www.jahm.in
(ISSN-2321-1563)

REVIEW ARTICLE

YOGA AS A PREVENTIVE HEALTH CARE ACCORDING TO *PRAKRITI:* A CRITICAL STUDY

JADHAV SANGEETA S.[1] WAGHULADE HEMANGINI S.[2]

ABSTRACT

The predominance of dosha (humors) determines the doshaja prakriti- the functional or the energetic condition of the body. Each prakriti(constitution) has its own drawbacks and may prone to specific health issues in the future if not balanced by daily diet and routine chores. Vedic Sciences, Ayurveda and Yoga originated from the same source and share a common history and cultural foundation. Yoga is often advised for a long duration or as a routine. Any routine physiological or psychological alteration including Yoga may affect the prakriti positively or negatively. This review aims to evaluate the importance of Yoga according to prakriti as a preventive measure for future ailments. A framework is rendered for interpretation of the Yoga practice according to prakriti. It will also help to build a standardized protocol for therapeutic Yoga. Classical Ayurvedic texts were searched for the reference of prakriti and Yoga. The experimental, clinical studies found supportive of Ayurvedic prakriti in Yoga, therapeutic Yoga and prakriti related future ailments were screened and selected. References taken from review articles of Yoga and gene expression; of critically analyzed experimental studies are screened and selected. For therapeutic significance of Yoga RCTs mentioning duration of practice and number of participants are selected. Yoga practice encouraging the opposite qualities of prakriti can naturally bring back balance of dosha. A standardized protocol for therapeutic Yoga and prevention of prakriti prone probable ailments can be possible. It can be utilized as a personalized preventive health regimen.

Key words: Yoga, Prakriti, Dosha, Future Ailments, PersonalizedYoga, PreventiveYoga

[1] PG Scholar, [2]HOD and Professor, D. Y. Patil School of Ayurveda, D. Y. Patil deemed to be University, Nerul,Navi Mumbai, INDIA

Corresponding Email id: dr.sangeetajadhav@gmail.com Access this article online: www.jahm.in

1. INTRODUCTION:

Prakriti or constitution is one of the core philosophies of Ayurveda. Knowledge of the *prakriti* enables to figure out a personalized health plan with precise food, drinks, type of job and exercise etc. Also the physiological strengths and weaknesses, mental tendencies, and susceptibility to illnesses can be predicted [1].In each constitution there is a pre dominance of one or more *dosha* (humor).For maintaining health, regime that is different or opposite the constitutional type should be followed [2].The three *dosha* (*Vata, Pitta* and *Kapha*), constantly fluctuate according to the daily diet, the activities, the climate and many more factors. There is also physiological variation of *dosha* according to the age, season, day and night time and digestion of food [3].The current state of these three *dosha* most commonly defines imbalance or *vikriti*. With a unique constitution and unique imbalances each person's path toward health is unique. Understanding the *prakriti* and *vikriti* offers the potential to tailor a health regimen.

Yoga is an ancient system of practices based on the scientific principles of exercise, breathing exercise and meditation, and philosophical beliefs concerning life and thinking. According to Ayurveda the human body is composed of body, mind, senses and soul. Yoga has accepted this view, as both the healing sciences considered life as psychosomatic spiritual phenomena[4].Equilibrium of the actions of *dosha*, tissues, channels, waste products and digestive fire accompanied by a sensation of well being mental tranquility and all sense organs working properly, is known as health according to Ayurveda [5].Though Yoga is a non strenuous exercise, it is advised to practice regularly (*sadabhyasa*) for better results[6]. Any routine activity can either balance *dosha* or cause imbalances and the Yoga practice is no exception. In fact too much of just one type of *asana* (body posture) practice can create an imbalance quite easily. No concrete guidelines exist regarding the frequency and duration of the therapeutic Yoga practice. As a result many modified Yoga postures according to the stamina and personal goals are being practiced. Researches also suggested the need of a standardized protocol for therapeutic Yoga intervention[7].They also recommended that further studies should identify which patients may benefit from the Yoga interventions, and which aspects of the Yoga interventions (i.e., physical activity and/or meditation and subsequent life style modification) or which specific Yoga styles were more effective than others. Identification of the specific Yoga intervention in the form of physical activity and/or meditation and subsequent life style modification is the need of the hour.

