

## Role of different parameters for Prakriti Assessment in children.

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### ABSTRACT

*Ayurveda is an ancient system of personalized medicine which is documented and practiced in India since 1500 B.C. Three terms like the personality, phenotype and Prakriti have been defined in biology, genetic and Ayurvedic sciences, respectively, and dictate single code of features as expression of person in context to morphology, physiology, behavior and relation to ecology. Assessment of Prakriti in children (Balyavastha) is essential and enables the Ayurvedic pediatrician to evaluate metabolic imprinting, individual physiology and susceptibility to specific disease, its diagnosis, prevention, treatment as well as the prognosis after illness. According to Charaka Samhita, the age of Balyavastha is less than 16 years. Sushruta have divided Balyavastha in Ksheerapa, Ksheerannada and Annada. There are many criteria to determine the Prakriti in adults, but as far as infants and children are concerned, no detail description is available in Ayurvedic classics. Individual Prakriti can be determined as per the characteristics specified in Brihatrayi and Laghutrayi, which include the physical characteristic, Physiological characteristics and Psychological characteristics. Psychological characteristics can consider as Prakriti Assessment parameters after 10 years of age. In present era some studies show relation between bio-chemical parameters and Prakriti of individuals. The aim of this conceptual article is to explore some different parameters help in Prakriti assessment of children.*

**Keywords:** Prakriti, Children, Psychological, Biochemical parameters.

### Introduction: -

The word *Prakriti* is derived from 'Pra' and 'Kriti', here 'Pra' means origin or beginning and 'Kriti' means to create or to act; while the *Prakriti* means constitution, disposition or fundamental form<sup>1</sup>. Being very widely, this word is found in various branches of Indian literature like Veda, Upanisada, Ramayana, Mahabharata, Purana, Samhitas and other innumerable references. The dictionary meaning of word 'Prakriti' is nature, character, and constitution, original or primary substance. *Prakriti* is organized in accordance to attributes of Predominant *Dosha* at the time of sperm-ovum union<sup>2</sup>. *Prakriti* is enumeration of body features, internal as well as external<sup>3</sup>. *Prakriti Dosha* quanta are present in a person since birth till death without changing. If changed, death is definite<sup>4</sup>. *Prakriti* is an important tool that explains individuality and has important role in prevention, diagnosis<sup>5</sup>, in deciding the line of treatment of disease<sup>6</sup> and forecast of future disorders<sup>7</sup>. It explains unique but definite unchangeable traits, decided by specific and permanent configuration of *Dosha* in an individual. One or more than one *Dosha* predominates at the time of conception which reflects the *Doshika Prakriti* of an organism and can be identified by *Dosha* specific characteristics manifested in growing individual<sup>8</sup>.

### Importance of Prakriti -

It is well-established concept that single *Dosha Prakriti* individuals frequently fall sick i.e. more vulnerable to various diseases, while *Samyavastha* (equilibrium state) of three *Dosha* in an individual results in healthy state<sup>9</sup>. Knowledge about the *Prakriti* is prerequisite for assessment of *Vikriti* (pathology) hence it plays a very important role in deciding diagnosis, therapeutics and prognosis<sup>10</sup>.

It also has a decisive role in maintenance of health and cure of the disease, which is the prime objective of Ayurveda. In Ayurveda seven broad constitutions (*Prakriti*) have been described, each with a varying degree of predisposition to different diseases<sup>11</sup>. Amongst these *Vata*, *Pitta* and *Kapha Prakriti* individuals frequently fall sick i.e. most vulnerable to diseases and in decreasing order<sup>12</sup>. Those constitutions which formed by two *Dosha* together are also sick and they have to be treated with difficulty<sup>13</sup>.

*Sama Prakriti* has good resistance and not prone to develop diseases<sup>14</sup>. Any person of any dominant *Dosha* is liable to get sick due to vitiation of any *Dosha*. It is not necessary that predominant *Dosha* should be only responsible *Dosha* for all manifestation of illness. If *Pitta* gets vitiated in *Vata Prakriti* person manifestation of attributes of *Pitta* will be observed in him beside his usual. Knowledge of *Prakriti* can guide the parents also for prevention of expected disorders and deciding career of their wards at a very early age<sup>15</sup>. *Ekdosaja Prakriti* are *Heena* (poor), the *Dwandaja Prakriti* are *Madhayama* (moderate) and *Tridosaja Prakriti* is *Uttama* (best or ideal)<sup>16, 17</sup>.

