4.1 AIM

The present study aims at exploring the four states of mind (*Caïcalatā, Ekägratā, Dhäraëä* and *Dhyāna*) described in texts of yoga and spiritual lore as possible basis in different types of Meditation and different stages of a single meditation technique.

4.2 OBJECTIVES

The objectives of this work are to study the effects of ‘OM’ Meditation during *caïcalatā* (random thinking), *ekägratā* (focusing), *dhäraëä* (meditative focusing), and *dhyāna* (meditation without focusing) on the psycho-physiological changes namely:

- Brainstem auditory evoked potentials
- Autonomic and Respiratory variables
- Performance in a six letter cancellation task

4.3 RATIONALE OF THE STUDY

Evoked potentials (EPs) that can be elicited after a stimulus. EPs are evoked automatically with repetitive sensory stimulation, whereas ERPs are elicited with cognitive task processing (Hall, 1992; Picton & Hillyard, 1974; Picton, et al. 1974). Auditory stimuli produce the auditory brainstem response (ABR) and middle latency response (MLR). Long latency auditory evoked potentials
(LLAEP) are thought to reflect the activation of the primary auditory cortex (Polich & Starr, 1983; Wood & Wolpaw, 1982), while brainstem auditory evoked potentials (BAEPs) reflect neuronal activity in the auditory nerve, coclear nucleus, superior olive and inferior colliculus of the brainstem. Brainstem components of the auditory pathway correspond to components of short-latency potentials. This was considered especially important as the present study aimed at examining the changes during phases of consciousness which have distinct differences related to ‘states of the mind’, which would be expected to be seen at the brainstem level.

The autonomic nervous system can be controlled and its’ responses integrated and modified by the central nervous system (CNS). Autonomic and respiratory variables are good indicators of levels of arousal and relaxation.

Performance in a letter cancellation task, which is known to be a quick measure of selective attention, concentration visual scanning abilities, and a repetitive motor response (Uttl & Pilkenton-Taylor, 2001), has been shown to improve with other yoga practices such as a moving meditation called ‘cyclic meditation’ (Sarang & Telles, 2007) and certain präëäyāmas. Hence it was considered interesting to assess the performance in this task following non-meditative focusing (ekägratä) and meditative focusing (dhäraëä).
4.4 HYPOTHESIS

The present study hypothesized that *OM* meditation may influence selective attention and concentration, as well as the baseline autonomic functions and information processing at the brainstem level.

4.4.1 NULL HYPOTHESIS

In different phases of *OM* meditation null hypothesis postulates that:

1. The information transmission in auditory pathway will not be delayed in *caïcalatä*, *ekägratä*, and *dhäraëä* while it will not remain unaltered if not delayed at the brainstem level in *dhyäna* phase.

2. *Dhyäna* would not induce a state of deep rest with alertness and there will be no autonomic arousal in other phases of *ekägratä* and *dhäraëä*.

3. There will be no increased attention in all phases *ekägratä*, *dhäraëä* and *dhyäna* with no higher increase in