In this review study, we aim to evaluate the importance of Yoga practice according to

prakriti. We further appraise the practice of Yoga according to the *prakriti* as the personalized preventive health regimen. Prevention of variance of *prakriti dosha* to prevent subsequent diseases through personalized Yoga can be possible. It can also give a whole new approach for therapeutic Yoga practice. Many aspects of basic concepts of *prakriti* and Yoga were analyzed to propose a prototype of Yoga practice according to prakriti.

2. METHODS

In this review study, many aspects of *prakriti* and Yoga were analyzed to manifest the correlation between *prakriti* and future probable ailments and therapeutic significance of Yoga. Though there are no direct references are available regarding Yoga according to *prakriti* enough evidences are available to evince the interrelatedness in the leading treaties of Ayurveda and literature of Yoga.

Classical Ayurvedic texts were searched for the reference of *prakriti* and Yoga. Both Ayurveda and modern recent researches on *prakriti* and Yoga, and their therapeutic significance are explored via electronic search. Library search for articles published in peer viewed journals and also locally available books on Yoga are also surveyed. Yoga is classified in different ways in different contexts, by different texts. Among them for references only HathaYogapradipika is used because in Hatha Yoga emphasis is given on physical culture.

Criteria for Considering Recent Studies for this Review

Studies were identified by searching Pubmed, SciFinder, Science Direct, and Google Scholar using the following combination of keywords: *(prakriti* OR constitution OR *prakriti* and diseases OR Yoga OR Yoga and *prakriti* OR Yoga and diseases OR Yoga and adverse events)and (gene expression and *prakriti* OR gene expression and Yoga). Their titles and abstracts were screened. Preference is given to the research articles than review articles for both *prakriti* and Yoga. References taken from review articles of Yoga and gene expression; of critically analyzed experimental studies are screened and selected. For therapeutic significance of Yoga RCTs mentioning duration of practice and number of participants are selected. References selected only from abstracts are notified so.

3. *Prakriti*

The predominance of *dosha* (humors) determines the *doshaja prakriti* (the functional or the energetic condition of the body) that remains unchanged during the lifetime. Purely single dosha constitution is seldom found and although a balanced constitution is extremely good but is also rare.Only three main types of *Prakriti* viz., *Vata* predominant, *Pitta* predominant and *Kapha* predominant *prakriti*

are usually taken for the examination of a person. *Prakriti* assessment evaluates degree of dominant *dosha*. It constitutes an important step in Ayurvedic advice, diagnosis and therapeutics. *Prakriti* types can be considered as phenotypes that have distinct links with various metabolic pathways, disease susceptibility especially that with chronic diseases [1].

3.1. Flaws of each *Prakriti:*

Following table will show the disadvantages and the influence of physiological factors of each *prakriti.*

Table1. Points of concern of each *Prakriti*:

Drawbacks of *Prakriti*[8,9]	***Vata***	***Pitta***	***Kapha***
Physical Characteristics	Weak, lean, hyper mobile, intolerance to cold	Delicate, flabby body parts, moderate strength, intolerance to heat	Strong, delicate, sluggish, lazy, tendency to gain weight
Psychological/ Emotional Characteristics	Poor memory Getting irritated quickly, prone to worry and anxiety	Aggressive, Hot tempered, jealous	Inertia , Hide emotions
Disease susceptibility / Poor prognosis[10]	Arthritis, spinal disorders, Irregular menstruation cycle, Insomnia, Depression Developmental, Neurological, dementia, movement and speech disorders, Arrhythmias	Digestion issues, liver, spleen diseases, Ulcer, bleeding disorders, Skin diseases	Obesity, Diabetes, Hypothyroidism, Cardiac ailments, Obesity, diabetes, atherosclerotic conditions
Affecting seasons (approximate months)	*Grishma*, *Varsha* (May to August)	***Varsha, Sharada*** **(August to October)**	***Shishir, Vasant*** **(January to April)**
Affecting age	Old	Young	0-16yrs
Affecting time of day	2 pm to 6 pm	10 am to 2 pm	6am to 10 am
Affecting time of night	2am to 6 am	10pm to2 am	6 pm to 10 pm

