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Original Research Article

A study to observe the effectiveness of 10 days of Yoga program on reaction time and student's perception of the introduction of Yoga training in the MBBS course curriculum

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ABSTRACT

Background: Yoga was introduced to the MBBS curriculum on 12^{th} June 2022. There is a need to obtain the perceptions of the students about this introduction of yoga training in their curriculum.
Objective: The present study was undertaken to observe the effectiveness of 10 days of the Yoga program on reaction time and to obtain the perceptions of first-year MBBS students about the introduction of Yoga training in the MBBS course curriculum.
Materials and Methods: A total of 150 first-year MBBS students studying at R.D. Gardi Medical College were part of the study after obtaining the voluntary, written, informed consent. Willing participants who practiced yoga for 10 days as per the protocol of NMC were recruited in the present study. The common protocol for Yoga was prepared by the Morarji Desai Institute of Yoga under the Ministry of Ayush. Auditory reaction time for high and low pitch sounds, and visual reaction time for red and green light were recorded using the RT apparatus for research manufactured by Anand Agencies, Pune. Both right-hand and left-hand responses were recorded. A standard questionnaire was used to record the perceptions of the students about the introduction of Yoga training in the MBBS course curriculum.
Results: Both auditory and visual reaction times were decreased followed by the yoga program. The majority of the students agreed that yoga offers multiple beneficial effects. The majority of the students agreed that yoga practice has many psychological benefits. The majority of the students agreed that the overall effect of yoga was much beneficial. The majority of the students reported that major barriers were lack of motivation and lack of time for yoga. The majority of students agreed positively that the inclusion of yoga in the curriculum was beneficial to them.
Conclusion: The present study results explained that there was a decrease in the reaction time followed by yoga practice. The majority of students invited the move by the apex body incorporating Yoga in the curriculum.

1. Introduction

National Medical Commission (NMC) introduced new competency-based medical education for the undergraduate course curriculum from the academic session 2021-22. Further, the yoga training has been introduced during the foundation course for one hour every day for a period of 10 days in all medical colleges across the country. A common yoga protocol was issued to all medical colleges to maintain symmetry. This is a very good initiative from the apex body

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to manage the stress levels of the medical students. It is well-known that medical students were undergoing extreme levels of stress and there is a need for some management methods like yoga. Yoga was not a religion it is a science. Yoga helps to integrate the body and mind and offers relaxation and improves the physical and mental health of an individual. However, long-term practice is required to obtain all the mentioned benefits of yoga. Hence, after ten days of practice, the students were expected to practice the protocol in their daily life schedules throughout their life. Yoga was introduced to the MBBS curriculum on 12^{th} June 2022. There is a need to obtain the perceptions of the students about this introduction of yoga training in their curriculum. It was reported that yoga improves the mental health of an individual and improves auditory and visual reaction time.[1] The improvement in the reaction time was observed both in healthy and in diseased individuals.[2] The current batch was the first batch trained in Yoga as per the NMC protocol. The present study was undertaken to observe the effectiveness of 10 days of the Yoga program on reaction time and to obtain the perceptions of first-year MBBS students about the introduction of Yoga training in the MBBS course curriculum.

2. Materials and Methods

2.1. Study design

Observational study.

2.2. Study setting

Department of Physiology, R.D. Gardi Medical College, Ujjain, Madhya Pradesh, India.

2.3. Study participants

A total of 150 first-year MBBS students studying at R.D. Gardi Medical College were part of the study after obtaining the voluntary, written, informed consent. Willing participants who practiced yoga for 10 days as per the protocol of NMC were recruited in the present study.

2.4. Yoga protocol

The common protocol for Yoga was prepared by the Morarji Desai Institute of Yoga under the Ministry of Ayush.

Step-1: The protocol will begin with prayer, followed by the loosening practices that are neck bending, shoulder movement, trunk movement, and Knee movement.

Step-2: Tadasana, Vrksasana, Pada-hastasana, Ardha cakrasana, and Trikonasana.

Step-3: Bhadrasana, Vajrasana, Ardha ustrasana, Ustrasana, Sasakasana, Uttana mandukasana and, Vakrasana.

Step-4: Makarasana, Bhujangasana, and Salabhasana. Followed by this the students practiced supine postures comprising Setubhandasana, Uttanapadasana, Ardhahalasana, Pavanamultasana, and Savasana.

Step-5: Kapalbathi, Pranayama, Dhyana, Sankalpa, and Santih patha.[3]

2.5. Recording of auditory and visual reaction time

Auditory reaction time for high and low pitch sounds, and visual reaction time for red and green light were recorded using the RT apparatus for research manufactured by Anand Agencies, Pune. Both right-hand and left-hand responses were recorded.[4]

2.6. Assessment of student perceptions

A standard questionnaire was used to record the perceptions of the students about the introduction of Yoga training in the MBBS course curriculum.[5]

2.7. Ethical considerations

The study protocol was approved by the institutional human ethical committee. Confidentiality of the data was maintained.

2.8. Data analysis

Data was analyzed using SPSS 20.0 version. Student t-test was applied to test the significance of the difference between the reaction time values before and after the Yoga program. Perceptions of the students about the Yoga program were reported as frequency and percentages.

