration about yoga and its use in psychiatric treatment which was held in Brisbane as part of the 37<sup>TH</sup> Annual Royal Australian College of Psychiatrists (RANZCP) conference. Associate Professor Gerard Byrne, Head of the Department of Psychiatry at the University of Queensland convened this meeting.

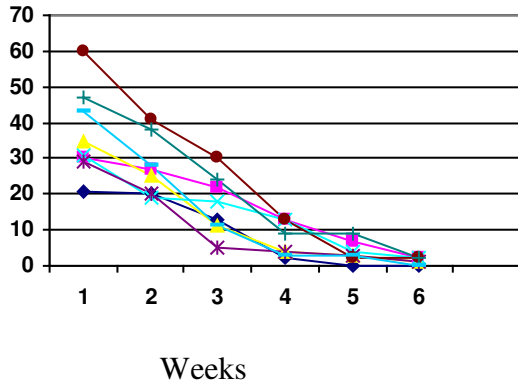
The lecture and demonstration was about the sequences of poses (asanas) described by BKS Iyengar in his book *Yoga the Path to Holistic Health* published by Dorling Kindersley<sup>1</sup>. During the lecture the application of the poses from this book was administered by Jeremy Wallis of Yoga Health Studio, together with his team.

In October 2002, a series of six week pilot trials were designed by the two authors. This was on a group of war veterans, exclusively male from mostly the Vietnam War. The source of subjects was from the first author's clinical practice. In the initial trial, whose participants were followed through until July 2003, the research on one private practice began. All participants were male N=8. This was a Feasibility Study. The mean age of the population was 60.25 years and the range was 53-84. The participants had diagnosed Post Traumatic Stress Disorder with or without Major Depressive Disorder according to the Diagnostic and Statistic Manual of Mental Disorders<sup>2</sup>. The patients were all placed on SSRI (Serotonin Reuptake Inhibitors) of mainly sertraline. Open label augmentation with Yoga was the methodology chosen. There was no placebo group. The baseline self-rated CES-D score<sup>3</sup> was 37+/- 12.39. The baseline clinician-rated HDRS (Hamilton rated scale for depression)<sup>4</sup> was administered. All participants were followed through over a period of six weeks. In fig 1. >22 signifies significant depression. In this study group of 8, one participant did the poses at home, and had no group contact, another took private lessons because of hearing disabilities, and the other participants remained in the group. The participants did not practice daily at home, and the response seen could be attributed to the intervention of one dose of Iyengar Yoga per week with or without class participation. An improvement in mood can be seen in all the participants.

Post Traumatic Stress Disorder is described in DSM IV<sup>5</sup>. It is described in the section of the book describing Anxiety Disorders, and requires criteria A-F for the diagnosis to be made. Criterion A discusses the severity of the traumatic criteria, B describes five re-experiencing phenomena of which one must be experienced, including intrusive distressing recollections of the event, recurrent distressing dreams of the event, acting and feeling as though the traumatic event were recurring, intense psychological distress when exposed to external and internal cues that symbolize or resemble the traumatic event. Physiological reactivity may be experienced. C criteria is about avoidance phenomena and requires three or more of the following. Included are efforts to avoid thoughts, feelings or conversations associated with the trauma, efforts to avoid activities, places or people that arouse recollections of the trauma, inability to recall an important aspect of the trauma, markedly diminished interest or participation in significant activities, feeling of detachment or estrangement from others, restricted range of affect (e.g. unable to have loving feelings). and finally a sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span). D criteria are about arousal which is increased, and to fit this section two of five criteria must be experienced. These include, difficulty falling and staying asleep, irritability or outbursts of anger, difficulty concentrating, hypervigilance and exaggerated startle response. For criterion E, the duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month. Criterion F states that the disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning. It must be specified if it is Acute or Chronic or with a delayed onset.

The Davidson Scale for PTSD can be administered and covers DSM IV criteria.<sup>6</sup> In this study only depression scales as mentioned were examined.

