

## COMPARISON OF NASAL BACTERIAL FLORA IN THREE GROUPS OF HEALTHY SUBJECTS ACCORDING TO PREDOMINANT DEHA PRAKRITI

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### ABSTRACT

According to Ayurveda every individual is different from other and hence should be considering as a different entity call *Prakriti*. *Prakriti* is unique concept of Ayurveda. *Prakriti* forms during the process of fertilization. Once it forms it remain same throughout life. In Ayurvedic text it has been mentioned that different Deha *Prakriti* will have different characteristics. The predominance of *Dosha Prakriti* shows different microbial flora. Present study is carried out with an objective to compare nasal aerobic bacterial flora according to their predominant *Deha Prakriti*. Total 356 volunteers were screened from various colleges of Nagpur city. The enrolled volunteer's grouped as *Vata Pitta* and *Kapha* predominant *Prakriti* having 30 volunteer in each group. In the present study it was found that all the aerobic bacteria which are taken in consideration for study were found in all three dominant *Prakriti* groups except *C. diphtheriae*. The Commensal bacteria were predominantly found in *Kapha Prakriti* group as compared to *Vata* and *pita Prakriti* volunteers group.

**Keywords:** *Prakriti Vata Pitta Kapha Bacterial Flora Aerobic Commensal*

### INTRODUCTION

*Prakriti* is the unique concept of *Ayurveda*. It is the biological constitution or the genetic makeup of an individual, which remains constant throughout life. It is the physical, physiological and psychological characteristics of an individual. Every individual is a unique entity with a constitution of his/her own. *Prakriti* means *Swabhav* or nature of an individual (1). According to *Vagbhata* the *Prakriti* remains unchanged throughout the life prior to death. This *Prakriti* or the biological judiciary controls the physical and mental characteristics of an individual.

Ayurveda categories human population into various sub population like - *Vata Prakriti*, *Pitta Prakriti*, *Kapha Prakriti* or a combination of two predominant *Dosha* (*Vata-Pitta Prakriti*, *Vata-Kapha Prakriti* or *Pitta- Kapha Prakriti*) or all the three *Dosha* (*Tridoshaja Prakriti*) (2) on the basis of physical, physiological and psychological characteristic. Each *Prakriti* has its own adaptability to life conditions for the long run.

Human always coexist with microorganisms. The human body itself contains thousands of species of bacteria and a smaller number of viruses, fungi and pro-

tozoa. The presence of normal flora is beneficial to each individual and it is responsible for immune stimulation and plays a major role in human nutrition and metabolism. Normal flora is also a common source of infection and also initiate the mechanism that give rise to allergic disorders and inflammatory bowel disease. The term normal microbial flora or microbiota denotes the population of microorganisms that inhabit the skin and mucous membrane of healthy person (3). Researches has shown that these normal flora now referred as normal micro biota which provide a first line defence against microbial pathogens, plays a role in toxin degradation and contribute to maturation of immune system.

There are two main types of flora present on the body i.e. resident and transient flora. The resident flora consists of relatively fixed types of microorganisms regularly found in a given area at a given age; if disturbed, it promptly re-establishes itself. These prevent permanent colonization of the body by the other organisms. The transient flora consists of non-pathogenic or potentially pathogenic microorganisms that inhabit the skin or mucous membranes for hours, days, or weeks; flora are transiently present (present for a short time) in or on the body and can be removed permanently, they only partially prevent permanent colonization of the body by the other. it is derived from the environment, does not produce disease. Members of the transient flora are generally of little significance so long as the normal resident flora remains intact. However, if the resident flora is disturbed, transient microorganisms may colonize, proliferate, and produce disease.

Normal Flora of the Nose:-

The external 1 cm of the anterior nares is lined with squamous epithelium. The nares

have a flora similar to that of the skin except that it is the primary site of carriage of a pathogen, *Staphylococcus aureus*. About 25 to 30% of healthy people carry this organism as either resident or transient flora at any given time (4). It is colonized by a variety of streptococcal and staphylococcal species, the most significant of which is the pathogen *S. aureus*. Any amount of the following: diphtheroids, nonpathogenic *Neisseria* species,  $\beta$ - hemolytic streptococci; *S epidermidis*, nonhemolytic streptococci, anaerobes (varying amounts of *Prevotella* species, anaerobic cocci, *Fusobacterium* species, etc) .Lesser amounts of the following when accompanied by organisms listed above: yeasts, *Haemophilus* species, pneumococci, *S aureus*, gram-negative rods, *Neisseria meningitides*.

## MATERIAL AND METHODS

### Selection of volunteer and study population:-

The study was carried out at Nagpur city of Maharashtra from November to February 2012 (*Visarga Kala*) with objective to compare aerobic nasal bacterial flora in three groups of healthy volunteers according to predominant *Deha Prakriti*. The healthy volunteers were selected from various Commerce, Arts, Science, Management, Engineering & Ayurveda colleges; total 356 volunteers were screened with the help of special screening proforma containing unique screening number, demographic data and inclusion and exclusion criteria.

