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Development of physical characteristics based questionnaires for determination of prakriti (physical constitution) in children

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Abstract
Traditional Indian medicine such as Ayurveda classifies the human population into three major constituents or *Prakriti* known as *Vata, Pitta* and *Kapha* type. The idea of dividing population into specific constitutional type is not limited up to Indian system of medicine only but it is well described in other health care system as *Sasang*, and traditional Chinese system of medicine. 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. 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 *Brihattrayi* and *Laghutrayi*, which classify in the physical, Physiological and Psychological characteristics. Development of questionnaires and its assessment methodology for each characteristic is main tool for *Prakriti* determination in children. Psychological characteristics can consider as *Prakriti* Assessment parameters after 10 years of age. This article explores the questionnaire preparation on the light of described physical characteristic in *Samhitas* for *Prakriti* and development of methodology for assessment.

Keywords: Prakriti, questionnaire, children, physical characteristic

Introduction
In the Ayurveda, susceptibility to a disease as well as selection of a preventive and curative regime is primarily based on phenotypic assessment of a person which includes one's body constitution termed "*Prakriti*". A basic feature of the theory and practice of Ayurveda is the classification of human beings into three *Dosha* (*Vata, Pitta* and *Kapha*) and their mixed constitutional types called *Prakriti*. The *Prakriti* or the Ayurvedic constitutional type of an individual is fixed at conception and is articulated through physical, psychological, and behavioral traits as described elaborately in original *Ayurvedic* texts written by *Charaka* and *Sushruta*. *Prakriti* is a consequence of the relative proportion of three *dosha*, *Vata*, *Pitta* and *Kapha*, which are not only genetically determined (*Shukra* and *Shonita*), but also influenced by environment (*Mahabhuta Vikara*), maternal diet and lifestyle (*Matur Ahara Vihara*), and age of the transmitting parents (*Kala-Garbhashaya*) [1]. According to *Sushruta, Doshika* predominance in *Prakriti* is not harmful and *Prakriti* remains stable and never altered. *Vagbhatta* has expressed that an individual whose *Doshamayi* or *Gunamay*i *Prakriti* is altered, one does not remain alive for more than six months [2]. *Prakriti* is an important tool that explains individuality and has important role in prevention, diagnosis [3], treatment of diseases [4] and forecast of future disorders [5]. The description of *Prakriti* in *Charaka* is more systematic than the other *Samhitas.* According to *Charaka* person of different *Prakriti* i.e. *Vatala, Shleshmala* or *Pittala* etc. can be identified with the following characters formed out of different *Gunas* of *Vata, Pitta* and *Shlesma Dosha* [6]. *Charaka* has laid a great stress on the physical characteristics although psychological characteristics have been also mentioned. *Sushruta* and *Vagbhata* have compared the nature of man with the nature of the other animals and description of dreams is also found in relation to *Prakriti*, which is not described in *Charaka Samhita.* According to Ayurveda, the individual constitution or *Prakriti* classification is based on differences in physical,

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physiological and behavior or psychological characteristics and is independent of racial, ethnic or geographical considerations [7]. In this article we mainly focus on *Prakriti* assessment questionnaires developed on the basis of physical characteristics and its assessment methodology in children.

Prakriti Evaluation: The *Prakriti* or the *Ayurvedic* constitutional type of an individual is fixed at conception and is articulated through physical, psychological and Psychological/ behavioral traits as described elaborately in original *Ayurvedic* texts written by *Charaka* and *Sushruta*. So The *Prakriti* of children can be assessed by using a validated questionnaire based on physical, physiological and psychological characteristics, and clinical examination of Ayurvedic experts. Psychological features are not considered in children for *Prakriti* assessment.