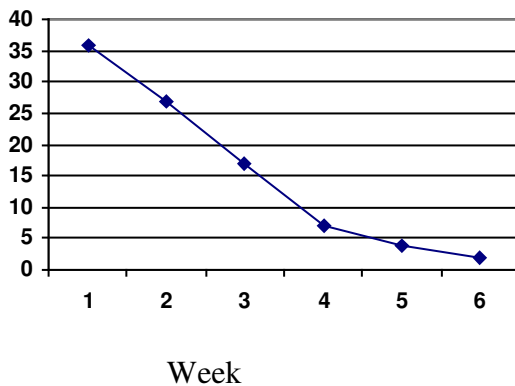
Fig 1  
Yoga Augmentation  
Individual CES-D\* Scores over 6 weeks



\*CES-D: Centre for Epidemiologic Studies Depression Scale 20 items, maximum score 60, > 22 = significant depression

As can be seen in Fig 1, a low dose of Iyengar Yoga for Depression had a marked response in this group of eight participants. The symptoms that were resistant to improvement were insomnia, and expression of anger. Because of the strength of the postures with back bends, many participants were troubled by back pain. Drs BKS Iyengar and Geeta Iyengar were very helpful in giving counterposes to overcome this problem; however, the resistant insomnia and anger remained. The yoga teacher administering the sequences rarely used the recommended pranayama as the sessions were of one hour's duration, and insufficient time was allowed for pranayama. We were to later find out that the pranayama was the most useful for insomnia and anger management.

Fig 2  
Yoga Augmentation  
Mean Self-Rated CES-D Score



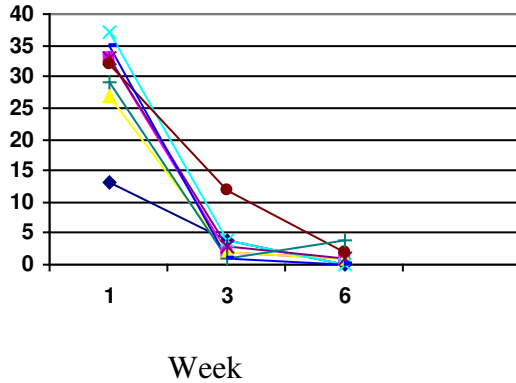
Baseline mid-October 2002

Fig 2 describes the mean of these responses.

Figures three and four show the results of the Hamilton Rating Scale for depression, which was physician administered at the beginning of the six week programme, in the middle and in the week after it was finished.

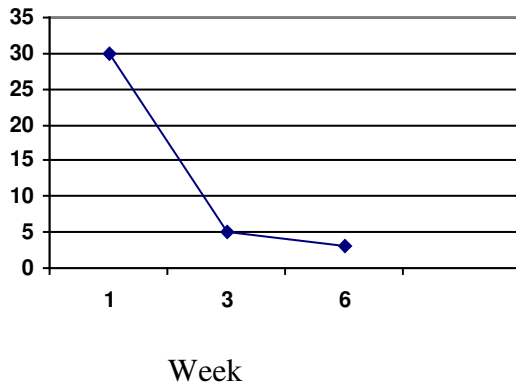
Fig 3

Yoga Augmentation  
Individual HDRS-17\* Scores over 6 weeks



\*HDRS-17: Hamilton Depression Rating Scale 17 item version; Maximum score 52

Yoga Augmentation  
Mean Individual HDRS-17 Score



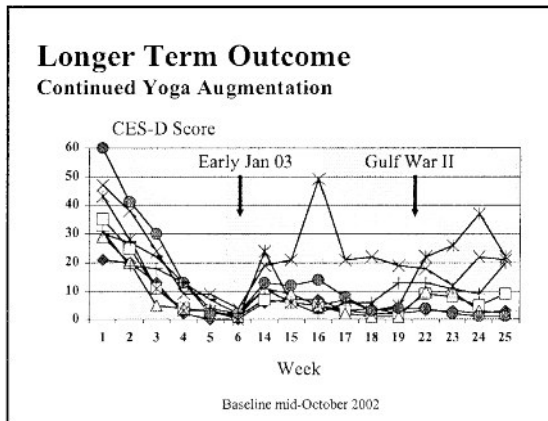
As can be seen the similar shape of the curve occurs in both the physician rated and self rated groups.

The longer term follow up even due the Gulf War can be seen in Fig 4.

Following this initial group, a six week group of the anxiety poses were used, without as much help for depression, and no help for insomnia and anger management. Hence we reverted to the depression series, and the follow up over the gearing to the Iraq war can be seen. Whilst two members became unstable in their depression, the rest of the

participants continued in their improvement on only one session per week. Because of the need for so many props, the participants felt unable to organise a home practice. This longer term outcome can be seen. In early January we were gearing up for war, and the change in stability of the group can be seen, but afterwards, the settling down of the group can also be seen. There was a second instability just after the war broke out as can clearly be demonstrated.

