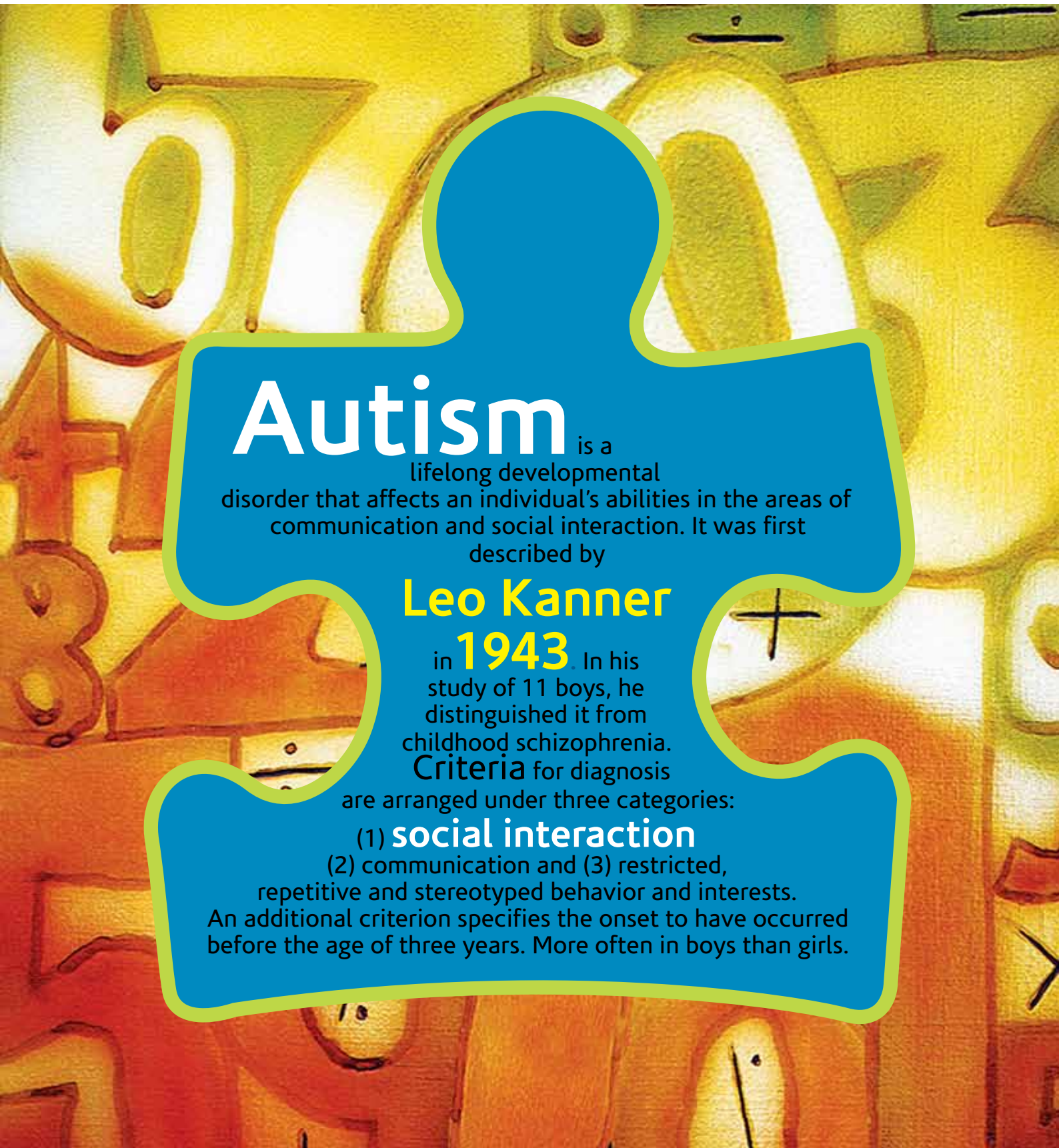
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Vol. 3. Issue 4 ■ October - December 2010



Autism is a lifelong developmental disorder that affects an individual's abilities in the areas of communication and social interaction. It was first described by

Leo Kanner

in 1943. In his study of 11 boys, he distinguished it from childhood schizophrenia.

Criteria for diagnosis are arranged under three categories:

(1) **social interaction**

(2) communication and (3) restricted, repetitive and stereotyped behavior and interests.

An additional criterion specifies the onset to have occurred before the age of three years. More often in boys than girls.

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हिंसास्तेयान्यथाकामं पैशून्यं परुषानृते।।
संभिन्नालापं व्यापादमभिध्यां दृग्विपर्ययम्।
पापं कर्मेति दशधा कायवाङ्मानसैस्त्यजेत्।।

(अ.हृ.सू.२.२१, २२)

Violence (*himsaa*), steeling (*steya*), prohibited sex (*anyathaa-kaama*), gossiping (*paisoonya*), rough and hard speech (*parusha*), telling lies (*anrta*), irrelevant speech (*sambhinnaalaapa*), thought of hurting others (*vyaapaada*), jealousy (*abhidhyaa*) and rejection of scientific knowledge (*drg-viparyaya*) are the ten sins (*paapa*) which are to be avoided physically, verbally and mentally.
(A.H.Soo.2. 21, 22)

Of the ten the first three are physical sins, the next four are verbal sins and the last three are mental sins. Violence includes torturing and killing. Prohibited sex means socially unacceptable forms of sex such as incest and sexual perversions. Rejection of scientific knowledge also includes atheism.

These norms are intended to maintain social health as well as personal health.

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Tridosha Theory – Triumph or Trail ?

In this article an attempt is made to investigate the Ayurvedic fundamental considerations of tridosha, verifying the virtues on a logical range.



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Historical evidences are conclusive to appreciate that Ayurveda has not evolved as a medical system intended for the mass populace. The time and space were different that 'evolving' Ayurveda provided excellent wellness solutions as well as total health care provisions. Futuristic potential of Ayurveda has to be identified in tune with times on a platform that defines the objectives explicitly. Those who are into Ayurveda at various levels need to reaffirm the basics, but redefine the applications of the ancient values on realistic scales with inventive approaches resulting in comprehensive outcomes. There should be budding of far reaching thoughts for the advancement of current methods and trends in ayurvedic medical practice. This turnaround would in turn serve the real life needs of the contemporary human, anywhere in the world. The ability to make others believe what you believe is a lot important for the successful career as an Ayurvedist.

Professionalism should emerge as a trend of the grooming physicians in the milieu of institutions that offer authentic Ayurveda. Professors of ayurvedic subjects should accept the





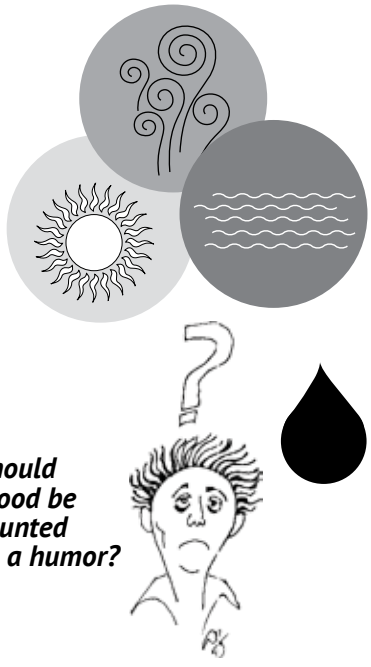
load of teaching on select topics taking into account of all possibilities, showing extraordinary confidence on the therapeutic utility of Ayurveda. Limitations should be recognized first in terms of variables. Forecasting the fate of non-intervention in a given context can sharpen the thoughts and perfect the practice of medicine. Hence the discussions and deliberations will have to take place on simple formats than complex extrapolations based on poorly defined 'Ayurvedic' terms. Descending trait of Ayurveda knowledge has its own weaknesses and strengths. For certain areas we need to know more than just the facts, as some subjects are subjective. The new generation Ayurvedic physician has to acquire and demonstrate a commendable level of understanding of the Ayurvedic principles to be applied at clinical situations in the backdrop of current and popular medical practices.

Popular health care systems across the globe are admittedly handicapped in various domains. Definition of health turns multipart and complex while diseases are getting more and more difficult in their understanding. Adverse drug reactions, side effects, toxicity, drug resistance and a host of other factors render these ever changing medical practices to end up in 'time tested casualties'. Preventive and supportive portfolios in medicine are often ignored and back cast. A system that encompasses the multi dimensional realm of health is said to be agreeable, ideal and holistic. Ayurveda addresses most of these issues, and there is wider recognition for Ayurvedic Medicine. Wellness solutions of Ayurveda, herbs, herbal preparations and herbal medicinal products available in Ayurveda are on the top priority in today's scientific world. Ayurveda in its own part needs an 'adapted' version to cater this demand.

'Ayurvedic holism' incorporates the concept that the whole is made up of interdependent parts – physical, mental, emotional, social and spiritual. Health is recognized to be more than just not being sick. Equilibrium of vaata, pitta, and kapha is the ancient but innovative working model of assessing health as well as disease. Positive health (wellness) can be achieved as a product of premeditated and balanced activities in daily life. In case of diseases, Ayurveda incorporates all stated modalities of diagnosis, providing opportunity for self-education, sharing of the responsibility of the treatment and applying common sense to choose. The decisions people make about their life and habits are the key factors in determining their state of wellness. Hence Ayurvedic holism fosters the relationship among all those involved in the context of all facets of life, including disease and cure. It provides opportunity to everyone for self-learning, beginning a partnership with the physician and taking the task of maintaining optimum health indices. The knowledge system in Ayurveda is pristine, also has to be 'ever growing' to meet the existing health needs of the society.

Logically considered, scientific knowledge and claims should be verifiable. In recent times, the questions on Ayurveda as a science and its very evidence base are being answered from different viewpoints. When it comes to the scientific research in Ayurveda, fixing the standards in terms of identity, purity, strength, measure and acceptable tools to validate the investigation turns more complex. The track records of researches in Ayurveda conducted by the Indian agencies are rated 'inadequate' for the validation processes assigned in the developed countries. It is high time that every stakeholder of Ayurveda goes empowered in terms of providing standard solutions at all levels. Together we need to set SMART goals; goals those are Specific, Measurable, Achievable, Realistic and Time-intense.

In this backdrop, an attempt is made to investigate the Ayurvedic fundamental considerations of *tridosha*, verifying the virtues on a logical range. As being everlastingly accepted, the humors or *dosha* are three in number and there can not be a fourth principle to this cadre. Every discussion in



Ayurveda domain starts with the *tridosha* theory and end up in the same line. Can it be revalidated for good? Among the celebrated triad *br̲hatrayee*, seers have modified the number of the humors at the application level, starting with Acaarya Su̲sruta. Of late, Vaagbha̲ta has categorically accepted the modification and has done updating the practice during his period. Taking into account of five purification (*s̲odhana*) therapies that are primarily indented for exclusion (or elimination) of vitiated humors, fifth model called bloodletting (*raktamoksha*) is not intended for vaata, pitta or kapha. When all other routine humors being addressed with respective therapies [enema (*vasti*), emesis (*vamana*), purgation (*virecana*), nasal medication (*nasya*)] bloodletting (*raktamoksha*) being counted as purification (*s̲odhana*) stands alone representing the 'modified' humor (*dosha*) concept.



The reason assigned by Vaagbha̲ta for this step is the failure of three humor (*tridosha*) framework on many clinical conditions at the treatment level. There is straight forward reference were the basic treatment protocol based on cold-hot (*s̲eeta-ush̲na*) and unctuous-dry (*snigdha-rooksha*) principles failing to yield, the focus is being shifted on to a different angle considering major involvement of blood (*rakta*) as diseases caused by the aggravation of blood (*raktaprakopaja*) and advises to proceed with bloodletting (*raktamoksha*). All other purification therapies are effected through the natural orifices of human body while bloodletting is made through abnormal openings created instantly. This historical stride of Vaagbha̲ta i.e., shift of focus from humor (*dosha*) to tissue (*dhaatu*) is not being seriously taken by the fraternity of Ayurveda as a road map to explore various clinical contexts as we face today, so that the current understandings about various diseases (medical knowledge of anatomy, physiology and pathology in terms of tissues) can be effectively integrated to evolve better treatment strategies in Ayurveda.

Ayurvedic holism incorporates the concept that the whole is made upon independent parts - physical, mental, emotional, social and spiritual.

A modified and perfected application of Ayurveda theories is worth again, considering the population being served today. Medical practices need reasoning by the service provider and the user. Basic tenets of life stand alarmingly changed (qualitatively and quantitatively) and no Ayurvedic index can be precisely assessed on standard calculations. Topography of earth, climate, environment, plants, water, food and beverages, chemicals used and exposed to in daily life, synthetic materials, electronic gadgets emitting radiation, modern lifestyle factors, abuse of sense organs and a host of other factors remain so complex for an Ayurvedic physician to integrate and score in a given context. No stretch of imagination can accommodate all these features into a working equation. Amid these complexities, if the individual has been consuming drugs of the School of Western Biomedicine for few months or years, what type of assessment is possible for an Ayurvedic physician to start the plan of action or course of treatment? Ironically, majority of patients suffering from serious ailments, turning for Ayurveda is of this sort. Apostles of Ayurveda argue that they are able to contemplate applying all the factors in relation to disease in any given context. Honestly, how many can commit to this extra ordinary claim. The issue needs to be addressed against the increasing popularity of Ayurveda and the real status of the fundamental principles truly deserving simple validations that satisfy the common sense of every physician.

The real status of marketed Ayurvedic drugs and formulations also need a close review. Are these preparations regularly prescribed would meet the requirements of an Ayurvedic physician in terms of humor (*dosha*) work up? Unlikely, in most instances. Diversity of market samples of traditional / ethical ayurvedic medicines is well known and the variations in therapeutic efficacy need not be over-emphasized. The principles followed in reasoning / understanding a clinical condition in terms of 'imbalance', and a standard prescription meeting the required elements balancing it in a predictable time is beyond the scope of comprehension. All is well, if the dictum is continued without any element of accountability.

This write up is an attempt to open the 'mind's eye' of any Ayurvedist who is serious, passionate and enthusiastic about Ayurveda in contemporary medical profession. Educationists need to go in for a paradigm shift in their focus, expand and re-interpret the code of Ayurveda. Human body came into existence first, and Ayurveda is just trying to explain the functions of human body in health and disease. One can not be definite on the actions of 'medicines' in generalized versions, as each human is unique. Enormous healing potential of human body is to be recognized in all diseases and each attempt of the physician could be at this level supporting the efforts of body in the direction of healing.

Clinching on a 'hard core' line or lobbying for 'orthodox' Ayurveda has become fashionable in recent times. Practitioners need to be convinced on the cutting edge of Ayurveda that really matters for self respect. Being loyal to the great science called Ayurveda, open dialogues are looked-for, expecting sincere comments on this vital remark that can break /make a difference. Being truthful to self, one can avoid exaggerating the substance and can be what one really is. That's the kind of identity admissible for an Ayurvedic physician. Gaining the right balance is exhilarating and that can be the only way out, getting adapted to existing as well as evolving multicultural socio-economic global customs. ■

Female Gynecologists of the Vedic Period

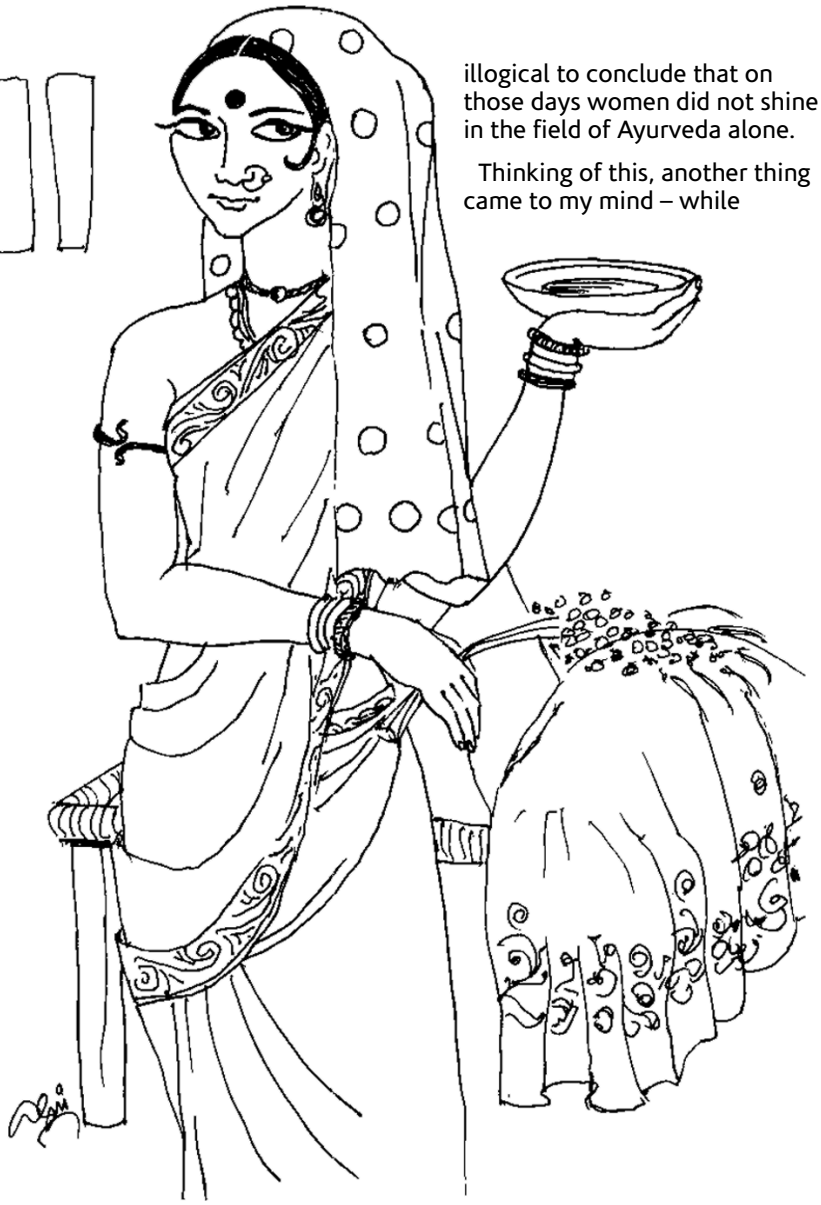


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Recently I had to confront a question from an enthusiast of women's studies. The interrogator asked me whether there was any ancient female luminary in Ayurveda similar to the renounced seers Aatreya, Agnivesa, Caraka and Susruta who were the spokesmen of Ayurveda. The question was natural but was unexpected. I was unable to provide an instant unambiguous answer. I just tried to save myself by stating that the treatises of Ayurveda do not mention about such a female luminary. But the interrogator did not permit me to evade the question quite simply.