*Bala* of an individual can be determined on the basis of *Prakriti* for e.g. *VataPrakriti* persons are having less strength, *Pittaja* moderate and *KaphajaPrakriti* persons are having good strength. It helps in diagnosing the diseases, Because particular disease affecting to the particular person, e.g. *Kaphaja* persons are more prone to *KaphajaVikaras* like *Ajirna*, *Agnimandya*, *Pratishaya* etc. Depend upon *Prakriti* physician can decide the *Bhaishajyamatras*. For e.g. *Vataja*, *Pittaja* and *KaphajaPrakriti* persons *Alpa*, *Madhyana* and *AtimatraBhaishajya* are adopted respectively.

### Assessment of *Prakriti* in Children: -

The *Prakriti* or the *Ayurvedic* constitutional type of an individual is fixed at conception and is articulated through physical, psychological, immunological, and behavioral traits as described elaborately in original *Ayurvedic* texts written by *Charaka* and *Sushruta*.

Assessment of *Prakriti* of children may be useful for framing the guidelines in regard to make a right judgment and attitude for growth and development and forecasting the proneness of children to particular type of diseases so that timely prevention could be followed.

Now Biochemical method and gene expression is also used parameters for *Prakriti* assessment in children. It is quite possible that in near future, newborns can be screened right at the time of birth for their *Prakriti* using their genetic profile which is further correlated by other biochemical parameters. Thus, specific set of criteria using genetic markers and biochemical markers can be set up not only to identify extreme *Prakriti* types, but even mixed *Prakriti* types.

### I. Textual Parameter for *Prakriti* assessment in infant (Based on textual description):-

S.N	Features	<i>VataPrakriti</i>	<i>Pitta Prakriti</i>	<i>KaphaPrakriti</i>
1	Skin texture	Rough / Dry body <sup>18</sup>	Soft skin <sup>21</sup>	Smooth and unctuousness <sup>18</sup>
2	Skin texture	Thin body <sup>19</sup>	Warm face <sup>18</sup>	Low temperature <sup>18</sup>
3	Skin color	Dark skin color <sup>21</sup>	Yellow and loose <sup>19</sup>	.....
4	Skin look	Ugly <sup>18</sup>	.....	Pleasing, delicate and fair look <sup>19</sup>
5	Physique	Undeveloped and short body <sup>18</sup>	.....	All organs are well developed and perfect <sup>18</sup>
6	Physique	Prominence of vein all over body <sup>18</sup>	.....	.....
7	Hand and feet	Cracked Hands and feet <sup>19</sup>	.....	.....
8	Hand and feet	Unstable <sup>18</sup>	.....	Long arm <sup>19</sup>
9	Chest	.....	.....	Elevated chest <sup>20</sup>
10.	Scalp hair	Scanty hair <sup>19</sup>	Scanty hair <sup>18</sup>	Curly hair <sup>19</sup>
11	Scalp hair	Dusky hair <sup>20</sup>	<b>Brown hair on scalp<sup>18</sup></b>	Blue hair <sup>20</sup>
12	Scalp hair	Rough hair <sup>19</sup>	<b>Soft hairs<sup>18</sup></b>	Thick hair <sup>20</sup>
13	Eye	Rough eye <sup>20</sup>	<b>Coppery eye<sup>19</sup></b>	Smooth eye <sup>20</sup>
15	Eyes	Unstable eye <sup>18</sup>	.....	White eye <sup>19</sup>
16	Eyes	Unstable eye brow <sup>18</sup>	.....	Eyes are reddish at their end. <sup>19</sup>
23	Hunger	.....	Excessive hunger <sup>18</sup>	Little hunger <sup>18</sup>
24	frequency of feeding	Light and Unsteady <sup>18</sup>	High frequency <sup>18</sup>	Low frequency <sup>18</sup>
25	Quantity of feeding	Great amount of food <sup>20</sup>	Plenty intake <sup>21</sup>	Low intake <sup>20</sup>
26	Dislike Diet	Hate cold things <sup>19</sup>	Hate hot things <sup>19</sup>	.....
28	Like diet (> 6 month)	Hot food /milk <sup>20</sup>	Cold food/milk <sup>20</sup>	Hot food /milk <sup>20</sup>
30	Frequency of stool	.....	Excessive <sup>18</sup>	.....
31	Frequency of		Excessive <sup>18</sup>	.....