3. Results

Results were presented in Table 1 to Table 7. Table 1 presents the auditory and visual reaction time right-hand responses. Both auditory and visual reaction times were decreased followed by the yoga program. The values were not statistically significant. Table 2 presents the auditory and visual reaction time left-hand responses. Both auditory and visual reaction times were decreased followed by the yoga program. The values were not statistically significant. Table 3 presents the perceived physical benefits of yoga. The majority of the students agreed that yoga offers multiple beneficial effects. Table 4 presents the perceived psychological benefits. The majority of the students agreed that yoga practice has many psychological benefits. Table 5 presents the perceived overall effects of yoga. The majority of the students agreed that the overall effect of yoga was much beneficial. Table 6 presents the dominant Perceived Barriers in practicing Yoga. The majority of the students reported that major barriers were lack of motivation and lack of time for yoga. Table 7 presents the motivation and future implications. The majority of students agreed positively that the inclusion of yoga in the curriculum was beneficial to them.

Table 1: Auditory and visual reaction time before and after the yoga program in the participants (right-hand response) (n=117)

Parameter	Before	After	P-value
ART high pitch sound	0.316±0.04	0.299±0.08	0.8741
ART low pitch sound	0.428±0.08	0.407±0.03	0.8166
VRT red light	0.408±0.05	0.329±0.04	0.2972
VRT green light	0.356±0.05	0.277±0.02	0.2154

Data were presented as mean and SEM

Table 2: Auditory and visual reaction time before and after the yoga program in the participants (left-hand response) (n=117)

Parameter	Before	After	P-value
ART high pitch sound	0.274±0.03	0.241±0.01	0.3654
ART low pitch sound	0.356±0.05	0.34±0.06	0.8551
VRT red light	0.461±0.08	0.265±0.02	0.05
VRT green light	0.372±0.05	0.356±0.05	0.8315

Data were presented as mean and SEM

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Table 3: Perceived physical benefits (n=117)

S.No.	Question	Yes	No
1	Improves body flexibility	117 (100)	0 (0)
2	Improved physical stamina	114 (97.43)	3 (2.56)
3	Maintaining optimum weight	114 (97.43)	3 (2.56)

Data were presented as frequency and percentage

Table 4: Perceived psychological benefits (n=117)

S. No	Question	Yes	No
1	Improves memory	114 (97.43)	3 (2.56)
2	Better relaxation and sleep	117 (100)	0 (0)
3	Reduces anxiety and stress	114 (97.43)	3 (2.56)

Data were presented as frequency and percentage

4. Discussion

The present study was undertaken to observe the effectiveness of 10 days of the Yoga program on reaction time and to obtain the perceptions of first-year MBBS students about the introduction of Yoga training in the MBBS course curriculum. Both auditory and visual reaction times were decreased followed by the yoga program. The values were not statistically significant. The majority of the students agreed that yoga offers multiple beneficial effects.

Table 5: Perceived overall effects of yoga (n=117)

S. No	Question	Yes	No
1	Optimum fitness with balanced physical, mental and spiritual health	115 (98.29)	2 (1.70)
2	The overall sense of well being	112 (95.72)	5 (4.27)
3	Improved academic performance	113 (96.58)	4 (3.41)

Data were presented as frequency and percentage

Table 6: Dominant perceived barriers in practicing yoga (n=117)

S.No.	Question	Yes	No
1	Lack of motivation for practicing yoga	55 (47)	62 (52.99)
2	Difficult to manage time	74 (63.24)	43 (36.75)
3	Prefer other forms of exercise	58 (49.57)	59 (50.42)

Data were presented as frequency and percentage

Table 7: Motivation and future implications (n=117)

S. No	Question	Yes	No
1	Yoga should be included in the health science education curriculum	113 (96.58)	4 (3.41)
2	Performing yoga in the group will motivate me to do yoga	111 (94.87)	6 (5.12)
3	I will be more careful about balancing my exercise, diet, and relaxation	116 (99.14)	1 (0.85)

Data were presented as frequency and percentage

The majority of the students agreed that yoga practice has many psychological benefits. The majority of the students agreed that the overall effect of yoga was much beneficial. The majority of the students reported that major barriers were lack of motivation and lack of time for yoga. The majority of students agreed positively that the inclusion of yoga in the curriculum was beneficial to them. Reaction time is a very good parameter to assess the integrity of the central nervous system. It requires coordination between the sensory and motor systems. Earlier studies reported that Yoga training improves the auditory and reaction time.[1,6,7] The present study results are in accordance with earlier studies as there was a decrease in the auditory and visual reaction times. Yoga improves the reaction time by increasing the conduction velocity in both sensory and motor nerve fibers.[1] Interestingly, it was reported that there was an immediate decrease in the reaction time followed by practicing nine rounds of breathing exercises.[7] Further, Yoga practice was reported to increase the reaction time in both healthy and diseased individuals.[8] The decrease in the reaction time is not statistically significant in the

present study. This may be due to the reason that the yoga intervention was short-term. Long-term practice will definitely be beneficial in improving the reaction time. Further, all the students expressed happiness to perform Yoga and invited the addition of Yoga in the curriculum.

5. Conclusion

The present study results explained that there was a decrease in the reaction time followed by yoga practice. The majority of students invited the move by the apex body incorporating Yoga in the curriculum.

6. Conflicts of Interest

None declared.

7. Source of Funding

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