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Effect of Alternate Nostril Breathing Exercise on pre exam anxiety in Healthy Physiotherapy students.

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ABSTRACT

Introduction
Anxiety is a normal response to specific stress. It is a state of uneasiness and apprehension of fear. Medical students usually experience anxiety during viva examination, seminars & presentations as they are the main focus of attention. Such anxiety affects their confidence level, performance in the oral exam and ability to focus during the exam.

Aim
To evaluate the effect of alternate nostril breathing exercise on pre exam anxiety in Healthy Physiotherapy students.

Materials and method
132 healthy male and female physiotherapy students were asked to fill beck anxiety inventory before and after a session of alternate nostril breathing exercise during their oral examination. Difference in score was documented and studied. Considerable reduction in the anxiety levels were found after performing alternate nostril breathing exercise just before the oral exam.

Conclusion
Study concludes that alternate nostril breathing exercise helps in reducing pre exam anxiety levels in Physiotherapy students.

Keywords: Beck anxiety inventory, Alternate nostril breathing exercise, Anxiety.

INTRODUCTION

Anxiety is a feeling of apprehension & fear, characterized by physical symptoms such as palpitations, sweating & feeling of stress.[11]. The term anxiety covers four experiences in any individuals such as physical tension, mental retardation, panic thoughts and fear. It is also called as neurosis which is characterized by recurrent attacks of long time fear, mental apprehension, dizziness and feeling of about to fall[13]. During the state of anxiety, there are recurrent episodes of symptoms such as breathing difficulty, chest pain, sweating, palpitation, nausea, headache[13]

"Alternate nostril breathing," is a simple & powerful technique that settles the mind, body and emotions. It is particularly helpful to ease racing thoughts in case of anxiety, stress & insomnia.

It helps in creating balance and regulating the flow of air through the nasal passages. The airflow through one nostril is greater than next at any point of time which later switches to another. This is called nasal cycle. The nasal cycle lasts from 30 minutes to 2-3 hours. This nasal cycle is related with cerebral dominance. When one nostril is dominant, contra lateral hemisphere is active. Right nostril breathing leads to increase sympathetic activity while left nostril breathing increases parasympathetic activity.

Due to our hectic and stressful life, this naturally occurring alternate breathing cycle gets disrupted and we suffer from different ailments. These ailments are due to imbalance of function of autonomic nervous system and can

be resolved by practicing alternate nostril breathing. Thus it help in balancing both autonomic nervous system and keeps our brain active

Physiotherapy Students are more likely to suffer from anxiety during stage performance, presentations and seminars. They find themselves in situations where they become the focus of attention as they have to address the audience or the examiner. They experience emotions like fear and anxiety, leading to nausea and sweating. Most of them try to avoid the situation, but when unavoidable, such situations are associated with distress which leads to decrease in there confidence and performance[12].

A number of randomized and nonrandomized controlled trials have tested yoga as an intervention with respect to anxiety disorder[6]. Yoga is defined as a practice consisting of 3 components: gentle stretching, breath control exercise and meditation as a mind-body intervention. The version mainly used in western countries is Hatha yoga, which consist of asana (posture), pranayama (breathing exercise) and meditation.

Alternate nostril breathing is fairly simple and commonly performed breathing exercise. The practice of alternate nostril breathing is traditionally considered to relieve mental unrest and promote physical and mental balance[13,14]. There have been studies to assess the effect of alternate nostril breathing on specific physiological and cognitive function. Hence this study was carried out to find out the effects of alternate nostril breathing exercise on pre exam anxiety in Healthy Physiotherapy students.

Need of study

- Anxiety affects the academic performance, confidence level & ability to focus in medical students.
- It is difficult to assess students for knowledge, understanding & capacity to think critically if students are under high level of anxiety.
- Very few studies showed improved exam performance if anxiety symptoms are controlled by using breathing exercises.
- Hence the study was conducted to evaluate the effect of Alternate Nostril Breathing on exam induced anxiety in physiotherapy students.

Aims and objectives

Aim

To study the effect of Alternate Nostril Breathing Exercise on Pre-exam Anxiety in Healthy Physiotherapy students.

