

## DOES FUNCTIONS OF *PITTA DOSHA* SUBTYPE VARY AS PER *PRAKRITI*? - A CROSS SECTIONAL STUDY

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**Abstract:** *Introduction:* The *Tridosha* theory, which is the cornerstone of *Ayurvedic* physiology, governs all the functions of human body and mind. *Tridosha* are responsible in determining one's *Prakriti* and their functional status may vary in different *Prakriti*. Therefore, this study was planned to find out the variation in functional status of different types of *Pitta*, using certain objective parameters. *Material and Methods:* 201 young healthy volunteers of both genders of age group 20-35 years, belonging to different *Prakriti* were selected during the period of January 2016 to January 2017, after obtaining their written consent from the student community. Serum level of triglycerides, cholesterol, total protein and glucose level was estimated for *Pachaka Pitta*, hemoglobin concentration for *Ranjaka Pitta*, visual acuity for *Alochaka Pitta*, memory and reaction time for *Sadhaka Pitta* and RGB value for *Bhrajaka Pitta* were measured. *Result:* The function of *Ranjaka*, *Bhrajaka* and *Sadhaka Pitta* was found better in *Pitta Prakriti* individuals followed by *Kapha Prakriti* and least in *Vata Prakriti* individuals. As mean values of hemoglobin, RGB values and STM and LTM, were highest in *Pitta Prakriti* and lowest in *Vata Prakriti* individuals. Incidence of emmetropia and myopia do not vary significantly. For the functional status of *Pachaka Pitta* no inference can be drawn which may be due to various confounding factors affecting biochemical parameters, small sample size and homogenous population. *Conclusion:* Functional status of *Pitta Dosha* do vary as per *Prakriti*. This study should be conducted with large sample size to get a reference range of all these parameters in different *Prakriti*, which can also be used as a tool to assess the functional status of *Pitta Dosha* and *Prakriti* too.

**Keywords:** *Pitta*, *Prakriti*, Memory, RGB, Reaction time.

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### INTRODUCTION

The basic fundamental theory of *Ayurveda* lies upon the concept of *Dosha*, *Dhatu* and *Mala*. *Dosha* are the prime factors governing the overall physiological functions of the body. These three *Dosha* i.e. *Vata*, *Pitta* and *Kapha* along with their sub types have their specific function in body. They are responsible for the growth, strength, complexion, happiness being in normal but brings about various diseases when get vitiated or abnormal [1] (Sutra sthana chapter 20/9). All the diseases are produced only due to vitiation of *Dosha* [1] (Sutra sthana chapter 19/5). *Ayurveda* also postulates the unique theory of *Prakriti* or psychosomatic constitution which is the sum total of physical, physiological and psychological characteristics of a person, and has both genetic and acquired aspects. The genetic aspect is chiefly determined by the nature of *Shukra* (Sperm) and *Shonita* (Ovum) at the time of fertilization while the acquired aspect depends upon the *Jati* (race), *Kula* (family disposition), *Desha*

(habitat), *Kala* (season), *Vaya* (age) and *Pratyatmniyata* (personal habits) [2]. In the present scenario, researches in the field of *Prakriti* have become an area of keen interest. Consequent studies have been carried out to correlate *Prakriti* with genetic information and association of single nucleotide polymorphisms (SNPs) in HLA-DRB1, CYP2C19, EGLN1, inflammatory and oxidative stress related genes, CD markers for various blood cells, to correlate incidence of diseases in different *Prakriti*, biochemical and anthropometric profile of an individual. Although till date, no study has been carried out to find out the variation in the functions of *Pitta Dosha* as per *Prakriti*. As *Prakriti* is determined by the predominant *Dosha* at the time of fertilization and the functions of that particular *Dosha* may be exhibited more in that *Prakriti*. Knowledge of normal functioning of *Dosha* as per *Prakriti* is not only helpful in diagnosis of abnormal or vitiated condition of *Dosha*, but also can be used as a tool for the assessment of *Prakriti* in retrospective

