

Efficacy of Pranayama Practice in Enhancing Psychosocial Well-being of Adolescents

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ABSTRACT

Background: Pranayama or breathing techniques, are important not only for supplying fresh oxygen and strengthening the lungs but because they have a direct effect on the brain and emotions. Pranayama presents a powerful, natural, and scientifically supported approach to improving adolescent mental health. Adolescence is a transition phase and a period of growth between childhood and adulthood. **Aims-** To evaluate the application of 'Yogic Pranayama' on academic performance in relation to well-beings (emotional well-being, psychological well-being, social well-being, spiritual well-being, self-awareness well-being, and physical well-being) of boys student. **Materials and Methods:** This is experimental research, 240 adolescents between the age group 14-16 were randomly selected and divided into two equal groups (control and experiments). Data was collected using Data were collected using Wellbeing Inventory, grouped into 6 different dimensions- emotional well-being, psychological well-being, social well-being, spiritual well-being, self-awareness well-being, and physical well-being. **Results** Pranayama is useful and cost effective approach. Eight week of pranayama practice significantly enhance the psychosocial well-being of adolescence especially in the area of emotional well-being, psychological well-being, social well-being, spiritual well-being, self-awareness Well-being, and physical Well-being on experiment group. **Conclusion:** Pranayama improves focus, health, posture, confidence, and stress control of the adolescence. Schools should include yoga/Pranayam in daily routine. So, that student feels more active, calm, and ready to learn.

Keywords: Pranayama, Students, Well-being, Cognition, Psychosocial, Social, Physical, stress.

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INTRODUCTION

Pranayama comprises 'Poorak', 'Kumbhak', & 'Rachek' which means inhalation & exhalation with the arrest of breathing process internal & external. By regular practice of Pranayama, pran shakti is being distributed through the body, invigorates all the seven charkas, purifies the mind and streamlines all the systems of the body thereby increasing the longevity (Neeraj,2022). The essence of this discipline is Yogic Pranayama, the profound "science of breath" (Ayama = the extension; Prana = universal life energy). This breath control provides our body its inner fire (Jathar Agni) and physiologically, serves as an important cleansing agent that carries oxygen to the blood, flushes cellular poisons, strengthens our immunity, and improves memory, mental clarity etc. With this life force, one can reach one's higher spiritual awareness by practising specific breathing techniques (Shitali, Bhramari and Anulom-Vilom), coupled with conscious breath retention (Kumbhaka). Pranayama offers an extremely practical tool kit for self-realisation

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physical vigour and a most harmonious and enlightened life when backed by complementary disciplines such as Swadhyay (honest self-study) and Pratyahara (withdrawal of senses). *Pranayama* seems to have a significant positive effect on the well-being of adolescence.

Adolescence derived from the Latin word, "adolescent," which means "to grow into maturity. It is an essential period of transition from childhood to adulthood and is marked by accelerated physical, neurological and social growth. At this complicated stage, young people develop abstract thinking skills, they are exploring the development of their own independent personality and looking for their own distinct individuality. Adolescents face many difficult choices when it comes to school, peers and lifestyle. Most importantly, these formative years are critical because during this period, life-long habits are formed and health behaviours and lifestyle choices made in this period affect the long-term health of a person and their health trajectory (Smith et al, 2021). Adolescence is a time period when individuals begin to achieve greater autonomy (Steinberg, 2005), life style behaviours are developed, established, and ultimately track into adulthood (Sawyer et al, 2012). It is also a period when health behaviours and social determinants, such as the ability to stay in education, can have lasting impacts on health equity across the life course (Patton et al, 2016). Thus, this time period is increasingly recognised as challenging, but also as a window of opportunity to improve/ promote positive health behaviours and consequently reduce the risk of lifestyle-related diseases (Woods et al, 2018) Wellbeing of adolescence is the experience of health, happiness, and prosperity. It includes having good mental health, high life satisfaction, a sense of meaning or purpose, and the ability to manage stress. Pranayama is a powerful practice that regulates prana or life force. The pranayama breathing techniques aim to achieve a balanced state of physical, emotional, mental, and spiritual well-being. Regular practice of pranayama significantly improves the quality and span of life. Several schools and universities in Western countries have begun incorporating Pranayama sessions into their wellness programs. Educators and wellness professionals believe that breathing exercises enhance oxygenation to the brain, regulate the autonomic nervous system, and promote a sense of calm, ultimately contributing to improved mood stability and emotional well-being (Natarajan & Pal, 2025). Pranayama could be used as an important technique by students prior to their examinations, to reduce their test anxiety and increase their test performance (Nemati, 2013). It has garnered increasing attention in recent years due to its potential therapeutic effects on mental and physical health. However, a lack of age-specific synthesis of its efficacy, especially among adolescents, highlights the need for focused evaluation in this population (Oka et al, 2025).