3.2. Recent clinical studies on *Prakriti*

In the Ayurveda system of medicine, predisposition 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'* [10]. '*Prakriti*' concept is shown to be an empirical individual differences in human physiology[11]. Genetic variations are seen to be associated with adaptation to external environment and susceptibility to diseases [12]. Multiple linkages of Ayurvedic *tridosha* and *prakriti* principle with modern scientific, biochemical and genetic markers are being unearthed. The clinical findings and the reviews emphasizing the importance of *prakriti* assessment to prevent or postpone *prakriti* prone future ailments are given bellow.

Table 2 Recent clinical studies regarding *prakriti* with references and main findings.

First author	Article title	Findings
Hankey A.[13] (2005)	A test of the systems analysis underlying the scientific theory of Ayurveda's Tridosha	Ayurveda provides effective means for restoring health, even before pathology has set in, and the individual has fallen sick. As a result, it is particularly suited to dealing with chronic disease arising from malfunction of physiologic control systems, due to their being overtaxed or otherwise stressed.
Ghodke[14] (2011)	Traditional Medicine to Modern Pharmacogenomics: Ayurveda Prakriti Type and CYP2C19 Gene Polymorphism Associated with Metabolic Variability.	Our study demonstrates a probable genomic basis for metabolic differences attributed by *Prakriti.* These results allow us to predict that *Kapha* and *Pitta* being slow and fast metabolized groups.
Tiwari S[15] (2012)	Effect of walking (aerobic isotonic exercise) on physiological variants with special reference to *Prameha* (diabetes mellitus) as per *Prakriti*.	*Vata Pitta Prakriti* individuals have greater degree of *Raja Dosha* than *Kapha Dosha*. So the individuals are more reactive to any kind of stimuli and prone to develop chronic stress leading to different kind of psychosomatic disorders.
PrasherB[10] (2008)	Deshmukh SR, et al. Indian Genome Variation Consortium. Whole genome expression and biochemical correlates of extreme constitutional types defined in Ayurveda.	The extreme constitution types revealed differences at gene expression level as well as bio chemical levels and also included genes with reported disease involvement.
Tripathi JS[16] (1994)	Concept of dehaprakriti vis-à-vis human constitution in Ayurveda.	The particular type of Psychosomatic constitution with specific *Dosik* constituents predisposes a particular individual to a particular type of illness. In view of this fact, the different diseases to which

		an individual is predisposed may be prevented or postponed by appropriate diet, drugs or regimen.
Chatterjee B (2008) [17]	Prakriti-based medicine: A step towards personalized medicine.	These attributes of *Ayurveda* can play a major role in disease prevention and promotion of health towards longevity with a better quality of life, which forms the basis of personalized medicine.

3.3 Therapeutic significance of *prakriti*:

Among the three *prakriti, bala* (immunity) and longevity is superior in *kapha*, moderate in *pitta* and less in *vata*[8, 9]. Relation of *dosha* and non Communicable diseases has been revealed by many studies (listed below). Study also revealed that despite overall uniform composition of gut microbial community, healthy individuals belonging to different *Prakriti* groups have enrichment of specific bacteria that have important consequences for an individual's health, disease and treatment [18].

Table 3. Therapeutic significance of *prakriti* related references with main findings:

First Author	Article Title	Related Ailment and Prakriti type	Findings
Mahalle NP[19] (2012)	Association of constitutional type of Ayurveda with cardiovascular risk factors, inflammatory markers and insulin resistance.	*Vata Kapha(VK)* cardiovascular risk and insulin resistance	It may be presumed that dominance of *VK* group has got some positive relationship with cardiovascular risk factors. Insulin resistance, Cytokines and inflammatory markers has got positive relation with *VK* and K group both.
Venkatraghavan S[20] (1987)	Constitutional study of cancer patients-its prognostic and therapeutic scope.	*Pitta* and *Kapha* cancer	It is evident that *Pitta* dominant prakriti has greater incidence of cancer followed by *Kapha* .
Tiwari S[15] (2012)	Effect of walking (aerobic isotonic exercise) on physiological variants with special reference to *Prameha* (diabetes mellitus) as per *Prakriti*.	*Vata Pitta* Blood pressure	It can be concluded that the systolic blood pressure, diastolic blood pressure, pulse pressure and respiratory rate are the specific responses that may have a strong association with the *Prakriti* of an