method. With this aim, a study has been carried out to find the variations in functioning of *Pitta* as per *Prakriti* all the way through certain objective parameters based on the prime function of each subtypes of *Pitta Dosha*. Secondly to develop some tools to assess the functional status of *Pitta Dosha* in different *Prakriti* individuals. The term *Pitta* is derived from the root “*Tap*” which means to heat or to burn [3] (Sutra sthana chapter 21/5). The factor which is responsible for the utilization of food products or generates heat through all sorts of digestion and metabolism taking in the form of oxidation, hydrolysis, combustion and overall endocrinal activities in the body. It brings about digestion or indigestion, vision or impaired vision, normal or abnormal temperature and color, psychological behaviors like valor and fear, anger and joy, sadness and happiness according to their normal and abnormal state[1](Sutra sthana chapter 12/11).

*Pitta* has been classified in to *Pachaka*, *Ranjaka*, *Sadhaka*, *Alochaka* and *Bhrajaka Pitta*. [4, 5] (Sutra sthana chapter 12/10, Sutra sthana chapter 20/3). Among this *Pachaka Pitta* resides in between *Aamashaya* and *Pakvashaya*, digests the four kinds of food, and separates *Dosha*, *Rasa*, *Mutra* and *Purisha*. Residing in its own site, it bestows the other sites of *Pitta* by virtue of its own inherent property [3]. (Sutra sthana chapter 21/10).

*Pachaka Pitta* includes all the digestive secretions with their enzymes and ATP [6]. *Ranjaka Pitta* resides in *Yakrita* (liver) and *Pleeha* (spleen) and is responsible for imparting color to *Rasa Dhatu*. [3] (Sutra sthana chapter 14/4, 21/10). Indu has mentioned that *Pitta* residing in *Aamashaya* is known as *Ranjaka Pitta* because of its *Raga* (coloration) and *Ranjana Karma* which is responsible for production of fraction of *Rakta Dhatu* (blood) from *Rasa Dhatu* (plasma) [5]. (Sutra sthana chapter 20/3).

*Ranjaka Pitta* includes all the factors (erythropoietin, dietary protein and energy, vitamin B12, folic acid, pyridoxine, riboflavin, niacin, ascorbic acid, vitamin A, vitamin E, iron, copper) responsible for synthesis of hemoglobin and erythropoiesis, maturation of RBCs and the sites mentioned for *Ranjaka Pitta* are liver and spleen, both are related to storage and production of blood [7,8].

*Alochaka Pitta* is situated in *Drika* (eyes) and governs the phenomenon of vision or it catches the image of any external object presented to eye (*Rupagrahana*) [3, 4, 5, 9] (Sutra sthana chapter 21/5, Sutra sthana chapter 12/14, Sutra sthana chapter 20/3, Purva khanda chapter 5/31). It may include all the enzymes which are involved in the chemical changes taking place in eye during visualization of any object. It may occur through mediating the reactions occurring during the visualization.

*Sadhaka Pitta* resides in *Hridaya* (heart) and controls the higher mental functions like *Buddhi* (discrimination) *Medha* (intelligence), *Abhiman* (pride), *Utsaha* (enthusiasm) and *Smriti* (memory) [3,4,5] (Sutra sthana chapter 21/10, Sutra sthana chapter 12/13, Sutra sthana chapter 20/3). C Dwarakanath has opined that here the term *Hridaya* should be taken as *Shirohridaya* (head) instead of *Urohridaya* (thoracic heart). As the heart has nothing to do with all these functions, and none of the cardiac disease produces any manifestation on these attributes, also heart does not produce any chemical substance pertaining to these features. But in respect to *Sadhaka Pitta* both *Shirohridaya* and *Urohridaya* should be considered as it has been seen that psychological attributes like nervousness, anxiety etc. result in manifestation of cardiac ailments.