Objectives

1) To find out the anxiety level by using Beck anxiety inventory (BAI) before Alternate Nostril Breathing Exercise.
2) To find out the anxiety level by using Beck anxiety inventory (BAI) after Alternate Nostril Breathing Exercise.
3) To compare the anxiety level before and after Alternate Nostril Breathing Exercise.

MATERIALS AND METHOD

MATERIALS

- Beck anxiety inventory.
- Alternate Nostril Breathing exercise.

Methodology

- Type of study: Comparative study
- Sample size: 132 Physiotherapy students among Physiotherapy college Jalgaon. (sample size was calculated by openEpi sample size calculator)
- Methods of sample selection: Convenient sampling.
- Study Duration: 6 months.

Selection criteria

Inclusion criteria

- Undergraduate male & female physiotherapy students.
- Students who are willing to participate.

Exclusion criteria

- Students who were not willing to participate.
- History of any acute or chronic illness at the time of participation.
- History of intake of anti-anxiety medication.

METHOD

The study participants were first to final year undergraduate physiotherapy students. Students were provided preliminary information about this study which involved a demonstration of performing an alternate nostril breathing exercise. Then they were asked to fill up the Beck Anxiety Inventory. It was then followed by alternate nostril breathing session & again they were asked to fill up the Beck Anxiety Inventory.

Procedure of Alternate nostril breathing exercise (ANB)

Instructions and demonstration for the practice of ANB [Alternate Nostril Breathing] was given to the students. It was followed by its practice session and clarification of any doubts regarding the procedure was done. The students were instructed to close their eyes and focus their attention on the breath throughout the exercise. The students were asked to sit comfortably with back straight. ANB exercise started with 3 to 4 cycles of normal inhalation and exhalation. It was followed by inhaling slowly and deeply through left nostril while closing the right nostril with the thumb of right hand. Then students were asked to hold breath for 2-3 seconds. And at the end, they were asked to exhale through the right nostril while closing the left nostril with the index finger of right hand. Later the similar exercise was repeated by beginning it with the opposite nostril. This exercise was done 12 times with the same procedure. Then students were asked to fill up the beck anxiety inventory (BAI).



Beck Anxiety Inventory (BAI)

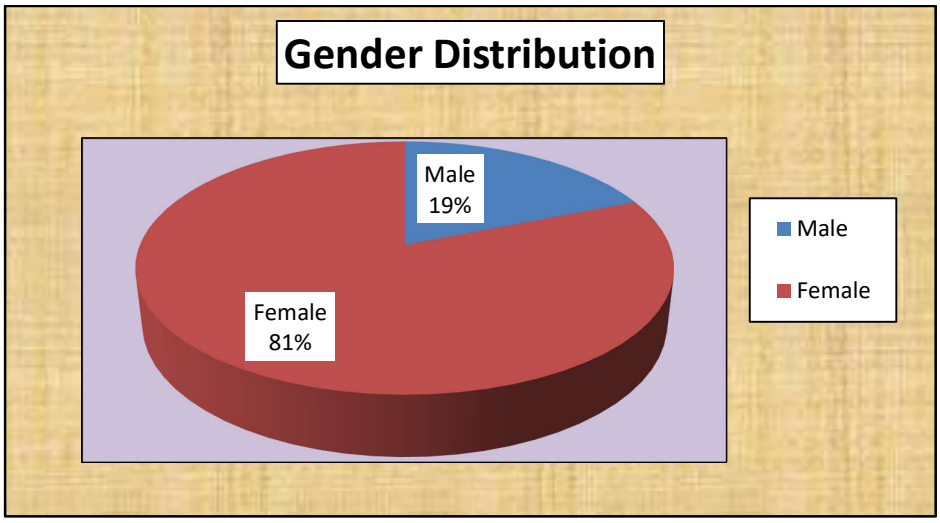
It was used in this study to assess the anxiety levels in students. The beck anxiety inventory was moderately correlated with the revised Hamilton anxiety rating scale[51] and mildly correlated with the Hamilton depression rating scale[25] It is a twenty item scale with the total score sixty three. The scale is divided in three grades – mild anxiety (score 0-21), moderate anxiety (score 22-35), potentially concerning level of anxiety (score 36 and above). Students were asked to fill this scale before and after performing ANB. The score was calculated and data analysis was done.



