



Research Article

EFFICACY OF JYOTISHMATI OIL WITH PRANAYAMA ON I.Q. (INTELLIGENCE QUOTIENT)

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ABSTRACT

Aim of the Study: To evaluate the efficacy of *Jyotishmati* Oil with *Pranayam* on I.Q. (Intelligence Quotient). **Objectives of the Study:** To evaluate efficacy of *Jyotishmati* oil on mental age. To understand and explain precisely the concept of *Jyotishmati* oil as a *Medha*, *Buddhi* and *Smruti* enhancer by using modern parameter I.Q. **Materials and Methods:** *Jyotishmati* oil was procured from authorised pharmacy. Drug Authentication and Fingerprint analysis of *Jyotishmati* oil by HPTLC method was done from Certified Laboratory. The selected children were grouped in three groups, 30 children in each group. Group A and Group B considered as experimental group. In-group 'C' no intervention was done. Route of administration – oral, Dose – 0.25ml twice a day, *Anupan* – Milk, Kala – After morning breakfast and after dinner. Duration-180 days. **Type of Study:** Open Randomised Controlled Clinical Study. Assessment Criteria: The scores were taken before the trial (0th day) & after the completion of treatment schedule (180th day). All the groups were subjected to BKT or I.Q. and M.A. scores. **Statistical Analysis:** Student Paired 't' - test & Repeated measures ANOVA were used for statistical analysis. **Result:** The results were statistically analyzed for better interpretation. In comparison of both experimental group 'A' and 'B' and control group 'C', improvement in I.Q. and Mental Age were significant than control group 'C'. In all the groups, Group B showed maximum improvement in Mental Age (M.A.).

KEYWORDS: *Medhya Rasayan*, *Jyotishmati* oil, *Pranayam*, Mental age, I.Q.Test.

INTRODUCTION

The main aim of Ayurveda is prevention of disease in healthy persons and to cure the patients. A child's physical & mental health are both important. Good mental health allows children to think clearly, develop socially & learn new skills. Parents are being aware of their child's mental growth. But this awareness mostly seen in higher middle and higher economic class group. In middle class group it is generally avoided until the complaints of students from teachers about their academics comes in acknowledgement.

Sometimes minor problems with child's mental health are avoided by parents and this affects the child's academics and his/her future.

In Ayurveda there is a concept of *Medhya rasayana* which is beneficial for *Medha*. *Medhya rasayanas* specific to brain tissue are claimed to promote the cognitive functions of the brain and I.Q. Researchers are making important strides towards exploring the pharmacological modulations for the purpose of enhancing I.Q. and cognition. The need of *Medhya rasayana* is more in mentally healthy children. So that they can achieve better in their academics and

in day to day work rather than mentally compromised children.

Pranayama utilizes breathing to influence the flow of *Prana* in the *Nadis* or energy channels of *Pranayama kosha* or energy body. *Pranayama* is beneficial to improve concentration and it also reduces the hyper activeness of the child. *Pranayama* gives the proper directions to *Prana* or life energy so it can use in productive work. By the practice of *Pranayam*, individual becomes more focused in creative / productive work.

Taking these facts into consideration, the present study was framed to evaluate the effect of *Jyotishmati* Oil on intelligence and analyse the concept of *Medhya Rasayana* and *Medha*; to expand the scope and applicability of it.

The present study was focused on the same concept applied in children thus entitled as, "Efficacy of *Jyotishmati* oil with *Pranayam* on I.Q. (Intelligence quotient)".

Medhya Rasayana is the unique concept of *Ayurveda*. There is need of application of this concept, which is suitable for present day's condition. Now a day an improved mental health is more important to fulfil

the demands of highly skilled personalities. Intelligence or *Medha* is essential factor from childhood. In *Bhavprakasha Samhita* it is mentioned that *Jyotishmati* is *Medha* and *Buddhi Vardhak*.^[1]

There are certain herbs or medicine mentioned in classics which directly affect the *Medha* or improves *Medha*, *Buddhi* and *Smruti*. *Jyotishmati* one of the important plant among all those which improves *Medha*, *Buddhi* and *Smruti*.

“*Acharya Dalhana*”, the commentator of “*Sushruta Samhita*”, defines *Medha* as a Variety of *Buddhi*, which acquires the knowledge which is complete, uninterrupted, minute and deep and collect from different sources.^[2]

Although breathing is mainly an unconscious process, conscious control of it may be taken at any time. Consequently, it forms a bridge between the conscious and unconscious areas of the mind. Through the practice of *Pranayama*, the energy trapped in neurotic, unconscious mental patterns may be released for use in more creative or joyful activity.^[3]

Pranayam

Deep breathing also increases the absorption of energy by *Pranayam kosh*, enhancing dynamism, vitality and general wellbeing. *Pranayama* practices establish a healthy body by removing blockage in the *Pranayama kosha*, enabling increased absorption and retention of *Prana*.