*Bhrajaka Pitta* situated in skin (*Twaka*) gives luster to the complexion and helps in absorption of medicaments used in the form of massage, irrigation, tub bath and ointments. [3, 9] (Sutra sthana chapter 21/10, Purvakhandha chapter 5/31)

## MATERIAL AND METHODS

For this study, clinically healthy participants of both sex aged between 20 to 35 years were selected after obtaining their written consent. The subjects who were not willing to participate in the study, suffering from any chronic diseases like hypertension, hypothyroidism etc., age less than 20 years or more than 35 years were excluded from this study. These participants were selected through purposive sampling method from the student community of our institute pursuing the course of BAMS, BDS, PhD and MD (Ay). After applying the inclusion and exclusion criterion, finally 201 subjects were registered for the present study. Assessment of *Deha Prakriti* was done through the validated and reliable proforma designed by Tripathi P.K. *et al.* (2016)[11]. It was developed on the basis of features of *Prakriti* mentioned in various texts of Ayurveda and it includes all physical,

physiological and psychological features of *Prakriti*. *Prakriti* was determined on the basis of most dominant *Dosha*, i.e. *Dosha* having more than 45% percentage and having at least difference of 7% from secondary *Dosha*. Finally number of subjects belonging to *Vata*, *Pitta* and *Kapha Prakriti* were 33, 60 and 108 respectively. After the assessment of *Prakriti*, objective parameters like height, weight, BMI, pulse rate, blood pressure, serum triglycerides, cholesterol, total protein, glucose, hemoglobin, short term and long term memory, reaction time for visual and auditory stimuli, visual acuity for distant vision and RGB were assessed.

#### *Determination of objective parameters:*

The objective parameters were determined considering the primary functions of each type of *Pitta Dosha*. Exhibition of results of these parameters will reflect the status of that subtype *Dosha* in that *Prakriti*. For assessing the functions of *Pachaka Pitta*, serum triglycerides, cholesterol, total protein and serum glucose level were considered. As *Pachaka Pitta* is responsible for the digestion of *Aahara* [3] (Sutra sthana chapter 21/10) and the ultimate fraction of food we ingest in the form of carbohydrates, protein and fats are glucose, amino acids, triglycerides and cholesterol respectively. Better the digestive and metabolizing capacity lesser will be their levels in blood. For assessing the functioning of *Ranjaka Pitta*, hemoglobin concentration was well-thought-out. As the *Ranjaka Pitta* is responsible for coloring of the *Rasa Dhatu* or the production of blood [3] (Sutra sthana chapter 14/4 and 21/10) as hemoglobin is the coloring agent of RBCs [8], a good status of hemoglobin will reflect good functioning of *Ranjaka Pitta*. *Sadhaka Pitta* is responsible for *Utsaha* and *Smriti* [4,5] (Sutra sthana chapter 12/13, Sutra sthana chapter 20/3). *Utsaha* was observed through reaction time for auditory and visual stimuli, as reaction time measures the quickness to respond any stimuli [12], thus lesser the time taken to respond, better the reaction time will be. While *Smriti* (memory) was assessed through short term and long term memory test. *Alochaka Pitta* is responsible for the visual perception of objects [3, 5] (Sutra sthana chapter 21/5, Sutra sthana 20/3) which was assessed by visual acuity. RGB value of facial photographs was calculated to assess the complexion of skin which is the function of *Bhrajaka Pitta* [3] (Sutra sthana chapter 21/10).

#### *Assessment of objective parameters*

5 ml of venous blood was withdrawn in between 3pm to 5 pm, 3 hours after the ingestion of meal to assess the digestive function of *Pachaka Pitta*. Serum was separated immediately by centrifuging it at 3000 rpm for 5-6 minutes. Serum was stored in deep fridge at -40 degree centigrade. All the biochemical parameters were estimated through colorimeter by using Autospan triglyceride, cholesterol, total protein and glucose kit which follows end enzymatic test. Hemoglobin concentration was determined through Sahli's hemoglobinometer [13] Visual acuity for distant vision was assessed by Snellen's chart [13], reaction time (in seconds) for visual and auditory stimuli was calculated by using digital reaction time apparatus. The subjects were presented with bulbs of different color and sound intensities one by one and were asked to switch off it as prompt as they can. An average of four responses of sound and visual stimuli was noted down separately.