DATA ANALYSIS AND RESULT

Table 1: Gender wise distribution of participants

Variable	Groups	Frequency	percentage
Gender	Male	25	18.94
	Female	107	81.06
	Total	132	100.00

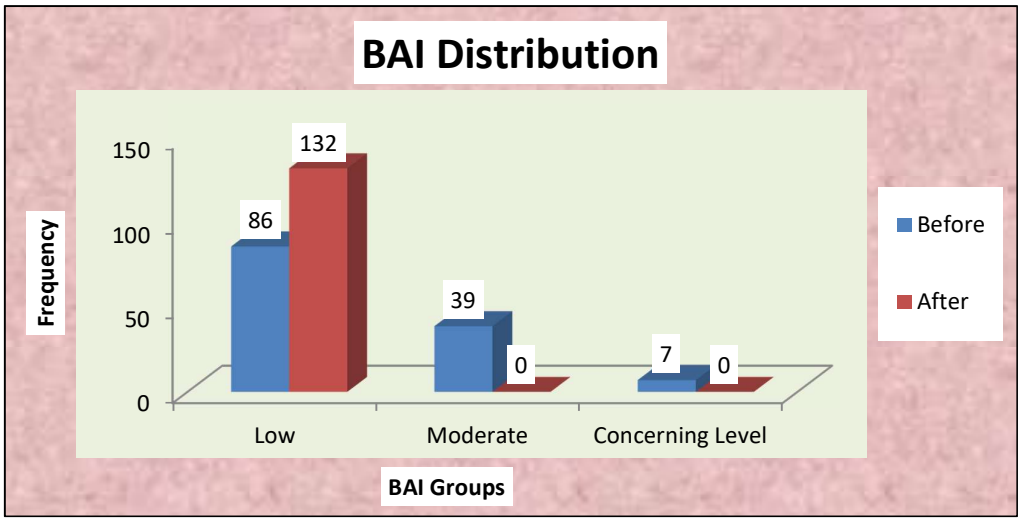


Interpretation

Table no.1 shows that 81% were females & 19% were males out of total study population.

Table 2: Distribution of Beck anxiety inventory according to grades.

	Groups	Before		After	
		No. of students	Percentage	No. of students	Percentage
BAI	Low	86	65.15	132	100.00
	Moderate	39	29.55	0	0.00
	Concerning Level	7	5.30	0	0.00

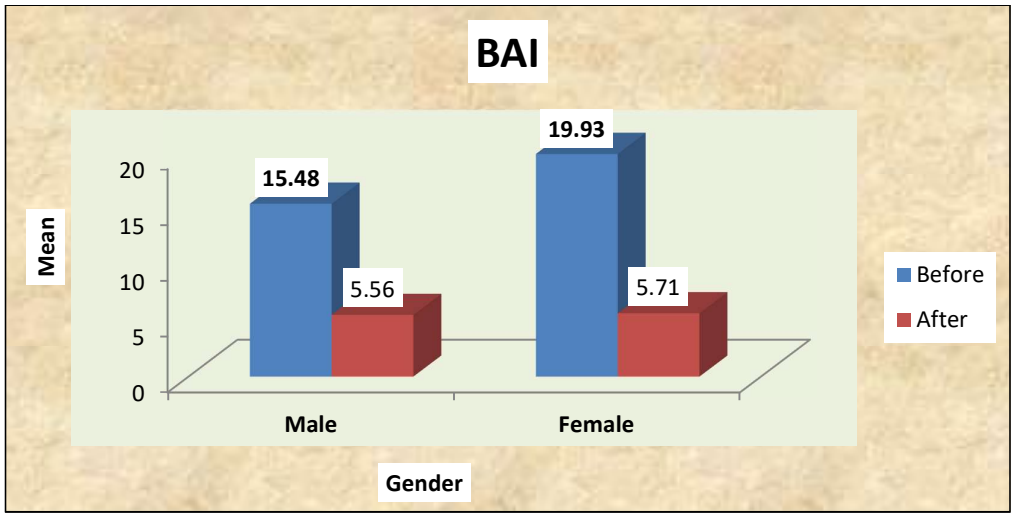


Interpretation

Table no.2 shows that students had low anxiety, 39 students had moderate anxiety & 7 students had potentially concerning level of anxiety before performing ANB. But it also shows that these students (132) experienced mild anxiety after performing ANB.