Lifestyle has a profound impact on the *Pranayama kosh* and its *Pranas*. Physical activities such as exercise, work, sleep, intake of food and sexual relation all affect the distribution and flow of *Prana* in the body. Faculties of mind such as emotion, thought and imagination affect the *Pranic* body even more. Irregularities in lifestyle, dietary indiscretions and stress deplete and obstruct the *Pranic* flow. These results in what people experience a being ‘Drained of energy.’ Depletion of energy in a particular *Prana* leads to the devitalisation of the organs and limbs it governs and ultimately to disease or metabolic dysfunction. The techniques of *Pranayam* reverse this process, energizing and balancing the different *Pranas* within *Pranayam kosh*.

Kapalbhati is the *Shodhan* process by which all the *Kapha* and *Ama dosha* of *Manovahasrotas* or obstructions of *Manovahasrotas* removes. Channels of *Mano-vaha strotas* open. *Nadhishodhan pranayam* do the *Shodhan* of *Ida* and *Pingala nadi* and enables the *Pranavayu* to enter in *Sushumna nadi* and reach till *Bramha randhra*. By this process person can concentrate and his *Medha* or intelligence improves. And *Bhramari Pranayama* effective in evacuating the negative energy from the body and brings positiveness and energy levels become high so concentration and memory power enhances. Lastly *Shavasan* or *Yognidra* relaxes the whole body physically and mentally so

individuals thinking power enhances. In this way these *Pranayam* helps in enhancing the *Medha* or intelligence.

Binet kamat test for general mental ability (BKT)

Binet decided to scale intelligence as the kind of change that ordinarily comes with growing order. Accordingly, he devised a scale of units of mental age (MA). Average MA scores correspond to chronological age (CA).

CONCEPT OF MENTAL AGE (M.A.): Binet proposed the idea of Mental Age (M.A.) to measure intelligence. Tests were made for different age levels. If a test was passed by 60-90% of children of a given age, Binet accepted it for that age level. An eight year old child having a M.A. of seven is considered mentally deficient, but if he has M.A. of nine then he is said to be above average.

CONCEPT OF INTELLIGENT QUOTIENT (I.Q.)

There are number of different methods which used to measure intelligence, the most famous of which is perhaps the “I.Q.” or Intelligence Quotient test. To make the comparison easy Stern devised the concept intelligence quotient, popularly known as I.Q.

It is the ratio between the M.A. and C.A. converted into a percentage.

M.A. - Mental Age

C.A. – Chronological Age

$$I. Q. = \frac{M. A.}{C. A.} \times 100$$

Medhya Rasayana or cognitive enhancers are the drugs that are purported to improve mental functions such as cognition, intelligence, memory, concentration. It is necessary to analyze the efficacy of these *Medhya* drugs in improving intelligence. Intelligence is defined as the capacity for learning and the ability to recall, integrate constructively and apply what one has learned and the capacity to understand and to think rationally.^[4]

AIM & OBJECTIVES

Aim

To evaluate the efficacy of *Jyotishmati* Oil with *Pranayam* on I.Q. (Intelligence Quotient).

Objectives of the Study: To evaluate efficacy of *Jyotishmati* oil on mental age.

- To evaluate efficacy of *Jyotishmati* oil with *Pranayama* on mental age.
- To compare between *Jyotishmati* oil (group A) & *Jyotishmati* oil with *Pranayama* (group B) on mental age.

Previous Work Done

- 1) C.B. Singh (2005) – A Clinical Study on etiopathogenesis of *Vishada* (depression) and role of *Jyotishmati taila* and *Satvavajaya Chikitsa* (Counselling) in its management –(R.G.U.H.S.).

