

Short Communication

Yog-nidra session and cardiovascular parameters: A Pilot study

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ABSTRACT

Background and Objectives: *Yog-nidra* is an ancient, guided meditation that has been used as instant relaxation techniques now-a-days. It is also called 'yogic sleep' and is gaining popularity day by day. Despite theoretical support and growing clinical interest, cardiovascular effects of *Yog-nidra* remains inconsistent, creating ambiguity about its therapeutic value. So here from this pilot study we tried to find the effect of *Yog-nidra* session on cardiovascular parameters

Materials and Methods: Heart rate (HR), Systolic blood Pressure (SBP) and Diastolic blood Pressure (DBP) were taken before and after the *Yog-nidra* session of 30 minutes with the help of standard

digital sphygmomanometer. Data were entered and analyzed using SPSS.

Results: Research-participants of this study on 30 minutes *Yog-nidra* session expressed that they feel relaxed, fresh and recharged after the session. They feel peace of mind and relaxation in body. Heart rate decreased from 81.77 ± 14.05 to 72.38 ± 10.76 ($p < 0.001$). Systolic pressure decreased from 121.59 ± 16.96 to 119.76 ± 14.69 ($p = 0.58^{ns}$). Diastolic pressure increased by 78.59 ± 7.97 to 79.73 ± 10.2 ($p = 0.56^{ns}$).

Conclusion: There was drop on HR (significant) and SBP (non-significant) but rise in DBP (non-significant) after the *Yog-nidra* session indicating probability of a complex phenomenon than just parasympathetic dominance.

Keywords: Autonomic function, BP, Cardiovascular, Yoga, *Yog-nidra*

INTRODUCTION

Yog-nidra is an ancient, guided meditation that has been used as instant relaxation techniques now-a-days. It is also called 'yogic sleep' and is gaining popularity day by day.

The term *Yog-nidra* has its root on sanskrit made up of two separate words 'yoga' and 'nidra'. The word "Yoga" refers to "joining together of self and divine: the

consciousness” and the word “Nidra,” means “sleep” [1]. When taken together, “*Yog-nidra*” can be interpreted as sleep with inner awareness, where one appears to be asleep, but consciousness is functioning at a deeper level of awareness. It activates parasympathetic nervous system and induces a hypnogogic state- a state between wakefulness and sleep [2]. The *Yog-nidra* sessions emphasized exposing the mind, being aware of oneself, and using positive mental images to boost self-belief and combat anxiety [3]. It brings deep physiological and psychological benefits [4].

Yog-nidra significantly reduces sympathetic nervous system activity and enhances parasympathetic dominance, leading to reduced stress levels and improved autonomic balance [1, 5]. It is found as an effective tool for treating cases with several mental disorders including depression, anxiety, insomnia and post-traumatic stress disorder (PTSD) [4-7].

Despite theoretical support and growing clinical interest, the current evidence base cardiovascular effects of *Yog-nidra* remains inconsistent and methodologically limited, creating ambiguity about its therapeutic value. So here from this pilot study we explored the effect of *Yog-nidra* session on cardiovascular parameters of medical students and their opinion about the session.

Materials and Methods

The participants of the study (Medical students of KAHS) were informed about the *Yog-nidra* session of 30 minutes. Informed consent and demographic details were taken. Blood pressure and Heart rate were taken before the session with the help of digital instrument (Dr. Morepen® , India). Nostril dominance was taken with the help of a fog in

a glass-slide. In *Yog-nidra* the participants were on *Savasana* (Corpse posture) and follow the instructions of the instructor, one of the author. The detail steps is explained on paragraph below. It was performed in open space where there is good flow of air at 23-27 °C. Students present in the session were either empty stomach or 3-4 hrs after meal.

After the session Blood pressure and Heart rate were taken with the same instrument. Nostril dominance was recorded. They were also asked to write few lines/feedback about the *Yog-nidra* session (max 30 words) in order to find the mental effect. Mean BP was calculated using Excel. All the data were entered in SPSS and analyzed.