Memory was evaluated by using manual for human memory and experimental procedure on long term memory (LTM) and short term memory (STM) by Dr. B.B. Asthana. For long term memory, subjects were presented with 16 pairs of words one by one. For each pairs of words, they were provided immediately with a number (1, 2, 3, 4) given in datasheet, showing the number of times they have to repeat that word. After the completion of repetition they were immediately presented with a number given in datasheet (97, 87, 54 etc.) and were asked to countdown the number backward with gap of 3 numbers for two minutes. After two minutes they were asked to recall the words. Same was repeated for all the 16 pairs of words. The number of correct responses and average time taken to recall each word was noted down. For short term memory, there was 24 triad alphabets, the subject was asked to listen the word carefully and not to repeat it, immediately they were provided with a number asking them to countdown backward with gap of three digit for 3 second or 6 second or 9 second as given in datasheet for that word, immediately they were asked to recall the words, the number of correct responses and average time taken to recall the words was noted down. Memory was determined on the basis of number of words recalled and time taken. More the number of words recalled and lesser the time taken was considered as better memory. This procedure was carried out in calm place.

For calculating the red, green and blue values of RGB, facial photographs of all volunteers were taken in biochemistry laboratory of Kriya Sharir department in fixed illumination, from a fixed distance of 2.5 feet and fixed optical zoom of 2X, without spectacles. Male subjects were asked to come clean shaved and all subjects were asked not to use any cosmetics one week prior to photographs. After that RGB value of whole face was calculated by using software MATLAB R2014a with the help of department of computer science of our University. .

#### Statistical Analysis:

Statistical analysis was carried out by using SPSS (Statistical Package for Social Sciences), Version 16.0. Data was presented as Mean  $\pm$  SD. It was considered statistically significant if p value was found to be less than 0.05.. One Way ANOVA was applied to find out correlation between *Prakriti* and biochemical parameters, hemoglobin, RGB values and number of words recalled by short term and long term memory test. Cross tabulation was applied to

find correlation between frequency of myopia and emmetropia with *Prakriti*. Non-parametric test Kruskal -Wallis was applied to find correlation of *Prakriti* with average time taken to recall words by memory test.

#### OBSERVATIONS AND RESULT

The mean value of cholesterol was found to vary statistically significant as per *Prakriti* ( $p < 0.001$ ) for the pair V vs K and P vs K. The mean values of triglycerides and cholesterol were found minimum in *Pitta Prakriti* individuals while the mean values of protein and glucose were found minimum in *Vata Prakriti* individuals. The mean values of all these four parameters were found maximum in *Kapha Prakriti* individuals. The mean value of hemoglobin concentration varies significantly as per *Prakriti* ( $p = 0.001$ ) for the pair V vs P:  $p = 0.002$  and P vs K:  $p = 0.004$  and was found higher in *Pitta Prakriti* individuals and lower in *Vata Prakriti* individuals. (Table-1)

**Table-1:** Mean  $\pm$  SD of hemoglobin and biochemical parameters

Hemoglobin and Biochemical Parameters	Mean $\pm$ S.D			ANOVA	Post Hoc Test
	<i>Vata Prakriti</i> (n=33)	<i>Pitta Prakriti</i> (n=60)	<i>Kapha Prakriti</i> (n=108)		
Hemoglobin ( gm/dl)	12.717 $\pm$ 1.405	13.788 $\pm$ 1.392	13.032 $\pm$ 1.488	F=7.512 <b>p=0.001</b>	<b>V vs P:p= 0.002</b> V vs K:p=0.828 <b>P vs K:p= 0.004</b>
Protein ( gm/dl)	8.51 $\pm$ 2.083	8.88 $\pm$ 2.120	9.46 $\pm$ 2.146	F=3.142 <b>p=0.045</b>	V vs P:p=1.000 V vs K:p=0.076 P vs K:p=0.271
Cholesterol ( mg/dl)	129.79 $\pm$ 17.223	128.51 $\pm$ 26.593	150.05 $\pm$ 25.108	F=18.561 <b>P&lt;0.001</b>	V vs P:p=1.000 <b>VvsK: p&lt;0 .001</b> <b>P vs K:p&lt; 0.001</b>
Triglycerides ( mg/dl)	119.96 $\pm$ 29.993	117.07 $\pm$ 35.909	123.52 $\pm$ 33.327	F=.484 p=0.729	
Glucose ( mg/dl)	107.95 $\pm$ 23.230	109.23 $\pm$ 23.81	117.21 $\pm$ 27.097	F=2.751 p=0.066	