- 2) Savitha H.P. (2006) – A comparative study on the role of *Jyotishmati taila* administered as *nasya* and orally in the management of *vishada* (depression)- (R.G.U.H.S.).
- 3) Dr. Pradeep Dua (2012) – Clinical Evaluation of *Bramhi Ghrita* and *Jyotishmati taila* in the management of cognitive deficit. - (CTRI/2012/01/002376).
- 4) Dr. Manu R. (2012)- Evaluation of efficacy of *Jyotishmati* in the management of *Jarajanya smritihrasa* w.s.r. senile dementia. (CTRI/2012/07/002782).
- 5) Dr. Divya Kajaria (2013) – Role of *Jyotishmati taila* Nasya in the management of Parkinson’s Disease (ISSN-2330-6691).
- 6) Evaluation of efficacy of *jyotishmati* in the management of *jarajanya smritihrasa* w.s.r. senile dementia (Jamnagar University 2012).
- 7) Study on the *Medhya* effect of *Jyotishmati* in border line –Mentally Retarded Children ,National Institute of Ayurveda, Jaipur, 2001-dept of koumarabhrotya
- 8) Effect of Fast and Slow *Pranayama* Practice on Cognitive Functions In Healthy Volunteers, J Clin Diagn Res. 2014 Jan; 8(1): 10–13. Published online 2013 Nov 18. doi: 10.7860/JCDR/2014/7256.3668.

REVIEW OF JYOTISHMATI

JYOTISHMATI

Jyotishmati-*Celastrus paniculata*

Family-Celastraceae

Ras-Katu, Tikta

Virya-Ushna

Vipaka-Katu

Prabhav-Medhya

Karma-Smritiprada, Agnidipak

Part used – Seed Oil

English name-Black oil tree [5]

Table No. 1: Showing the properties of *Jyotishmati*

S.No.	Book/Action	DN	SN	KN	BN	RN	Shiv-datta	Y.R.
1	<i>Buddhi prada</i>	+	-	-	+	-	-	+
2	<i>Smruti Prada</i>	+	-	-	+	-	+	+
3	<i>Medhya</i>	-	+	+	-	+	-	-
4	<i>Vrushya</i>	-	-	+	-	-	-	-
5	<i>Vamini</i>	+	-	+	+	-	-	-
6	<i>Mohakar</i>	-	-	+	-	-	-	-
7	<i>Varnyakar</i>	-	-	+	-	-	-	-
8	<i>Chakshusya</i>	-	+	+	-	-	-	-
9	<i>Deepan</i>	+	+	-	+	+	-	-
10	<i>Pradnya</i>	-	-	-	-	+	-	-
11	<i>Sarvavyadhi-hara</i>	-	-	-	-	+	-	-
12	<i>Matida</i>	-	-	-	-	+	-	-

Prabhava is the *Achintya veerya*, it acts irrespective of other *Gunas* of Drugs. The *Prabhava* of *Jyotishmati* is “*Medhya*”. So it is *Medha vardhak* or improves Intelligence.

“*Acharya Nagarjuna* has mentioned that *Medhya* drugs mainly acts by their “*Achintya Veerya* i.e. *Prabhava*.”

Jyotishmati acts as *Medha* Stimulator or Intelligence enhancer.



Figure 1: *Jyotishmati* Plant with seeds

MATERIALS AND METHODS

Collection of Medicine

- *Jyotishmati* oil was procured from authorized pharmacy.
- Fingerprint analysis of *Jyotishmati* oil by HPTLC method was done from Certified Laboratory.
- Drug Authentication was done by using the botanical parameters such as Organoleptic/macroscopic (organ and sense), microscopic, histochemical & phytochemical evaluation from certified research laboratory.

METHODOLOGY

STUDY DESIGN

Ethical clearance from Ethical Committee was taken and approval was received from the University.

Sampling Method: A total number of 90 samples were selected and randomly allocated into three groups.

Group A with 30 samples, Group B with 30 samples and Group C with 30 samples.

Intervention:

Trial Group 'A': *Jyotishmati* Oil

Trial Group 'B': *Jyotishmati* Oil with *Pranayama*

Control Group 'C' :- No intervention was done in case of control group. Only pre-test and post-test assessment was done along with trial groups.

Drug Intervention

For Group A - *Jyotishmati* oil and for Group B - *Jyotishmati* oil with *Pranayama*. *Anupana*, *Matra*, *Duration* and *Sevankala* was same for both group.

- *Anupana*- *Dugdha* (whole milk)
- *Sevanakala*-After Morning Breakfast and After dinner
- *Matra*-0.25 ml twice a day
- Duration-180 days
- Follow up- 7 days

Time Duration of *Pranayama*

<i>Kapalbhati</i>	- 1 min.
<i>Anuloma-viloma</i>	- 3 min.
<i>Bhramari</i>	- 10 rounds.
<i>Shavasan</i>	- 5 min.

Inclusion Criteria

- Students in the age group 10 to 16 years of age, irrespective of sex, caste, religion, socio- economic status were selected for the study.
- Physically and psychologically healthy children were considered for the study.