			individual at certain physiological conditions.
Prasher B[10] (2008)	Indian Genome Variation Consortium. Whole genome expression and biochemical correlates of extreme constitutional types defined in Ayurveda.	*Kapha* Atherosclerosis	Apart from lipid profile, serum uric acid, recently considered to be an independent predictor of cardiovascular mortality was also found to be significantly high in *Kapha* males, compared to other groups. Besides, *Kapha* males also had high levels of LDL, reduced prothrombin time and low expression of genes related to fibrinolysis (KRT1 and F2), features which are reported to increase risk for atherosclerotic conditions
Juyal RC[21] (2012)	Potential of ayurgenomics approach in complex trait research: Leads from a pilot study on rheumatoid arthritis.	*Pitta* RA	Therewas an excess of RA patients with *Pitta* predominant *prakriti* and considerably lower number with *Vata* and *Kapha* constitutions.

4. Yoga

Term Yoga is derived from the Sanskrit word *yuja* which means to combine.Yoga combinessoul and mind with body. Vedic Sciences, Ayurveda and Yoga originated from the same source and share a common history cultural foundation. Yoga, with origins in ancient India has several sub-types, and incorporates physical postures (*asanas*), controlled breathing (*pranayama*), deep relaxation, and meditation[22].

Yogic postures recondition body and mind to bring about the highest possible muscular tone and mental health by stretching and relaxing different muscles[23].Conceivably, *asanas* particularly have a positive effect on fitness and physical flexibility with a secondary effect on the mental state, while the *pranayama* practices and relaxation/meditation techniques may result in greater awareness, less stress, and higher well-being and quality of life[7].

Although many evidences elicited the efficacy of Yoga, many experts opined that confirmatory studies with higher methodological quality and adequate control interventions are needed. It is complicated to

understand which aspects of a Yoga intervention are reliably related to change.

4.1. Therapeutic significance of Yoga

A critical analysis of the classical literature on Yoga indicates that though Yoga is primarily a system of philosophy and psychological science, it appears to have been deemed to be value in health care. Satyendra Prasad Mishra has given all the references from classics on health potentials of Yoga [23].

It has been proved that Yoga in general; achieve voluntary control over the autonomic nervous system by establishing equilibrium between the sympathetic and parasympathetic nervous system through hypothalamic limbic system. Mental stress affects the autonomic and endocrine functions. The sympathetic nervous system is usually stimulated in mental stressful conditions with resultant current heart rate. Yogic practices have been found very useful in resolving emotional conflicts and neurotic tendencies. Systematic review of randomized trials done by Meera B. et al, found scientific evidence to support a role for Yoga in treating depression and having adjunctive value in schizophrenia and ADHD[22].Managing stress, especially chronic or long-term stress (even if it is not intense), by practicing various relaxation techniques, may help people overcome other co-morbidities associated with diseases and lead a better quality of life even during periods of stress[24].

Table4. Therapeutic significance of Yoga from HathaYogaPradipika and recent studies: [25]

Reference	**Yoga type**	**Verse no.**	**Related Ailment**
HathaYogaPradipikaChapter 1 verse 31	*Mayurasana*	30	Gulma (tumors), all types of udara (abdominal diseases), cures imbalance of *dosha*, digest heavy food and increases appetite
HathaYogaPradipikaChapter 1 verse 29	*Pashchimottasana*	29	Karshya (emaciated), uadara, agnimandya (digestive impairment)
HathaYogaPradipikaChapter 1 verse 31	*matsyendrāsana*	27	Improves digestion or deep rooted diseases
HathaYogaPradipikaChapter 1 verse 32	*Shavasana*	32	Eliminate fatigue, calming
Therapeutic significance of Yoga from Recent RCTs clinical studies with findings:			
First Author Year and Article type	**Article Title**	**No of participants, Frequency and duration of Yoga practice**	**Findings**