**Table-2:** Mean  $\pm$  SD of red, green and blue values of RGB as per *Prakriti*.

RGB value	Mean $\pm$ S.D.			ANOVA	Post Hoc Test
	<i>Vata Prakriti</i> (n=33)	<i>Pitta Prakriti</i> (n=60)	<i>Kapha Prakriti</i> (n=108)		
Red	135.09 $\pm$ 7.579	141.02 $\pm$ 7.149	140.90 $\pm$ 6.31	F=10.258 <b>P&lt;0.001</b>	<b>V vs P: p&lt;0 .001</b> <b>V vs K :p&lt;0 .001</b> P vs K :p=1.000
Green	129.53 $\pm$ 6.491	135.26 $\pm$ 7.760	134.01 $\pm$ 6.866	F=7.281 <b>P&lt;0.001</b>	<b>V vs P: p&lt; 0.001</b> <b>V vs K: p= 0.005</b> P vs K :p=0.824
Blue	120.91 $\pm$ 5.897	126.09 $\pm$ 8.007	123.72 $\pm$ .620	F=4.507 <b>p=0.012</b>	<b>V vs P: p= 0.010</b> V vs K: p=0.241 P vs K:p=0.210

The mean of red, green and blue values of facial photographs was found to vary statistically significant as per *Prakriti* ( $p < 0.001$  for red and green value,  $p < 0.010$  for blue value). On applying Post Hoc Test, significant pairs were V vs P:  $p < 0.001$ , V vs K:  $p < 0.001$  for red, V vs P:  $p < 0.001$ , V vs K:  $p = 0.005$  for green while no significant pair was found for blue value. However these values were highest in *Pitta Prakriti* and lowest in *Vata Prakriti* individuals. (Table-2)

Frequency of myopia and emmetropia does not vary significantly as per *Prakriti* however through their percentages, we can interpret that incidence of emmetropia was maximum in *Pitta Prakriti*. The numbers of word recalled in short term and long term memory test vary significantly as per *Prakriti*. ( $p = 0.033$  for LTM,  $p < 0.001$  for STM) The significant pairs on applying Post Hoc Test were V

vs P:  $p = 0.026$ , V vs K:  $p = 0.037$  for LTM and V vs P:  $p < 0.001$ , V vs K:  $p = 0.006$  for STM. *Pitta Prakriti* individuals had recalled maximum number of words and had taken least time in both short term and long term memory test, followed by *Kapha Prakriti* and then *Vata Prakriti* individuals. (Table-4)

Average time taken to recall the words by long term memory test varies significantly as per *Prakriti* ( $p = 0.025$ ) while average time taken to recall words by short term memory does not vary significantly. However *Pitta Prakriti* individuals had taken less time and *Vata Prakriti* individuals had taken more time to recall the words. (Table-5)

Time taken to respond to auditory and visual stimuli does not vary significantly as per *Prakriti*. However reaction time for both visual and auditory stimuli was highest in *Vata Prakriti* and lowest in *Kapha Prakriti*. (Table-6)

**Table 3:** Number and percentages of emmetropia and myopia as per *Prakriti*

Visual Acuity	Prakriti		
	Vata Prakriti (n=33)	Pitta Prakriti (n=60)	Kapha Prakriti (n=108)
Emmetropia	11(33.33%)	35(58.33%)	58(53.70%)
Myopia	22(66.67%)	25(41.67%)	50(46.30%)
$\chi^2 = 5.689, p = 0.058$			