Exclusion Criteria

- Children below or above the mentioned age group were excluded.
- Any general or systemic disorder, which interferes with course treatment, was excluded.

Place of work: Swasthavritta OPD, present study was conducted in the year 2014 at Dr.D.Y.Patil college of Ayurved & Research Institute, Nerul, Navi Mumbai.

Type of Study: Open Randomized Controlled Clinical Study.

Diagnostic Criteria

90 students with average and low average level of intelligence were selected after the screening for any physical or psychological ailments.

Parameters of study

Intelligence Quotient (I.Q.)

Mental Age

CONCEPT OF INTELLIGENT QUOTIENT (I.Q.)

To make the comparison easy Stern devised the concept of intelligence quotient, popularly known as I.Q.

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Classification of Intelligence according to "I.Q." or Grading of Intelligence according to I.Q.

Various attempts have been made for grading individuals according to their I.Q. Terman's Grading of intelligence in terms of I.Q. is given below:

Table 2 : Showing grading of I.Q.

I.Q.	Grading
> 140	Genius
120 - 139	Very Super
110 - 119	Superior
90 - 109	Average
80 - 89	Dull
70 - 79	Border line
<70	Feeble Mind

Investigations: - CBC, ESR

Period of Study - 180 days

Assessment Criteria

Assessment of the effect of treatment was entirely based on the scores, obtained in the individual test mentioned. The scores were taken before the trial (0th day) & after the completion of treatment schedule (180th day).

Assessment Tools

- Binet Kamat test of Intelligence for Indian children was used to assessment of I.Q. and Mental age.
- Psychologist did Assessment of I.Q.
- Photocopy of BKT's Graph sheets

Statistical Analysis

Student Paired 't' - test & Repeated measures ANOVA were used for statistical analysis. [6]

OBSERVATION

In present study, out of 90 children, 50 were males (5.56%) and females were 40 (44.44%).11.11% of children were belong to age group of 10-12 yrs and 88.89 % of children were belong to age group of 13-16 yrs.

RESULT

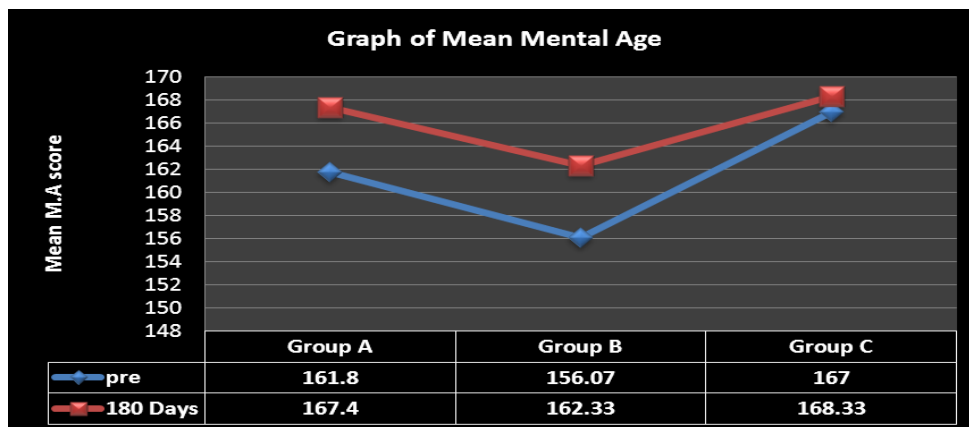
Table 3: Showings Statistical analysis of I.Q. (Intelligence Quotient) and M.A. (Mental Age) of BKT after Treatment in all three groups

	Group	I.Q. (Intelligence Quotient)	M.A.(Mental Age)
Mean BT	A	97.633	161.8
	B	98.633	156.07
	C	99.233	167
Mean AT	A	97.566	167.4
	B	99	162.33
	C	96.767	168.33
Mean dif.	A	-0.066	5.6
	B	0.3667	6.267
	C	-2.467	1.33
S.D. BT	A	5.169	11.83
	B	3.961	17.32
	C	3.692	11.706
S.D. AT	A	5.042	11.388
	B	3.722	17.157
	C	3.319	11.043
S.E. BT	A	0.9438	2.16
	B	0.7232	3.162
	C	0.6741	2.137
S.E. AT	A	0.9206	2.079
	B	0.6798	3.132
	C	0.6059	2.016
"t" value(Paired)	A	0.3114	15.389
	B	1.249	14.018
	C	11.035	3.808
"p" value	A	0.7577	<0.0001
	B	0.2216	<0.0001
	C	<0.0001	0.0007