I was unable to disagree with the questioner who argued that it is difficult to believe that there was no female luminary in the field of Ayurveda in ancient India where Vispala fought with vigor in the battle field; Indra-sena Mudgalaani drove the chariot of her husband in war and Gargi who boldly questioned Yaajnjavalkya in the assembly of scholars. There are evidences for the existence of many women who studied, taught, wrote about and preached of the Vedas. On those days women had the freedom to participate in arts, games and in adventures. It is quite illogical to conclude that on those days women did not shine in the field of Ayurveda alone.

Thinking of this, another thing came to my mind – while



examining the pulse, I was taught that the pulse of the right hand of men and left hand of women is to be examined. On enquiring the reason for this discrimination I was told by the Guru that in our culture holding the right hand of a woman by any man without blood relation, other than her husband was considered a taboo. In a society that revered women to that extent, it is unlikely that male doctors were permitted to hold the right hand of female patients. Ashtaanga-hrdaya mentions that in obstruction of placenta, experts women may be employed to take it out. In maternity hospitals mature women with experience in labor were employed.



They were not doctors. They were attendants who worked according to the directions of the doctor. Doctors treated female patients with the help of such female attendants. It was not because that the male gynecologists were not experts in the job of extracting the placenta, but because the social setup did not permit it that women were employed for the job.

While reading Rg Veda and Atharva Veda in search of female physicians, I met with a lot of mantras for getting pregnant, pregnancy care and ease of labor. Such mantras include prayers to goddesses such as Raakaa, Kuhu, Sineevaalee, Sarasvatee and Anumati. Some of the hymns are referred below.

1) I call prize worthy Raakaa. Let her listen the call quickly, understand our longing herself and give us a brave and multi-benefactor son. (Rg Veda 2-32-4)

2) Hey Sineevaalee! You are the sister of gods. Accept the ghee that we submit and provide a child to us. (Rg Veda 2-32-6)

3) Submit ghee to Sineevaalee who has beautiful arms and gracious fingers, endowed with genius progeny and is the donor of life to the multitude. (Rg Veda 2-32-7)

Many ideas that we have about the history of Ayurveda are to be corrected

4) Hey Sineevalee! Nourish the fetus. (Rg Veda 10-184-2 & Atharva Veda 5-25-3)

5) You drink the substance generates pregnancy, known by King Varuna, goddess Sarasvatee and Indra the slayer of Vrtra. (Atharva Veda 5-25-6)

6) Prajaapati, Anumati and Sineevaalee have fixed the seed in the irrigated womb in its empty place and have generated the organs such as arms and legs. (Atharva Veda 6-11-3)

It seems that goddesses Raakaa, Anumati, Sarasvatee, Sineevaalee et al. were physicians. I have read the phrase "the physician Sarasvatee" somewhere in Yajurveda. Raakaa, Kuhu, and Sineevaalee are daughters of Maharshi Angiras. They may be the daughters of the Angiras who participated in the conference of sages convened in the valley of Himalayas, when diseases rendered human life miserable, and learned Ayurveda.

It is natural that those who believed that a life without progeny is meaningless similar to a tree that does not provide shade,flowers or fruits, or to a lamp in the picture that does not provide light, or to a dry pool and that there is no greater donation than the life donated by the physician, to consider the physicians who provided with the treatment for obtaining progeny as deities and worshipped them.

Ayurvedic treatises do not refer the above mentioned goddesses. Perhaps they were forgotten in course of time, as they were 'small' goddesses or perhaps there may be the error of intentional omission by the authors of a period that did not permit the rights of women. Many ideas that we have about the history of Ayurveda are to be corrected. ■



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Director, Kerala Ayurveda Ltd.

Saastra-mathanam (churning of science) is a discussion program conducted at Kerala Ayurveda Hospital, Aluva on all Tuesday afternoons except the 3rd Tuesdays. Padmasree Dr. K. Rajagopalan MBBS, DAM, FAIM is leading the discussions. Doctors of KAH, doctors of nearby KAL outlets and scientists of KAL participate in the discussion.

autism

Autism is a lifelong developmental disorder that affects the abilities of communication and social interaction. Autism usually starts before the age of three years.

Autism belongs to a spectrum of disorders called Autism Spectrum Disorders (ASD). This spectrum is otherwise known as Pervasive Developmental Disorders (PDD). PDD is not a specific diagnosis, but an umbrella term under which specific diagnoses are defined (DSM-IV). These diseases are grouped together as they share common qualitative impairments in the areas of social interaction, communication, and range of activities and interests. The members of this spectrum are: -

1) Autism

2) Asperger's disorder

3) Rett's disorder (Rett's syndrome)

4) Childhood Disintegrative Disorder

5) Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS)

1. Autistic Disorder

Autism is a lifelong developmental disorder that affects an individual's abilities in the areas of communication and social interaction. It was first described by Leo Kanner in 1943. In his study of 11 boys, he distinguished it from childhood schizophrenia. Criteria for diagnosis are arranged under three categories:
(1) social interaction
(2) communication and (3) restricted, repetitive and stereotyped behavior and interests. An additional criterion specifies the onset to have occurred before the age of three years. Autism occurs in 2-5 per 10,000 live births, and 3-4 times more often in boys than girls. It is the third most common developmental disability. Cognitive impairment often co-occurs with autism; 70-75% of people with autism also have mental retardation (IQ below 70). 50% of individuals with autism develop functional communicative language. Autism is a spectrum disorder with symptoms ranging from mild to severe. The term high functioning autism is not a diagnostic term, but is used to refer to individuals who have autism and normal or above normal intelligence. The exact cause of autism is unknown; however, research has determined that it has a biological cause and it is not psychological. While there are many strategies that assist an individual to learn important functional skills, there is no treatment or intervention strategy that cures autism.

The onset of Asperger's disorder is usually later.

2. Asperger's Disorder

Asperger's disorder is a developmental disorder characterized by a severe impairment in the areas of social interaction and restricted and unusual patterns of interest and behavior.

In 1944 Dr. Hans Asperger of Vienna first described the disease, one year after Leo Kanner first described autism. Asperger's disorder was officially recognized as a diagnosis only in 1994 and was included in DSM IV. Children with Asperger's disorder are not as delayed in speech and the onset is later than that of autism.

Rett's disorder occurs exclusively in female children.

3. Rett's Disorder (Rett's syndrome)

This is a developmental disorder almost exclusively in females in 1 per 22,800 live female births. Severe impairment of receptive and expressive communication and apraxia (dyspraxia) are characteristics of Rett's syndrome. The development of the child is normal up to five months. Within 6 to 30 months the child's development stops or regresses. The child loses communication skills, which may be mistaken for hearing loss, and purposeful use of hands. Stereotyped hand movements (hand wringing or hand washing), poor coordination of gait, and a slowing of the rate of head growth appear following the regression. Seizures and disorganized breathing patterns may also occur. The disorder is often misdiagnosed as autism, cerebral palsy or non-specific developmental delay. This was first described by Dr. Andreas Rett from Vienna and was recognized throughout the world in 1983. The October 1999 issue of 'Nature Genetics' (Vol.23) reports that the protein MeCP2 is responsible for Rett's Disorder. This establishes Rett's Disorder as the first human disease caused by defects in protein involved in DNA methylation. The research also supports Rett's Disorder being added to a small but growing number of human genetic disorders that involve abnormal chromatin packaging and gene expression.

Childhood disintegration disorder starts as a regression of development after atleast two years of normal development.

4. Childhood Disintegrative Disorder (CDD)

This is also known as Heller's Syndrome. Dr. Theodore Heller first identified CDD in 1908 in Vienna. CDD is characterized by regression in development after at least two years of normal development. Prior to regression, the child exhibits age appropriate play and communication skills. The loss of skills usually develops gradually before the age of 10 years in at least two of the following areas: expressive or receptive language, social skills, bowel or bladder control, play skills, or motor skills. A period of unspecified anxiety or agitation may occur prior to the regression. Generally regression occurs between the ages of three and five years. Following the loss of skills, CDD is difficult to distinguish from autism. Therefore, the history of the child's development is critical to an accurate diagnosis. Prevalence: - 1 per 100,000 births, affecting more males than females.

A common misunderstanding about PDD-NOS is that it is "mild autism". But it is a separate entity, yet the treatment of autism may be employed here also.

5. Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS)

PDD-NOS is diagnosed when an individual has a severe and pervasive impairment in the development of reciprocal social interaction or verbal and nonverbal communication skills, or when behavior, interests, and activities are present, but the criteria are not met with for a specific PDD. This category also includes "atypical autism," for example, presentations that do not meet the criteria of Autistic Disorder, because of late age of onset, atypical symptomatology, or sub-threshold symptomatology.
A common misunderstanding about PDD-NOS is that it is "mild autism." This is not accurate. Although PDD-NOS is a separate diagnosis from autism, the same interventions may be effective for both diagnoses.

Even though ASD is generally perceived as a life long condition, review of evidences by Molly Helt et al reports that between 3% to 25% children lose their ASD tag and come into normal cognitive, adaptive and social skills. This observation provides

Eventhough autism spectrum disorder is generally percieved as a life long condition, it need not be so. Reports show that 3 to 25% children lose their ASD tag and come into normal cognitive, adaptive and social skills.

an Ayurveda physician to combat this condition with greater confidence. Internet is flooded with information on Ayurveda's role in the management of Autism. But systematic, well defined, long term study is the only solution for finding better answers for this challenging condition. For achieving our goal we must redeem ourselves from the routine method of using common formulations and procedures.

There are two terms *jaḍa* and *adhanya*. The meanings of these terms in dictionary are as follows:- The first term means cold, frigid, stiff, torpid, motionless, apathetic, senseless, stunned, paralysed, too stupid for, void of life, inanimate, lifeless matter etc. *Adhanya* means one who is poor (without money) or unhappy or not prosperous. It also indicates that the person is without auspiciousness. These terms are used in Ayurveda to denote people without proper development of mental faculties. It is mentioned in A.H.Śaa 1 that if the pregnant woman uses substances that increases vaata, the fetus may become *jaḍa*. It is also mentioned that coitus of immature couple may cause inauspicious child (*adhanya*). In Cerebral Palsy also the signs and symptoms of ASD may be present. But in ASD they appear later while in CP it is almost congenital.

In cerebral palsy also the signs and symptoms of ASD may be present. But in ASD, they appear later while in CP it is almost congenital.

Ayurvedic treatment

The following medicines and procedures may be tried in autism according to the condition of the patient.

1. *Kalyaaṇaka coorṇa* (B.R.)
2. *Picu* (*śuddha-balaa taila*), *Tala-poticcil*
3. Juice of ash gourd (Ash guard is considered the best among fruits on weak-stemmed plants) – for aggressive children – vaata-pitta
4. *Aṣhṭaadaśa-kooṣmaaṇḍam* – mentioned in epilepsy
5. Powder of Nardostachys with juice of ash-gourd – for cases with fits
6. *Braahma-rasaayana* – is palatable
7. *Mahaa-paiśaacika-ghṛta* – Especially good for growth of children
8. *Aśvagandhaariṣhṭa*
9. *Saarasvataariṣhṭa*
10. *Saarasvata coorṇa* – for speech disorders
11. *Siddhaarthaka guḷikaa* – cheaper than *Maanasamitra vatakaṃ*
12. *Medhyaushadha* as small enemas
13. *Pancasaara guḍa* – very tasty. Is a good rejuvenation medicine. Contains cannabis. Can be used as sedative in aggressive cases. ■

Autism – definitions

1. Autism is a developmental disability that significantly affects verbal and nonverbal communication and social interaction and results in adverse effects on the student's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. (Legal definition of autism in South Dakota)

[The definition also states that the term does not apply if the student's educational performance is adversely affected primarily because the student has a serious emotional disturbance as defined under Part B of the individuals with Disabilities Education Act as in effect on November 1992.]

2. Autism is a group of diseases, where the child is unable to respond properly with the surroundings. (Dr. D.M. Vasudevan, Prof. of Biochemistry, AIMS)

3. Autism Spectrum Disorder (ASD) is a catch-all diagnosis for a set of poorly understood neuro-developmental disorders that are clinically heterogeneous, with a spectrum of severity, characterized by repetitive self-stimulatory behaviors and communication and socialization deficits. (Dr. K.Rajagopalan, in Souvenir of Baalajalataa 2010.)

4. Autism is a complex neuro developmental disorder that usually becomes evident during the first three years of life. Autism tremendously impacts the normal functioning of the brain, challenging child development particularly in the fields of language and communication, social and emotional, with presence of usually strong narrow interests, and personal occupation by the repetitive stereotype mannerism. (Dr. Shabina Ahmed, Director, Assam Autism Foundation)

5. Whatever the cause, signs and symptoms, treatment and management, autism is the helpless cry of the parents of children who are affected. (Dr. K.G. Viswanathan, Principal, VAC, Ollur)

6. Autism is a prototype disorder for PDD, which is believed to be a complex genetic and neurobiological disorder that generally lasts throughout a person's life. (Dr. P.A. Suresh, Director, ICCONS Shoranur& Tvpm.)

7. Autism is most likely to be a group of similar disorders with various degrees of severity. So, the term 'Autistic Spectrum Disorders' is sometimes used rather than autism. (Mrs. Jayasree Ramesh, Academy for Severe Handicaps & Autism – ASHA – Bengaluru)

8. Autism is characterized among the PDD and in no area of developmental pediatric practice is there more controversy regarding the choice of treatment than related to children with ASD. As Autism is also a developmental disability which develops during development – from pre-natal to 22 years of age, and the disability usually lasts throughout a person's lifetime, research methods in autism are multidisciplinary derived from epidemiology, genetics, pharmacology, electro physiology, psychology, linguistics, and analytical chemistry – as well as several branches of medicine particularly pediatrics, neurology and psychiatry. (Indian J Pediatrics. 2005 Nov; 72(11): 949-52., Complementary and alternative medicine in developmental disabilities, Brown.)

Childhood Autism Management protocol - an Ayurvedic perspective

Autism is a form of congenital insanity. Ayurvedic interventions will not change the genetical make up but will try to remove or reduce the effect of the precipitative factors.



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Ayurvedic Perspective of Mind

The perception of life in line of Ayurveda would be a different experience for those who view it as a complex anatomical machine being run by multitude of chemical reactions. The beauty of Ayurveda lies in its strong view of life as sustaining combination of physical body including the faculties *(indriya)*, mind, and soul or spirit *(aatmaa)*. The spiritual plane which is left behind by the modern medicine forms the ground on which physical and mental faculties act upon to produce LIFE according to Ayurvedic philosophy.

The terms *mana*, *cetasa*, *satva*, etc that represents mind are found all through the classics of Ayurveda as it is considered as the part and parcel of a human. The influences of bodily and mental factors act mutually on each other, rather as separate entities.

Any intention or desire evolved at the spiritual plane to establish contact with the external world by means of the physical plane can be achieved only by the transmission through mental plane. Therefore, the mind is an inevitable component of existence.

Mind is essential for acquisition of knowledge through sensory perception, experience or learning. The object of the sense is perceived through the sense organ by the mind. It is the mind that perceives the object or undergoes the experiences and not the sense organ. Then the mind analyses the nature of the input and intellect *(buddhi)* determines the specific properties of the object and drives an individual to speak or act accordingly. Mahaa-bhaarata states that the object is seen by the mind through the eyes and not by the eyes alone, as even the visible object goes unnoticed when the mind is disturbed. It is only when there is required mental connection, that one can understand things. This substantiates the presence of mind.

The qualities of mind are its minuscule size and solitary presence which enables its pace to traverse at all levels and confines to single perception at a time, respectively.

The above explanations are necessary in order to understand the concept of healthy mind in Ayurveda and thereby to understand the psychiatric conditions like Autism, a disease due to deranged mental faculties.

Ayurvedic Concept of Inherent Psychological disorders *(Sahaja Unmaada)*

The causes for a disease according to Ayurveda are threefold. They include

- Improper contact of the sense objects with faculties,
- Improper functioning of the mental faculties, i.e., intellect, will and memory, in turn leading to execution of inappropriate actions
- Time

This broader version of causes for any disease encompasses all etiological factors in mental diseases also.

The genetic encoding which is transmitted from generations is subjected to various changes due to food, activities and environment during each generation. These are in turn taken up by the next generation. When this form of modified genetic material becomes pathological, the gamete becomes deranged. The deranged gamete is responsible for the basic genetic susceptibility to develop the features of Inherent Psychological disorders.

The role of environment is of three fold in which the antenatal conditions take a prime role in normal and abnormal development of the fetus, according to Ayurveda. The detailed description about the prescriptions and proscriptions *(garbhineecarya)* recommended for the

pregnant mother is worth a mention in the development process of the fetus.

Ayurveda believes that in addition to the food and activities of the pregnant mother, her mental status plays an important role for the development of health and disease – both physical and mental in the child. The mother thinking ill of others will transmit a negative energy and will affect the child which may become an envious antisocial element when born. The grief stricken lady may give birth to a child who is apprehensive. Therefore, the intrauterine experiences – physiological, psychological and pathological contribute to the wellness or otherwise of the child. Abnormal Intrauterine environment can produce growth retardation, developmental anomalies, etc, that later may cause the features diabetes, piles, or insanity *(unmaada)* in a genetically susceptible child.

