Beneficial effects of Superbrain yoga on short-term memory and selective attention of students

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Superbrain Yoga is a simple squatting technique that uses subtle energy to improve cognitive functioning of individuals. The present study aims to find the effectiveness of superbrain yoga on short-term memory and selective attention of students. Pre-test-post test design was used in the study. The study was conducted on 91 students from a residential school in Mysore district with a mean age of 11.9 years. The Knox cube test was used to evaluate the short-term memory, and digit cancellation test was administered to assess the selective attention of students. Pre-scores and post-scores were recorded, and energy enhancement was measured before and after Superbrain Yoga practice. Scores were analysed using repeated measure ANOVA and chi-square test. A mean gain of 1.18 in score with significance (F = 1.884, p < .001) in short-term memory and a mean gain of 3.31 with significance (F = 4.426, p < .001) in selective attention after one month of Superbrain Yoga was observed. In between pre- and post-session an increase of, 34.27 % in left hemisphere and 28.71 % in right hemisphere was measured in pranic energy levels. Superbrain Yoga has been found to be effective in improving short term memory and selective attention among students.

Keywords: Superbrain Yoga, Short-term memory, Selective attention, Pranic energy.

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The human brain is a powerful and sophisticated organ. It becomes necessary to maximise its potential for better work output and holistic wellbeing. Constant research has been undertaken in this area for the same reason. Superbrain Yoga (SBY) is initiated by squeezing ear acupuncture points by fingers with hands placed across the chest and involves 14 squats with recommended breathing1. SBY rebalances the energy level in the body for optimal functioning of the brain. The Superbrain squat transforms and transmutes the energy that is trapped in the lower chakras to the upper chakras. Chakras or whirling energy centres absorb, digest and distribute prana to the different parts of the body and are responsible for the proper functioning of the human2. The simple technique of SBY can be beneficial for students and adults. SBY also benefits adolescents by regulating their sex drive and provides psychological stability1. Further, to explain the principle behind squeezing of ear in Superbrain yoga, various theories have been put forward. Nogier first presented his observations of the somato topic correspondences of the ear by showing that groups of pluripotent cells in the ear contain information of the whole organism3. Thus, stimulation of a reflex point in the ear can relieve symptoms of distant pathology within a reliable duration4. SBY could also be looked at from the point of it being a form of physical exercise. Research has found that there is a positive effect of any physical activity in improving attention and enhancement of cognitive performance and brain function5. Studies also indicate that coordinated exercise increases one’s attention6.

When the brain waves are in an Alpha state, we are usually at best at what we do. Alpha state is where the person is more relaxed and calm at the same time more alert. If children learn to stay calm under stress, they are less likely to be engaged in problematic behaviours7. When one is calm and alert, the prefrontal lobes are free to engage in higher level thinking tasks which help a child to pay attention, concentrate, solve problems, be creative, learn and remember8. In a study, it was observed that Alpha wave activity among students increases after practicing SBY for thirty days9.
Regular practice of SBY for a month had improved anxiety management among adolescents\textsuperscript{10}.

**Short-term memory:** Short-term memory represents the brain’s ability to hold and process discrete information about what you are doing at the present moment. Short-term memory is used in processing information, which involves sequential ability and activates the prefrontal and parietal cortex in the brain. Short-term memory is crucial in the classroom. Studies show that learning, reasoning, organising priorities, managing time, staying focussed and handling stress are all dependent on a healthy short-term memory capacity\textsuperscript{11,12}.

**Selective attention:** Selective attention is the process of focusing on a particular object in the environment for a certain period of time. Attention is a limited resource, so selective attention allows us to tune out unimportant details and focus on what really matters. The ability to focus on the task at hand and ignore distractions appears to have deep effects on various domains that are important in academic foundations, including language, literacy and mathematics\textsuperscript{13}.

In the present times, the short-term memory of children has become limited due to constant multi-tasking, excessive usage of phones and other electronic devices. Recent studies have shown that this kind of multitasking reduces the efficiency and performance because the brain can only focus on one thing at a time\textsuperscript{14,15}. Enhancing selective attention is important for filtering out wanted from unwanted stimulus. This can also go a long way in improving their academics and mental health. In the Indian context, the rural population may not have access to specialised therapy approaches and software for treating selective attention deficiency, that are available in the urban area. SBY would be an easy and inexpensive technique, which once learnt could be practiced all through one’s life. Regular practice of SBY has been known to enhance individuals’ cognitive performance\textsuperscript{9,10}. The present study aims to find the effect of SBY on the short-term memory and selective attention of students.

**Methods**

**Research design**

A quantitative framework was adopted in the study. A pre-test-post-test design was used where the dependent variable was measured once in the pre-test period, that is prior to the intervention or exposure and the post-test period, which is after the exposure. The present study compared the short-term memory and selective attention of students before the implementation of SBY and they have been assessed after the implementation of SBY. Experiences during and after practice of SBY were recorded. The energy enhancement after practicing SBY was further explored.

**Operational definition**

**Short-term memory:** In the knox cube test, short term memory span is measured by the extent of correct sequence of tapping the blocks by the participant. A higher score on the test can be considered as a better short term memory span for the participant\textsuperscript{16}.

**Selective attention:** On the digit cancellation test, selective attention is measured by the number of correct specified digits that have been cancelled by the participant. A higher score on the test can be indicative of a better selective attention for the participant\textsuperscript{17}.

**Sample**

The participants chosen for this present study were 91 students between ages of 10 and 12 yrs, who were selected using random sampling technique, of which 58 were males and 33 were females. The sample was chosen based on the inclusion and exclusion criteria.

