

## Effect of Rajyoga Meditation on Intelligence Quotient of Attention Deficit Hyperactivity Disorder

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### Abstract

**Backgrounds:** Attention Deficit Hyperactivity Disorder is a reason for children to underperform at school. Previous studies reported that ADHD is associated with Decrement in IQ. Rajyoga meditation is a behavioral intervention, which is simple to practice. It was hypothesized that Rajyoga meditation will improve I.Q in ADHD child, improve concentration, and bring about a lasting change in brain and cognitive function.

**Objective:** To study the effect of Rajyoga meditation on Intelligence Quotient of ADHD cases.

**Methods:** 42 ADHD cases were recruited. I.Q. test was performed by "Draw a Man test" before and after intervention i.e. Rajyoga for three months. Student t test was used to evaluate the recorded data.

**Results:** Mean I.Q increased significantly from  $72.50 \pm 18.16$  to  $83.50 \pm 17.98$  ( $t=10.74$ ,  $p < 0.001$ ) after 12 weeks of Rajyoga Meditation.

**Conclusion:** Rajyoga is a cheap and cost effective way to increase I.Q. in ADHD cases.

**Keywords:** ADHD; Rajyoga; Intelligence Quotient; I.Q; Draw a Man test; Yoga; Meditation

### Introduction

Education is one of the most important aspects of human resource development. Every child should have the opportunity to achieve his or her academic potential. It is generally noticed that at least 20% of children in a classroom get poor marks; they are "scholastically backward". Poor school performance should be seen as a "symptom" reflecting a larger underlying problem in children. This symptom not only results in the child having a low self-esteem, but also can cause significant stress to the parents. It is essential that this symptom be scientifically analyzed to discover its underlying cause and find a remedy. Attention Deficit Hyperactivity Disorder is a reason for children to underperform at school [1].

Attention is most likely conscious and unconscious process complete with underlying neurophysiological mechanisms, which we are into. It involves our developmental experiences, what happens in our first relationships, our first and ongoing interactions with the surrounding world. This sets the stage for understanding the change one person attends versus another. If we take a closer look at one person's inattention, then in such a deficit we may find complex of problems viz.; neurological, psychological/emotional, sensorial, motorical, cognitive and developmental which results in a loss of ability to attend [2].

Complementary and alternative medicine (CAM) is becoming increasingly utilized in the general population for treatment of everything, from the common cold to complex and chronic medical conditions. Complementary and alternative medicine (CAM), as defined by the National Center for Complementary and Alternative Medicine (NCCAM, USA), is a group of diverse medical and health-care systems, practices, and products not presently considered to be a part of conventional medicine. As therapies proven to be safe and effective come to be adopted in conventional health care, the definition of CAM and therapies included within its definition change continually. Mind-Body intervention, one of the five categories of CAM is another subset of therapy that uses techniques such as meditation [3].

Rajyoga meditation of Brahmakumaris subsumes within itself the fundamentals of all methods of yoga and confers the achievement of all of them naturally and easily using one very simple method which anyone can learn [4].

Previous studies reported that ADHD is associated with Decrement in IQ [5-7].

Rajyoga meditation is a behavioral intervention, which is simple to practice. It was hypothesized that Rajyoga meditation will improve I.Q in ADHD child, improve concentration, and bring about a lasting change in brain and cognitive function.

### Material and Methods

The Experimental type study was conducted with 42 ADHD cases. Ages of the ADHD children range from 8 to 15 years. Mean age of the children was  $11.24 \pm 1.82$  years. Written informed consent/permission was obtained from parents/guardians/principal of the school/class teacher as the children were minors. IEC approval obtained. I.Q Test was performed before and after intervention i.e. Rajyoga for three months.

### Criteria for patient selection

The selection and screening of subjects was done at Dept. of Physiology in Post Graduate Research Laboratory, J.N.M.C, Sawangi (Meghe), Wardha.

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## Inclusion criteria

1. ADHD subjects diagnosed by DSM (Diagnostic and Statistical Manual of Mental Disorder)-4 criteria, from Schools.
2. Diagnosis of ADHD was based on information from all sources including clinical history, current functioning, intelligence testing, behavioural assessment, observation of child in hospital, adaptive behavior assessment, school history & school report cards
3. ADHD cases from Dept. of Paediatrics, Psychiatry, Psychology and Schools.
4. Who gave consent for their child/student to participate in the programme?

## Exclusion criteria

Clinically relevant somatic disorders and neurological disorders (e.g.-epilepsy, autism, mental retardation, sensory deficits or brain damage) were excluded by medical history and physical examination.