Perinatal events like hypoxic injury, ischemic injury, etc. have resulted in the development of features of insanity in some. Postnatally, neurological infections and seizures and consequent brain damage have been noted as contributors of features of insanity in children.

There are case references which do not have any of the aforesaid events.

Patho-psychology of Autism simulates that of *unmaada*.

The condition of *unmaada* described in the Ayurvedic classics is a large wing under which many psychological disturbances are described and can be called as '*Unmaada* Spectrum Disorders (USD)'. The very definition of *unmaada* incorporates various forms of inappropriate actions exhibited by the individual as a result of distortion of normal mind, intellect, conscious knowledge, desire, manner and behavior, gestures and learned skills. Pervasive Developmental Disorders, OCD, Schizophrenia, Psychosis, Depression, Mood Disorders etc. constitute the USD.

The risk factors to develop a condition like *unmaada* are the presence of the state of fear continuum *(bhaya)*, fragile mental constitution *(upaklishṭa-satva)* and highly deranged bodily humors *(utsanna-dosha)*, since the events in the physical body affect the mind and that of mind affect the body, just like heat being transmitted from a hot container to its contents and vice versa.

In Autism spectrum disorders and pervasive developmental disorders with autistic features that fall under the category of *unmaada*, one or more of the mental abilities go wrong. In the definition of *unmaada*, we find impairment of many of the abilities which are seen in Autism spectrum Disorders. These include:-

- Mental confusion *(mano-vibhrama)* – total or partial loss of sensory perception
- Impaired intel ligence *(buddhi-vibhrama)*– partially affected– could be abnormal as seen in savant abilities
- impaired consciousness *(samjnjaa-jnjaana-vibhrama)* – seen as being lost in their own world, barring one or more sensory stimuli
- impairment of memory *(smṛti-vibhrama)*
- loss of affection *(bhakti-vibhrama)* – loss of innate willing to love and communicate with others
- inappropriate manners and behaviors *(śeela-vibhrama)* – repeated behavior and restricted interest, adherence to specific rigid routines
- abnormal activities *(ceshṭaa-vibhrama)* – motor clumsiness and motor



streotypies which are inappropriate and compulsive

- loss of learned skills *(acaara-vibhrama)* – impaired socialization skills, inability to follow commands, etc.

As described in *Unmaada* Spectrum Disorders, the person with autism behaves in a way that simulates a moving chariot without its charioteer.

Similarities of ASD (Autism and Asperger syndrome) and *Unmaada*

Many features of different ASD especially of Autism & Asperger syndrome are similar to the features of trihumoral insanity *(sannipaata-unmaada)* with a mixture of features of vaata, pitta & kapha separately or collectively. The majority of clinical features of different varieties of Autism Spectrum Disorders resemble features of vaatika and kaphaja dominant *unamaada* and a few cases with pitta dominant *unmaada*. For purpose of comparison the features of different ASD that simulate features of different *unmaada* are summarized in table below:

No	Features of *Unmaada*	Features of ASD/PDD	Types of ASD/PDD
A	***Vaataja unmaada***		
1	***parisaranam ajasram***	Always running about, hyperactive	Childhood Autism (CA)
2	*akasmaat akshi- bhroo-oshtha hanvagra-hasta- paada-anga- vikshepanam*	Repeated movements of eye, brow, lips, chin, hands, feet and other organs, highly repetitive & stereotyped hand and eye movements	Childhood Autism (CA)
3	*satatam aniyatanaam ca giraam utsargah*	Frequent utterance of uncontrolled sound and voice, monotonous speech, oddity in speech	Asperger syndrome (AS)
4	*phena aagamanam*	Frothing of saliva, drooling of saliva, sucking of fingers, Rett's syndrome, Organic Brain problems (Tuberous sclerosis etc.)	Autism
5	*asthaane abheekshnam smita-hasita-nrtya- geeta-vaaditra- samprayoga*	Excessive screaming, dancing, singing, using of musical instruments, at improper places or occasions, fond of music, dance etc., Screaming without any reason	Autism, Asperger syndrome (AS)
6	*veenaa-vamsa- sankha-saamya taala sabdaanaam anukaranam*	Mimicking of veena, flute, conch shell etc.	Echolalia Autism, Asperger syndrome (AS)
7	*yaanam ayaanaih*	Riding on non-vehicle toys or objects	Autism
8	alankaaraanaam analankaaraih dravyaih	Ornamentation with non-ornamental substances	Autism
9	*abhyavahaareshu alabdheshu lobhah*	Desire for rare edible food materials Eating disorder (selective eating)	Autism, Asperger syndrome (AS)
10	*labdheshu ca avamaananam teevra maatsaryam vaa*	Aversion or competition for freely available food Eating disorder (over eating)	Autism, Asperger syndrome (AS)
B	Features of ***pittaja unmaada***		
1	*amarsha*	Intolerance, impatient, Reluctance or impatience for turn taking	Autism, Asperger syndrome (AS)
2	*krodha*	Anger Temper tantrums	Autism, Asperger syndrome (AS)
3	*asthaane samrambha*	Violence or aggression at improper occasions or places	Asperger syndrome (AS)
4	*sastra-loshtra-kasaa- kaashta-mushtibhih abhi-hananam svesham pareshaam vaa*	Makes injury to self or others by hitting with arrow brick whip wood or fist	Autism, Asperger syndrome (AS)
5	*abhi-dravanam*	Attacking	Severe Autism, Asperger syndrome (AS)
6	*pracchaaya-seetodaka- annabhilaashah*	Desire for tree shade, cold water and food	Autism, Asperger syndrome (AS)
7	*ativelam santaapah*	Excessive heat or anguish, excessive distress	Autism, Asperger syndrome (AS)
C	Features of ***Kaphaja Unmaada***		
1	*ekadese sthaanam*	Stay in one place or spot. Solitary play	Childhood Autism
2	*tooshnee-bhaavah*	Silence, less talkative, have less babbling & speech along with gestures, (pedantic/formal or idiosyncratic speech, and oddities in loudness & pitch)	Childhood Autism
3	*alpasah cankramanam*	Clumsiness, less mobility	Asperger syndrome (AS)
4	*laalaa-singhaanaka- sravanam*	Drooling of saliva, running nose, Organic Brain problems (Tuberous sclerosis etc.)	Autism
5	*ananna-abhilaashah*	Aversion towards food (Eating disorder)	Childhood Autism
6	*rahas-kaamataa*	Liking for loneliness, show less attention to social stimuli, smile and look at others less often. Solitary play	Childhood Autism
7	*bheebhatsatvam*	Disgusting/cruel/ envious	Asperger syndrome (AS)
8	*sauca dvesham*	Dislike for bathing and toileting.	Childhood Autism
9	***svapna-nityataa***	Sleepy, less active, ow functioning	Autism
10	***svayathu aanane***	Puffiness of face, Organic Brain problems (Tuberous sclerosis etc.)	Autism

Patho-psychology of autism simulates that of psychosis (*unmaada*). In psychosis the patient exhibits inappropriate distortions of mind, intellect, conscious knowledge, desire, manner, behavior, gestures and learned skills.

Looking back at the causative factors for Autism, we find that the genetic material contributes to the formation of many emotional psychological and physical factors (cowardice, feeble mindedness and highly aggravated humors). In the presenwce of these risk factors, other triggering factors like the environmental, dietary, and social of either child or the pregnant mother precipitate the autistic features in the child, which are manifested as the Pervasive Developmental Disorder.

Management of Autism Spectrum Disorders in line with treatment of *unmaada*

Presently, supportive therapies for training the children with Autism Spectrum Disorders like occupational therapy, behavioral therapy, speech therapy, psychotherapy, etc are being used. Certain medications like anti-psychotic drugs are also used for the severe conditions.

According to Ayurveda the management of any condition can be detailed under three categories. They are: -

Rational treatment *(yukti-vyapaas̲raya cikitsaa)*

Rational prescription of drugs, therapies, food and activities

Mental control *(satvaavajaya cikitsaa)*

Methods to organize and regain impaired mental abilities

Providential treatment *(daiva-vyapaas̲raya)*

Rites and rituals to ward off the unseen evil forces and in turn managing the mind.

The above said management is applicable to children affected with Autism Spectrum Disorders and Pervasive Developmental Disorders.

Autism requires therapies which act at the physical, mental and spiritual planes. The effective deployment of these therapies will ensure a better outcome for the child. Autism being genetically designed, providential treatment has not much role in the management of childhood autism.

Classical Ayurvedic treatment of insanity *(unmaada)* applicable in the management of Autism Spectrum Disorders including Childhood Autism with different predominance of humors include

1. Unction *(snehana)*

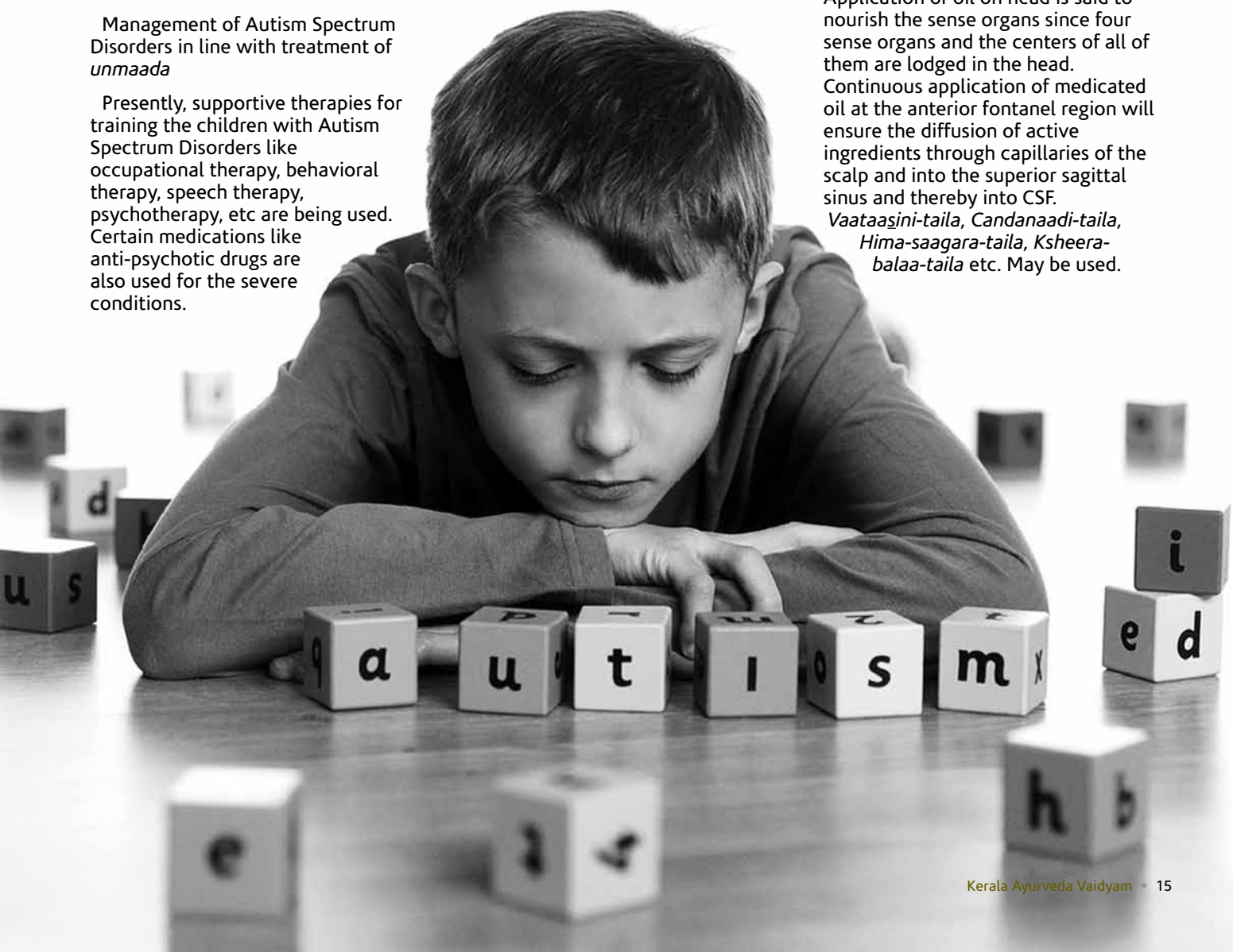
a. Internal unction *(sneha-paana)*

The drugs known to have psychotropic effects are processed in lipid base to ensure the transportation of active ingredients across the blood brain barrier to generate, alleviate and protect brain. E.g. *Kalyaan̲aka ghr̲ta. Mahaakalyaan̲aka ghr̲ta, Jeevantyaadi ghr̲ta, Tiktaka ghr̲ta, Mis̲raka-sneha.*

b. Oil pad on scalp *(s̲iro- picu)*

Application of oil on head is said to nourish the sense organs since four sense organs and the centers of all of them are lodged in the head. Continuous application of medicated oil at the anterior fontanel region will ensure the diffusion of active ingredients through capillaries of the scalp and into the superior sagittal sinus and thereby into CSF.

Vaataas̲ini-taila, Candanaadi-taila, Hima-saagara-taila, Ksheera-balaa-taila etc. May be used.



c. Mild purification procedures *(mṛdu-sneha-ṣodhana)*

Elimination of polluted humors, tissues and wastes is indicated in conditions wherever the mental channels are blocked by them (usually kapha and *medas*). In pitta and kapha dominant insanities also mild vomiting and purgation may be applied. In pitta dominant insanity, purgation is indicated while in kapha dominant stage vomiting is indicated.

d. Decoction enema and oil enema *(nirooha* and *sneha vasti)*

After unction and sudation & mild purgation for elimination of humors from GIT, enemata may be employed. These procedures clarify the CNS, peripheral nervous system and gastrointestinal tract. Enema should be repeated several times to eliminate all the vitiated humors.

e. Nasal drops and collyria (*nasya* and *anjjana*)

To clear the abnormal behavior, nasal medication & collyrium *(anjjana)* containing pungent medications are useful. E. g., *Siddhaarthaka agada*

Nasal insufflation of medicinal powders

The process of blowing medicated powders through the nostrils is called nasal insufflation *(dhmaana-nasya)*. This eliminates the accumulated, unwanted neurological byproducts. E.g. *Kaccooraadi* powder may be used.

The high levels of unwanted byproducts of abnormal metabolism when not properly eliminated can cause high derangement of the bodily humors and in turn increase the intensity of autism. Large levels of serotonin, peptides found in the system of the children with autism can be effectively removed by the five purification procedures *(panjca-karma)*.

f. Psychotherapies *(satvaavajaya)*

Different Psychotherapies such as: -

confinement *(bandhana)* and detention in dark rooms *(tamogṛha-rodhana)* for those who are attacking in nature)

scolding *(tarjanaṃ)*

shocking *(traasanaṃ)*

donation *(daanaṃ)*

delighting *(harshaṇaṃ)*

pacification *(saantvanaṃ)*

astonishing *(vismaapanaṃ)*

The above mentioned psychotherapeutic aspects of autism management include fundamentals for Applied Behavior Analysis (ABA) therapy etc that would improve the social skills of the perverted child. Moreover, it is intended to modify the perspective of the child about the society.



Medicines found effective in the management of ASD

(Ref: Arogya Kalpa Drumaṃ)

For Licking

1. Five parts of bael tree *(vilva-panjcaaṇga)*. In the morning lick the aqueous paste of roots, leaves, flower, fruit & bark of bael tree *(Aegle marmelos)* with butter for 96 days. It will relieve all types of insanity.

2. In the morning lick the powder of licorice (Glycerrhiza glabra) with honey and ghee for 75days. It will cure all types of insanity.

3. In the morning lick the paste of long pepper *(Piper longum)*, licorice, and raisins (dry grapes – *Vitis vinifera*) with honey, ghee and sugar for 60 days. It will relieve all types of insanity.

Decoction *(kvaatha)*

Draakshaa-samaṇgaadi kvaatha: Contains raisins. telegraph plant, licorice, colocynth, long pepper, black pepper, dry ginger, sandal wood and gentian.

Draakshaa-madhukadi kvaatha: Contains raisins. licorice, chunga bark, sweet flag dhub grass, coleus, vetiver, sandalwood, red sanders, comb teak, flowers of North Indian mahua, Indian crocus, wild small date, lotus stem, wild asparagus, sarsaparilla and gold leaves.

Application of Medicinal paste on scalp

(moordha-lepaṃ)

Balaa Sohala Moordha Lepaṃ: Powder of leaves of sida *(balaa)*, sohala and powder of coleus, vetiver, costus, licorice, sandal wood, nut grass tuber and cumin seeds – 15 gms, Butter – 60 gms, Breast milk – 240ml

Grind all the medicines in a bronze vessel and apply on the scalp as per the time schedule mentioned below. Start application from full moon evening and continue for 28 days starting the duration of application 3 hours 12 minutes and increasing the duration by 96 minutes every day and decreasing the duration from the 15th day onwards at the same rate.

Conclusion

To conclude, autism is perceived as a manifestation with deep rooted genetic predisposition and activated by a favorable environment. Hence it is considered as a congenital form of insanity *(sahaja-unmaada)*, which is a lifelong condition. The Ayurvedic interventions are not going to alter the genetic makeup. The interventions rationally employed based on the treatment principles of insanity like purification therapies, various procedure based therapies and medications try to remove or reduce the effect of the triggering elements which have precipitated the condition. So, the condition requires a long term intervention and the improvements seen after each course of management are amplifying steadily. Ayurveda opens a large door in the management of Autism and similar conditions and shows the ray of hope to those in dark. ■

Autism - Diagnostic Criteria

Vaidyam Desk

Autistic Disorder

(A) A total of six (or more) items from (1), (2), and (3), with at least two from (1), one each from (2) and (3)

(1) Qualitative impairment in social interaction, as manifested by at least two of the following:

(a) Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction

(b) Failure to develop peer relationships appropriate to developmental level

(c) A lack of spontaneous seeking to share enjoyment, interests, or achievements, with other people (e.g., by a lack of showing, bringing, or pointing out objects of interst)

(d) Lack of social or emotional reciprocity.