Physical characteristics	Physiological characteristics	Psychological characteristics
Skin color	Weather response	Speaking pattern
Body temperature	Voice	Anger
Skin texture	Feeding	Intelligence and memory
Hair	Thirst	Behavior
Nail	Anger	dreams
Body movement	Stool and Urine habits	faith
Joint, head, shoulder and hands	Like and dislike	Person imitate in their activities
Eye, Eye brows and lips	Sweating Habit	Friendship
Strength	Span of life	Wealth
Body activities	Diseases proneness	Like and dislike

Physical characteristics based questionnaires for assessment of Prakriti in children

Textual References	Questionnaire	Methodology for assessment
Skin texture		
Vata- रूक्ष.....शरीरा:[8] (Rough body) **Pitta-** प्रभूततिलपिडका[8] (Moles, and pimples are more in number) **Kapha -** स्निग्ध शरीरा[8] (Smooth body part)	**Q.No-1 Skin texture is?** Rough and Dry Soft, moist skin with moles & pimples Thick, Smooth and oily	**Subjective Method:-** *Sparshan Pariksha* [14, 15] (Palpation method) *Darshana Pariksha* [16] (Visual observation – Inspection) **Objective method :-** Skin pH [17] Sebum Content in skin [17] Trans epidermal water loss [17]
Skin color –		
Vata - धूसर गात्रा[11] (Dusky color) **Vata -** कृष्ण वर्ण [13] (Blackish color) **Pitta -** अवदातगात्रा[8] (Fair color) **Pitta-** ताम्र...वर्ण [9] (Coppery color) **Pitta -** गौर अंग[11] (White color of skin) **Pitta-** पीत...अंग[8] (Yellowish body part) **Kapha-**दुर्वा, इन्दीवर शरकाण्डा वर्ण [9] (Like color of *Durva, Indivara* and *Sarakanda*)	**Q.No-2 Skin color-** Dusky, Lusture less and dark complexion Coppery color / Yellowish body parts Fair skin color like Durva, Indivara and Sarakanda.	**Subjective Method:-** *Darshana Pariksha* [16] (Visual observation – Inspection) **Objective method:-** RGB method [18, 119] Fitzpatrick photo typing scale [20] Spectrophotometer Melanin index value [21]
Body temperature-		
Pitta-उष्णमुखा[8] (Warm/Hot face) **Pitta-**उष्ण अंग[11](Warm body) **Kapha-**अल्प संताप शरीरा[10] (Little body temperature)	**Q.No-3 Body temperature /Time taken to become dry after bath -** Warm body or Early become dry. Cool body or Late become dry.	**Subjective Method:-** *Sparshan Pariksha* [15] (Palpation method) **Objective method:-** Pulse oxymeter Mercury thermometer [22]
Body parts -		
Vata - अपचितशरीरा:[8] (Undeveloped body) **Vata -** अल्पशरीरा: [8] (Short body) **Vata-**कृश...शरीरा:[12] (Thin, emaciated body) **Vata -** कृशदीर्घाकृतय: [11] (Part of body is lean & tall) **Vata-** कण्डरासिराप्रतानाः[8] (Abundance tendons and venous network) **Vata-** धमनीतत:[8] (Prominence of veins all over the	**Q.No-4 Physique is –** Thin, undeveloped and short body Delicate body Compact and stable body, all organs are well developed / good looking. **Q.No-5 Body part is –** Prominence of veins all over body. Joint and muscle are loose Broad forehead, elevated chest, well developed and long arm, leg and beautiful look.	**Subjective Method:-** *Sparshan Pariksha* [14, 15] (Palpation method) *Darshana Pariksha* [16] (Visual observation – Inspection) **Objective method:-** Anthropometry [23] Body mass index (BMI) Estimation of fat-free mass and percent body fat [24]