**I.Q Test by “Draw a Man Test”:** ADHD child was asked to draw a full man in the given sheet as best as possible in unlimited time and to handover the sheet when finished before and after three months intervention. Evaluation was done by Psychologist.

## Intervention: autogenic relaxation: the rajyoga meditation

Subjects were taught Rajyoga Meditation by Rajyoga teachers. Relaxation was achieved by giving training in Rajyoga Meditation according to teachings of Rajyoga Education and Research Foundation to subjects by the experts from Brahma Kumaris Spiritual University. Meditation training was given with the help of pictures, diagrams and audio CD. A total of 8 lessons each of 45 minutes were given, of which last 20 minutes were devoted to a guided commentary. Subjects were instructed to practice Rajyoga at starting of school for 10minutes per day for 3 months

## Data analysis

Statistical Package for Social Sciences (SPSS) version 17.0 was used for statistical analysis of the data. Mean and Standard Deviation ( $\pm$  SD) of all observation were calculated and comparisons were done between values of pre and post data (Mean and  $\pm$  SD) of 12 week Rajyoga Meditation applying paired Student’s “t” test. Statistical significance was assigned at  $P < 0.05$  and  $P < 0.001$  was considered to be highly significant (Table 1).

## Descriptive Statistics

IQ	Mean	N	Std. Deviation	Std. Error Mean
Before Rajyoga	72.50	42	18.16	2.80
After Rajyoga	83.50	42	17.98	2.77

## Students paired t test

IQ	Paired Differences					t	df	p-value
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Before-After Rajyoga	-11.00	6.63	1.02	-13.06	-8.93	10.74	41	$p < 0.001$ S

\*S= Significant

**Table 1:** Comparison of Intelligent Quotient before and after 12 weeks of Rajyoga.

## Results

Table 1 showed Mean I.Q increased significantly from 72.50  $\pm$  18.16 to 83.50  $\pm$  17.98 ( $t=10.74$ ,  $p < 0.001$ ) after 12 weeks of Rajyoga Meditation.

## Discussion

Similar findings were reported by different authors. It has been shown that regular practice of transcendental meditation improves Intelligent Quotient [8]. In 1989 Uma K et al. observed highly significant improvement in Intelligent Quotient of mentally retarded children after one year of yoga intervention [9]. In 2001 Shah et al. [10] reported significant improvement in Intelligent Quotient after practicing Saral meditation for one and half year. Yoga is a conscious process of gaining control over the mind, and thus the concentration and attention-span improve, and hence both IQ and memory power will enhance by improving skills and coordination [9].

## Conclusion

Rajyoga is a cheap and cost effective way to increase attention span in ADHD cases.

## References

1. Karande Sunil, Kulkarni Madhuri (2005) Poor school performance. Indian J Pediatr 72: 961-967.
2. Nikharge Trupti, Mulgaonkar K (2002) Attention deficit hyperactive disorder: a sensory perspective. The Indian J Occupational Therapy XXXIV(2).
3. Kelly AB, Dilip RP (2005) Complementary and alternative medicine in developmental disabilities. Indian J Pediatr 72:949-952.
4. Robert Shubow, Hansa Raval, Nirmala Kajaria, Harold Streifeld, Heidi Fittkau (1986) Easy Rajyoga: basic technique, In: Positive Health. Delhi, Prajapita brahma kumaris ishwariya vishwa vidyalaya 70-82.
5. Roberte Hales, Stuarc CY, John AT (1994) Disorders usually first diagnosed in infancy, childhood or adolescence. In: Textbook of Psychiatry. 3rd ed. Washington, The American psychiatric press: 729-832.
6. Michael GA, Carrie Pejeau, Patrica Osborne, Johannes Rojahn, Benjamin Handen (1996) Four-year follow-up children with low intelligence and ADHD: a replication. Research in Developmental Disabilities 17: 417-432.
7. Kuntsi J, Eley T, Taylor A, Hughes C, Asherson P (2004) Co-occurrence of ADHD and low IQ has genetic origins. Am J Med Genet B Neuropsychiatr Genet 124B : 41-47.
8. Dhar HL, Research on meditation.
9. Uma K, Nagendra HR, Nagarathna R, Vaidehi S, Seethalakshmi R (1989) The integrated approach of yoga: a therapeutic tool for mentally retarded children: a one-year controlled study. J Ment Defic Res 33: 415-423.
10. Shah AH, Joshi SV, Mehrotra PP, Naina Potdar, Dhar HL (2001) Effect of saral meditation on intelligence, performance and cardiopulmonary functions. Indian J Med Sci 55: 604-608.