**Table-4:** Number of words recalled by short term and long term memory test as per *Prakriti*.

Memory	MEAN ± S.D.			ANOVA	Post Hoc test
	Vata Prakriti (n=33)	Pitta Prakriti (n=60)	Kapha Prakriti (n=108)		
LTM	13.33 ± 2.406	14.38 ± 1.832	14.12 ± 1.689	F=3.459 <b>p=0.033</b>	V vs P : <b>p=0.026</b> V vs K: <b>p=0.037</b> P vs K: <b>p=1.000</b>
STM	17.18 ± 3.93	20.03 ± 2.77	19.23 ± 3.299	F=8.299 <b>P&lt;0.001</b>	V vs P: <b>p&lt;0.001</b> V vs K: <b>p=0.006</b> P vs K: <b>p=0.364</b>

**Table-5:** Average time taken to recall words in short term and long term memory as per *Prakriti*.

Average recall time for memory (in seconds)	Mean ± S.D.			Kruskal-Wallis Test
	Vata Prakriti (n=33)	Pitta Prakriti (n=60)	Kapha Prakriti (n=108)	
LTMART	3.17±2.017	2.16±1.085	2.29±1.645	$\chi^2 = 7.416$ <b>p=0.025</b>
STMART	2.45±1.615	1.79±1.319	1.83±1.150	$\chi^2 = 4.501$ <b>p=0.105</b>

**Table- 6:** Reaction time for auditory and visual stimuli as per *Prakriti*

Reaction time ( in seconds)	Mean ± S.D.			ANOVA
	Vata Prakriti ( n=33)	Pitta Prakriti ( n=60)	Kapha Prakriti ( n=108)	
Reaction time (Visual)	0.7192± 0.138	0.7259± 0.204	0.6877± 0.185	F=0.954 <b>p=0.387</b>
Reaction time Auditory)	0.9599± 0.326	0.9603± 0.433	0.9220± 0.4823	F=0.183 <b>p=0.833</b>

## DISCUSSION

### *Ranjaka Pitta*

A good status of hemoglobin in *Pitta Prakriti* individuals shows a good functioning of *Ranjaka Pitta* as it is responsible for the *Rasa Ranjana* i.e. coloration of the *Rasa Dhatu* [3] (Sutra sthana chapter 21/10. Sutra sthana chapter 14/4). This observation is supported by the opinion of *Acharya Sushruta* who has mentioned that *Pitta Prakriti* individuals are having reddish colored palm, sole, nails and eyes [3] (Sharira sthana chapter 4/ 68) which is indicator of good concentration of hemoglobin in them. Prasher B *et al*, (2008) [14] also observed increased Hb%, PCV, RBCs in *Pitta Prakriti* individuals. As *Ranjaka Pitta* may also comprise of all the factors responsible for erythropoiesis, it indicates a good quantity of these nutrients in them which further shows their good digestion, absorption capacity. The mean value of hemoglobin was found minimum in *Vata Prakriti* individuals which may be one of the cause of dry skin, brittle hairs and nails in them [1] (Vimana sthana chapter 8/98). From this finding it can be assumed that functioning of *Ranjaka Pitta* was exhibited more in *Pitta Prakriti* and less in *Vata Prakriti* individuals.

### *Pachaka Pitta*

The minimum level of serum total protein and glucose in *Vata Prakriti* individuals as compared to other *Prakriti* may be due to their tendency of instability in joints, eyes, eye brow, jaw, lips, tongue, head, shoulder, tongue and hands [1] (Vimana sthana chapter 8/98), i.e. they have faster skeletal muscle activities which may lead to fast metabolism of glucose [15]. The minimum mean values of triglycerides and cholesterol in *Pitta Prakriti* show that they are fast metabolizers [16] or *Sheeghra Paki* [17] (Vimana sthana 4/19) and have *Teekshanagni* [1] (Sutra sthana chapter 8/97). *Kapha Prakriti* individuals are slow metabolizers [16] and have *Mandagni* [1] (Vimana sthana 8/97), maximum value of triglycerides and cholesterol in them may be one of the reason for their proneness towards *Dhamani Pratichay* [1] (Sutra sthana chapter 20/ 19) i.e. atherosclerosis. These findings reveal the decreased functioning of *Pachaka Pitta* in *Kapha Prakriti* individuals as compared to others.