The primary objective of this research study is to

scientifically evaluate the application of 'Yogic Pranayama' on academic performance in relation to well-being (six different dimensions: emotional well-being, psychological well-being, social well-being, spiritual well-being, self-awareness well-being, and physical well-being) of boys student.

METHODOLOGY

Design : This was 'experimental research design'('Pre-Post-test design') .

Sampling Technique- There were total 240 adolescents selected. All participants undergo an initial assessment (the pre-test) to establish a solid baseline. Four schools within the Deo block, Aurangabad Bihar were selected randomly based on their willingness to accommodate daily Yogic Pranayama sessions in their regular schedules. Following this, a simple random sampling method was used to carefully and selects 60 adolescents from each school.

Inclusion criteria: [A] Students who were genuinely interested to participate in the intervention program. [B] Age ranging from 14 to 16 years [C] Average intellectual functioning of participants [D] Students who were able to read and comprehend English and Hindi [E] Male Students of class 10th. [F] Residents of Deo block in Aurangabad district of Bihar.

Exclusion criteria: [A] Family history suggestive of psychiatric illness. [B] History of any substance abuse [C] Participants having co-morbid mental retardation, epilepsy, other neurological and other psychiatric and physical illness. [D] Recent history of any type of training of yoga and other.

Tools for the study

[i] **Personal Data Sheet (self made):** A semi structured Performa was prepared by the researcher to collect information about the socio-demographical variables such as age, occupation, religion, etc.

[ii] **Well-being Inventory-** Wellbeing Inventory, prepared by Dr. V.L. Chouhan and Dr. Varsha Sharma was identified to be the most suitable tool to measure wellbeing in the present context. The scale has 50 items that are systematically grouped into 6 different dimensions: Emotional Well-being, Psychological Well-being, Social Well-being, Spiritual Well-being, Self-awareness Well-being, and Physical Well-being. Of the total number of items, 32 are phrased as positive statements and 18 are phrased as negative statements. For each item there are 5 response options including Always, Often, Sometimes, Rarely, and Never. Scoring

is done in the direction of the item. Positive items are scored from Always (5) , Often (4), Sometimes (3), Rarely (2), and Never (1). However, for negative items, the scoring system is inverted, with Always (1) , Often (2), Sometimes (3), Rarely (4), and Never (5). The total score is the sum of all 50 item scores.

Intervention Module

[i] **Anulom-Vilom Pranayama**-The systematic method consists of closing one nostril and taking a deep breath through the other, then closing the other and breathing out through the original nostril [ii] **Bhastrika Pranayama**-The technique involves quick, rhythmic, and forceful breathing both in and out [iii] **Bhramari Pranayama**-It is a type of yogic pranayama. Here, sit in a quiet and well ventilated corner and close the eyes. Place right thumb on ears right at the cartilage, place left thumb on ears left at the cartilage.

Process of the Intervention

After pre assessment, the experiment group (120 students) were given detail education about all three Pranayama after that they were taught each and every

step of Anulom-Vilom Pranayama, Bhastrika Pranayama and Bhramari Pranayama, for 2-3 sessions. After completing the learning practice of intervention module practice session was started. Each practice session was to be 50 minutes. There were total 24 secession of pranayama practiced in the 8 weeks. The experimental group were asked to use the three alternative days before the opening of the school classes for practice with the researcher and use other leave days for practice at home as homework. There was no training for Control group during this time. After 8 weeks, post assessment was done.

