The present study was intended to assess the immediate effects of right-, left-, alternate-nostril yoga breathing, as well as on breath awareness, and no-intervention session, and on *kapalabhati* (High frequency yoga breathing) on attention using P300 event-related potential (P300 ERPs), on cerebral hemispheric activity using long latency auditory evoked potentials (LLAEPs), on hemisphere specific task using verbal and spatial memory task, and on muscle strength using hand grip dynamometer.

2 RATIONALE OF THE STUDY

2.1 BACKGROUND

The effects of spontaneous shifts in nostril dominance as well as breathing through particular nostril, which could be forced, or part of yoga practice have been studied. In particular, there has been an interest in the effect of uninostril yoga breathing on selective hemisphere specific activity. Most of these studies have examined the performance in hemisphere specific tasks. These tasks usually relate to functions such as spatial localization of objects (right hemispheric task) or manipulation of verbal material (as a left hemispheric task).

There have been no studies whether uninostril yoga breathing influences (i) sensory information processing, and (2) electrophysiological correlates of selective attention in lateralized manner. In order to assess (1) and (2) in the present study (1) Long latency auditory evoked potentials (LLAEPs) and (2) P300 event related
potential (P300 ERPs) have been assessed related to uninostril yoga breathing and to alternate nostril yoga breathing.

Since manipulating the breath rate in yogic breathing has been shown to influence autonomic and electroencephalographic activity, a second study was planned measuring the P300 in this study effects of *kapalbhati kriya* (*Kapal* means ‘forehead’ and *bhati* means ‘shining’ in Sanskrit) were assessed. Both LLAEPs and P300 ERP both are electrophysiological measurements in addition to this immediate effect of uninostril yoga breathing on performance in hemisphere specific memory tasks was studied as this has not been studied so far.

Finally reverting to uninostril and alternate nostril yoga breathing effects of these practices have been correlated to rest and activity phase of the basic rest activity cycle (BRAC) based on these correlations, it was speculated that right nostril yoga breathing could correspond physiological to activity phase of BRAC while left uninostril yoga breathing could correspond to rest phase. In the activity phase muscle strength is believed to increase with, no increase or even decrease in the rest phase. Hence, in the last part of the study the hand grip strength was assessed and correlated to uninostril yoga breathing and alternate nostril yoga breathing practice.

2.2 AIMS OF THE STUDY

The study was also aimed to review and compile authentic literature on *prāṇa*, *prāṇayama*, and on focused and defocused attention in yoga and spiritual lore and to present the effect of *prāṇayama* on focused and defocused attention.
In summary the present study assessed weather (1) sensory information processing (based on LLAEPS) and selective attention (based on P300) were lateralized (2) performance in hemisphere specific delayed memory recall tasks would differ based on the uninostril yoga breathing (3) uninostril yoga breathing could influence hand grip strength assessing a correlation with nostril dominance and the BRAC.

The variables assess different aspects of cognitive and psychophysiological functioning, hence they are presented in four separate sections, each of which has (i) a Methods section, and a (ii) Results section, separately.
The Discussion section includes discussion of all the sub-sections, and the same applies to the References and to the Appraisal.