body) **Kapha-** सुकुमारावदातगात्रा:[8] (Delicate and fair body) **Kapha-** दृष्टिसुख[8] (Pleasing Look) **Kapha-** सुभगःप्रियदर्शनो [9] (Beautiful look) **Kapha-** पृथुपीनवक्षा[11] (Big and elevated chest) **Kapha-**सुविभक्तागात्र:[9] (Limbs are proportionate and symmetrically)		
Hairs –		
Vata - धुसर केश [11] (Dusky color) **Vata-** अल्प....केश:[12] (Scanty and rough Hairs) **Vata-** रूक्ष....केश:[8] (Scanty and rough Hairs) **Vata-** परुषकेश [8] (Coarse hairs) **Pitta-**क्षिप्रवलीपलितखालित्यदोषा:[8] (Early appearance of wrinkles on body, graying and falling of hairs) **Kapha-** स्थिरकुटिल केशा[9] (Firm and curly hairs) **Kapha-** नीलकेशा[11] (Blue like the bee) **Kapha–** घन...केश:[11] (Thick hairs)	**Q.No-6 Texture and thickness of Hair is –** Scanty, thin, dry and dusky Fine, soft, early greying or falling or no hair. Dark, thick, dense, oily, hair is curly and blue like bees.	**Subjective Method:-** *Sparshan Pariksha* [14, 15] (Palpation method) *Darshana Pariksha* [16] (Visual observation -Inspection) **Objective method:-** Reflective spectrophotometry [25]
Head -		
Vata- अनवस्थित...शिर:[8] (Unstable head) **Kapha-** महाललाटो[8] (Broad forehead)	**Q.No-7 Movement of head is –** Light, fast, unsteady and early onset Slow and steady and broad forehead.	**Subjective Method:-** *Darshana Pariksha* [16] (Visual observation -Inspection) **Objective method:-** Measurement of forehead Frequency of head movement by videography.
Eye –		
Vata- अनवस्थित.....अक्षि [1] (Unstable eye) **Vata-** रूक्ष.... अक्षि[10] (Rough Eye) **Pitta-** ताम्र....नयन[9] (Eyes coppery color Eyes) **Kapha-**रक्तान्तनेत्र[10] (Eyes are reddish at their ends angle) **Kapha-**शुक्लाक्ष:[9] (White eyes)	**Q.No-8 Movement of eye is –** Light, fast, unsteady and early onset Slow and steady **Q.No-9 Eye color is –** Dry, dusky, not beautiful Coppery color and rounded Broad beautiful and good eye lashes, eye is reddish at their end angles.	**Subjective Method:-** *Sparshan Pariksha* [14, 15] (Palpation method) *Darshana Pariksha* [16] (Visual observation - Inspection) **Objective method:-** Spectrophotometric studies [26] Digital Iris Analysis Tool (DIAT) [27]
Lips -		
Vata - अनवस्थित औष्ठ [8] (Unstable lips) **Pitta –** ताम्र...औष्ठ[9] (Coppery color Lips)	**Q.No-10 Movement lips is –** Light, fast, unsteady and early onset Slow and steady **Q.No-11 Lips texture and color is-** Rough and unstable Coppery red Broad and thick	**Subjective Method:-** *Sparshan Pariksha* [14, 15] (Palpation method) *Darshana Pariksha* [16] (Visual observation - Inspection) **Objective method:-** Spectrophotometer or colorimeter [28] Fitzpatrick photo typing scale [20]
Teeth –		
Vata – रूक्ष...दन्त[9] (Dry teeth) **Vata-** दन्तखादी[9] (Grinds teeth)	**Q.No-12 Teeth grinding-** Present Absent	**Subjective Method:-** *Prashna Pariksha* (Interrogation) *Darshana Pariksha* [16] (Visual observation - Inspection)
Palate -		
Vata - अनवस्थित तालु[8] (Unstable palate) **Pitta-** ताम्र......तालु[8] (Coppery color palate)	**Q.No-13 Movement of palate is** Light, fast, unsteady and early onset Slow and steady	**Subjective Method:-** *Darshana Pariksha* [16] (Visual observation-Inspection)
Tongue –		
Vata- अनवस्थित जिह्वा[8] (Unstable Tongue)	**Q.No-14 Movement of tongue is –** Light, fast, unsteady and early onset	**Subjective Method:-** *Darshana Pariksha* [16]