Steps of *Yog-nidra* practice [2]

Preparation: *Yog-nidra* is performed in the posture of *savasana* or corpse pose. The body is set flat stretched on a yoga-mat with head-neck and body in a line. The feet are kept slightly apart, the arms on side of the body, the palms facing the sky (upwards), and the eyes closed. After getting every part relaxed, without any tension and body will attain a comfortable position. Now, there should be no more movement of the body it should be like a dead body lying flat without any movement.

Focusing on Breath: Now as per instruction given by yoga- instructor or CD or any audio player, one should focus on breathing, making it deep and slow at first and later, one simply becomes aware of the natural breath without making an attempt to change the flow of the breath. One may become aware of the breath by watching it in the nostrils, chest, and abdomen, or in the passage between the navel and the throat. In this stage, initial relaxation of the body and mind is brought on by the awareness of stillness, comfort-posture, position, breath, and listening to the

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external sounds (i.e. Of a yoga-Instructor) with the attitude of a witness.

Some school or gurukul also follow the step called '*Sankalpa*' [1] after this. But the step Sankalpa is not carried in this study.

Awareness of different parts: This stage is also called rotation of consciousness as, the awareness is rotated around the different body parts in a systematic and ordered manner. The practitioner is instructed to remain aware, to listen to the instructions and to move the mind very rapidly according to the instructions without making any physical movements. The instructor will instruct to focus first on tip of toes, to finger, to sole, to calf muscles, sheen, Knee, Kneecap, thigh, buttock, pelvis, and slowly to upper parts upto face, each part of face and also to finger tips.

Visualization: After awareness of body parts in rotation or sequence the practitioners is asked to visualize him/herself as different from body and s/he is watching your body from up, from the ceiling or roof and after that practitioner's awareness will be taken to an imaginary place in front of the closed eyes, referred to as chidakasha in yogic terminology. This serves as a catalyst to provoke a reaction in the unconscious mind. However, since the practitioner's mind is not given any time to react, it becomes detached and the ego becomes temporarily inactive. Suppressed conflicts, desires, and deep patterns hidden in the unconscious are liberated and rise into awareness. As they are viewed in an attitude of welcome and not denial, they come to surface and then dissolve. When these deep residues move out of the unconscious, feelings of peace, stillness and joy can be felt.

Ending the practice: Now the awareness is brought back slowly. At the end of the session

of *Yog-nidra*, the practitioner may still be in a external sounds, and becoming aware of objects and persons in their surroundings and to the room/place they are in. Then, they are asked to slowly move the body parts and to stretch the body. When they are sure that they are awake, they can then sit up slowly and open their eyes.

RESULTS

A total of 50 medical students of Karnali Academy of Health Sciences were approached for the study, out of which 21 participated and completed the session. Their mean age was 19.5 ± 1.1 , ranging from 18 to 26. The 30-minute session of *Yog-nidra* was treated as intervention, and cardiovascular parameters and nostril dominance were recorded as parameters for autonomic activity. Research-participants of this study on 30 minutes *Yog-nidra* session expressed that they feel relaxed, fresh and recharged after the session. They feel peace of mind and relaxation in body. Table 1 shows the descriptive parameters of blood pressure and heart rate before and after the session. It also shows that the blood pressure was marginally and non-significantly affected by the session, but heart rate was significantly decreased in the participants from 81.77 ± 14.05 to 72.38 ± 10.76 ($p < 0.001$).

Nostril dominance was assessed by glass slide fog method before and immediately after the *Yog-nidra* session. There were 3 participants showing the shift from left dominance before the session to equal after the session; two shifting from right to equal; and one from right to left. The pre -post-test comparison (Table 2) shows no significant difference in nostril dominance due to the session ($p > 0.05$).