	urine			
32	Frequency of thirst(> 6 month)	.....	Excessive <sup>18</sup>	<b>Little thirst</b> <sup>18</sup>
33	Sweating		Excessive <sup>18</sup>	<b>Little</b> <sup>18</sup>
34	Sweating	.....	Foul smell <sup>18</sup>	.....
35	Sleep	Less duration of sleep <sup>18</sup>	.....	.....
36	Sleep	Eye lid open during sleep <sup>18</sup>	.....	.....
37	Anger (> 6 month)	.....	Angry quickly and relieved quickly <sup>18</sup>	.....
38	Attachment (> 6 month)	<b>Quick attachment and Quick detachment</b> <sup>18</sup>	.....	.....
39	Initiation of work (> 6 month)	Quick initiation <sup>18</sup>	.....	Delay initiation <sup>18</sup>
40	Irritation (> 6 month)	Quick irritation <sup>18</sup>	.....	Delay irritation <sup>18</sup>
41	Speech (> 6 month)	Very talkative <sup>18</sup>	.....	<b>Less talkative</b> <sup>18</sup>
42	Type of speech (> 6 month)	Rough voice <sup>18</sup>	.....	Affectionate voice <sup>18</sup>
43.	Intolerance Environment.	Intolerance to cold <sup>18</sup>	Intolerance to hot <sup>18</sup>	.....
44.	Frequency of cry	.....	.....	Less cry <sup>20</sup>
45.	Incidence of diseases	<b>Early disorder</b> <sup>18</sup>		<b>Late disorder</b> <sup>18</sup>

### Physiological Criteria that applicable in age group - 10 to 16 years<sup>22</sup>.

Characteristic	<i>VataPrakriti</i>	<i>Pitta Prakriti</i>	<i>KaphaPrakriti</i>
<b>Activities</b>	Fast, unsteady	Fast,	Slow and steady
	Tremors	Definite	
	Cramps		
<b>Voice/ cry (Quality)</b>	Rough, dry	High pitched	Deep, resonating
	Weak	Clear	Pleasant,
	Stammering	Average	Sweet/ commanding
	Unclear, split		
	Vibrating		
<b>Speech (Habits)</b>	Shrill		
	Talkative and fast	Fast and smooth	Slow and steady
	Incoherent	Debating,	Monotones
	Exciting	Impressive speech	Pleasant , Continuous
<b>Appetite (Agni)</b>		Insulting attitude	Impressive talk
		Sharp and cutting	
	Frequent eating	Good	Slow but steady
	Irregular	Excessive	
<b>Thirst</b>	Variable quantity	Unbearable hunger	
	Scanty		
	Variable	Excessive	Scanty
<b>Acceptance of taste (Rasa)</b>	Sweet, sour	Sweet, bitter	Spicy, dry
	Salty	Astringent	Astringent, bitter
	Hot, oily	Cold	Hot
<b>Bowel movement (Kostha)</b>	<i>Krura</i>	<i>Mrudu</i>	<i>Madhyama</i>

<b>Urine / Sweating</b>	Small quantity	Profuse	Normal
	Frequent	Foul smelling	
<b>Stool</b>	Dry, hard	Loose(not diarrhea)	Thick oily
	Small quantity	Yellow	Heavy
	Constipated	Large quantity	Whitish yellow
		foul smell	
<b>Sleep</b>	Disturbed (interrupted)	Moderate sleep	Deep sleep
	Scanty,	Little and sound	Heavy
	Awake fullness		Prolonged Day time too
<b>Dreams</b>	Flying in the sky	Lights, stars	Cold, pleasant
	Mountain lumping	Fire, electricity	Water, Lake
	Running fearful	Violence and Battle	Swimming, clouds and Swan.
<b>Strength</b>	Weak	Moderate	Strong
<b>Memory</b>	Weak	Good	Good
	Grasps easily, and Forget easily also.	Sharp	Grasps slow
	Recent memory-Good		Steady, prolonged
	Remote memory-Poor		
<b>Concentration</b>	Unsteady	Steady	Steady
<b>Nature</b>	Nonreligious	Nonreligious,	Religious
	Undevoted,	Undevoted	Devoted
	Devoid of truth and Kindness,	Kindly to friends only	Loves truth And kindness,
	Uncultured	Good conduct	Calm and quiet
		Helping to those who Seeks for help.	Helping and Steady In relations.
<b>Anger</b>	Quickly angry	Quickly angry	No quick anger,
	Quickly relaxed		But if it is, long Lasting.
<b>Friendship</b>	Unsteadyand no real friends	No friends due to Hot temper nature	Many friends, Long lasting

## II. Assessment of *Prakriti* thorough Bio-chemical studies<sup>23,24</sup>.

Assessment of *Prakriti* can be done by doing bio-chemical studies. Recent studies showed certain correlations with the *Prakriti* and individual.