Pitta- ताम्र जिह्वा[9] (Coppery color Tongue)	Slow and steady	(Visual observation -Inspection)
Palms & Soles-		
Vata- स्फुटितकरचरणो[9] (Cracked hand and feet) **Vata-** अनवस्थित पादा:[8] (Unstable hands & feet) **Vata-** परुषपाणिपादा [8] (Coarse hands and feet) **Pitta –**ताम्र...पाणिपादतलो [9] (Coppery palm& sole) **Kapha-**प्रलम्बबाहु:[10] (Have long arm) **Kapha-**स्निग्धपाणिपाद [11] (Thick, soft palm &sole)	**Q.No-15 Movement of palm and sole is –** Light, fast, unsteady and early onset Slow and steady **Q.No-16 Texture and color of Palm and sole is –** Rough and cracked Coppery color Thick and soft Have long arm	**Subjective Method:-** *Sparshan Pariksha* [14, 15] (Palpation method) *Darshana Pariksha* [16] (Visual observation -Inspection) **Objective method:-** Spectrophotometer or colorimeter [28] Measurement of Arm
Nail –		
Vata - अल्परूक्षनख: [11] (Nails are small & rough **Pitta-** ताम्र....नख [11] (Coppery color Nail) **Vata-** नखखादी[8] (Grinds nail)	**Q.No-17 Texture and color of Nail is –** Rough, hard, thin, small and dusky Coppery color	**Subjective Method:-** *Sparshan Pariksha* [14, 15] (Palpation method) *Darshana Pariksha* [16] (Visual observation -Inspection) **Objective method:-** Spectrophotometer or colorimeter [28]
Joint –		
Vata –सततसन्धिशब्दगामिनश्च भवन्ति[8] (Constant sound in joints during movement) **Vata –** सशब्दयाता:[8] (Produce sound during walking) **Vata-** अनवस्थित सन्धि[8] (Unstable joint)	**Q.No-18 Movement of joints is –** Light, fast, unsteady and early onset Slow and steady **Q.No-19 Constant sound during movement is –** Yes No	**Subjective Method:-** *Darshana Pariksha* [16] (Visual observation -Inspection) *Prashna Pariksha* (Interrogation)
Activities-		
Vata- शीघ्रत्वाच्छ्रीघ्रसमारम्भ[8] （Hasty Initition） **Vata-**लघुचपलचेष्टा[8] (Light & unsteady movement) **Vata-** द्रुतगतिरटनो[9] (Quick in walk) **Kapha –** मन्द....चेष्टा[8] (Dull in activities)	**Q.No-20 Activity level is –** Sometimes very active and sometime dull Dull in activities	**Subjective Method:-** *Darshana Pariksha* [16] (Visual observation -Inspection) *Prashna Pariksha* (Interrogation)

Discussion & Conclusion

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*. Further, *Prakriti* also influences the manifestation and course of diseases in an individual, and importantly an individual's response to treatment [29]. Therefore, the determination of constitution type or *Prakriti* of a subject or patient is very important in the practice of *Ayurveda*. Now 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. For example, if we know children have *Kapha Prakriti* then right from the beginning the child can be encouraged to participate in sports and physical activity. Because *Kapha Prakriti* 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*, and then try such a child inculcates habits that make him more capable of preserving

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.

Number of tools, exist mainly in forms of questionnaires for ascertaining the *Prakriti* of an individual and there have been ongoing attempts of validating such a tool since the 1980s such as investigation into such tools done by *Joshi* [30] and *Rastogi* [31]. Psychological features related to *Prakriti* assessment are not developed in children so these characters are not included in *Prakriti* related questionnaire in children.

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