Table 1. Comparison of cardiovascular parameters before and after the *Yog-nidra* session (paired t-test, N=21)

	Before intervention		After intervention		
	Mean $\pm$ SD mm of Hg	Range (minimum - maximum)	Mean $\pm$ SD mm of Hg	Range (minimum - maximum)	p value
Systolic pressure	121.59 $\pm$ 16.96	97 - 145	119.76 $\pm$ 14.69	111 - 145	0.58
Diastolic pressure	78.59 $\pm$ 7.97	58 - 89	79.73 $\pm$ 10.2	77 - 103	0.56
Mean arterial pressure	92.18 $\pm$ 8.54	73.33 - 103.67	93.08 $\pm$ 10.84	73.67 - 113.33	0.6
Heart Rate	81.77 $\pm$ 14.05	62 - 125	72.38 $\pm$ 10.76	66 - 101	<0.001

Table 2. Nostril dominance comparison before and after *Yog-nidra* (Stuwart-Maxwell test, N=21)

	Nostril Dominance before <i>Yog-nidra</i>	Nostril Dominance after <i>Yog-nidra</i>	Chi square	P value
Left	10 (47.62%)	7 (33.33%)	2.69	0.26
Equal	5 (23.81%)	9 (42.86%)		
Right	6 (28.57%)	5 (23.81%)		

DISCUSSION

Yog-nidra (also known as "yogic sleep") is a guided relaxation technique and meditative practice that induces a state between wakefulness and sleep. It involves deep physical, mental, and emotional relaxation, typically practiced in a supine position under guidance [1-2]. Research-participants of this study on 30 minutes *Yog-nidra* session expressed that they feel relaxed, fresh and recharged after the session. They feel peace of mind and relaxation in body (as they have mentioned it in 30 words write-up about the session). They were asked to write few words on their feelings about the session. So, from our research we concluded that *Yog-nidra* is highly beneficial when we are exhausted from work.

This research paper presents the acute effect

of single YN session on heart rate, systolic and diastolic Blood Pressure (Table 1). *Yog-nidra* is believed to increase Parasympathetic and reduced Sympathetic activity [8]. These shifts would typically cause widespread vasodilation, leading to drop in both SBP and DBP along with reduced heart rate [3-4].

A paradoxical increase in DBP post *Yog-nidra* despite decrease in HR and SBP in our study contradicts most research on the topic [9-11] which typically shows decrease in SBP, DBP and HR. These findings suggest that there might be a different, more complex (or incomplete autonomic response) phenomena involved. The increase in DBP even with reduced HR shows increase in local peripheral resistance which suggest incomplete relaxation response in vasculature [12]. Reduction in SBP may triggers

compensatory increase in DBP to maintain stable mean arterial pressure (MAP) [12-13].

The Nasal dominance pattern pre-post the intervention in our study (Table 2) also does not suggest the shifting of autonomic function to parasympathetic dominance [14-15]. The pre -post-test comparison (Table 2) in our study shows no significant difference in nostril dominance due to the session ($p>0.05$). There were 3 participants showing the shift from left nostril dominance before the session to equal after the session; two shifting from right to equal; and only-one from right to left nostril.

It has well been reported that shifting of Nasal dominance to left shows the parasympathetic dominance whereas shifting the nasal dominance to right represents sympathetic dominance [14-17].

Increase in DBP after *Yog-nidra* session is a novel finding of this pilot study which can be due to small sample size, specific instruction method used in the study and may be due to duration of intervention. Nevertheless the finding of nasal dominance shown in table 2 and very novel finding increase in DBP (table 1) signify that the linear thinking that positive effect on HR i.e. reduction in HR and SBP as consistent with the relaxation response may not be directly attributed to the parasympathetic dominance but instead could suggest a complex interplay within the autonomic nervous system, potentially involving altered vascular tone or a compensatory baroreceptor reflex mechanism [12-13].

Our results highlight the need of further investigation into how *Yog-nidra* influences different components of blood pressure and the underlying vascular mechanisms, potentially through changes in peripheral

resistance, which warrants investigation in future, more comprehensive studies involving Heart Rate Variability (HRV) and others.

CONCLUSION

Yog-nidra decreased the heart rate and systolic pressure of the participants in our study. It is in consistent with the known relaxation effects of *Yog-nidra* and a shift towards parasympathetic dominance. The concurrent increase in diastolic pressure presents a nuanced finding suggesting probability of more complex mechanism which has to be intensively investigated using more efficient tools like HRV and others.

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