(2) Qualitative impairments in communications as manifested by at least one of the following:

(a) Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gestures or mime)

(b) In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others

(c) Stereotyped and repetitive use of language or idiosyncratic language

(d) Lack of varied, spontaneous make-believe play or social initiative play appropriate to developmental level

(3) Restricted receptive and stereotyped patterns of behavior, interests and activities, as manifested by at least one of the following:

(a) Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal in intensity or focus

(b) Apparently inflexible adherence to specific, nonfunctional routines or rituals

(c) Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole body movements)



(d) Persistent preoccupation with parts of objects

(B) Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years:

(1) Social interaction

(2) Language as used in social communication, or

(3) Symbolic or imaginative play.

(C) The disturbance is not better accounted for by Rett's Disorder or Childhood Degenerative Disorder.

Rett's Disorder

(A) All of the following:

(1) Apparently normal prenatal and perinatal development

(2) Apparently normal psychomotor development through the first five months after birth

(3) Normal head circumference at birth

(B) Onset of all of the following after the period of normal development

(1) Deceleration of head growth between ages 5 and 48 months

(2) Loss of previously acquired purposeful hand skills between ages 5 and 30 months with the subsequent development of stereotyped hand movements (e.g., hand-wringing or hand washing)

(3) Loss of social engagement early in the course (although often social interaction develops later on)

(4) Appearance of poorly coordinated gait or trunk movements

(5) Severely impaired expressive and receptive language development with severe psychomotor retardation.

Childhood Disintegrative Disorder

(A) Apparently normal development for at least 2 years after birth as manifested by the presence of age-appropriate verbal and nonverbal communication, social relationships, play and adaptive behavior.

(B) Clinically significant loss of previously acquired skills (before age 10 years) in atleast two of the following areas:

(1) Expressive and receptive language

(2) Social skills or adaptive behavior

(3) Bowel or bladder control

(4) Play

(5) Motor skills

(C) Abnormalities of functioning in at least two of the following areas:

(1) Qualitative impairment in social interaction (e.g., impairment of nonverbal behaviors, failure to develop peer relationships, lack of social or emotional reciprocity

(2) Qualitative impairments in communication (e.g., delay or lack of spoken language, inability to initiate or sustain a conversation, stereotyped and repetitive use of language, lack of varied make believe play)

(3) Restricted repetitive and stereotyped patterns of behavior, interests and activities, including motor stereotypes and mannerisms.

(D) The disturbance is not better accounted for any other specific PDD or by Schizophrenia.

Asperger's Disorder

(A) Qualitative impairment in social interaction, as manifested at least two of the following:

(1) Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction

(2) Failure to develop peer relationships appropriate to developmental level

(3) Lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)

(4) Lack of social or emotional reciprocity

(B) Restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:

(1) Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus.

(2) Apparently inflexible adherence to specific, nonfunctional routines or rituals

(3) Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements.

(4) Persistent preoccupation with parts of objects.

(C) The disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning

(D) There is no clinically significant general delay in language (e.g., single words used by age 2 years, communicative phrases used by age 3 years).

(E) There is no clinically significant delay in cognitive development or in the development of age appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood.

(F) Criteria are not met for another specific PDD or Schizophrenia.

PDD-NOS

This category should be used when there is a severe and pervasive impairment in the development of reciprocal social interaction or verbal and nonverbal communication skills, or when stereotyped behavior, interests, and activities are present, but the criteria are not met for a specific PDD, Schizophrenia, Schizotypal Personality Disorder, or Avoidant Personality Disorder. For example, this category includes "atypical autism" – presentations that do not meet the criteria for Autistic disorder because of late age of onset, atypical symptomatology, subthreshold symptomatology, or all of these. ■

Classification of Autism

Autism can be divided into three groups: -

1) Classical autism with the symptomatology and behavioral characteristics confirm to above mentioned areas. There is good physical growth. Parenting style and rearing practices are good.

2) Double syndrome – where the child presents with the features of autism with associated features of other syndromes, particularly of Down's syndrome, William's syndrome, and fragile syndrome to name a few.

3) Transient Autism – Where the child begins to show abnormal behavior by the age of 2½ years and gradually picks up the development on intensive stimulatory environment, and gets absorbed in the normal social system. Recent evidence has shown that early diagnosis and intervention are likely associated with better long term outcome. This has made it imperative that primary care givers must increase their fund of knowledge regarding this disorder.





Asha Foundation – inspiring hope and offering support...

"It was an inspiration which came to Ramesh and I as we were on our way back from Dharamshala, India in March 2001. We had been fortunate to have a private audience with the Dalai Lama after which we visited a Tibetan Orphanage which had a few children who had cerebral palsy.

On the long drive back we decided to start the Asha Foundation! The Foundation has been our inspiration ever since." Katharin Zimpel Vangal.

Thus was Asha Foundation created in 2001 by Katharin Zimpel and Ramesh Vangal as a non-profit organisation.

In 2007, Asha Integrated School for Autism opened doors to provide special education to children with Autism Spectrum Disorders.

In Asha more than 1200 children have benefited since its inception in 2001.

Recently Asha led an international initiative in India – Communication Shutdown (www.communicationshut-down.org) to spread awareness about autism.

Chief patron Ramesh Vangal participated in a panel discussion on Autism on TV.

Nine Months Miracle (since 2006) - an offshoot program at Asha, has pre-natal and post-natal pregnancy classes along with Lamaze breathing techniques for parents-to-be. NMM'S 5 week program consists of 3 sessions before delivery, and one or two more after delivery. NMM aims to help more women have normal deliveries and healthy babies.

What motivates the team:

The team has members who are sensitized to special needs, either because of personal experiences and/ or the motivation to have a meaningful, service oriented, and satisfying career. The improvement that they witness in the children over a period of time is also an important factor that keeps them going.

The basic team consists of Physiotherapists, Occupational Therapists, Speech Therapists, Special Educators, and Assistant Educators.

These are qualified and dedicated professionals who work in continuous co-ordination with the parents.

Asha aims -

- to provide quality intervention for individuals with neurological challenges (Autism, Cerebral Palsy and others)
- to have a holistic approach
- to counsel the parents of children with special needs.
- to spread awareness about neurological challenges (in children) at every level of society.
- to encourage early diagnosis and intervention for differently-abled children.
- to reach out to differently-abled children in society and orient them towards a more fulfilling life.

The School primarily focuses on providing appropriate interventions for children with Autism. They follow methods that have been extensively researched and universally accepted, such as – Structured teaching



methodology, Applied Behavior Analysis (ABA), Verbal Behavior Analysis (VBA). They also offer alternative programs like Music therapy, Horticulture therapy, Drama and Dance as therapy, Art, pre-vocational activities …

The Rehab Centre provides holistic rehabilitation with physiotherapy, occupational therapy, speech therapy, special education, on a one to one basis for every child. Music and Garden activities are group sessions for joyous interaction.

Asha provides rehabilitation with Electromyographic Biofeedback (EMG Biofeedback) for children and adults with neurological challenges that are non-degenerative and non progressive in nature.

It is based on the theory of plasticity of the brain, which suggests that learning in the brain is an active and continuous process and does not depend on age. It is used to establish learning control of specific physiological responses - EMG responses. This technique involves recruiting active and intact neurons in lieu of the damaged ones by forming new motor neuron connections with the help of audio-visual inputs to the brain.

Outreach programs -

Asha is currently involved in outreach programs with Vatsalya School for special education (Hindustan Aeronautics Ltd), Cheshire Homes and Sarvashiksha Abhiyan. Asha therapists evaluate, provide therapy and do a 'train the trainer and parent' program at these centers.

Challenges faced -

Lack of awareness and acceptance from parents and society has been one of the biggest challenges faced so far. For Autism, parents expect their children to attend mainstream schools and be integrated quickly. In India, academic pressure is very high and parents do not easily accept their child's different ability to perform.

Getting parents to be consistent in bringing the children for sustained therapy, which takes several years for some cases, is another major challenge.

"Two roads diverged in a wood, and I, I took the one less traveled by, And that has made all the difference." – Robert Frost.

From the parents:

Akash, parent - Premkumar T.:

"This is to share the positive transition Akash has had in the last two months, after he joined Asha School, and I also seek your support. To our awe and surprise, Akash has had tremendous improvement in logical thinking, the way he manages himself and communicates. He is able to infer mechanical logic like opening and closing the door, inserting the laptop plug-in wire by feeling for the groove, finding his way to a place by different doors within the house, playing hide and seek. Earlier he had trouble walking back home from school, now he enjoys his walks. His communication has improved, he is now trying to verbalize all his requests (earlier he would shout meaninglessly). There are occasional tantrums but they are almost like a normal kid getting frustrated. I think he enjoys schooling with Asha, the warm welcome the staff gives says it all. Thanks for your ongoing support."

Karthikeyan (age 5years) parent - Hemavathy P.:

"Karthikeyan, my five year old son, was reluctant to cooperate for any therapy. EMG Biofeedback helped speed up his functional activities. He is now able to walk a few steps without support. Asha therapists were so patient! Asha also provided financial support."

Ramyashree (age 13 years – CP, Quadriplegia) Parent – R. Narayana:

"Her neck balance was very weak, she could not sit steadily. The whole body coordination was weak. Ramya has been coming to Asha for 2 years. There is lots of improvement in her activities. She has learnt to sit properly and her neck balance is proper. Therapists' involvement is excellent, cost is reasonable. I think Asha Foundation is like our house and the therapists are like our family members. Yes, we will refer Asha to others, because many handicapped children can be improved."

Sneha (16 years, moderate MR) parent – S.N. Siddaramappa:

"Sneha lacked sitting concentration, she used to throw objects and bite objects. She had drooling. We are coming to Asha since 1 year and 3 months. Now she has less drooling. She hands over objects when we ask, she responds to our calls. HAL Vatsalya Special School referred us to Asha. Asha takes care of the child individually. We are satisfied with the treatment and teaching. We would like more classes to improve our child. Yes, we will recommend Asha to others."

To know more about Asha, do visit **www.ashafoundation.org** ■

Problem of Diagnosis

The diagnosis of Autism is often complicated by co-morbidities. In addition, there is growing list of competing diagnosis as well.

a) The competing list:

- Semantic pragmatic Disorder
- Disorder of Inadequate Care of the young (Attachment Disorders)
- Broader phenotypes
- Landau Klaeffner's syndrome / equivalents
- Expressive speech delay with or without selective mutism

b) The co-morbidity list:

- ADHD / Oppositional Defiant disorder
- Social Anxiety Disorder
- Mental Retardation
- Tourette's Syndrome
- SChizotypal

Mental Retardation, Epilepsy, Speech delays, Cerebral Palsy or Social deprivation may coexist with ASD. Some cases will exhibit aggressive characters.

Horticulture Therapy



Shaila Hegde
Consultant (Special Education,
Horticulture therapy and psychology)

People have been dependent on plants since the beginning of time. Plants provide food, clothing, shelter and medicine essential for human survival. This relationship between people and plants has been taken a step further by the discipline of horticultural therapy. It is a treatment modality that uses plant and plant products to improve the social, cognitive, physical, psychological and general health and well being of its participants.

Horticulture Therapy is relatively new discipline that has been developing rapidly during the last 25 years. The significance of this discipline and the contribution it can make to advancing health and well being has just started to be understood. Research in the west found that children with disabilities have showed prominent improvements in social skills (eye contact, social distance, voice volume, facial expression) and very useful therapy to relieve anxiety and teach emotions.

HT Pilot project at Asha Integrated School, Bangalore.

Horticulture therapy started in this centre in July 2010 as an experiment for children with autism with the following therapeutic goals:

- To develop the interest and potential of people with developmental disorders through gardening activities
- To improve fine motor and gross motor activities
- To improve eye - hand co-ordination
- To improve cognitive and perceptual skills, social skills, numerical skills and to develop color concept.
- To improve attention span, memory, reduce stress and anxiety.
- To improve sensory stimulation (smell, touch, sight, taste)
- To improve emotional stability, strength and balance, simple and complex judgement and safety.

Horticulture activities used in Asha School to meet the goals:

- Introduction of flowers and arrangement of flowers in decorative containers.
- Introduction of garden accessories-plug trays, pots, bags, trowel, sprayers, watering can etc
- Introduction of growing medias like sand, coco peat, mud etc.
- Mixing and filling of growing media to bags, pots, plugtrays using trowels
- Sowing seeds in plug trays, planting jobs in pots and bags
- Watering, spraying
- Cleaning the work area
- Leaf cleaning by spraying water
- Introduction of aromatic and medicinal plants
- Teaching the names of common flowers and plants
- Introduction of different colored vegetables and growing vegetable plants
- Exposure to gardens with flowers, butterflies, birds

It has been found that some children are gradually showing improvements at different levels and are enjoying garden activities.

Today horticulture therapy is used in different kinds of environments making a difference to the lives of many disabled as well as normal people. The scope of benefit with horticulture therapy is endless. ■





Charity and Challenge

> “They are all our children. They are not deficient. What we need to do is to adopt them as our children.”

Interview with Ramesh and Katharin Vangal

Dr. K. Anilkumar and Dr. C. R. Agnives from Kerala Ayurveda Vaidyam contacted the founders of Asha Foundation over the phone.

Anilkumar: As discussed, our next issue of ‘Vaidyam’ features autism and the activities of Asha Foundation. Can you tell about it? What was the motivation? How did it start?

Katharin: In March 2001 Ramesh and I were fortunate to obtain a private meeting with the Dalai Lama. This was my first visit to India and I was very excited. We had 45 minutes with him and came away struck by the Dalai Lama’s simplicity. His message was clear –“To be good ….Do good”.

Ramesh: After the Dalai Lama we went to the Tibetan children's village for orphans. We spent about two hours playing with the children some as young as a few months old. We listened to many many heart rending stories of suffering. What struck me the most was a spastic child, about four years, who was lying down on his stomach…and crying. Katharin lifted the child into her arms and comforted him with confidence. That was when I realized that this came from Katharin's long years of looking after her brother Adam who has Cerebral Palsy (CP) since birth.

Katharin: On the long drive back to Delhi I asked Ramesh – "Why can't we do something for the CP children?" That's how the Asha Foundation was born.

Anilkumar: So the main theme of Asha Foundation is autism and CP?

Ramesh: Asha started as a foundation to help brain injured children, mainly CP in 2001. However, it was only after a few years that we decided to include autism. It was about then I realized that my son was autistic.

Agnives: Aren't CP and autism very different?

Katharin: Though the treatments are very different, both CP and Autism are derived from brain injury. For CP we brought in a special technology called "Electro Magnetic Bio-feedback Therapy." This was created by the Late Dr. Bernard Brucker of the University of Miami, Jackson Memorial. It is a technology using advanced sensory and computer technology to improve motor movement and we established the first centre in Bangalore in 2001 itself.

Anilkumar: Is the Asha Foundation a charitable trust?

Ramesh: It is a non-profit company funded primarily by Katharin and me. Of course this has required continuous injection of funds which has been provided by Katra group. Indeed Asha is the major shareholder of Katra.

Agnives: Do you have plans to do this elsewhere in India?

Katharin: We had originally set up centers in Delhi and Chennai as well. But then decided to focus on Bangalore and not spread ourselves too thin. There are so many children who need help in Bangalore itself.

Anilkumar: Are you happy with the progress so far?

Katharin: There is great satisfaction in helping these children who face major lifelong challenges. There is no easy solution. So progress is slow, but definite if you persist.

Ramesh: Initially it took me time to get used to disability. But I can say that we are both deeply inspired, from within to devote a major part of our capital to Asha and help in whatever small way we can.

Agnives: What role can Ayurveda play?

Katharin: I can speak from experience. My brother Adam made great progress with Ayurveda when he lived in India with me for two years. He is severely CP and generally needs help in everything. He was treated by Dr. Jayarajan, Kerala Ayurveda and despite being severely CP he made amazing progress with the disease and was walking (slowly) of course almost 100 feet at a time. I wish we could have found a way to keep up his Ayurvedic treatment when Adam went back to Europe.

Agnives: What about autism?

Ramesh: On autism we have a school with some 30 children and about 10 staff. The syllabus and the training to the teachers have come from Professor Dr. Laurie Sperry (earlier with the University of Colorado) and a recognized expert of autism in the US.

Anilkumar: What can be done further?

Katharin: We should give them opportunity to self support. They never attain hundred percent cure. But a lot of improvement can be attained. Asha is not a miraculous thing. Life long dedication in rehabilitating the children is necessary.





Agnives: You are the guiding force of Asha foundation as well as Kerala Ayurveda. Have you any plans to implement professionally ayurvedic assistance to the children of Asha?

Ramesh: It is a pity that we have not incorporated Ayurveda into Asha foundation so far. It should have been automatic. But it did not happen. Let us start.

Katharin: We have seen that some children are benefited by Ayurveda. Spastic children are much benefited by Ayurveda. For my brother Adam, who is severely handicapped with cerebral palsy, we have done some regular ayurvedic massages and procedures like *siro-dhaara*. Side by side we have provided yoga and *praanaayaama*. It helped him. Yet till at present we have not incorporated Ayurveda as a program for the children of Asha.

Ramesh: After all the massages and procedures he was able to walk independently. I think it is time that we should incorporate Ayurveda. Our Indira Nagar Clinic is situated very near to Asha foundation and it can assist Asha in this program.

Anilkumar: When we visited Asha, we discussed it with Usha and she promised to talk to the parents of the children to get their consent. Only after getting their consent we can incorporate Ayurveda. We can also plan to have an awareness program on Ayurveda for the parents.

Agnives: The present notion is that 25 to 50% of autism can be corrected, if properly intervened. Ayurveda has time tested measures to combat such problems. Cant' we implement them side by side with the conventional system?