Table 3: Comparison of mean BAI score of males & females before & after ANB.

BAI	Male		Female	
	Mean	SD	Mean	SD
Before	15.48	7.57	19.93	9.94
After	5.56	4.51	5.71	5.57
Mean Difference	9.92		14.22	



Interpretation

Table no.3 shows that mean BAI score in males before ANB is 15.48 & after ANB is 5.56.Mean BAI score in females before ANB is 19.93 & after ANB is 5.57. Indicating significant reduction in anxiety after ANB.

Table 4: Comparison of mean BAI score of Nervousness before & after ANB.

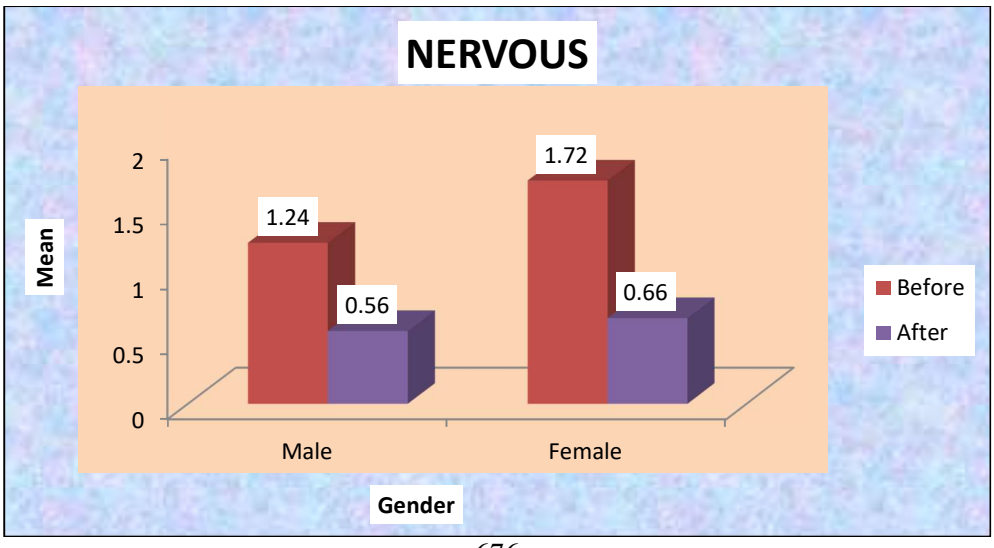
Males

Nervous	Mean	SD	t value	p value
Before	1.24	0.77	4.92	0.000
After	0.56	0.58		

Females

Nervous	Mean	SD	t value	p value
Before	1.72	0.88	14.83	0.000
After	0.66	0.65		

* p value less than 0.05, shows the significant difference in the means.



Interpretation

Table no. 4 shows that shows the considerable lowering of nervousness among both the genders.

Table 5: Comparison of mean BAI score of Unsteadiness before & after ANB.

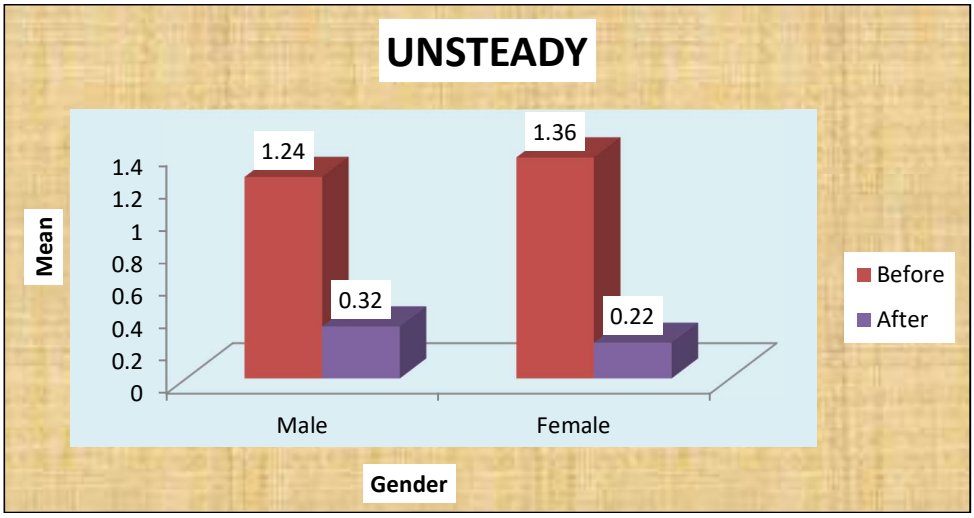
Males

Unsteady	Mean	SD	t value	p value
Before	1.24	0.59	9.33	0.000
After	0.32	0.47		

Females

Unsteady	Mean	SD	t value	p value
Before	1.36	0.95	14.03	0.000
After	0.22	0.44		

* P value less than 0.05, shows the significant difference in the means.