Use of Statistical Techniques

Collected data were analysed systematically using appropriate descriptive and inferential statistical techniques. SPSS (Statistical Package for the Social Sciences) version 22.0 was used to test the hypotheses formulated. Descriptive statistics Mean (M) and Standard Deviation (SD)) were used to determine the score means and ranges for all variables for both the experimental and control groups. The mean scores between the groups and the pre and post intervention changes were analyzed using t-ratios (t-tests) for inferences.

Results

Table 1[A]. Socio-demographic variables of experimental and control Group

Variable		Experimental Group (n=120)	Control group (n=120)
Religion	Hindu	74 (61.70 %)	73 (60.84%)
	Muslim	46 (38.30%)	47 (39.16%)
Occupation	Service	7 (5.83%)	17 (14.17%)
	Business	23 (19.17%)	31 (25.83%)
	Labour	36 (30.00%)	23 (19.7%)
	Farmer	54 (45.00%)	49 (40.83%)
Residence	Rural	86 (71.77%)	76 (63.33%)
	Urban	34 (28.33%)	44 (36.67%)

Table 1A Showed that most of the respondent of experimental group belongs from Hindu religion (61.70%), from rural area (71.77%) and farming/agriculture background (45%) while respondent of control group mostly belongs from Hindu religion (60.84%), from rural area (63.33%) and farming/agriculture background (40.33%)

Table 1B. Mean and SD of age of experimental and control Group

Age	Mean $\pm$ SD	
	Experimental Group	15.06 $\pm$ 0.85
	Control group	14.99 $\pm$ 0.77

Table 1.B showed that mean age of experimental and control group was 15.06 and 14.99 respectively.

Table-2.[A].Pre intervention difference between the group on Emotional Well Being (Mean $\pm$ SD)

Variable	Experimental Group	Control Group	T	p
Pre emotional well-being	14.81 $\pm$ 2.17	14.90 $\pm$ 1.04	.379	.70

Table-2.[A]. Showed that there was no significance difference between experimental and control group before the intervention on Emotional Well Being

Table-2.[B].Post intervention difference between the group on Emotional Well Being

Variable	Experimental Group	Control Group	T	p
post emotional well-being	18.80 $\pm$ 1.30	16.44 $\pm$ 2.13	10.326	.000

Table-2.[B]. Showed that there was significance difference between experimental (n=120) and control group (n=120) after the intervention (Pranayama) on Emotional Well Being.

Table-3.[A].Pre intervention difference between the group on Psychological Well Being

Variable	Experimental Group	Control Group	T	p
Pre-Psychological well-being	22.47 $\pm$ 2.49	22.56 $\pm$ 1.80	.326	.74

Table-3.[A].Showed that there was no significance difference between experimental and control group before the intervention on Psychosocial Well Being

Table-3.[b].Post intervention difference between the group on Psychological Well Being

Variable	Experimental Group	Control Group	T	p
post Psychological well-being	28.50 $\pm$ 3.52	24.72 $\pm$ 2.43	9.666	.000

Table-3.[b]. Showed that there was significance difference between experimental (n=120) and control group (n=120) after the intervention (Pranayama) on Psychological Well Being.

Table-4.[A]. Pre intervention difference between the group on Social Well Being.

Variable	Experimental Group	Control Group	t	P
Pre social well-being	43.13 $\pm$ 1.92	43.43 $\pm$ 1.35	1.44	.15

Table-4.[A]. Showed that there was no significance difference between experimental and control group before the intervention on Social Well Being.

Table-4.[B]. Post intervention difference between the groups on Social Well Being.

Variable	Experimental Group	Control Group	t	P
Post social well-being	46.25 ± .998	44.25 ± 4.306	4.935	.000

Table-4.[B]. Showed that there was significance difference between experimental (n=120) and control group (n=120) after the intervention (Pranayama) on Social Well Being.

Table-5.[A]. Pre intervention difference between the groups on spiritual well-being .

Variable	Experimental Group	Control Group	t	P
Pre spiritual well-being	12.01 ± 2.37	12.08 ± 2.32	.220	.82

Table-5.[A]. Showed that there was no significance difference between experimental and control group before the intervention on spiritual Well Being.

Table-5.[B]. Post intervention difference between the groups on Spiritual Well Being.

Variable	Experimental Group	Control Group	t	P
Post spiritual	17.59 ± 2.82	13.45 ± 2.95	11.087	.000

Table-5.[B]. Showed that there was significance difference between experimental (n=120) and control group (n=120) after the intervention (Pranayama) on spiritual Well Being.