Ramesh: Please go ahead to establish the results. We are using a conventional system for helping communication shut down. We are in collaboration with 32 major institutions around the world. They are using our system for autism. For changing the systems we will have to convince the world. The therapies are to be customized and that is Ayurveda's essence.

Agnives: The usual resistance for applying Ayurveda in similar cases is from parents. They think that their children are considered as guinea pigs. Do you think that such a resistance will be there from the parents of children of Asha foundation?

Ramesh: I don't think so. There wont' be any resistance from the parents. They will be definitely open to Ayurveda and will be cooperative. They know that Ayurveda is natural and will not harm their children.

Agnives: Yoga is useful in developing mental abilities. Does Asha foundation provide Yoga training to the children?

Ramesh: Yes. We can do both Ayurveda and Yoga. But the technique of incorporating them together is to be formulated. I think Kerala Ayurveda can formulate a program for the children with its experience.

Agnives: In this very same issue of Kerala Ayurveda Vaidyam we are also publishing an article about Yoga for children.

Katharin: Asha foundation is conducting a special program for training pregnant women. This program has already incorporated Yoga in it.

Agnives: I was about to ask about this training program for pregnant women. Ayurveda has its own pregnancy and perinatal care system. Have you any plans to incorporate them?

Katharin: An ayurvedic doctor should answer it.

Anilkumar: Anyhow we will be discussing this with our doctors in Bangalore and we shall arrive at a methodology.

Agnives: Is there any real difficulty in incorporating Ayurveda to the structure of Asha foundation? If there is such difficulty we may think of another unit, a separate structure, for incorporating Kerala Ayurveda and Asha.

Ramesh: There is absolutely no difficulty in it. I feel that Kerala Ayurveda should think of the possibility how it can interact and incorporate itself with Asha Foundation and make proposals for such collaborations.

Anilkumar: How many children have you helped so far?

Ramesh: We try hard, but it is still small. I guess we have helped about hundred or so autistic children and another 500 or so CP children. It is a drop in the ocean. As we get more funds we will increase the scope.

Anilkumar: What is your message to the parents of autistic children and also to the society?

Katharin: You are not alone. There are similar persons. Let us join together.

Anilkumar: And to the society?

Ramesh: They are all our children. They are not deficient. What we need to do is to adopt them as our children. ■


Ball- OT Room


Parallel bar with mirror


OT - equipment


Trampoline


Karthik walks on parallel bar


Christmas celebration


Zeban-OT -Session

asha


Christmas celebration


Asha faculties giving training


Sharanamma walks


Ramya at Chidren's park


Asha foundation team 01


Asha foundation team 02


Asha foundation team 03

Asha Foundation Annual Day Celebrations













Kusuma's painting



Mr. Ramesh Vangal, felicitates the annual day celebrations

Vaidyam team at Asha







From the case-diary of Asha

Here is a sample case from Asha Foundation for your ready reference



Name	: Deepak (name changed)
Date of Birth	: 20-11-2007
Date of Assessment	: 06-12-2009
Age during Assessment	: 15 months
Diagnosis	: Developmental Delay (Cerebral Palsy Spastic Diplegia)

Complaints during Assessment:

Poor sitting balance - unable to sit independently; creeps in commando creeping pattern; unable to come up to sitting independently; unable to crawl, pull to stand and walk.

Prenatal History:

Mother's age at conception	: 25
Mother's health status	: Good
Medications during pregnancy	: Nil (general, folic acid and calcium supplements)

Peri-natal and Postnatal History:

Normal Delivery with Breech presentation

Thick Meconium; Meconium Stained Amniotic Fluid (MSAF)

Birth asphyxia due to Meconium aspiration

Delayed birth cry

Child's general current health status: Good

Milestones:

Visual Milestone	: Age appropriate
Auditory Milestone	: Age appropriate
Tactile Milestone	: Age appropriate
Motor Milestones	: 7 months

Functional Status:

Creeps independently with hand involvement, with less leg involvement (commando creeping pattern)

Comes up to sitting only with assistance

Sits propped up for 2-3 minutes

Has poor trunk control, unable to sit unsupported

Poor association between legs, trunk and pelvis, pelvis and legs

Mode of mobility – creeping

Fine motor Milestones : 13 months

Muscle Tone:

Mixed tone; Hypo tonicity in the Trunk and Hyper tonicity in Lower Extremity

Primitive reflexes:

Flexor withdrawal	- Persistent
Crossed Extension	- Integrated
Moro Reflex	- Integrated
Primitive standing reaction	- Persistent
Neck Righting Reflex	- Integrated
Rooting & Sucking Reflex	- Integrated
Startle Reflex	- Integrated
Tonic Labyrinthine Reflex	- Integrated
ATNR	- Integrated
Palmer Grasp	- Integrated
Plantar Grasp	- Persistent
Landau Reaction	- Persistent

Balance reactions:

Protective extension and Equilibrium reaction persistent

Spasticity (Modified Asworth scale)

Hamstrings	- 3
Hip flexors	- 2
Hip Adductors	- 3
TA	- 2

Deep Tendon Reflexes

Knee jerk	- 3+
Ankle jerk	- 3+

Functional Measure

Gross Motor Function Classification System (GMFCS) – Level IV

Gross Motor functional measure (GMFM-66) – Score - 33%

Diagnostic Tests:

MRI Brain : Normal Study
EEG : Mild Abnormality

Medical Management:

Clonazepam (Lonazep) 10mg
Baclofen (Lioresal)

Physiotherapy Management:

Neuro development therapy and active functional exercises – all exercises listed below are introduced as per child's progress.

Exercises:

Bobath ball activity, Active trunk flexion and extension
Single hand activity in propped sitting
Dynamic activity in Bobath Ball (sitting with pelvic and support in Lumbar area)
Dynamic bolster activity in sitting
Static and dynamic Quadripod
Crawling, passive and active assisted
Kneeling Static and Dynamic
Standing Static and Dynamic
Sit to stand, stooping
Side walking
Forward walking with and without support
Balance training
Isolated hip Flexor, Abductor and extensor strengthening exercises
Pelvic bridging
Ankle Dorsi-flexion: Active assisted and active
Ramp walking

Present Status:

He was getting continuous active, vigorous physiotherapy with strong home follow up program for 1 year and showed substantial improvement in overall motor milestones; his exercise protocol is still in progress.

Present Functional Ability:

Able to walk unsupported
Able to climb on the ramp unsupported
Climbs stairs with minimal support
Has good balance while walking
Completely weaned from medication
Present Mode of Mobility
Walking
Current Gross Motor Function Measure System (GMFCS) – Level II
Current Gross Motor Function Measure (GMFM) - 76.52%

Future therapeutic exercise focus:

Hurdle crossing
Running
Walking in a proper pattern, with heel strike
Kicking a ball Jumping from a height of 6 inches. ■

Characteristics and Early Indicators of Autism

Communication

- Uses behavior to express feelings
- Lack of development or delayed development of speech
- Echolalia (questions, statements, sounds) delayed or immediate
- Perseverates on one topic
- Atypical tone or rhythm of speech
- Lack of or infrequent initiation
- Expresses emotions inappropriately
- Displays a narrow range of emotion, may have a flat affect
- Lack of conventional nonverbal gestures (i.e., pointing, head shake, nod)
- Doesn't orient to another person speaking

Social interaction (relating to adults, interacting with peers, and imitating the actions of others)

- Lacks understanding of social cues
- Inability to engage in simple social games
- Difficulty in forming interpersonal relationships
- Avoids or uses eye contact in odd ways
- "looks through" people
- Prefers to be alone or plays parallel to other children
- Lack of pretend or symbolic play
- Deficit in development of joint attention
- Inability to imitate (body movement, vocal, motor)

Behavior (play and use of objects, insistence on sameness and routines, stereotyped body movements, unusual sensory interests)

- Uses toys in odd ways such as lining them up, spinning etc.
- Engages in perseverative, unconstructive play
- Engages in repetitive body movements such as rocking, pacing, hand flapping, toe walking, spinning,
- Develops attachment to inanimate objects
- Resists change in routine, people or environments (insists on sameness)

Other Characteristics and Early Indicators of Autism

- Over and under sensitivity to sound, smell, touch, visual stimulus and pain
- Physical over activity or extreme passivity
- May appear to be deaf
- May not be cuddly or seek physical comfort from parents/caregiver
- Unusual display of emotion, for example giggling or weeping for no apparent reason
- Uneven patterns of cognitive and motor development
- Problems of sleeping
- Short attention span
- Impulsivity
- Lack of fear
- Abnormal eating habits
- Self-injurious behavior
- Aggressive behavior

Yoga for Child development



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Mr. Ajay is over-thrilled and called his wife. "Come on Priya, watch this". Their 4 year old son is comfortably operating the new laptop brought from abroad. Seeing his skilful performance Priya commented. "No wonder. Computer and mobile are his best friends. He is very intelligent". She kept on praising her son. Each and every moment is an exhilarating moment for today's parents when they see their children are the youngest but the toppers in their entire endeavor. They want their children to draw the highest salary at their young age. What is the other side of it? Once he steps into the real life, is he able to make good friends? Will he be able to lead a good family life? Will he be able to adjust with his superiors and colleagues? Will he be able to maintain a good health? Will he be able to control his emotions? Will he be satisfied and happy? In this context it is relevant to consider the concept of personality development through Yoga and Ayurveda.

The human evolution is a transformation of a constricted ignorant *(taamasa)* state of primitive being to an egoistic self centered *(raajasa)* state and finally emerging into the all pervasive pure state of mind *(suddha satva)*. The concept of human development in Ayurveda is centered on the theory of mental control *(satvavajaya)*. Ayurveda considers that the ultimate goal of human existence is to attain ultimate liberation *(moksha)*. Ayurveda adopts yoga as the tool to attain the state of ultimate liberation as it states that yoga brings about ultimate liberation *['yogo moksha pravartakah' – C.Saa.1]*. Ultimate liberation is the highest state of personality that a human being can attain. This can be achieved only through the removal or subsidence of mental pollutants *rajas* and *tamas*. The process of their subsidence by developing *satva* is



Yoga

called *satvavajaya*. Hence *satvavajaya* is the Ayurvedic technology to develop the personality from a *tamas* predominant ignorant state to a *satva* predominant state of absolute knowledge.

We should consider the different phases of individual growth and the application of *satvavajaya*. The primary phase of any individual is *tamas* dominant. The features of *tamas* are fear, ignorance, tendency to take long rest and sleep, laziness (not indulging in purposeful activities or playful attitude) and despondency (*vishaada* – easily hurt emotionally). The child should be able to develop all this instinctive features and exhibit them as components in their emotional personality. Fear could be expressed in the form of demand for security and care; ignorance as mistakes; relaxation in the form of sleep and laziness as playful mood for self pleasure. In short, a child should be allowed to be a natural child and not to inhibit the spontaneous development. In the secondary phase of development dynamic *(rajasa)* qualities become dominant through self observation parental teachings and social learning. Dynamic features manifest as talkativeness (*bahubhashitva* – trying to show off one's knowledge to others), vanity (*maana* = pride), anger (due to intolerance), ego (*dambha*) and competitive spirit (*maatsarya*). Here child recognizes some of his strength and try to compare it with that of others. Slowly child develops ego and competitive spirits. In the tertiary phase as child acquires adequate knowledge to view the world from a multidimensional perspective, slowly the ego fades and he starts to recognize his role and place in this universe. Gradually he transforms and evolves as a *satva* predominant personality.

Is your child about to start practicing yoga at school? Does he or she seem interested in taking a yoga class? If so, you may have questions about the possible benefits of yoga for kids and what a typical program entails. Before your child does his or her first pose, get the facts on yoga for kids.



Highly enthusiastic parents often try to deny this natural phase of development. They want their child to behave as an intelligent adult. In addition to that as an impact of transformation of joint family system to nuclear family system, children are denied the opportunity to live with their peer group. Parents are very keen to teach them the toughest knowledge at the earliest occasion. They often deny the child to express the natural emotions in the form of demand, compulsion, play, mischievous behavior, crying and exposure to the environment. Such conditions prevail due to

- lack of parenting
- rough behaviour of parents
- ambitious parents
- conflicts between parents
- isolation
- social pressure
- unfavourable environment

The deprivation of such expression will adversely affect the emotional intelligence of the child. Hence child should get all the privileges to express naturally so that he develops and transforms faster.

As the child matures enough to move to the dynamic phase he should be provided with maximum information that he wants. This will help him complete this phase earlier and transforms into enlightened *(saatvic)* phase. Finally the *satva* will win over the *tamas* and *rajas* i.e., *satvavajaya*.

There are also certain biological causes that affect the development of a child.

a) Genetic causes

- Chromosomal abnormality
- Either of the parents mentally challenged



b) Non Genetic causes

Prenatal:

Fever, malnutrition, hypertension, diabetes, asthma, rheumatoid arthritis, radiation and toxic drugs

Natal:

- Premature birth
- Long gestation
- Complication in delivery

Post Natal:

- High fever
- Severe illness
- Malnutrition
- Head injury

Multiple dimensions of personality

Yoga considers each and every human being as a multidimensional entity. As our consciousness transcend from gross to the subtle we get the awareness of mental, intellectual, emotional and spiritual dimensions of our personality. Patajnjali proposed the eight step yoga practice viz., *yama*, *niyama*, *aasana*, *praa<u>n</u>aayama*, *pratyaahaara*, *dhaara<u>n</u>a*, *dhyaana* and *samaadhi* to get the mastery over all the dimensions of personality and elevate into the state of *samaadhi*, that is the prime objective of Yoga. *Samaadhi* consists of various stages in the human transformation towards ultimate liberation. The selection of yoga steps is made according to the level of the personality. *Yama* and *Niyama* are to be practiced by all as they are the moral foundation for all yoga practices. Ignorant *(taamasic)* personality requires practices of postures *(aasana)* and breathing exercises *(praa<u>n</u>aayaama)*. Dynamic *(raajasic)* personality requires withdrawal *(pratyaahara)* and meditation *(dhyaana)* whereas enlightened *(saatvika)* personality needs to practice meditation and equalization of intellect *(samaadhi)*. These descriptions are not on the basis of any strict compartmentalization, because different yoga practices are mutually complimentary in nature.

Children and Yoga practice

Predominantly children are in the ignorant level of personality. Hence preferable practices are yogic postures and breathing exercises *(praa<u>n</u>aayaama)*. Following aspects are to be taken care while introducing yoga practices to children.

1. Love, affection and care should be shown always to ward off the fear form new practices and strange environment. Hence a play style method should be opted throughout the practice.

2. There should be liberty to commit mistakes while performing the postures. These mistakes should be corrected by repeated demonstrations of correct postures. Never blame or scold them for their mistakes. The lessons should be introduced with some stories or games.

3. Adequate relaxation is needed to recoup the lost energy during the practice session. Avoid all strenuous and prolonged practices.

4. Provide ample interval for their entertainments.

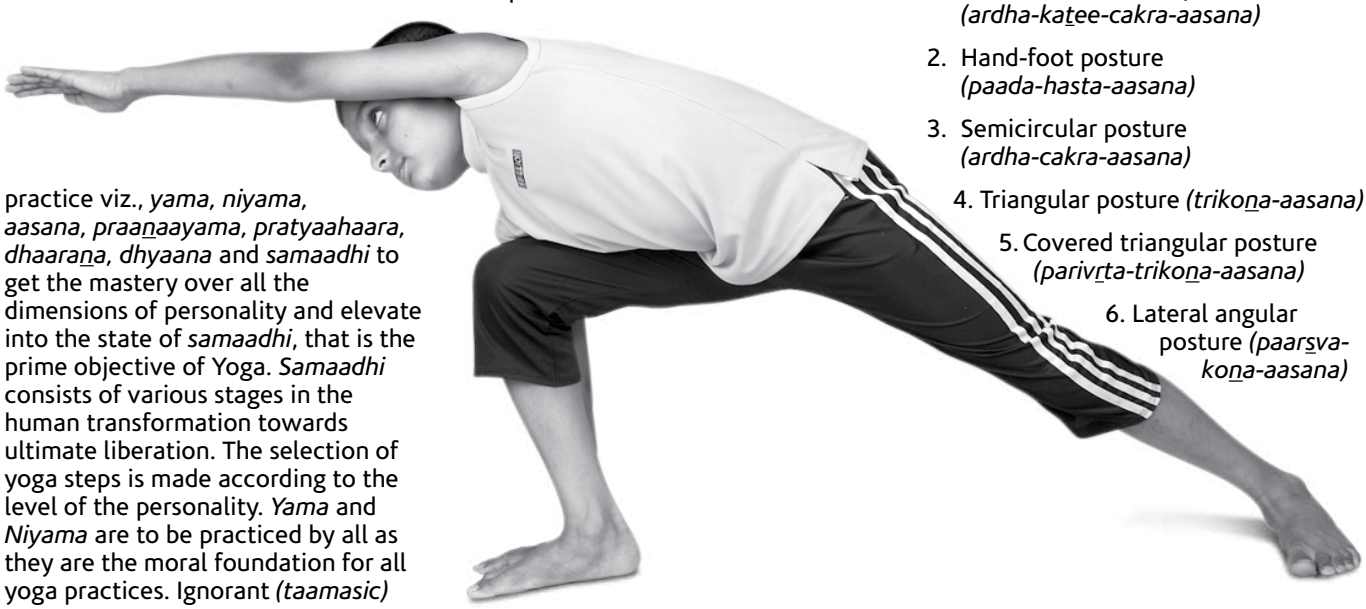
5. Do not suppress their natural emotions like crying, laughing, quarrelling etc. The instructor should show the patience and divert their attention tactfully.