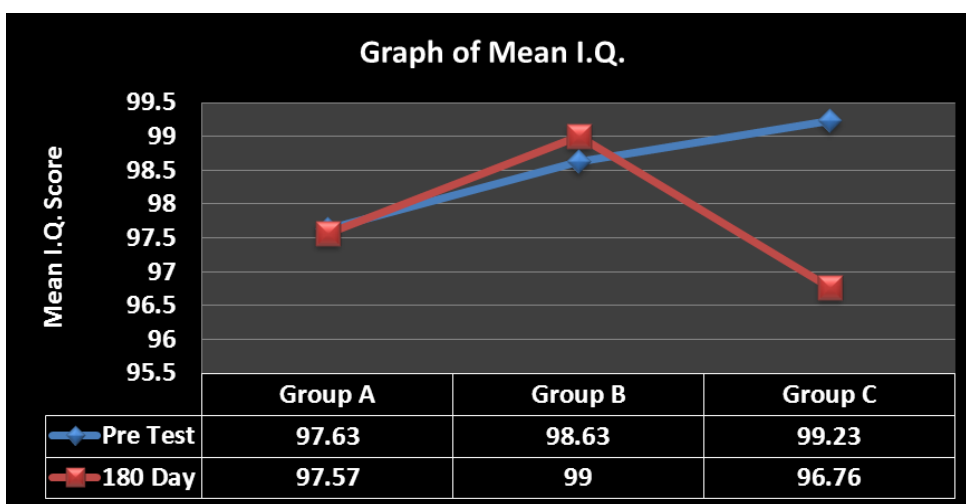
Table 4: Showing comparative statistical analysis (Repeated ANOVA) of I.Q.(Intelligence Quotient) of BKT among all three groups

S.No.	Comparison	Mean Difference	"q" value	"P" value
1	Gr A IQ vs Gr B IQ	-0.2667	1.730	>0.05
2	Gr A IQ vs Gr C IQ	-1.467	9.516	<0.001**
3	Gr A IQ vs Gr C IQ	-1.200	7.786	<0.001**

Graph 1: Showing Graph of Mean of Mental Age



Graph No. 2 - Showing Graph of Mean of I.Q.Score



DISCUSSION ON RESULT

Discussion on Comparative of M.A. (Mental Age) among the groups

On comparison b/w group 'A' and group 'B' 'q' value was 2.323 (P>0.05) considered not significant. So changes in M.A. were not significant.

On Comparison b/w group 'A' and group 'C' mean difference was 4.267± 0.078, 'q'-value was 10.619 (P<0.001) considered highly significant. Therefore improvement in M.A. (Mental age) in group 'A' was significant than that of Group 'C'.

On comparison b/w group 'B' and group 'C' mean difference was 5.20 ±0.705, 'q'-value was 12.942 (P<0.001), considered highly significant. Therefore, improvement in M.A. (Mental age) in group 'A' was highly significant than that of group 'C'.

Discussion on Comparative result of I.Q. score among the groups

On comparison b/w group 'A' and group 'B' on I.Q., 'q'-value was 1.730 (P>0.05) considered not significant. Therefore post-test changes in I.Q. b/w group 'A' and group 'B' were not significant.

On comparison b/w group A and group C, 'q' value was 9.516 (P<0.001) considered highly significant. So

improvement in I.Q. in group 'A' was highly significant than that of group 'C'. On comparison b/w group B and group C 'q'-value was 7.786 (P<0.001) considered highly significant. Therefore, improvement in I.Q. in group 'A' was highly significant than that of group 'C'.

CONCLUSION

Based upon the results of clinical study entitled "Efficacy of *Jyotishmati* oil with *Pranayama* on I.Q. (Intelligence Quotient)" displayed in the forms of tables and graphs & critically discussed in the previous chapter, following conclusions are drawn.

In group A and group B improvement were seen in the domain of Conventional thinking, memory, social intelligence and concentration.

Group A and group B were significant than group C.

Group 'A' showed maximum improvement of 8 months in Mental Age. Group 'B' showed maximum improvement of 12 months in Mental Age. Group 'C' showed maximum improvement of 4 months in Mental Age.

Group B showed maximum improvement in Mental Age. The pharmacological effect of *Jyotishmati* oil is similar to that of cognitive enhancers as they exhibit

their function at the level of neurotransmitters and also at vascular bed by increasing the cerebral metabolism.

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