ABSTRACT

Background:

Cyclic meditation (CM) is a technique which consists of cycles of yoga postures interspersed with periods of supine rest (SR). A previous study showed that following cyclic meditation compared to a comparable period of supine rest there was a greater reduction in oxygen consumption (32.1% verses 10.1%), in breath rate (3.6 cycles per minute verses 1.9 cycles per minute), and a greater increase in tidal volume (266.3 ml versus 161 ml). However in this study three issues remained unresolved, these were (i) the changes which occurred during the practice, not merely after it were not studied, (ii) the study cited above used a closed circuit Benedict – Roth apparatus which has drawbacks, i.e. it may be inaccurate and breathing through it requires effort, and (iii) the study demonstrated reduced physiological (metabolic) arousal without attempting to assess the mental state or functioning.

Aims and Objectives:

The present study was designed to compare cyclic meditation with an equal period of supine rest, with respect to: (1) oxygen consumption and related variables using an open-circuit apparatus, (2) an electrophysiological variable considered as an index of attention, viz., the P300, (3) the actual performance in a paper pencil cancellation task which requires the ability to sustain and shift attention, and (4) the heart rate variability (HRV) to get additional information about the level of arousal.
**Subjects and Design:**

The study was performed on 53 healthy male volunteers who were each studied in two sessions, one of cyclic meditation and the other of supine rest. Each session consisted of ‘Pre’ (5 minutes), ‘During’ (23 minutes) and ‘Post’ (5 minutes) states. While oxygen consumption (and related variables) and heart rate variability were recorded throughout both types of sessions, the P300 (recorded at Fz, Cz and Pz) and the letter cancellation task were assessed in ‘Pre’ and ‘Post’ periods.

**Results:**

There was a significant increase in oxygen consumption during the practice of cyclic meditation when the subjects were actually practicing yoga postures, by 55.10%. However the oxygen consumption reduced to the initial values at the end of CM, and decreased still further post CM (by 19.39% less than ‘pre’ CM). In contrast, in the SR session, oxygen consumption reduced 7.28% ‘during’ supine rest and 4.83% post SR. The changes in the HRV were an increase in LF and decrease in HF and increase in LF/HF ratio during the practice of postures in CM, which returned to baseline values towards end of CM. Further, post CM there was reduction in LF, increase in HF and decrease in LF/HF ratio. In the SR session there was no significant change in HRV. There was a significant increase in the P300 amplitude and decrease in P300 latency post CM compared to pre, at all three recording sites. In the SR session the P300
amplitude showed no significant change however P300 latency reduced in the post period of SR compared to pre period. The net scores obtained in the six letter cancellation task were significantly more (suggesting improvement) in the post CM period compared to pre CM. The net scores in the post SR period were also more than pre SR period, but less in magnitude than CM.

**Conclusion:**

These results suggest that CM produces a hypo-metabolic physiological state along with an improvement in the ability to show selective and focused attention to target stimuli (evidenced by the changes in P300 and performance in letter cancellation task).