6. Postures should start as dynamic movements and can be slowly led to static postures.

Yogic postures:

Standing postures

1. Lumbar semicircular posture *(ardha-ka<u>t</u>ee-cakra-aasana)*
2. Hand-foot posture *(paada-hasta-aasana)*
3. Semicircular posture *(ardha-cakra-aasana)*
4. Triangular posture *(triko<u>n</u>a-aasana)*
5. Covered triangular posture *(pariv<u>r</u>ta-triko<u>n</u>a-aasana)*
6. Lateral angular posture *(paar<u>s</u>va-ko<u>n</u>a-aasana)*





Yoga

7. Sun salute *(soorya-namaskaara)*

Sitting postures

1. Diamond posture *(vajra-aasana)*
2. Moon posture *(sa̲sa̲anka-aasana)*
3. Camel posture *(usht̲ra-aasana)*
4. Rear up posture *(pas̲cimottaana-aasana)*
5. Dornant diamond posture *(supta-vajra-aasana)*
6. Lotus posture *(padma-aasana)*
7. Yoga posture *(yoga-aasana)*
8. Fish posture *(matsya-aasana)*
9. Cow-snout posture *(gomukha-aasana)*
10. Semi-fish-king posture *(ardha-matsyendra-aasana)*

Supine postures

1. Gas liberating posture *(pavana-mukta-aasana)*
2. Dam posture *(setu-bandha-aasana)*
3. Plough posture *(hala-aasana)*
4. Cyclic posture *(cakra-aasana)*
5. Cadaver posture *(s̲ava-aasana)*

Prone postures

1. Snake posture *(bhujanga-aasana)*
2. Butterfly posture *(s̲alabha-aasana)*
3. Bow posture *(dhanur-aasana)*

Purification procedures *(s̲uddhi-kriyaa)*

Cephalic cleansing *(kapaala-bhaati)*

Breathing exercises *(praan̲aayaama)*

1. Passage clearance breath *(naad̲ee-s̲uddhi-praan̲aayaama)*
2. Beetle breath *(bhraamaree)*

Fivefold development of personality

Yoga is a systematic way to transform a person into a better individual. According to the great yoga master Sri. Aurobindo, yoga pursues an all round personality development of physical, mental, intellectual, emotional and spiritual level.

i) Physical level personality

Usually physical personality refers to the external appearance of an individual. The word personality is frequently used to denote the attractiveness or beauty of a person. Yoga considers that a person with proper physical personality should have proportional, relaxed/hard, flexible, disease free body.

a) Proportional

Every body organ and musculature should have an optimal strength. Yogic postures are designed in such a way that with the practice of a variety of them, almost all internal and external body organs receive proper and uniform exercise.

b) Relaxed

Since mind and body function in a complementary manner, during the heavy exercises the tension developed in the muscle is naturally transferred to the mind which may lead to psychosomatic diseases. Also the body needs to spend more energy to maintain the stretch of the muscles. Yoga gives more importance to relaxation rather than muscular contraction. Yoga practices bring down the basic metabolic rate and psycho-physiologic tensions. This also helps the body to conserve the energy to be utilized when the situation demands.

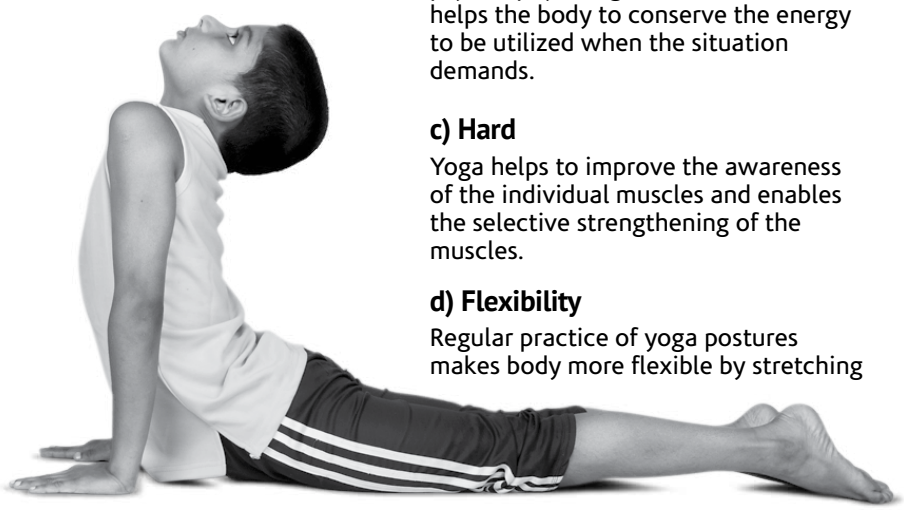


c) Hard

Yoga helps to improve the awareness of the individual muscles and enables the selective strengthening of the muscles.

d) Flexibility

Regular practice of yoga postures makes body more flexible by stretching





Models: Master Sivanand K. S. and Baby Jayalakshmi K. S. | Photo: Anilkumar R.

Research on the benefits of yoga for kids is limited. Anecdotal reports suggest that yoga can calm children, reduce obesity, enhance concentration and help children manage certain health conditions, such as headaches and IBS. Yoga may also benefit children who have various mental and physical disabilities and help children who have eating disorders lessen their preoccupation with food.

the muscles and relieving the spasms.

e) Disease free

Stress and strain, lack of exercise, metabolic disorders, and pollution are identified as the major causative factors for diseases. Yoga corrects all the factors except pollution.

ii) Emotional level personality

Emotions are primitive animal nature in man. Emotions are controlling our behavior. Hence culturing of emotions and development of emotional faculties are considered as an important aspect in personality development. Regular practice of *praa<u>n</u>aayaama* slows down and controls the emotions.

iii) Intellectual level personality

Education mainly focuses in developing the intellectual faculty. Concentration, logical thinking and memory are key factors in intellectual growth. Practice of concentration *(dhaara<u>n</u>a)* is very useful to improve the concentration and memory.

iv) Mental level personality

Here mental level personality means creativity and will power. Creative faculties of mind are hidden in deeper states of consciousness. Practice of meditation *(dhyaana)* can accelerate the development of creativity and willpower.

v) Spiritual level personality

Every serious search for the origin of real happiness ends up in the knowledge of individual self and the universal self. Until this ultimate knowledge of human existence is revealed, one cannot reach the highest peak of his personality. Hence it is quite necessary to practice equalization of intellect *(samaadhi)* in depth inward look of the inner self. Research carried out in many parts of the world reports beneficial effects of yoga in child development. A systematic review of the literature on the effect of yoga on quality of life and physical outcome measures in the pediatric population shows physiological benefits of yoga through the rehabilitation process[1]. An overview of yoga and yoga therapy of available studies with children and adolescents suggests benefits of using yoga as a therapeutic intervention and shows very few adverse effects. These results must be interpreted as preliminary findings because many of the studies have methodological limitations that prevent firm conclusions from being drawn. Yoga appears promising as a complementary therapy for children and adolescents[2].

Yoga with its eight limbs helps to develop all round personality of human beings. Central Board of Secondary Education has directed all the schools to introduce yoga practices as a co-curricular activity. This indicates that yoga will be playing an important role in the development of new generation.

Reference:

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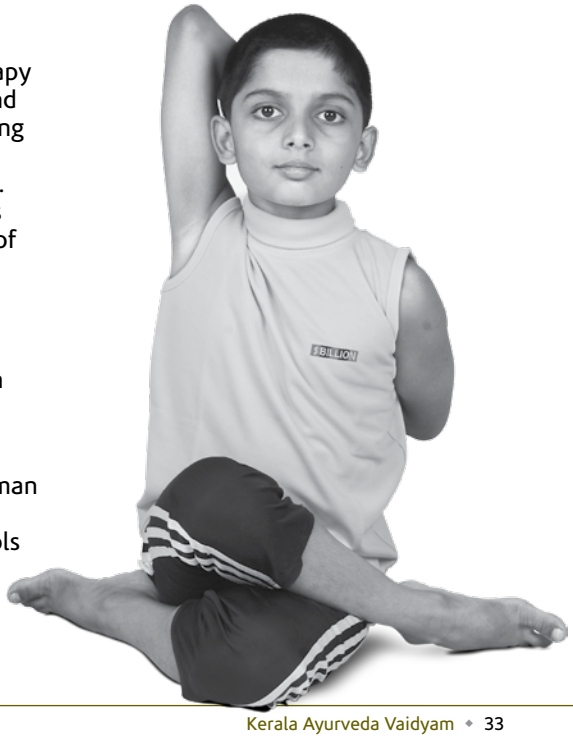
Physical Therapy Program, The Richard Stockton College of New Jersey, Pomona, New Jersey 08240,

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Yoga as a complementary therapy for children and adolescents: a guide for clinicians.

Kaley-Isley LC, Peterson J, Fischer C, Peterson E.

Dr. Kaley-Isley is from the University of Colorado School of Medicine, Division of Psychiatry, Denver, Colorado. ■



case of the tri-month

Name: Mrs. Patel
Age :58 years
Sex: Female

OP No:16349
IP No: 7389

DOA: 04/12/2010
DOD: 27/12/2010.

Presenting Complaints:

Slit like red color lesions on both palms, thick, dry, scaly skin with cracking on both soles with bleeding , absent nails with thick skin over it and circular patchy loss of hair on scalp. Appearance of hot flushes.

Duration : 9y. 6m.

History of present complaints:

From the patient's words:

" I am suffering from an unknown skin condition on the sole of my both feet and on the palm of my both hands . The feet are more severe. It started about six months ago. It starts out as small red slightly inflamed round patches. Then turns in to thick, scaly, dry skin. Then it starts peeling and form slit like lesions with mild bleeding. In some areas skin is too thick, so it starts to form cracks. It does not burn or discharge any liquid. It's also around my toes and in between the toes. Doctors here could not reach any diagnosis. Biopsy was also inconclusive. At last this condition was diagnosed as Keratoderma Climactericum or Haxthausen's disease."

Hypertensive, hypercholestremic and non diabetic patient.

History of past illness:

Skin and nail related problems since childhood.

Lost all the nails by the age of 16 years diagnosed as Twenty – nail dystrophy.

Lichen planus of scalp.

Gynec history:

Menopause - Age 48 yrs

Eight Point examination:

- Pulse: Vaatika
- Urine: Normal
- Stools: Neither hard nor loose.
- Tongue: No coating
- Voice: Normal
- Touch: Warm
- Eyes: Normal
- Build: Lean

Ten Point examination:

Pollutables: Food essence (*rasa*), blood.

Region: Geographical – Cold and snowy area. (America)

Body – Skin of palm and sole, scalp, nails.

Strength: Disease – moderate.

Patient- moderate.

Time: Season- Snowy season.

Disease- Chronic.

Bio–fire: Normal.

Constitution: Vaata-pitta.

Age: Middle age.

Mental strength: Strong.

Habit: fond of spicy, acrid foods.

Diet: Mixed.

Hunger and appetite: Good

Digestive Power: Good.

Examination of Channels:

The symptoms indicate that the channels of food essence, blood, flesh, bone and mind are involved.

Humor: Trihumoral with more emphasis to the vata and pitta .

Raw filth (aama): Absent.

General Examination:

Conscious. Well oriented, Co-operative.

Vital Signs:

BP: 110/70 mm of Hg

Pulse: 72/min., rhythmic, voluminous, steady.

Respiratory Rate: 16/min.

Temperature: 98.8 F

Systemic Examination:

Skin or Integumentary System:

Inspection and palpation:

Palms and soles:

Fissures present, red in color

Rough and thick on touch

Dry in nature

Local visible sweating present

The elasticity of the skin is lost.

Nail:

Loss of nails.

Nail area covered with thick skin.

The hair on scalp:

Hair loss in circles, localized, skin on that area of scalp has lost its elasticity.

Central Nervous System: NAD

Cardio Vascular System: NAD

Locomotor System: NAD

Respiratory System:NAD

Gastrointestinal Tract: NAD

Urogenital: NAD

Gynecological: NAD

Path of Disease: External.

Seat of Disease: Body and mind.

Provisional Diagnosis: Skin Disease (*Tvak Vikaara*).

Differential Diagnosis

The features are those of a spongiotic dermatitis and causes of eczematous dermatitis such as allergic contact dermatitis would be in the differential diagnosis. Diagnostic features of psoriasis are not identified. PAS stain is negative for fungus. The condition is diagnosed as keratoderma climactericum or Haxthausen's disease in an American Hospital for dermatology.

[Haxthausen's disease was first described in 1934. The condition is associated with arthritis, obesity, and hypertension in post menopausal women. It is an acquired palmo-plantar keratoderma (PPK) commonly characterized by hyperkeratosis and climactericum. The hyperkeratosis usually begins on the plantar surfaces of the feet and progress to the palms of the hands. If the condition is left

untreated, the keratosis can progress to a severe dermatitis characterized by lichenification and inflammatory eczema as a result of severe pruritus and scratching. Painful fissures may also develop. Condition is difficult to diagnose. However the syndrome has been associated with a host of other conditions linked to psycho-emotional conditions, neuro-vegetative and metabolic disorders. The condition as presented in more recent reports in the literature characterizes this disease as a syndrome, associated with a variation of conditions seen in post menopausal women.]

Diagnosis: *Aartava-viraamaja Vipaadikaa.*

Investigations

05/12/2010:

Heamatology:

Hb: 13.2 gm/dl; TC: 9200/cumm;

DC:Neutrophils: 70%; Lymphocytes: 28%; Eosinophils: 02%;

ESR: 05mm/1hr

Biochemistry:

FBS:78mg/dl; Cholestrol: 171mg/dl; HDL: 59mg/dl; LDL: 93 mg/dl;

VLDL: 19mg/dl; TGL:96mg/dl; S.Calcium: 10mg/dl;

12/12/2010:

Biochemistry:

Cholestrol: 165mg/dl; HDL: 80mg/dl; LDL: 74 mg/dl; VLDL: 11mg/dl;

TGL:56mg/dl.

Medicines:

Cleansing Therapy *(sodhana):*

1. Intense internal unction *(snehapaana)*:

Aaragvadha Mahaa-tiktaka Ghṛta. (Ghee made of *aaragvadhaadi gaṇa* as decoction and the medicines of *mahaatiktaka ghṛta* as paste). The internal unction started with 50 ml of the ghee, increased dose daily with 25 ml and reached up to 155 ml by 7 days.

After unction the general dryness of the body especially of the skin lesions reduced. Body became oily and the lesions were not progressing.

2. External unction and sudation: application of medicated oil on body followed by hot decoction bath): *Nalpaamaraadi taila* was applied on the body. Bath with warm *Nalpamaraadi* decoction.

3. Purgation *(virecana)*: *Tṛvṛt lehya* -3 teaspoon + *Draakshaadi* decoction – ½ glass.

Result of Treatment - Lesions started to heal. The redness reduced. New lesions were not found.

Mitigating Therapy (*Samana* Therapy):

1. *Mahaa-manjjishṭhaadi* decoction: 10 ml + 45 ml luke-warm water at 6 am and 6 pm.

2. *Madhusnuhee rasaayana* : 1 tsp. at night before bed.

3. *Aaragvadha-mahaatiktaka ghṛta* : ½ teaspoon with decoction at 6 pm.

4. *Maanibhadra guḷa*: 1 teaspoon at 6 am. [For a mild daily cleansing of body.]

Therapy:

1. Full body Oil massage *(abhyanaga)* for 10 days with *Dineśa-vallee kera* – It helps to reduce the dryness and roughness of body. It is vata Pitta mitigating in property.

2. Oil massage on sole and palm *(paada-tala* and *hastatala abhyanga)* for 3 days- The localized application of the *Jeevantyaadi yamaka* helps in abrading the dead cells present there. Also it clears the channels through which the skin get the nutrition and thus promotes the growth of new skin.

Para-surgical measure *(śastra-Karma)*:

3. Bruising *(pracchana)* for 3 days - on the areas of alopecia on scalp, using a lancet. It helps in improving the circulation at that region and removes the dead skin. It thus promotes the growth of new hair follicles.

Chemical cauterization with alkali *(Kshaara-karma)*:

Following the bruising, the ash prepared from goat's horn *(mesha-vishaaṇa- kshaara)* mixed with *Durdhura-patraadi kera* was applied. The alkali also has corrosive nature. Thus it helps in removal of damaged skin.

4. Buttermilk irrigation *(Takra-Dhaara)* for 4 days :

This involves pouring of medicated buttermilk (medicated with *aaragvadhaadi gaṇa*) on the scalp in a steady and rhythmic manner. Every skin disease has some relation with body temperature, mental factors like stress, anger etc. Butter milk has medicinally cold potency and is good to regulate general body heat and thus mental stress. It helps not only to heal the lesions but also to prevent the progress and recurrence of the disease.

Diet: She was given strict vegetarian diet with plenty of vegetables and fruits. All spicy, acrid foods, curd, fish and other non vegetarian foods were avoided.

Progress of the Patient:

During the initial stage of treatment itself, the appearance of new lesions and progression of the present lesions completely ceased. Soon the lesions started to dry up and heal completely. The roughness and the thick texture of the skin were reduced. The cracks and fissures were healed.

Sprouting of the hair follicles started in certain areas of the scalp.

Discharge medicines:

1. *Mahaa-manjjishṭhaadi* decoction – 10 ml + 45 ml luke-warm water at 6 am and 6 pm
2. *Madhusnuhee rasaayana* – 1 teaspoon at bed time.
3. *Aaragvadha-mahaa-tiktaka Ghṛta* – 1 tsp with decoction at 6 pm.
4. *Jeevantyaadi Yamaka* – for external application on palms and soles.
5. *Piṇḍa-taila* - for external application on body.
6. *Mesha-vishaaṇa Kshaara* + *Dhurdhura-patraadi Kera* – for application on the patches of hair loss.
7. Kesini Oil – for application on head.

Advised follow up after 4 months of strict internal medication and diet. ■

Autism and Ayurveda



Dr. Diny Thomas
KAL Hospital, Aluva.

Childhood is considered as an age group of innocence and illness. Often the sincere members of childhood become the victims of the ignorance and immorality of the adults. As it is quoted by P B Shelly, "Our genes make us immortal"–(The Secret of Life). Whether it is in Hiroshima & Nagasaki or the endosulphan inflicted Kasargod, the future generations pay your count as long as the science of genetics and the gene mutation persists.