Fig 4 Longer Term Outcome

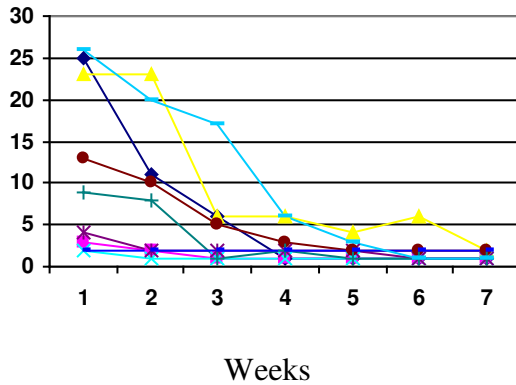


In July 2003, the first author moved from the Iyengar Studio, and as she is an accredited yoga instructor, though not in the Iyengar method, and also a psychiatrist, she began to conduct the Yoga sessions. As was the case with the previous group, each group was started with a session of sharing, and feedback, then the session of yoga, followed by more sharing.

In this session, the classes were again conducted once a week for one hour. The pose sequences used were extracted from Gary Kraftsow's book *Yoga for Wellness*<sup>7</sup>. Again, it was men only. The subjects were in good physical health. The Yoga instructor/psychiatrist conducted the classes in the format of group psychotherapy. Yoga Nidra from Larry Payne's book *Yoga Rx*<sup>8</sup>, Alternate Nostril Breathing was also taught as was Ham Sa Meditation of Alan Finger<sup>9</sup>, and chest to belly breathing described by TKV Desikachar, and also by Larry Payne, and Ujjayi breathing. The method of TKV Desikachar where two part breathing, with ujjayi breathing, and breath initiating movement, and continuing after movement was finished was taught. Function over form in contradistinction to Iyengar where form over function was emphasised. Pranayama, in the TKV Desikachar tradition was taught where the outbreath is progressively elongated, followed by a breath hold, returning progressively in the way the peak was achieved to the starting point. This is a pyramidal type of pranayama, and strict counting is adhered to, even at times using a metronome.

Fig 5

Yoga Augmentation  
Individual CES-D\* Scores over 7 weeks



\*CES-D: Centre for Epidemiologic Studies Depression Scale 20 items, maximum score 60, > 22 = significant depression

As can be seen, even though there is a much lower starting point, the same general trend as that found in Iyengar is noticed. In addition, there was considerable improvement in sleep, especially initial insomnia and restless disturbed sleep. Techniques were learned that could be applied when participants woke up at night. The pranayama techniques were spontaneously applied for anger management by the veterans, and in the middle of what is described as “road rage”, with very good results. This is especially so if the breathing techniques are practised daily and during an outburst of anger. However, these changes were not objectively studied or evaluated in this programme.

Fig 6

Yoga Augmentation  
Mean Self-Rated CES-D Score

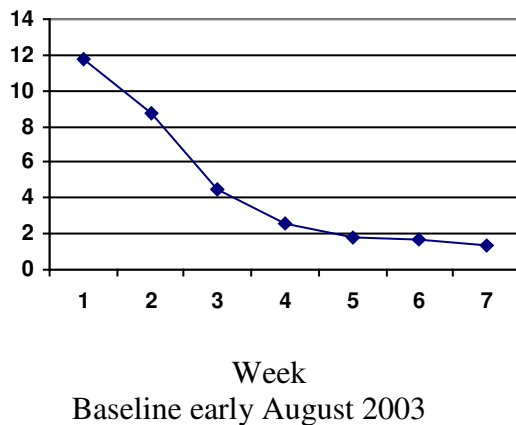
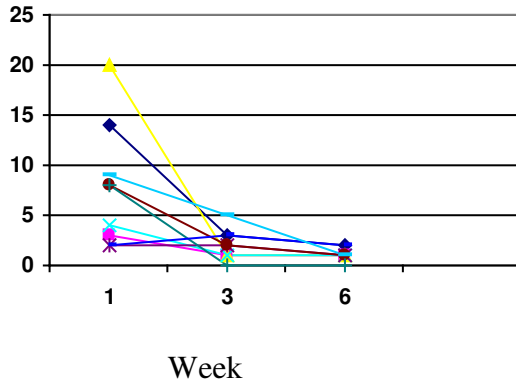