**Inclusion criteria:** Age group of 10 to 12 yrs and those interested in practicing SBY.

**Exclusion criteria:** Those who were previously exposed to SBY and those having any psychological ailments.

**Tools**

**Socio-demographic data:** This was developed to document participants’ basic information such as name, gender, age and level of education.

**Knox cube test:** The cube imitation test was developed by Knox as a nonverbal test of intelligence\textsuperscript{16}, is considered as a highly standardised test and has been used in many international studies. It is also used as a measure of the short-term memory of individuals above the age of 5 yrs.

**Digit cancellation test:** The digit cancellation test has been used to measure selective attention of an individual. The present study administered digit cancellation test using three trials and then averaging the score of the three trials. The desired response is obtained by scanning the arrays of digits and crossing out the notified digits. The performance of an individual depends on his/her vigilance, arousal, and motivation\textsuperscript{17}.
Open-ended questionnaire: An open-ended questionnaire was used to document the experiences of the students during and after the practice of SBY.

Ruler: A ruler was used to measure the differences in energy around the head before and after the practice of SBY. The energy level was first measured using the scale before the introduction of SBY to the experimental group. Later, the energy differences were measured after introduction of SBY in the first session, and then finally after one month practice. The length of energy difference was expressed in terms of centimetre.

Procedure
On receipt of permission from the authorities from a Government Residential school located in Mysuru district, students were short listed based on the inclusion and exclusion criteria. Students were then sensitised and trained to experience and feel prana—the vital energy as introduced by Master Sui. Short term memory and selective attention data along with energy levels in left and right hemispheres of brain from the students were measured before introduction of SBY. Students were introduced and guided with SBY practice. After the first practice, the Pranic energy levels of left and right hemispheres of brain were measured and their experiences recorded using an open-ended questionnaire. Students were instructed to practice SBY every morning by doing 14 squats consecutively before they left for school. Weekly visits were paid by the investigators to mentor students about the practice and to guide them if necessary. After one month of regular SBY practice, the post test data was collected by running the test again, and the scores were recorded. The energy in the left hemisphere and right hemisphere of the brain was measured using a scale, to see if there is an increase or decrease in the energy levels. The obtained data was recorded using Microsoft Excel software and statistically analysed using repeated measure ANOVA and chi-square test.

Results and discussion
Students’ scores and responses were consolidated, statistically analysed and interpreted. The results show there is a significant improvement in short-term memory from pre-test to post-test for the entire sample (F = 1.884, p < .001). There was also a significant improvement in selective attention from pre-test to post-test (F = 4.426, p < .001). However, there was no differential gain in the short-term memory (F = 2.346, p = .179), selective attention (F = 1.845, p = .245) based on gender of the student from pre-test to post-test for the entire study (Table 1).

Table 2 shows a significant difference in terms of change in length of the Pranic energy levels in left and right hemispheres of the brain before and after practice of SBY. There was a slight change from pre-session to post first session in both left and right hemispheres. However, there was a significantly large improvement in the energy levels between the pre-session and the post final session, readings of which were taken after a month of practice. The left hemisphere had a significant increase, of 34.27 % mean in Pranic energy level (F = 24.714, p < .001). Right hemisphere had a significant increase, of 28.71 % mean in Pranic energy level (F = 25.325, p < .001).

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<th>Gender</th>
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<th>Gain</th>
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<td>SD</td>
<td>Mean</td>
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<tr>
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<tr>
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<td>Left hemisphere</td>
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<td>Post first session</td>
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<td>(F=24.714, p&lt;.001)</td>
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<td>Post final session</td>
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<td>5.076</td>
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<td>Right hemisphere</td>
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<tr>
<td>Post first session</td>
<td>11.846</td>
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<tr>
<td>Post final session</td>
<td>15.247</td>
<td>5.957</td>
<td>3.401</td>
<td>(F=25.325, p&lt;.001)</td>
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On the domain of cognitive skills, improved smartness ($\chi^2 = 8.011, p < .005$), increased brain power ($\chi^2 = 28.582, p < .001$), improvement in fast reading ($\chi^2 = 35.703, p < .001$), and improvement in writing skills ($\chi^2 = 40.890, p < .001$) were significantly expressed by the participants (Table 3). The present study also documented the enhancement of energy after practice of SBY for a month, thereby helping them in academic related and learning processes. This could be very beneficial for students since it could help them in academic related and learning processes. The present findings could be applied at schools particularly. Schools can use this simple technique every day to improve the cognitive functioning of the students and to help students with academics and performance.

### Conclusion

This study indicates that SBY improves the short-term memory and selective attention of the students. This could be very beneficial for students since it could help them in academic related and learning processes. The present study also documented the enhancement of energy after practice of SBY for a month, thereby showing benefit for regular practitioners. The various experiences reported by students on the physical, psychological and biplasmic domains can be used as an anchoring point for further research. SBY could be considered as an adjunctive therapy for application to improve the overall cognitive functioning of students. It can be applied to students who have been given secondary diagnosis due to academic related difficulties. The present findings could be applied at schools particularly. Schools can use this simple technique every day to improve the cognitive functioning of the students and to help students with academics and performance.
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References
1. Sui Choa Kok, *Superbrain Yoga*, (Institute for Inner studies Publication Foundation, India Pvt Ltd., Bengaluru India), 2013, 41
2. Sui Choa Kok, *The Chakras and their functions*, (Institute for Inner studies Publication Foundation, India Pvt Ltd., Bengaluru India), 2015, 8