Table-6.[A]. Pre intervention difference between the groups on Self- awareness

Variable	Experimental Group	Control Group	t	P
Pre Self awareness	22.78 ± 2.14	23.00 ± 1.67	.90	.36

Table-6.[A]. Showed that there was no significance difference between experimental and control group before the intervention on Self- awareness.

Table-6.[B]. Post intervention difference between the groups on Self- awareness.

Variable	Experimental Group	Control Group	t	P
Post Self awareness	27.31 ± 2.05	25.50 ± 1.99	6.910	.000

Table-6.[B]. Showed that there was significance difference between experimental (n=120) and control group (n=120) after the intervention (Pranayama) on Self -awareness .

Table-7.[A]. Pre intervention difference between the groups on Self- awareness.

Variable	Experimental Group	Control Group	t	P
Pre physical well-being	18.81 ± 4.70	18.90 ± 3.32	.143	.88

Table-7.[A]. Showed that there was no significance difference between experimental and control group before the intervention on physical well-being.

Table-7.[B]. Post intervention difference between the groups on physical well-being.

variable	Experimental Group	Control Group	t	P
Post physical well-being	21.53 ± 3.63	19.91 ± 3.31	3.60	.000

Table-7.[B]. Showed that there was significance difference between experimental (n=120) and control group (n=120) after the intervention (Pranayama) on physical well-being.

Table-8.[A]. Pre -intervention difference between the groups on over all well-being (total).

variable	Experimental Group	Control Group	t	P
Pre well-being total	134.03 ± 9.22	134.83 ± 4.66	.379	.368

Table-8.[A]. Showed that there was no significance difference between experimental and control group before the intervention on over all well-being.

Table-8.[B]. Post intervention difference between the groups on well-being total.

variable	Experimental Group	Control Group	T	P
Post well-being total	159.99 ± 11.15	144.30 ± 6.999	13	.000

Table-8.[B]. Showed that there was significance difference between experimental (n=120) and control group (n=120) after the intervention (Pranayama) on well-being total.

Discussion

The primary objective of this research study is to scientifically evaluate the application of 'Yogic Pranayama' on academic performance in relation to well-being (six different dimensions: Emotional Well-being, Psychological Well-being, Social Well-being, Spiritual Well-being, Self-awareness Well-being, and Physical Well-being) of boys student.

Regarding well-being on the dimension of emotional well-being, experimental group has been found significantly better emotional well-being in compare to control group (n=120) due to the intervention (Pranayama). This finding was in support to the previous finding that adolescents who practiced Pranayama showed a significant increase in emotional control scores, indicating enhanced ability to regulate emotions under stress (Goswami & Saraswat. 2024). Kushwaha et al also emphasised the potential of pranayama and mindfulness (vipassana) meditation practices and found positive effects on emotional coping behaviour and mental well-being in students (Kushwaha et al,2024). Another findings also in support to the present study that short-term Ujjayi Pranayama practice is an effective, low-cost strategy to enhance emotional intelligence in nursing students (potentially improving their readiness for emotionally demanding clinical environments) (Abazari et al 2025). Meditation, pranayama, and yoga programs for first-year female undergraduate medical students may help reduce anxiety, depression, and anger and promote a sense of well-being. Although a six-week program helps to improve mental health, a 12-week program helps in further improvement (Sunita et al 2022). It is true that regular practice of asana like Balasana, Padmasana, Marjariasana, Trikonasana, Viparitarani, Bhujangasana, Shavasana, Pranayama like Nadi Shodhan, Kapalbhata, Bhramari and Meditation can enhance our emotional balance, selfawareness and promote a sense of inner peace (Mistri, 2025). Several schools and universities in Western countries have begun incorporating Pranayama sessions into their wellness programs. Educators and wellness professionals believe that breathing exercises enhance oxygenation to the brain, regulate the autonomic nervous system, and promote a sense of calm, ultimately contributing to improved mood stability and emotional well-being of the adolescence (Natarajan et al 2025).