Fig 7

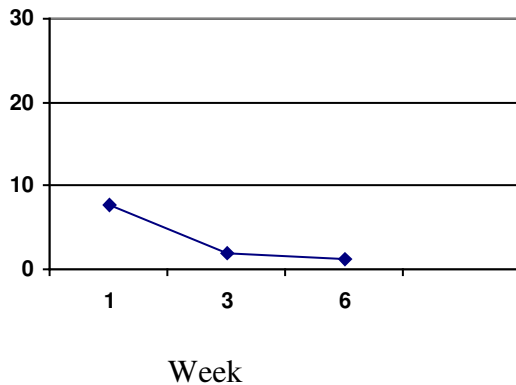
Yoga Augmentation  
Individual HDRS-17\* Scores over 6 weeks



\*HDRS-17: Hamilton Depression Rating Scale 17 item version; Maximum score 52

Fig 8

Yoga Augmentation  
Mean Individual HDRS-17 Scores over 6 weeks



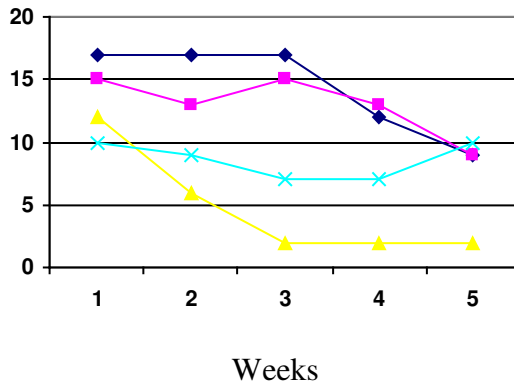
It can be noted that in this group, the mean of depression is really at the non significant level, but the same downward trend is noticed. In clinical practice, it is often hard to obtain improvement with such a low base, and the improvements in anger and insomnia are the most difficult to achieve even with very active clinical management.

After this period, the participants were introduced to an ordinary yoga group that was not specifically geared to depression, but involved vinyasas, sun salutations, a normal yoga group. One group did Qi Gong (the breathing part of Tai Chi) alone, one did Yoga and Qi Gong instead of pranayama, and another small group did yoga alone.

Fig 9

## Yoga &amp; Qigong Augmentation

Individual CES-D\* Scores over 5 weeks



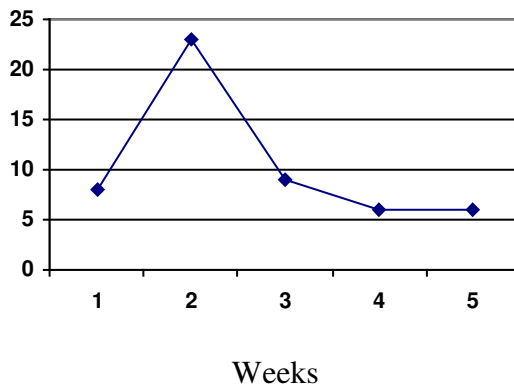
\*CES-D: Centre for Epidemiologic Studies Depression Scale 20 items, maximum score 60, > 22 = significant depression

As can be seen, the depression score is not really significant, but there is a trend downwards. Again, as in the Desikachar group, there is an improvement in insomnia and anger management. Patient satisfaction with the method is high.

Fig 10

## Qigong Augmentation

Individual CES-D\* Scores over 5 weeks



\*CES-D: Centre for Epidemiologic Studies Depression Scale 20 items, maximum score 60, > 22 = significant depression

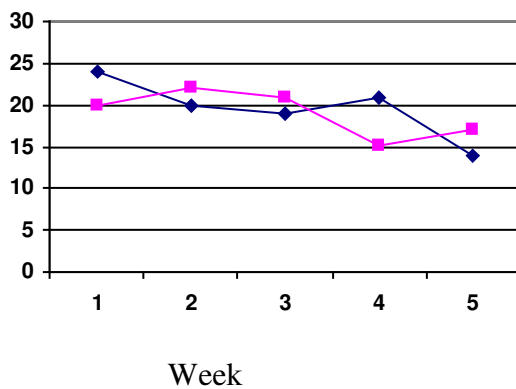


With just Qi Gong augmentation, there is an increase in depression on week 2 which may be associated with the fact that they could not remember what to practice at home. It is not really known why this occurred. The sample size is only 4.