Interpretation

Table no.5 shows that mean BAI score in male and female before & after ANB was 1.24 & 0.32 and 1.36& 0.22 respectively. Indicating that students are quite steady and focused after performing ANB exercise.

Table 6: Comparison of mean BAI score of student's inability to relax.

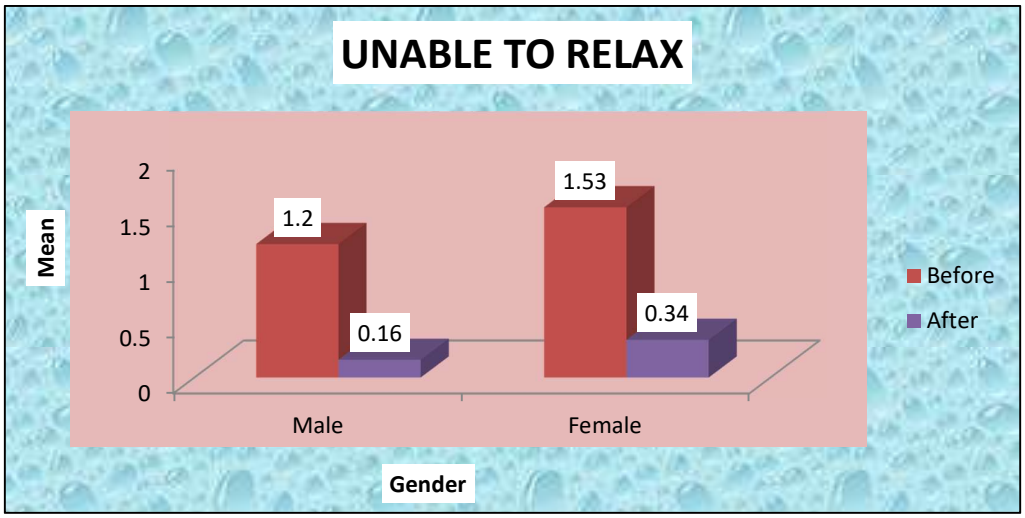
Males

Unable to relax	Mean	SD	t value	p value
Before	1.2	0.81	7.08	0.000
After	0.16	0.37		

Females

Unable to relax	Mean	SD	t value	p value
Before	1.53	0.89	16.02	0.000
After	0.34	0.51		

*p value less than 0.05, shows the significant difference in the means.



Interpretation

In table no.6 both male & female students were found to be considerably relaxed after doing ANB as significant difference was found in the scores before & after doing ANB.

Table 7: Comparison of mean BAI score of heart pounding symptom in students.

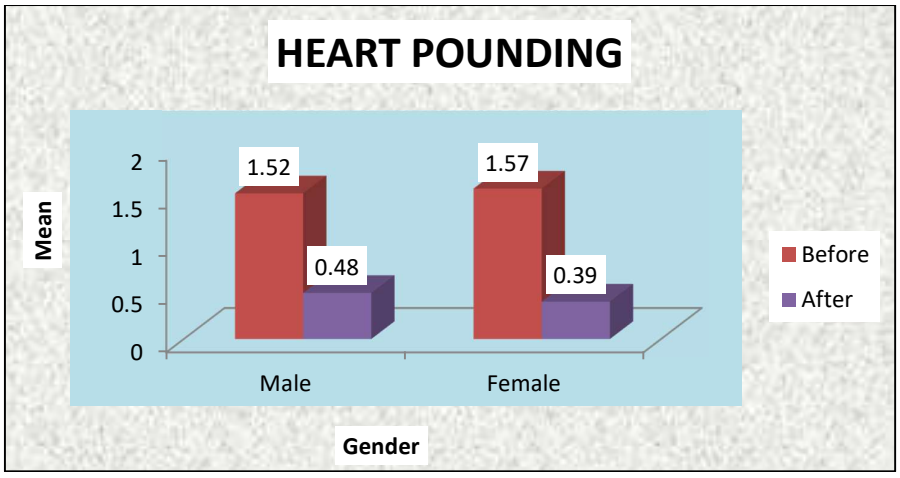
Males

Heart pounding	Mean	SD	t value	p value
Before	1.52	0.82	6.19	0.000
After	0.48	0.51		