Regarding well-being on the dimension of psychological well-being, experimental group has been found significantly better well-being in compare to control group (n=120) after the eight weeks practice of Pranayama. The present findings are in support of the study that pranayama practice enhances mental

efficiency, reduces emotional volatility, and cultivates disciplined academic behaviour (Jha et al,2025). *Pranayama* seems to have a significant positive effect on test anxiety and test performance. It could be used as an important technique by students prior to their examinations, to reduce their test anxiety and increase their test performance (Nemati,2013).It has found that the advantages of yoga practice include improved physical performance and condition, improved exercise habits, reduced perceived stress and anxiety, acceptance of oneself and increased mindfulness, feeling recharged and refocused, improved coping, and better overall well-being (Lemay et al 2019, Nemeroff et al 2022, Brems,2015). Yoga may act as an education that bridges “the gap between the ordinary and brilliant student”. It can be considered to be strengthening the power of mind. By improving accuracy and speed, one is able to absorb and process information accurately and quickly. Further, improving concentration is associated with improving long-term memory (Gary Groth-Matnat, 2009). Health experts have illustrated that after two months of practicing pranayama 56 medical students had reduced stress levels, as was evident by a decrease in total stress score, which was highly significant, at the start of the study (Bhimani et al 2011). School-based yoga interventions may improve several factors that are relevant to academic performance, such as emotional balance, attentional control, cognitive efficiency, and a number of positive psychosocial outcomes (Serwacki & Cook,2012). Dai et al also mentioned that physically practicing yoga in class has helped participants perceive the benefits of yoga. Through Pranayama Practice, college students can influence their decisionmaking, help to assessing one's competence, recognizing one's growth and accepting and preparing for the challenge. It helps to successfully manage stressors that lead to health-related risk behaviors in college life. Lastly it can be said that yoga, lead to overall health-enhancing benefits among college students(Dai et 2023)

Regarding well-being on the dimension of social wellbeing, experimental group has been found significantly better well-being in compare to control group (n=120) after the eight weeks of Pranayama. This finding was in support with previous study that there were positive connection between Sudarshan Kriya Yoga and social connectedness. In the modern era, this approach become very effective where internet usage, prevalence of online work and smart phone use has reduced face to face interaction leading to loneliness (Kanchibhotla et al 2024). The efficacy of a 7-day yoga intervention in improving psychosocial fitness was evaluated and showed that the feeling of empathy increased significantly.(Choukse et al 2019). It was observed that yoga intervention improved self-

esteem and emotional stability of adolescent school children. There was an empirical evidence in favor of incorporating yoga into school curricula as a non-pharmacological strategy to improve self-esteem, and well-being (Singh & Choudhary,2025).

Regarding well-being on the dimension of spiritual well-being, experimental group has been found significantly better well- being in compare to control group (n=120) after the eight weeks of Pranayama. Vandana & Singh emphasized that Pranayama helps in regulating the movement of breath, purifying the body, calming the mind, and improving overall health. It also supports spiritual growth by increasing awareness and inner stability. Regular practice leads to a healthy body, a peaceful mind, and a balanced life (Vandana & Singh 2026). Shivalaya Yoga Ashram also mentioned that practice of pranayama is an integral part of the people spiritual journey, as it helps to connect the mind, body, and breathe and bring about a sense of unity and oneness. Jennifer Forsberg (2021) also mentioned that Yoga benefits spiritual wellness through: increasing consciousness of self, teaching people to be okay with stillness, increasing connection to the universe and a higher sense of being, can lead to a broader sense of hope, well-being, love and inspiration within us, developing a stronger focus on the present, can increase individual and collective sense of purpose, Improving intuitive wisdom.

Regarding well-being on the dimension of Self - awareness , experimental group has been found significantly better well- being in compare to control group (n=120) after the eight weeks of Pranayama. Previous finding were also supported to the present finding that Yogic asanas play great role for the improvement of self-concept as well as self awareness (Bhole & Karambelkar -1971, Morison & Ibrahim 1981 , Anderson & Freshman -1982 , Deshpande et al-2009, and Yadhav -2006, , Aerobaci-2009, Kadu-2024). Deshmukh mentioned that Yoga influences all factors of self-concept such as - identification, language, body image, learning, feedback etc. Therefore, yoga is a powerful tool for the development of the positive self-concept. Mind, intellect and consciousness can be used as a tool to reach in the self. Yoga reduces all kinds of physical, mental, emotional and spiritual problems. Asanas with mantras and pranayama are extremely effective. At the same time self-realization meditation can used to make the contemplation system excellent (Deshmukh,2021).