Fig 11

### Yoga Augmentation

#### Individual CES-D\* Scores over 5 weeks

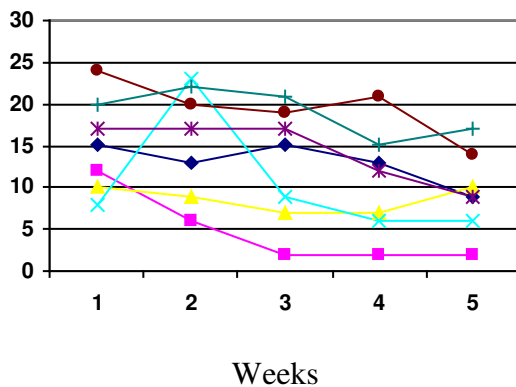


\*CES-D: Centre for Epidemiologic Studies Depression Scale 20 items, maximum score 60, > 22 = significant depression

Again, although the sample size is small, non specific yoga is associated with a downward trend in depression.

Fig 12

#### Combined Individual CES-D\* Scores over 5 weeks



## 2. Discussion

It does appear as though yoga is an effective adjunct to psychiatric treatment for depression and post traumatic stress disorder. It lends itself to combination with Qi Gong, but is a very powerful intervention of its own. Specific poses for depression seem to give a better outcome for depression. Associated benefits for all the participants has included better sleep, better anger management, less medication, better quality of life as measured by patient and spousal satisfaction. Many of the spouses tell the veterans that they must continue their yoga as it causes much improvement. Couples Yoga was tried but was not successful enough to continue. Spouses often attend the veterans group, but only infrequently, and they are not researched. There are some further factors that need to be clarified before a more extensive randomized control study is attempted. The efficacy of the Iyengar method for depression is undoubted, but avoiding back injury, promoting better sleep, and addressing anger management for these veterans needs also to be incorporated in the programme.

Various mechanisms can be postulated for the benefits including diversion and distraction, self-efficacy, mastery, social interaction, aerobic fitness, monoamines, endorphins and thermogenesis. However, at such a low dose of yoga to have such a beneficial effect, other factors seem to be at play. The addition of extra techniques such as yoga nidra, specific pranayama techniques to Iyengar yoga with sufficient back care seems to be the next line of appropriate enquiry.

The hallmark article on Sudharshan Kriya Yoga (SKY)<sup>10</sup> where Yoga is compared with electroconvulsive therapy, and a daily 45 minute session of breathing based yoga lasting 45minutes describes an effective dose of yoga. Imipramine, a tricyclic antidepressant at 150mg nocte with no titration is used with modified bilateral ECT three times weekly until HDRS is <7 on two consecutive assessments, and this is compared with the yoga.

## 3. Acknowledgements

The kind assistance of BKS Iyengar, Geeta Iyengar and Kausthub Desikachar is acknowledged, and I wish to thank them. Elva Arthy has kindly administered the Qi Gong component, and I thank her. Jeremy Wallis administered the Iyengar component and he is thanked.

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<sup>1</sup> BKS Iyengar: *Yoga the Path to Holistic Health* Dorling Kindersley Limited 2001, pp 345-347 Depression sequences of asanas ISBN 0 7513 2167 2

<sup>2</sup> *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision DSM-IV-TR*, American Psychiatric Association 2000 ISBN 0-89042-025-4.

<sup>3</sup> Center for Epidemiological Studies – Depression Scale CES-D  
*Radloff, L.S. (1977) The CES-D Scale. A self-report depression in the general population, Applied Psychological Measurement, 1, 385-401.*

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<sup>4</sup> Structured Interview Version of Hamilton Depression Rating Scale SI-HDRS Items and Range of Response Categories.

*Polts MK, Daniels M, Burman MA, Wells KB (1990). A structured interview of the Hamilton Depression Rating Scales. Evidence of reliability and versatility of administration. Journal of Psychiatric Research. 24 (4): 335-350.*

<sup>5</sup> Post Traumatic Stress Disorder Diagnostic Criteria pp467-468, *DSM IV manual*.

<sup>6</sup> *Creamer, Prof Mark: The Davidson Scale for PTSD. Centre of Post Traumatic Studies, University of Melbourne, Australia.*

<sup>7</sup> *Kraftsow, Gary Yoga for Wellness, Penguin, USA, 1999 ISBN 0 14 01.9569 6 pp 318-323.*

<sup>8</sup> *Payne, Larry PhD, Usatine, Richard, MD: Yoga Rx., A step by Step Program to Promote Health, Wellness, and Healing for Common Ailments.*

<sup>9</sup> *Finger, Alan: Meditation DVD of Yoga Zone*

<sup>10</sup> *Janakiramaiah et al., Journal of Affective Disorder, 57; 255-259, 2000.*