### *Sadhaka Pitta*

The findings of short term and long term memory showed that *Pitta Prakriti* individuals

possess both these memory better while *Vata Prakriti* individuals have poor memory. Further these findings are in conformity with the description available in Ayurveda text that *Vata Prakriti* individuals tend to have poor memory (*Alpasmriti*) [1] (Vimana sthana chapter 8/98), unstable mind [3] (Sharira sthana chapter 4/66) (*Avyavasthitamati*) and short memories (*Sighravismara*) [5] (Sharira sthana chapter 8/6). *Acharya Bhela* has mentioned that *Vata Prakriti* individuals are quick in grasping and forgetting. (*Kshipra Grahitatha tatha Smirata*) [17] (Vimana sthana 4/17).

It further justifies the better functioning of *Sadhaka Pitta* in *Pitta Prakriti* individuals followed by *Kapha Prakriti* and least in *Vata Prakriti* individuals. Time taken to respond to auditory and visual stimuli does not vary significantly as per *Prakriti*. However reaction time for both visual and auditory stimuli was maximum in *Vata Prakriti* and minimum in *Kapha Prakriti*. *Vata Prakriti* individuals are quick in initiations of activities [1] (Vimana sthana chapter 8/98) however maximum reaction time in them may be due to *Avasthitamati* [3] (Sharira sthana chapter 4/66) and *Sheeghratrashragaviraga* [1] (Vimana sthana chapter 8/98) While *Kapha Prakriti* individuals are *Mahautasaahi* [17] (Vimana sthana chapter 4/24).

### *Alochaka Pitta*

Incidence of emmetropia and myopia do not vary significantly as per *Prakriti* but from the pattern of occurrence of myopia and emmetropia it can be inferred that functioning of *Alochaka Pitta* was dominant in *Pitta Prakriti* individuals and least in *Vata Prakriti*.

### *Bhrajaka Pitta*

In RGB method, red, green and blue color space is determined and RGB method is image based color analysis with the help of RGB calculating software [18]. Combination of maximum intensity of these three values gives white complexion, while minimal intensities will give dark complexion [19]. Maximum and minimum values of Red, Green and Blue values of RGB of facial photographs was found in *Pitta Prakriti* and *Vata Prakriti* respectively. This finding is supported by the opinion of *Acharya Charak* that *Pitta Prakriti* individuals are of *Sukumaravdatgatra* i.e. fair complexion [1] (Vimana

sthana chapter 8/98). It is also in conformity with the description of *Acharya Bhela* that *Pitta Prakriti* individuals are of *Ativarno* (excessive coloration) [17] (*Vimana sthana* chapter 4/21). Higher RGB values in *Pitta Prakriti* individuals signify the better functioning of *Bhrajaka Pitta* as it is responsible for the complexion of skin [3](*Sutra sthana* chapter 21/10).

## CONCLUSION

The functions of *Ranjaka*, *Bhrajaka* and *Sadhaka Pitta* are found better in *Pitta Prakriti* individuals followed by *Kapha Prakriti* and least in *Vata Prakriti* individuals. Incidence of myopia and emmetropia does not vary. The functions of *Pachaka Pitta* are influenced by many confounding factors like *Ashta Aharvidhivisheshayatan*, *Aaharparinaamkarabhava*, personal habit of eating, time and duration of sleep, time of food intake, type of diet etc. Although the subjects were uniform in terms of their food habits and physical activity, even a slight variation in these may affect the function of *Pachaka Pitta*. This may be one of the reasons for not obtaining any significant variation in *Pachaka Pitta* as per *Prakriti*. However the obtained data show the minimal functioning of *Pachaka Pitta* in *Kapha Prakriti* individuals.

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