Regarding well-being on the dimension of physical well- being, experimental group has been found significantly better well- being in compare to control group (n=120) after the eight weeks of Pranayama.

Previous finding were also in support with this finding. Jayawardena et al demonstrated the impact of Pranayama and found significant effect on cardiorespiratory functions, in patients with bronchial asthma, with the improvement of pulse rate, systolic blood pressure, and respiratory function measurements, reduction in the frequency of attacks, severity, medication requirement was also observed, with improved quality of life (QOL), in patients with chronic obstructive pulmonary disease, symptom, activity, and impact scores were improved. QOL improvement was also noted in cancer patients (Jayawardena et al 2020). Yoga asanas and pranayama significantly improve Peak Heart Rate and Vital Capacity in sedentary adolescents. (Ghosh,Badshah,2015)

Regarding well-being as a whole (total), experimental group has been found significantly better **well- being** in compare to control group (n=120) after the eight weeks of Pranayama. Pandey emphasized that Pranayama is a scientifically validated and culturally congruent mediator of stress, anxiety, depression, and adjustment difficulties in adolescents. As youth navigate one of the most complex stages of their development, yoga offers them the tools to enhance emotional resilience, selfregulation, and social adaptability. Yoga/meditation reduces psychological distress, improves emotional balance, and fosters better interpersonal functioning (Pandey,2025). Panayama is a powerful, natural, and scientifically supported approach to improving adolescent mental health. A study underscores its potential to be integrated into school wellness programs as a proactive measure to combat stress, anxiety, and depression. The simplicity, effectiveness, and affordability of pranayama should be recognized as a valuable tool for promoting emotional resilience, psychological wellbeing, and overall health among adolescents (Singh & Kumar,2023). It has also seen that Practice pranayama in the 9 sessions showed better performance in auditory, verbal attention span and focused attention tasks among the adolescents. Practice of pranayama alters the structures of brain and improve memory which contribute directly to the development of cognitive performance skills and executive skill of the students, possibly leading to improvement in attention and memory if practice regularly. Larger randomized controlled trials are needed to validate these findings. The introduction of pranayama among adolescent helps to reach a higher position or aspects of achievement (Jana & Pal,2020).

India has the world's highest number of 10 to 24 years old people. Positive energy, good environment, friends, teachers, outdoor games with regular yoga are the preventive measure in adolescent's health. During pranayama mind is becoming calm, quite and peaceful (as because of slow, smooth and prolonged breathing).

Mental stress is also managed through pranayama (Purohit & Pradhan, 2016). Shekhawat & Rathor found that regular practice of pranayama significantly reduces stress and improves cognitive performance among adolescents. The importance of incorporating pranayama practices into school health programs and youth wellness initiatives. Pranayama is a simple, safe, and cost-effective method for enhancing mental health, improving concentration, and promoting overall well-being (Shekhawat & Rathor, 2026).

Conclusion

It can be said that Pranayama is useful and cost effective approach for enhancing psychosocial well-being of adolescence specially in the area of emotional well-being, psychological well-being, social well-being, spiritual well-being, self-awareness well-being, and physical well-being. Researches indicate that regular practice of Integrated Yoga/pranayama has increased various skills like loyalty, sincerity, kindness, concentration, confidence, self-identity, decision making ability etc. and reduced stress, anxiety and negative behavior etc. Thus integration of yoga/pranayama in the curriculum at school level will make the path easy to achieve ultimate goal of social maturity and academic development. (Dwivedi & Srivastava, 2024). Pranayama has significant effects on both physiological and psychological health. It works by regulating the breath, which in turn influences the autonomic nervous system. Regular practice helps in balancing the sympathetic and parasympathetic systems, leading to reduced stress, improved relaxation, and better emotional stability. It also enhances cognitive functions such as attention, memory, and mental clarity (Brown & Gerbarg, 2005). Pranayama is a simple and powerful practice that supports students in every way body, mind, and emotions. It improves focus, health, posture, confidence, and stress control. When schools include yoga/Pranayama in daily routine, students feel more active, calm, and ready to learn.

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