Biochemical profiles		<i>VataPrakriti</i>	<i>Pitta Prakriti</i>	<i>KaphaPrakriti</i>
<b>Lipid profile</b>	Total Cholesterol	Lower	Not significant	Higher
	Triglycerides	Lower	Lower	Higher
	VLDL	Lower	Lower	Higher
	LDL	Lower	Higher	Higher
	HDL	Higher	Not significant	Lower
	LDL/HDL ratio	Lower	Lower	Higher
<b>LFT</b>	SGOT	Lower	Higher	Higher
	SGPT	Lower	Not significant	Higher
	Prothrombin time	Higher	Higher	Lower
<b>Hematological</b>	Hemoglobin	Lower	Higher	Lower
	PCV	Lower	Higher	Lower
	RBC count	Lower	Higher	Not significant
	Prolactin	Higher	Not significant	Lower
	Uric Acid	Lower	Higher	Higher
	Zinc	Lower	Not significant	Higher

The components of the lipid profiles like triglycerides (TG), total cholesterol, VLDL, LDL, LDL/HDL ratio, the common risk factor for cardiovascular diseases was higher in *KaphaPrakriti* individuals. Additionally, *Kaphaj* children also had lower levels of HDL when compared to *Vata*. The levels of serum uric acid, recently considered to be an independent predictor of cardiovascular mortality, were also found to be elevated in *Kapha*. In addition, SGPT, SGOT, and serum Zinc are high in *Kapha*. Serum prolactin and prothrombin time were high in *VataPrakriti* in comparison to *Kapha* and/or *Pitta*. On the other hand, hematological parameters like hemoglobin, PCV, and RBC count significantly on the higher side of normal range in *Pitta Prakriti* in comparison to *Vata* and/or *Kapha*.

### III. Assessment of *Prakriti* through Body Mass Index (BMI) and Anthropometry<sup>25</sup>-

The body mass index (BMI) or Quetelet index is a value derived from the mass (weight) and height of an individual. The BMI is defined as the body mass divided by the square of the body height, and is universally expressed in units of kg/m<sup>2</sup>, resulting from mass in kilograms and height in meters. The BMI is an attempt to quantify the amount of tissue mass (muscle, fat, and bone) in an individual, and then categorize that person as underweight, normal weight, overweight, or obese based on that value.

Some attempts are made to establish the association between the BMI and *Prakriti* of an individual. BMI is broadly classified into three categories. The subjects with BMI less than 20, 20 to 25, and greater than 25 were denoted as low, moderate, and high BMI, respectively. It is found that individual has BMI of less than 20 have dominating *VataPrakriti* followed by *Pitta* and *Kapha Prakriti*, respectively. The moderate BMI (20-25) has dominant *Kapha Prakriti* followed by *Vata* and *Pitta*, respectively. BMI greater than 25 was predominantly *Kapha* constituent followed by *Pitta* and *Vata Prakriti*, respectively. BMI can be helpful in deciding and for the conformation of the dominant *Prakriti* in the individual.

Anthropometry can be helpful in deciding and for the conformation of the dominant *Prakriti* in the children. *VataPrakriti* children are *Krishasharira* (lean and thin) or *Alpasharira* (short stature) and will have lower weight, CHL etc.; while *KaphaPrakriti* or *Pitta-KaphaPrakriti* infants are *Sthulanga* (stout body built) with better weight and CHL as well as *Mahalalata* i.e. higher head circumference and *PrithuPeenaVaksha* (big and elevated chest)<sup>26</sup>.

### IV. Assessment of *Prakriti* through Genetic study<sup>27,28</sup>-

Ayugenomics elaborated links between *Prakriti* and genetics which have now become the basis for scientific investigation. This work was done by Patwardhan et al., (2005) in which they demonstrated a significant correlation between various alleles of human leukocyte antigen (HLA) genotype and *Prakriti*. A significant correlation was found between CYP2C19 genotypes and *Prakriti* indicating that *Kapha* and *Pitta Prakriti* being low and fast metabolizer groups are likely to require low and high doses of CYP2C19 substrates.

### Discussion & Conclusion:

*Prakriti* is determined at the time of conception and remain unchanged during the lifetime with contributions from environmental factors including maternal diet and lifestyle<sup>29</sup>. Now a days many parameters are used as assessment of *Prakriti* of children as textual description (questioners method), biochemical marker, body mass index or anthropometrics marker and genetic marker. Out of these only textual description based questioners marker in main marker and other is supportive marker. Genetic marker can be screened right at the time of birth for their *Prakriti* using their genetic profile which is further correlated by other biochemical parameters. Knowing the *Prakriti* of a newborn can lead to more healthy high quality life for an individual<sup>30</sup>. For example, if we know children have *KaphaPrakriti* then right from the beginning the child can be encouraged to participate in sports and physical activity. Because *KaphaPrakriti* persons have a natural tendency for reduced movement and if participate in sports from childhood will lead to a healthier life and will prevent most of the chronic diseases related to obesity that a *Kapha* person is otherwise susceptible to. Similarly, if we know that a child has *Pitta Prakriti*, then try such a child inculcates habits that make him more patient and not loose one's anger. In addition, spicy or acidic food may not be served to such a child since *Pitta Prakriti* individuals have more propensities to develop gastric ulcers and related disorders.

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