



Research Article

THE NOOTROPIC EFFECT OF SWARNAYOG IN PRESCHOOL CHILDREN**R. Rachana Devendra^{1*}, Raut Mohan Sahebrao², Dash Pravatkumar K³, Kakade Priya B⁴**¹Associate Professor, ²Assistant Professor, Dept. of Kaumarbhritya, Shri Ayurved Mahavidyalaya, Nagpur, Maharashtra, India.³Professor & HOD, Dept. of Kaumarbhritya, Yashvant Ayurved Medical College, Kodoli, Maharashtra, India.⁴MD Scholar, Bhausaheb Mulak Ayurved Medical College, Nagpur, Maharashtra, India.**KEYWORDS:** Nootropic effect, Swarnayog, Lehan, IQ, Children, Medhya Effect, Ayurvedic Formulation.**ABSTRACT**

In the world of competition, every child stood in the race for first position. This may exposing the young brains for educational and competitive stress, eventually result in an inability to concentrate and affect memory and the level of cognition. To overcome the situations nootropics are use as brain boosters or memory enhancer. In Ayurveda many *Yogas* are recommended to use as *Medhya* (brain booster) in children, *Swarnayog* is one of them. This study was design to evaluate the nootropic effect of *Swarnayog* in school children.

Normal children without having any physical or mental illness of age group 7-9 yrs was selected. Further they were evaluated for IQ and school performance report. The IQ was not less than 70 and the school performance report was not less than 40% was considered for the study. Total of 60 children were enrolled and randomly divided in two groups A & B. A was treatment and B was control group. The group A was received *Swarnayog* in the dose of 5 drops per day in morning hours and the group B was received Honey as placebo in the dose of 5 drops per day in morning hours for the period of 30 days. The day 31 children are assessed for general health condition and further on the day 60 children were assessed for academic performance and IQ level.

The effect of *Swarnayog* on group A for academic performance was statistically significant compared with group B, the p value < 0.05= the level of significance. The effect of *Swarnayog* on group A for IQ was statistically significant compared with group B, the p value < 0.05= the level of significance.

The study was found that group A showed significant effect compared to group B, it showed the positive changes in academic performance & IQ score. Thus the *Swarnayog* was a good nootropic drug, further study will require for their pharmacodynamic and pharmacokinetic actions.

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INTRODUCTION

Today's modern life becomes ever more complex than before thus it drag the more & more technologies, these technological up-gradation can feel like brain downgrades. Young people are more exposed to educational and competitive stress; Which eventually result in an inability to concentrate and affect memory and the level of cognition^[1]. Cognition refers to a capacity for information processing, applying knowledge, and changing preferences^[2]. It involves memory,

attention, executive functions, perception, language, and psychomotor functions^[3].

Dr. Alfred Binet, the inventor of the first IQ test was opposed to the notion that IQ is fixed. He was a passionate supporter of the concept that IQ is a variable and that by being a variable, IQ could be influenced – both for better and for worse. Thinking creatively is humanity's built-in capacity for unlimited improvement. The limit of human development can never be found. Less than a half of

what our children's intelligences are made up of can be attributed to parental genes. Developing this born-with intelligence to its fullest potential is very much up to each one of us. It is a many dimensioned process that starts before conception and lasts until adulthood^[4].

Perhaps the most universally accessible brain toners are the most ancient – medication and meditation. Growing evidence suggests that proper drug doses and training in mindfulness meditation improves not just psychological well-being but also produces measurable improvements in a range of cognitive areas, including attention and memory.

Nootropics (NOOS= mind and TROPEIN = toward) are referred to as brain tonics, memory enhancers, and cognitive enhancers. A cognitive enhancer is a substance that enhances concentration and memory^[5]. Nootropics are thought to work by altering the availability of the brain's supply of neurochemicals (neurotransmitters, enzymes, and hormones), by improving the brain's oxygen supply, or by stimulating nerve growth^[6]. Memory herbs increase the level of neurotransmitters, particularly acetylcholine and improve blood flow to the brain, by increasing its oxygen and nutrient supply, which will aid brain function and memory^[7]. However, the efficacy of nootropic substances, in most cases, has not been conclusively determined. This is complicated by the difficulty of defining and quantifying cognition and intelligence^[6].

The physiology of *Tridosha* (functional units of body) shows that *Vata*, *Pitta* and *Kapha* plays a major role in constituting *Medha*(memory). The *Kapha Vata Shamaka* (inhibiting)effect of drugs may help in breaking the *Srotorodha* (obstruction pathology)and digestion of *Ama* (undigested material) that leads to the proper functioning of systems of the body and brain. *Kapha Shamaka* drugs have properties opposite to that of *Tama Dosh*a, which may help in dispelling the *Avarana* (overlapping pathologies) and normalizing *Tama Dohsa*, thereby maintaining the equilibrium of *Triguna* (functional units of mind) and the proper functioning of *Mana*, *Chitta* and *Buddhi* (properties of mind). The *Tridosha Shamaka* effect of drugs brings about homeostasis in *Tridos*a and *Triguna* as *Vata* and *Mana* interrelated with each other because *Vata* is responsible for vitiation of *Sharirika* as well *Manasika Dosh*a and produce disturbances. Thus such drugs regularize the functioning of *Mana*, *Sharira*, and *Manasika bhavas*, *Dhi*, *Dhriti*, and *Smriti* that are prime functioning parameters of knowledge. Many *Ayurvedic* drugs are act for

improving mental efficiency by single or composite form of action.

Aacharya Kashyapa stated that the wellbeing of child depend upon the *Lehana* they would get in their early childhood. *Swarnaprashan* is one of the currently in trend *Lehana Karma* practiced on the basis of Ayurveda classics, which is followed from the ancient golden era^[8]. *Aacharya vagbhat* gave strong emphasis on the use of *Vachadi ghee* as *Bala* (immunity), *Varna* (general health), *Budhi* (intelligence) enhancer in adult & children^[9].

Research drug *Swarnayog* was a herbomineral formulation contains *Vachadi ghee*, honey and *Swarnabhasma*, All the Ayurvedic drugs works according to their *Rasa*, *Guna*, *Veerya*, *Vipaka* and *Prabhava* (pharmacokinetic units of drug). This present research was designed to study the nootrophic effect of *Swarnayog* by observing the level of enhancement in mental function (*Medha*) of children having normal physical & mental health.

MATERIAL & METHODS

Present study was a randomized clinical control trail performed on healthy normal children for the parameters of the academic performance and IQ score. Written and informed consent of the parents and guardians was taken before registrations who were matched the inclusion criteria.

Healthy school going children of age group 7-9 years were scrutinized. For academic performance participants school report card were checked and those who secured more than 45% marks or B grade were selected, for IQ score psychological test "Good Enough Draw -A- Man Test" was conducted and the obtained score was recorded those who secure the score above than 70 were finally selected for this study.

60 Selected children were randomly divided into two groups respectively A & B, Group A was treatment group and B was control group. Each group was having 30 children with having various academic grades & socioeconomic states. The study parameter academic performance was further divided into four categories as per last performing exam i.e., 1. Poor category – were secured (45-60% marks) or B grade. 2. Fair category – were secured (61-75% marks) or B+ grade. 3. Good category – were secured (76-90% marks) or A grade. 4. Very Good category – were secured (91 & above % marks) or A+ grade.

The next study parameter Intelligent Quotient was further divided into three categories as per obtained score from psychological test ie 1. Average category – IQ score 70-85. 2. Good category