"Every child comes with the message that God is not yet discouraged of man." – Rabindranath Tagore. A child is considered as a representation of the hope of the creator in the mankind. To make this dream come true Ayurveda explains the care of child, childhood disorders, attention given to its mother, her health conditions, purification of the breast-milk consumed by him etc. under a single branch of the science, Ayurvedic pediatrics, known in Sanskrit as *kaumaara-bhṛtya*. From the onset of its journey through the vaginal route onwards, a child is being challenged by a variety of hurdles. Vaagbhaṭa uses the term 'labor strained' *(prasooti-kleṣita)* to describe a new born. The forthcoming life is just the continuation of these blockades. In Ayurveda the disorders affecting a person in his lifetime are divided in to seven, based on its cause. They are: -

1. Hereditary diseases *(aadi-bala-pravṛtta)* – due to defective gametes.

2. Congenital diseases *(janma-bala-pravṛtta)* – due to malnutrition and erroneous regimens during pregnancy, affecting the fetus.

3. Humoral diseases *(dosha-bala-pravṛtta)* – due to vitiation of humors by our own unprotected lifestyle.

4. Traumatic diseases *(saṃghaata-bala-pravṛtta)* – due to external trauma.

5. Seasonal diseases *(kaala-bala-pravṛtta)* – related with climate and seasons.

6. Providential diseases *(daiva-bala-pravṛtta)* – of unknown etiology.

7. Natural diseases *(svabhaava-bala-pravṛtta)* – due to natural physiological processes.

The diseases that affect children are also categorized accordingly. Hereditary diseases are further classified in to two – 1) of maternal origin *(maatṛja)* and 2) of paternal origin *(pitṛja)*. Congenital diseases are classified into two – 1) related with malnutrition of mother *(anna-rasaja)* and 2) due to neglecting the gestational wishes of pregnant woman *(douhṛda-amaananaja)*.

Autism:

Autism is a 'syndrome of pervasive developmental disorder of personality, characterized by failure of the young child to develop normal social interaction or communicative language and by a bizarre obsession, preoccupation, perseveration, resistance to change, and stereotypic actions.' It is a lifelong developmental disorder with a prognosis of almost 5 to 25 %. It is expressed in a child from almost 2 or 3 years. To be precise autism is a disorder of brain development. The causes of autism can be described by pointing to the following factors mainly:

- Genetic determinants
- Gestational risk factors
- Perinatal risk factors

Genetic determinants:

The chromosomal abnormalities are inherited by an embryo either from the sperm or ovum. Ayurveda emphasizes on the need of a healthy sperm and ovum, from the beginning of formation of embryo. There are classical descriptions to treat the eight disorders of sperm and ovum. This can ensure the prevention of the genetic basis of childhood disorders like autism. Ayurveda also explains the genitourinary tract infections and gynecological complaints which can lead to infertility or to severe diseases. The impact of the gynecological disease is so deep rooted that it can cause genetic disorders like *shanḍa* which is similar to Turner's syndrome clinically. Depending on the change in sperm and ovum i. e, mutations, embryo may inherit many syndromes. Similarly a genetic background of autism could never be ignored. In short it is a hereditary disorder.



Parental age: The appropriate reproductive age is above 16 years for females and above 20 years in males. Age below this may lead to the birth of a child with disease *(rogi)*, less longevity *(alpaayu)* and inauspicious nature *(adhanya)*.

Gestational Risk Factors:

Pathologically autism is a disorder of brain development. While we move through the organogenesis in Ayurveda, the development of head containing brain *(s̱iras)* occurs in the third month, mind *(manas)* develops in the fifth month and the intellect *(buddhi)* develops in the sixth month of gestation. The disorders affecting the mother, improper practice of gynecological regimens or the negligence of the prescribed dietary stipulations to be followed in pregnancy, denial of gestational wishes etc. may lead to developmental anomalies in the fetus. It may later be expressed as autistic syndrome. This brings autism to the arena of congenital diseases.

Perinatal Risk Factors:

Perinatal period is literally 3 months before and one month after the birth of a child. Ayurveda has described care of the new born *(baalopacaraṇeeya)*. The procedures starting from the first breath – which includes perfecting respiration and shift from fetal circulation, bathing, puncturing the ear lobe etc. have clear scientific bases which can protect and immunize the child. The denial of these may lead to a variety of physical, mental and social developmental delays. The lack of health care may lead to humoral diseases; those in case of a child are due to the lack of proper nursing.

How to tackle autism from the ayurvedic perspective:

Preventive Aspect

Autism is a disease which is easy to prevent than treat and hence it is always better to go for a scientific preventive method. The prevention includes protection and treatment of the parents in their various physiological and pathological health conditions especially related with their reproductive health. The steps include:

- Improving the life styles and dietary habits of the couple from the beginning of reproductive life. This helps in prevention of gynecological and uro-genital diseases.

It is said in science that the advisable food for a male is milk, ghee etc. which are processed with sweet taste. For females it is better to include sesame oil, black gram and other foods that can increase pitta. They have direct control over the hormones in both sexes. Again it implies that their consumption by the opposite sex is harmful, e.g., if the female is consuming male diet in excess, there may be an increase of androgen level in the blood.

Wrong life styles and untoward body postures may cause gynecological

Major Brain Structures Implicated in Autism

1. Cerebral cortex – responsible for the higher mental functions, general movement and behavioral reactions.
2. Amygdale – responsible for emotional responses including aggressive behavior.
3. Hippocampus – makes it possible to remember new information and recent events
4. Basal Ganglia – helps to regulate automatic movement.
5. Brain stem – serves as a relay station, passing messages between various parts of the body and the cerebral cortex. Primitive functions essential to survival (breathing and heart rate control) are located here
6. Corpus callosum – allows for communication between the hemispheres.
7. Cerebellum – regulates balance, co-ordination, and the muscles used for speaking.

complaints. For example, lying with the body in crooked posture *(vishamastha-anga-sayana)* is one among the causes for such conditions.

- Attempt reproduction only in proper child bearing age.
- Obey scientific gestational regimen. Consumption of advised food in each gestational month, and the refusal of contra-indicated regimens help in delivery of a healthy baby.
- Provide necessary pediatric care to the baby right from its birth.
- Avoid situations that can cause trauma in the neonate i.e. fall from cradle etc.

Treatments:

Since brain is the centre of all mental and intellectual control and autism is an error related to brain development we need an aim of treatment related with this.

Aims are to make the child:

- mentally strong
- intellectually creative
- socially interactive

The steps include:

- Internal intake of medicines which are conducive to the development of brain and its functions *(medhya-aushadha)*.This include drugs like thyme leaved gratiola *(Bacopa monnieri = brahmi)*, *Convolvulus pluricaulis (sankha-pushpi)*, Indian pennywort *(Centella asiatica = mandooka-parni)*, licorice *(yashti-madhu)*, withania root *(asva-gandha)* etc. Different medicinal preparations with them will be helpful.
- Therapies like oil-pad *(siro-picu)*, retention of medicinal paste on scalp *(talapoticcil)* etc.
- The intellectual and social interaction of a child is possible only through activities like games, plays, toys, stories etc. Nowadays the life style has made childhood solitary. In our classical texts like Caraka-samhitaa we have descriptions about toys *(kreedaanakaani)* and their qualities. These toys must have the power to develop their creativity and make them energetic.

Autism as such is not a childhood disorder but a lifelong disease which require more treatment in the childhood. Training a child is the most effective way of its management. For this we have to improve the parental relation with the child. The swift lifestyle of the modern era needs more classical nurturing to keep generations strong. Here goes the 1924, Declaration of Children Rights: "The child who is hungry must be fed; the child who is sick must be nursed; the child who is backward must be helped; the delinquent child must be reclaimed; and the orphan and the waif must be sheltered and scoured." And Ayurveda is the only science that has its own way and answer to fulfill the above cries. ■



So Spoke the Dignitaries on Autism

Dr. APJ Abdul Kalam (Former President of India) – The incidence of autism varies from country to country depending upon the life style, the diagnostic acumen and facilities available. Over the last two decades, incidence of autism amongst pre-school children is reported to have increased from two per ten thousand to sixty per ten thousand.... There are no established biomarkers for autism. There are about 30 autism related genes that have been discovered so far.

....According to current researchers, autism is regarded as a disorder of neuronal connectivity. Deficits in social cognition and communication may be related to dysfunction in amygdale, hippocampus and related structures.

Mr. K. Radhakrishnan (Speaker, Kerala Legislative Assembly) – The combination of modern medicine, Ayurveda and other bharateeya Saastras is the need of the hour.

Mr. M.A. Baby (Minister of Education & Culture, Kerala) – Autism is a recently identified problem affecting children. The related disorders are heartrending. To now that Ayurveda has been able to give relief to humans affected by this problem is indeed a momentous achievement.

Prof. B.M. Hegde (Former VC, MAHE) – Autism has no treatment in modern medicine. I think Ayurvedic detoxification would help.

Dr. M.R. Vasudevan Nambootiri (Former DAME, Kerala) – I am sure that Ayurveda can play a significant role in this scenario. I think the integration of knowledge in different systems of medicine and its application work out miracles in autism management.

Dr. K. Mohandas (VC, KUHS) – Among the maladies that affect children, there is nothing more distressing than developmental disorders. They are long lasting, often without effective treatment and are almost always a drain on the emotional and financial resources of the parents. The Autism Spectrum Disorders (ASD) unfortunately qualifies on all these counts.

Padmasree Dr. V. R. Gowreesankar (CEO & Administrator, SringeriMath, Karnataka) – Autism has become a serious issue in the society. The number of cases of children with ASD is also increasing globally. The situation is similar in India also. This remains as a dilemma in front of the entire medical science.

Physico-Chemical Analysis of *elaadi gutikaa*

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Introduction:

Elaadi-gutikaa is a commonly used formulation for various diseases like bleeding diseases (*raktapitta*), cough (*kaasa*), phthisis (*raja-yakshmaa*) and the formulation is an aphrodisiac (*vrshya*) too. It consists of cardamom, cinnamon leaves, cinnamon bark, long pepper, sugar, licorice, dates, raisins and honey. In this article physico-chemical study of three batches of Elaadi-gutikaa is presented. The purpose of this study is to maintain the minimum standards of *Elaadi gutikaa*.

Materials & Methods: Three batches of *Elaadi-gutikaa*, were prepared and were named as viz. *Elaadi-gutikaa* I,II and III. They were analyzed on the following parameters :-

1. Weight of tablet.
2. Diameter of tablet.
3. Hardness of tablet.
4. Determination of moisture content.
5. Total ash.
6. Acid-insoluble ash.
7. Water-soluble ash.
8. Alcohol-soluble extractive.
9. Water-soluble extractive.
10. Volatile oil.
11. Disintegration test (Time).
12. Thin layer chromatography (TLC)

(1) Weight of Tablet: The *gutikaa* was weighed by electronic weighing machine by adopting standard procedure and the results are tabulated. (T.1)

(2) Diameter of pill: measured by screw gauge and the results are tabulated (T.1)

Table No.1- Physical parameters

S.No.	Drug	Sample	Weight	Diameter	Hardness	Moisture content
1	*Elaadi-gutikaa*	I	1 gm	0.851 cm.	2.60 Kg.	15.944% w/w
2	*Elaadi-gutikaa*	II	1 gm	0.853 cm.	2.60 Kg.	17.212 %w/w
3	*Elaadi-gutikaa*	III	1 gm	0.855 cm.	2.50 Kg.	15.081% w/w

(3) Hardness of tablet: tested by using hardness tester by adopting standard procedure and results are tabulated (T.1)

(4) Determination of moisture content: by using standard procedure. The results are tabulated (T.1).

(5) Total ash content: was determined by using standard procedure and tabulated (T.2).

(6) Acid-insoluble ash: was determined by using standard procedure and values tabulated (T.2).

(7) Water-soluble ash: determined by using standard procedure and results tabulated (T.2).

Table 2 - Ash values

S.No.	Drug	Sample	Total Ash	acid insoluble ash	water soluble Ash
1	*Elaadi-gutikaa*	I	4.132% w/w	0.954% w/w	1.925% w/w
2	*Elaadi-gutikaa*	II	4.057% w/w	0.703% w/w	2.115% w/w
3	*Elaadi-gutikaa*	III	4.082% w/w	0.849% w/w	1.709% w/w

(8) Alcohol-soluble extractive: determined by using standard procedure and the results tabulated in Table No. 3

Table No. 3 Extractives and volatile oil

S.No.	Drug	Sample	Alcohol soluble extractive	Water soluble extractive	Volatile oil
1	*Elaadi-gutikaa*	I	15.703% w/w	61.352% w/w	0.796% w/w
2	*Elaadi-gutikaa*	II	15.662% w/w	62.115% w/w	0.785% w/w
3	*Elaadi-gutikaa*	III	16.993% w/w	59.865% w/w	0.790% w/w

(9) Water-soluble extractive: determined by using standard procedure and the results are shown in Table No. 3

(10) Volatile oil: determined by using standard procedure and the results for three samples are shown in Table No. 3

(11) Disintegration time: was determined by using standard procedure and the results are shown in Table No.4

Table No. 4 – Disintegration time

S.No.	Drug	Sample	Disintegration time
1	*Elaadi-gutikaa*	I	55 minutes
2	*Elaadi-gutikaa*	II	50 minutes
3	*Elaadi-gutikaa*	III	60 minutes

(12) Thin Layer Chromatography (TLC): was performed by using

1) ethanol : chloroform : ammonia (8 : 5 : 2);

2) methanol : chloroform : Water : Ammonia (70 : 30 : 5 : 1) &

3) chloroform : methanol (9 : 1)

The results are tabulated in Table No. 5(A) – 5 (C)

Table No. 5(A) – TLC of *Elaadi Gutikaa* Sample-I.

S.No.		A	B	C
1	Stationary Phase	Silica Gel 60F254	Silica Gel 60F254	Silica Gel 60F254
2	Mobile Phase	Ethanol : Chloroform : Ammonia (8 : 5 : 2)	Methanol : Chloroform : Water : Ammonia (70 : 30 : 5 : 1)	Chloroform: Methanol (9 : 1)
3	Spotting	10 µl	10 µl	10 µl
4	Spraying agent	Iodine	Iodine	Iodine
5	Rf Value	0.32, 0.60, 0.79, 0.96	0.07, 0.18, 0.42, 0.69, 0.98	0.36, 0.61, 0.78, 0.98

Table No. 5(B) – TLC of *Elaadi-gutikaa* Sample-II.

S.No.		A	B	C
1	Stationary Phase	Silica Gel 60F254	Silica Gel 60F254	Silica Gel 60F254
2	Mobile Phase	Ethanol : Chloroform : Ammonia (8 : 5 : 2)	Methanol : Chloroform : Water : Ammonia (70 : 30 : 50 : 1)	Chloroform: Methanol (9 : 1)
3	Spotting	10 µl	10 µl	10 µl
4	Spraying agent	Iodine	Iodine	Iodine
5	Rf Value	0.34, 0.60, 0.80, 0.98	0.07, 0.16, 0.45, 0.7, 0.97	0.36, 0.6, 0.8, 0.93

Table No. 5(C) – TLC of *Elaadi-gutikaa* Sample-III.

S.No.		A	B	C
1	Stationary Phase	Silica Gel 60F254	Silica Gel 60F254	Silica Gel 60F254
2	Mobile Phase	Ethanol : chloroform : ammonia (8 : 5 : 2)	Methanol:chloroform : water : ammonia (70 : 30 : 5 : 1)	Chloroform: methanol (9 : 1)
3	Spotting	10 µl	10 µl	10 µl
4	Spraying agent	Iodine	Iodine	Iodine
5	Rf Value	0.32, 0.60, 0.79, 0.96	0.07, 0.16, 0.43, 0.7, 0.97	0.36, 0.61, 0.79, 0.93

Discussion and Conclusion:

The data (Table No.1) shows that the weight of *Elaadi-gutikaa* Ist, IInd and IIIrd are equal. The mean of above three reading of sample is 1 gm. The data (Table No.1) shows that the diameter of *Elaadi-gutikaa* 1st is 0.851 cm., IInd 0.853 cm. and IIIrd 0.855 cm. The mean of above data is 0.853 cm. The data (Table No.1) shows that the hardness of *Elaadi-gutikaa* IIIrd is less in comparison to that of *Elaadi-gutikaa* Ist and IInd. The mean of above three data is 2.56 Kg. The data (Table No.1) shows that the moisture content of *Elaadi-gutikaa* IInd is more in comparison to that of *Elaadi-gutikaa* Ist and IIIrd. The mean obtained from the above three samples is 16.079% w/w. The data (Table No.2) shows that the total ash of *Elaadi-gutikaa* Ist is more in comparison to that of *Elaadi-gutikaa* IInd and IIIrd. The mean obtained from the above 3 samples is 4.090% w/w. The data (Table No.2) shows that the acid insoluble ash of *Elaadi-gutikaa* Ist is more in comparison to that of *Elaadi-gutikaa* IInd and IIIrd. The mean obtained from the above 3 samples is 0.835% w/w. The data (Table No.2) shows that the water soluble ash of *Elaadi-gutikaa* IInd is more in comparison to that of *Elaadi-gutikaa* Ist and IIIrd. The mean obtained from the above 3 samples is 1.916% w/w. The data (Table No.6) shows that the Alcohol soluble extractive of *Elaadi-gutikaa* IIIrd is more in comparison to that of *Elaadi-gutikaa* Ist and IInd. The mean obtained from the above 3 samples is 16.119% w/w. The data (Table No.6) shows that the water soluble extractive of *Elaadi-gutikaa* IInd is more in comparison to that of *Elaadi-gutikaa* Ist and IIIrd. The mean obtained from the above 3 samples is 61.110% w/w. The data (Table No.6) shows that the volatile oil of *Elaadi-gutikaa* Ist and IIIrd is more in comparison to that of *Elaadi-gutikaa* IInd. The mean obtained from the above 3 samples is 0.790% w/w. The data (Table No.4) shows that the disintegration time of *Elaadi-gutikaa* IIIrd sample is more in comparison to that of *Elaadi-gutikaa* Ist and IInd. The mean of above three readings of samples is 55 minutes. All the results are summarized and shown in Table No.6 and 7.