Females

Heart pounding	Mean	SD	t value	p value
Before	1.57	1.01	14.62	0.000
After	0.39	0.056		

* p value less than 0.05, shows the significant difference in the means.



Interpretation

Table no.7 shows that mean BAI score in males before ANB is 1.52& after ANB is 0.48. Mean BAI score in females is reduced from 1.57 to 0.39. This indicates that students experienced lesser heart pounding and they also felt calm.

DISCUSSION

It was observed that out of total study population 86 students had low anxiety, 39 students had moderate anxiety& 7 students had severe anxiety just before giving oral exam. After performing alternate nostril breathing all students experienced that the anxiety was reduced(table 2) . This shows that anxiety levels were significantly lower after alternate nostril breathing[3]. N.K. Subbalakshmi, S.K. Saxena etal also shows that there is significant decline in heart rate (P<0.0001) and systolic blood pressure (P<0.0001)in study population after 20 minutes of alternate nostril breathing[1].

Table 3.shows that mean BAI score of males and females before ANB was 15.48 and 19.93 respectively. But after

performing it was found to be reduced to 5.56. and 5.57 respectively. This indicates that there is significant reduction in mean BAI score in both gender after performing Alternate Nostril Breathing exercise[6]. B. Pahwa, S. Goyal etal, in their study found the difference in mean baseline and pre exam anxiety was more in females than in males, indicating greater anxiety levels in females[8]. In the present study gender wise comparison was not possible because of unequal number of male and female students. Female students were more in number.

It was found that Alternate Nostril Breathing exercise has a strong tendency of improving or balancing the Autonomic nervous system through enhanced activation of parasympathetic nervous system. Breathing through right nostril causes sympathetic dominance by increasing the release of serotonin and left nostril breathing causes parasympathetic dominance by decreasing the release of adrenaline & hence decrease in heart rate, respiratory rate, blood pressure[2].

Anxiety shows different symptoms in every individual. In our study, majority of students were found to be nervous because of the fear of the oral exam.

Table no. 4 showed that the mean score of male & female who were nervous before and after ANB was 1.24 & 0.56 and 1.72 & 0.66, this shows significant reduction in nervousness after alternate nostril breathing[8]

Table 5 showed significant improvement in unsteadiness of students after performing ANB both in males as well as females. This indicate that student were more stable after performing alternate nostril breathing[10].

In table no.6 showed that subjects felt much relaxed and was able to concentrate more after performing alternate nostril breathing. Similar results were found by Upadhyay-Dhunge K, et al who explained that slow breathing pranayamic exercises has tendency to create a sense of relaxation and well being in subjects[2].

Table no. 7 showed that the the feeling of heart pounding/ racing was considerably reduced and students did not feel affected by it while giving the exam after performing alternate nostril breathing exercise[5,13].

It was observed that Alternate Nostril Breathing Exercise increases the supply of oxygen to brain increases which in turn increases the efficiency of Autonomic Nervous System. Some recent studies also found increase in oxygenated hemoglobin and total hemoglobin and decrease in deoxygenated hemoglobin levels[15].

CONCLUSION

This study concludes that the Practice of alternate nostril breathing can considerably reduce the pre exam anxiety levels of students. A few minutes of practice just before the oral exam may help them in performing better in the exam. The daily practice could also be included as a part of lifestyle modification programs in maintaining better physical and mental health.

Limitation

1. Objective parameters like heart rate, blood pressure were not considered.
2. Comparison of anxiety level in males & females was not done.
3. Different types of personality (type A,B) were not considered in the study.

Future scope

1. Similar study can be carried out to compare the anxiety levels in male & female students
2. Similar study can be carried out by measuring the objective parameters.

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