### Inclusion criteria: -

- S<sub>1</sub>:- Healthy individual
- S<sub>2</sub> :-Individual of either sex i.e. Male or Female
- S<sub>3</sub> :-Age: - 20 – 40 yrs
- S<sub>4</sub> :-Volunteers residing in particular area since last 15 days
- S<sub>5</sub> :-Willing for consent

### Exclusion criteria:-

- E<sub>1</sub>:- Volunteers with addiction of smoking & chronic Alcohol intake

- E<sub>2</sub>:- Volunteers participated in any other clinical trial 4 weeks prior to enrolment into this study
- E<sub>3</sub> :- Volunteer with family history of Congenital or hereditary disorders
- E<sub>4</sub>:- Volunteer with history of any acute or chronic medical or surgical illness
- E<sub>5</sub>:-Volunteer with history of any nasal or systemic medication in last 4 weeks
- E<sub>6</sub>:-Volunteer with history of travelling in last 4 weeks
- E<sub>7</sub>:-Pregnant & Lactating women
- E<sub>8</sub>:-Volunteer with acute or chronic clinically significant pulmonary, cardiovascular, genitourinary or any systemic abnormality as determined by history or clinical examination

The volunteers fulfilling the eligibility criteria were enrolled for further study. After the enrolment each volunteer were given a separate identity form (ID form) to hide their identity in questionnaire. Each volunteer were given a questionnaire containing questions related to Prakriti. The Prakriti of each volunteer was assessed by using a questionnaire made on the basis of physical, physiological and psychological characteristics mentioned in Ayurvedic text.

According to their predominant Deha Prakriti all the volunteers were categorized into three groups i.e. Vata, Pitta and Kapha Prakriti group. 30 volunteers from each group were randomly selected for further study. Enrolled volunteers were advice to sign consent form. After that nasal swab was taken from both nares then it was collected in sterile container and transported to microbiology lab within half

an hour for culture. The culture reports were obtained after 3 days.

## RESULTS AND OBSERVATION

In this study following results were found - out of total 90 volunteers 59 volunteers (65.93%) were male while 31 (34.97%) were female (Table no.2). Among total volunteers 11 were higher secondary, 47 volunteers graduate, 29 post graduate and only 3 volunteers were doctorate (Table no.3). In occupation wise classification maximum number of volunteers were students i.e. 45 (50.00%). 11 volunteers were unemployed, 34 employed (Table no. 4). Classification of volunteers according to their diet pattern shows that only 9 volunteers were purely vegetarian while 36 & 45 volunteers were non vegetarian and mixed diet respectively. The classification of volunteers according to their *Jatharagni* shows that 40 volunteers having Tikshnagni and only 5 volunteers were having *Samagni* (Table No.6). The *kostha* wise classification of volunteers shows that 39 volunteers were krura kostha, 29 were *Mrudu kostha* while rest 22 were *Madhyam kostha* (Table no.7). Table no. 8 shows that in *vata prakriti* group NHL streptococci, αHL streptococci, βHL streptococci, B. subtilis and Coagulase +ve were found more in number as compare to *Pitta & Kapha Prakriti* group. *Pitta Prakriti* group K. pneumoniae and coagulase –ve were more in number as compare to *vata* and *Kapha Prakriti* group. E. coli, P. mirabilis, pseudomonas were more in number as compare to other two groups.

Table no. 1 Table showing dominant *Prakriti* group wise distribution of total volunteers

Grouping	No. of Volunteer	Percent
<i>Vata</i> dominant <i>Prakriti</i>	30	32.97%
<i>Pitta</i> dominant <i>Prakriti</i>	30	32.97%
<i>Kapha</i> dominant <i>Prakriti</i>	30	32.97%
Total	90	100.00%

**Table no. 2 Table showing Sex wise distribution of total volunteers**

Gender	No. of Volunteer	Percent
Male	59	65.93%
Female	31	34.07%
Total	90	100.00%

**Table no. 3 Table showing Educational wise distribution of total volunteers**

Education	Frequency	Percent
HSC	11	12.09%
Graduate	47	51.65%
PG	29	31.87%
Doctorate	3	3.30%
Total	90	100.00%

**Table no. 4 Table showing Occupation wise distribution of total volunteers**

Occupation	Frequency	Percent
Student	45	50.00%
Unemployed	11	12.23%
Employed	34	37.77%
Total	90	100.00%

**Table no. 5 Table showing Diet wise distribution of total volunteers**

Diet	Frequency	Percent
Veg	9	10.00%
Nonveg	36	40.00%
Mixed	45	50.00%
Total	90	100.00%

**Table no. 6 Table showing Jatharagni wise distribution of total volunteers**

Jatharagni	Frequency	Percent
Vishamagni	25	27.78%
Tikshnagni	40	44.45%
Mandagni	20	22.23%
Samagni	5	5.54%
Total	90	100.00%

**Table no. 7 Table showing Kostha wise distribution of total volunteers**

Kostha	Frequency	Percent
Krura	39	43.33%
Mrudu	29	32.22%
Madhyam	22	24.45%
Total	90	100.00%

**Table no. 8 Aerobic Bacteria In The Nasal Cavity Of Different Healthy Volunteers With Three Groups Predominant Deha Prakriti**

Name of organisms	Vata		Pitta		Kapha	
NHL streptococci	08	26.56%	06	20%	03	10%
α HL streptococci	02	6.66%	01	3.33%	01	3.33%

βHL streptococci	08	26.56%	02	6.66%	04	13.33%
Bacillus subtilis	03	10%	01	3.33%	00	00%
Escherichia coli	00	00%	00	0%	02	6.66%
Klebsiella pneumonia	00	00%	02	6.66%	00	0.0%
Proteous mirabilis	00	00%	00	0.0%	01	3.33%
Pseudomonas	00	00%	01	3.33%	05	13.79%
C+ve staphylococcus	19	63.33%	07	23.33%	13	43.33%
C-ve staphylococcus	12	40%	13	43.33%	07	23.33%

## CONCLUSION

In the present study it was found that all the aerobic bacteria which are taken in consideration for study were found in all three dominant Prakriti groups except C. diphtheriae. The Commensal bacteria were predominantly found in *Kapha Prakriti* group as compared to *Vata* and *pita Prakriti* volunteers group.

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