From this study it may be concluded that for the standardization point of view one should follow the standards mentioned in Table No.7 for *Elaadi-gutikaa*. (For testing, the procedures were adopted from Ayurvedic Pharmcopoeia of India Part-I, Vol. IIIrd and Introduction to Pharmaceutics - I)



Table No. 6 : - Showing Physico-chemical characteristics of *Elaadi-gu̱tikaa* Ist, IInd and IIIrd samples.

Parameters	*Elaadi-gu̱tikaa* - I	*Elaadi-gu̱tikaa* - II	*Elaadi-gu̱tikaa* - III
Colour	Black	Black	Black
Taste	Sweet	Sweet	Sweet
Odor	Pleasant	Pleasant	Pleasant
Texture	Smooth	Smooth	Smooth
Appearance	Pill	Pill	Pill
Weight	1 gm.	1 gm.	1 gm.
Diameter	0.851 cm	0.853 gm.	0.855 cm.
Hardness	2.60 Kg.	2.60 Kg.	2.50 Kg.
Moisture content	15.944%	17.212%	15.081%
Total ash	4.132%	4.057%	4.082%
Acid-insoluble ash	0.954%	0.703%	0.849%
Water-soluble ash	1.925%	2.115%	1.709%
Alcohol-soluble extractive	15.703%	15.662%	16.993%
Water-soluble extractive	61.352%	62.115%	59.865%
Volatile oil	0.796%	0.785%	0.790%
Disintegration time	55 minutes	50 minutes	60 minutes



Table No. 7 : - Showing mean of the of *Elaadi-gu̱tikaa*- Ist, IInd and IIIrd samples.

Parameters	*Elaadi-gu̱tikaa* - I	*Elaadi-gu̱tikaa* - II	*Elaadi-gu̱tikaa* - III	Mean
Weight	1 gm	1 gm	1 gm	1 gm
Diameter	0.851 cm	0.853 cm.	0.853 cm.	0.853 cm.
Hardness	2.60 Kg	2.60 Kg.	2.50 Kg.	2.56 Kg.
Moisture	15.944%	17.212%	15.081%	16.079%w/w
Total Ash	4.132%	4.057%	4.082%	4.090% w/w
Acid Insoluble Ash	0.954%	0.703%	0.849%	0.835% w/w
Water Soluble Ash	1.925%	2.115%	1.709%	1.916%w/w
Alcohol Soluble Extractive	15.703%	15.662%	16.993%	16.119%w/w
Water Soluble Extractive	61.352%	62.115%	59.865%	61.110%w/w
Volatile Oil	0.796%	0.785%	0.790%	0.790%w/w
Disintegration time	55 Minutes	50 Minutes	60 Minutes	55 Minutes

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Thrilled and Thrapped



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I am often thrilled by the beauty of the theories of Ayurveda. How closely they are weaved and what a wonderful design and texture they carry! Of course, beauty lies in the eyes of the beholder. As an enthusiast of beauty, perhaps my eyes may be amblyopic. I may not be seeing the ugly distortions, repulsive marks and scars on what I see and my eyes may be tuned to capture only the essence of beauty. But that is not the case. I am known to the ayurvedic fraternity as a vehement and uncompromising critic of Ayurveda. This is because of my innate tendency to find fault with almost everything. People say that we should have love for Ayurveda. I do not like that expression. If Ayurveda is a science or at least a *śaastra*, as some ardent lovers of Ayurveda prefer to express, I am the last man to love it. I can love my parents, wife, child, grandchildren, friends and kin. I can forgive their errors because I love them. But I cannot forgive the slightest flaw or blemish in a science or *śaastra* (whatever it may be) that seeks truth. Science is only a tool in the hands of man. The tool should be workable. It should not be blunt or imperfect to deny its utility.

Hence, in my contemplations on the accuracy and perfection of the theories of Ayurveda, I should admit that I am often thrapped and trapped by the intellectual inertia of the Ayurvedic theories. I am in a way wound tight by the ropes of ayurvedic theories that bind me to inactivity and carry me to blind allies. Yes. I am equally thrilled and thrapped. Is it a trap? It depends on your understanding of Ayurveda and capability of utilizing it as a tool to correct the errors of human physiology or a powerful weapon to fight diseases. Am I a bad works man to quarrel with my tools? Or am I using a screw driver in place of a spanner to tighten a nut?

Every science has its limitations. Sciences are manmade. Man has his limitations. But you can consider that Ayurveda is provided by God and cannot have any flaws and limitations. I would most humbly state that even the creations of God can go wrong. For example, God created man. See how imperfect the man is! And it is too human to err. Even if Ayurveda is made by God it can go wrong as we humans understand and utilize Ayurveda with our limited talents and capabilities. Though claimed to be created by the Creator, all the treatises of Ayurveda available now are manmade.

Let Ayurveda be made by God. But I should point out that all the theories (*siddhaanta*) of Ayurveda are manmade. Believe me. I have been teaching the theories of Ayurveda for the past thirty five years, of course with all my imperfections, fancies and follies. According to Caraka-saṃhitaa, a theory (*siddhaanta*) is the final conclusion or decision arrived at the end of various examinations by examiners and proved by reasoning (C.Vi.8.37). Hence a theory is not something that is directly provided by God. It is manmade. Since theories are manmade or super manmade, as these theories were coined not by ordinary laymen and are made by the intelligentsia (*ṛshi*), further contemplations on them can amend or rectify the present theories. At present they are considered as final. But as time advances and other pieces of information are added to the corpus of our knowledge, slight or major amendments may deem necessary and fit in our understanding of things.



Enumeration is a scientific method. Indian sciences are committed in enumerating principles. Once enumerated enlisted and finalized, it is almost concrete and the number and the content of the list cannot be amended. It is the Indian style of scientific thinking. You can call it intellectual inertia. But Indian sciences have immunity of divinity and the general consensus of the Indian minds is to accept the authority of divinity rather than questioning it. You are not expected to make amendments in the accepted principles of any system of science. For example, in Indian astrology there are nine planets. Is it from our solar system? May not be. Sun is considered as a planet in astrology. You and I now that it is not. It is a star. What about *raahu* and *ketu*? I don't know. Whenever a new planet is discovered no one wants to rewrite the treatises of astrology. When a planet is no more there in the list of planets by astronomers, astrologists do not bother. That is the stability of the theory of nine planets in astrology. So are the theories of Ayurveda. If somebody has new ideas to express in contradiction to the classical treatises, well and okay, he or she is at liberty to make his own new system and call it by any fancy name, but it cannot be considered as Ayurveda or part of Ayurveda. That is what Heinemann did when he differed from the general concepts of modern medicine.

This inertia is not the defect of our seers. It is our inertia and not the inertia of the science. We think that we are not authentic enough as our seers to make amendments in the basic principles of our science. We are afraid that such amendments will be duly rejected by the scientific community. It was not the case with the seers. They made ample changes in the science. Hence Susruta-samhitaa made changes. Vaagbhata also made amendments. But after the period of the compendia no author was bold enough to make changes in the tenets of Ayurveda. Later treatises are just compilations or commentaries. There is nothing much of new theories in them. Any thing added was just hung in the old pegs made in the period of compendia. There is no slot for new pegs. In a way even Vaagbhata II was doing this exercise.

I may point out four instances to explain my contention. They are the bio-fire (*agni*), immunity factor (*ojas*), the raw filth (*aama*) and the subsidiary tissues (*upa-dhaatu*). All these four examples are accommodated in the pegs of humors, tissues and wastes. The original idea of Ayurveda is that there are only three types of things in the living body. They are the humors (*dosha*), tissues (*dhaatu*) and wastes (*mala*). A fourth principle has no slot. Hence when anything else was noted, it was naturally hung in the pegs of humors, tissues or wastes.

What is the criterion of classifying the substances in the body into three? Notably it is the nature of liveliness. Note that all the three factors in the body proper are inert as the body proper it self is inert. The body proper is made up of the five existents (elements – *bhoota*) which are not living. But in a living body its ingredients exhibit varying degrees of sentient nature as the living body is sentient. Of the three classes of materials, humors show maximum sentient nature. Among the humors, vaata is most sentient and both pitta and kapha are considered as lame (*pangu*) as they are transported by vaata and have no volition about their migration or transport. They are dependent on vaata for their activities. Yet they have some sentient nature, more than that of the tissues. The tissues are only partially sentient. They do not respond directly to stimuli. They are to be stimulated by the humors. They dance to the tunes played by the three humors. The wastes are totally inert. They are not sentient at all. But they also are to be considered as part of the body as they influence the function and structure of the body. Thus carbon dioxide is a metabolic waste but we cannot and should not get rid of it completely because if there is no carbon dioxide in our blood our respiratory center loses its impetus to function. That means, if the level of carbon dioxide is lowered than permissible limits by hyper ventilation or staying in an oxygen chamber we will die due to respiratory arrest. This illustrates the significance of the wastes in our body.

The classification into humors, tissues and wastes is not structural. Though we can attribute structure to them especially in the case of tissues

and wastes, they are named and styled on the basis of their function. Hence a humor is called a pollutant or flaw (*dosha*) when it pollutes the body, a tissue (*dhaatu*) when it is supporting the body and a waste (*mala*) when it is to be expelled from the body. This means that the carbon dioxide that keeps the respiratory center active is functioning as a humor that promotes respiration (*praanna* faction of vaata). As an essential part of the living body it is a tissue (*dhaatu*). But when it is increased and attempts to change the ideal pH of blood, it is a waste.

Now let us have a close look of the four instances mentioned. The first one is bio-fire. Bio-fire (*kaayaagni*) is a factor in the living body. It is not a humor, not a tissue and not a waste. It is something else. It is not pitta though it is very near to pitta. If bio-fire and pitta are identical, there is no need to mention it separately. Moreover bio-fire is influenced and controlled by the humors. Pitta is the facilitating humor for bio-fire and kapha is the inhibiting humor for it. Vaata as humor is inconsistent and hence sometimes it facilitates and at other times it inhibits bio-fire. Pitta as a humor is one among the controllers of bio-fire. This means that bio-fire is another factor that is controlled by humors. Susruta-samhitaa has named the factions of pitta as *agni*. This is only a metaphor. The modern parallel for bio-fire is enzyme. Enzymes are released as and when required from their precursors. We may consider that the enzyme system is the bio-fire and pitta is the facilitative controller of it. This means that pitta is responsible for converting the precursors into enzymes or we may even consider that pitta to be the precursors. It is like sword and its scabbard. The scabbard has more or less the same shape of the sword, but the cutting is not done by it. In the case of bio-fire and pitta, enzyme is the cutting blade. It is dangerous to keep it exposed always. It may cause accidental cuts. The whole mechanism required to keep the enzymes in safe form and to release when required can be considered as the humors. Of the humors pitta is the facilitator of bio-fire. The point here is that bio-fire is not included among the three factors of the body.

Coming to the immunity factor (*ojas*) it is akin to bio-fire, but it is not bio-fire though it is the outcome of all the tissue fires. It is the bio-fire that generates the immunity (*balam*). It is superior to the tissue fires. A major difference between immunity factor and bio-fire is that the bio-fire is hot fire where as the immunity factor is a cold fire. If it is cold how could we consider it as a fire? It is also a fire and immunity too has a cutting edge. It destroys the invaders. If it is a killer and is fiery, how can we consider it as cold? It is cold because it is anabolic. Pitta is hot and catabolic. Immunity factor is mainly at the anabolic side of the body. Its fiery action is not against the substrate called body but against foreign substances harmful to the body. It is a protective fire. Thinking from the part of the body this action is not fiery. To the invaders it is surely fiery. Immunity factor is essential for the existence of the body. If it is lost, the living body will be lost. Our point here is that such an important factor is not included in the humors, tissues and wastes. It cannot be a waste, for sure. But some authorities have tried to consider it as the waste of the reproductive tissue! The immunity factor is also considered as the subordinate tissue of the reproductive tissue. This means that the attempts are to hang the immunity factor on the pegs of tissues or wastes instead of considering it as a separate factor.

Raw filth (*aama*) is understood in two modes. One is the undigested material. Due to weakness of digestive fire food is not completely or properly digested. The half digested food functions as filth that pollutes the body. If it is in the GI tract it can be expelled from there. But at times it may be absorbed to the system as the first tissue and it will create metabolic problems as the body cannot handle it. The second mode of raw filth is as the product of the interaction of the highly denatured humors. The raw filth is a poisonous intrinsic pathogenic factor. It poses metabolic problems. Here the considerations of the modes of the raw filth are attempts to hang it either on the peg of tissue as improper body fluid generated from improper digestion (*dushta rasa*) or on the peg of humors. At any rate this pathogenic factor has no peg of its own.





Next is the problem of the subordinate tissues. They are subordinated to the tissues. Independent status is not permitted to them even when they have supportive function.

So in all the four instances we see that independent status is not allowed to them. This is because of the rigid enumeration system followed in Ayurveda. It is not surprising. Even Lord Dhanvantari was not given the status of a god when he was born. After submitting the ambrosia to Lord Vishnu, Dhanvantari requested that he also should be provided a share of the fire sacrifices. Lord Vishnu promptly denied the request stating a technical objection. He said that the enumeration of gods was already complete and there is no additional slot for accommodating Dhanvantari. That is our mythology. How can we have a flexible science? That is why I am both thrilled and thrapped by the theories of Ayurveda. ■

Aviyal – the Keralite Boiled Vegetables



The term *aviyal* in Malayalam literally means 'the boiled'. In Tamil also the term has the same meaning. It is not the western boiled vegetables. It is bit spicy, but not very spicy. Coconut scrapings and a bit of raw coconut oil add taste and flavor to the preparation. *Aviyal* is considered to be a very healthy food. It is good for diabetic patients and it is advisable that diabetics include *aviyal* as a regular item along with rice or *chappaati*. It also goes well with *iddli*, the steamed rice-black gram cake. Incidentally, researchers in diabetic diet opine that *iddli* is the best food for diabetes even though black gram is not ideal for diabetes according to Ayurveda.

Usually most of the vegetables and tubers can go into *aviyal*. Classically *aviyal* contains vegetables, paste and coconut oil.



Vegetables

1.	Elephant foot yam	15 g
2.	Drum stick fruit	10 g
3.	Snake gourd fruit	5 g
4.	Cucumber	15 g
5.	Tender legumes of pulse or	
6.	Legumes of tuvar pulse	5 g
7.	Unripe banana	half banana
8.	Raw mango	a slice
9.	Carrot	10 g

This list is not exhaustive. Recently many other vegetables which came and stay from other countries are also incorporated in the preparation. Thus we find that carrots, potatoes, french beans, beet root, cauliflower etc. are also used in the recipe. Brinjal and ladies finger can be added but they add mucilage to the preparation and many dislike it.

Tamarind (or curd) may be added instead of mango to provide sour taste.

Because of the variety of ingredients permitted by the recipe, the term *aviyal* is used as a slang to denote any disorderly assortment of materials. At the same time *aviyal* may be prepared with only one or two ingredients. Jack fruit (unripe) *aviyal*, potato and drumstick *aviyal*, egg and drumstick *aviyal* are examples.

Powders

Turmeric powder	1 teaspoon
Powder of red chilly	1 teaspoon
Salt	to taste

Additives as crushed paste

Coconut scrapings - of half coconut

Green chillies	10 g
Curry leaves	a few leaflets
Small onions	10 g
Cumin seeds	1 teaspoon

Crush them into a very coarse paste.

Oil

Fresh coconut oil	1 table spoon

Method of preparation

The vegetables are to be chopped longitudinally into uniform slender pieces of 4 cm length. Keep the mango pieces separately. Banana is sliced and put in water in a separate vessel to wash out its resin. The elephant yam is to be sliced separately and immersed in water in another vessel and washed well. Other vegetables are put in water together in another vessel. Pour some of the coconut oil into a cooking vessel and arrange the washed vegetables in the following order. Drum sticks, legumes, snake guord, carrot, yam and cucumber are placed one above the other. The cucumber should be at the top lest yam will become dark in color. The powders are added to the vegetables. The cooking vessel is closed and cooked on stove at low flame. The vegetables should get cooked in their own water content. No additional water is to be added. When the content of the vessel is boiling well open the lid and mix the contents well. When the yam is cooked to its three fourth add banana and mango chops. Close and cook. When the banana is cooked well open the lid and move the content from the centre to the periphery letting a centre space. Now water will accumulate in the centre. This should be taken with a spoon and poured to the periphery. When no more water oozes to the centre, add the crushed paste to the contents. Add the remaining coconut oil too. Close the lid and stop heating. *Aviyal* is ready for serving. ■

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Indication:
Promotes hair growth. Prevents dandruff, alopecia, early greying of hair, splitting & premature falling of hair.

Mode of application:
Apply 5-10 ml on head half an hour before bath.

Presentation:
100 ml plastic bottles.

Composition

Each 100 ml is prepared oout of:

1. Indigofera tinctoria (Neeli)	100 gm
2. Bacopa monnieri (Brahmi)	100 gm
3. Hibiscus rosa-sinensis (Japapushpa)	100 gm
4. Emblica officinalis (Amla)	100 gm
5. Nardostachys jatamansi (jadmansi)	10 gm
6. Coconut oil	70 ml
7. Castor oil	30 ml
8. Annabhedi (Processed)	8 gm
9. Shanka choornam	2 gm

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Presentaiton:
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Composition:
Each Brahmi Pearl capsule is prepared out of:

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2. Acorus calamus (Vacha) 200mg
3. Clitoria ternatea (Shankupushpi) 200mg
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5. Ocimum sanctum (Thulsi) 100mg
6. Aegle marmelos (Bilwa) 100mg
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- Relieves mental stress
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