Qu S, et al[26] (2013)	Rapid Gene Expression Changes in Peripheral Blood Lymphocytes upon Practice of a Comprehensive Yoga Program	10 participants have been practicing it regularly for 1 to5 months up to 5 years.	The data we present show that yogic practices have rapid effects at the molecular level in circulating immune cells.
Visweswaraiah NK[27] Abstract	Randomized trial of Yoga as a complementary therapy for pulmonary tuberculosis.	48 patients completing the 2-month trial.	The improved level of infection, radiographic picture, FVC, weight gain and reduced symptoms in the Yoga group suggest a complementary role for Yoga in the management of pulmonary tuberculosis.
Bosch PR[28] Abstract	Functional Physiological effects of Yoga in women with rheumatoid arthritis: A pilot study.	16 independently living, postmenopausal women Three 75-minute Yoga classes a week over a 10-week period.	Yoga resulted in a significantly decreased HAQ disability index, decreased perception of pain and depression, and improved balance.
Ulger O [29] Abstract	Effects of Yoga on balance and gait properties in women with musculoskeletal problems: A pilot study.	27 women participated in 8 sessions (twice weekly for 4 weeks) of a Yoga program which included asanas, stretching exercises, and breathing techniques.	Yoga has a positive effect on balance and gait parameters of women with gait and balance disturbances that are caused by musculoskeletal problems.
Lee JA[30] Abstract	Effects of Yoga exercise on serum adiponectin and	8 women 16 week study	Our findings indicate that Yoga exercise improves adiponectin level, serum lipids, and metabolic syndrome risk factors in

	metabolic syndrome factors in obese postmenopausal women.		obese postmenopausal women. Consequently, Yoga exercise will be effective in preventing cardiovascular disease caused by obesity in obese postmenopausal Korean women.
Kristal AR[31] Abstract	Yoga practice is associated with attenuated weight gain in healthy, middle-aged men and women.	15,500 participants with more than 4 years practice	Yoga practice for four or more years was associated with a 3.1-lb lower weight gain among normal weight (BMI < 25) participants [9.5 lbs versus 12.6 lbs] and an 18.5-lb lower weight gain among overweight participants
Cheema1 BS[32] Abstract	Effect of an office worksite-based Yoga program on heart rate variability: Arandomized controlled trial.	Three times per week during lunch hour (approximately 50 minutes per session) for 10 weeks	Prescribed program did not improve HF power or other HRV parameters. However, improvements in flexibility, state anxiety and musculoskeletal fitness were noted with high adherence.
ShamanthakamaniNarendran[33]	Efficacy of Yoga on Pregnancy Outcome	169 women, more than 4 weeks Yoga group one hour daily, from the date of entry into the study until delivery.	It improves birth weight, decreases preterm labor, and decreases IUGR either in isolation or associated with PIH**.**

4.1. Ethical code for Yoga practice:

There are certain rules or ethical values and techniques are described in the classics and by different schools of thought to be followed by Yoga practitioner [34].In the second chapter of HathaYoga Pradipika, instructions about the edibles and non edibles are given. It is stated that milk and ghee should be consumed in the initial stage of practicing *Pranayama*. Quantity of the consumed food should fill only three fourth part of the stomach (*mitahara*).Heavy or extra food, exertion, excessive talk etc are the obstacles for a Yoga practitioner. Person without 20 types of *kapha* ailments and obesity can effortlessly practice *Pranayama*. Obese persons and *Kapha* dominant persons should

reduce their *Kapha* with *Shatkarma* (six therapies) viz*Dhauti, Basti, Neti, Trataka, Nauli and Kapalbhati*, before practicing *pranayama*. *Pranayama* is done only after the stability of *Asana*(body posture).These are the few directives selected and are discussed further for their connection with *dosha*.

4.2. Adverse effects of Yoga Practice

Code of conduct for Yoga practice in the form of *Yama(abstinence), Niyama*(virtues) and diet has been advised. But there are least indications for the side effects if fails to follow them. Though adverse effects are seen very rarely in Yoga practice, some precautions are said to be taken before practicing *Pranayama* (breathing exercise). It is stated that improperly conducted *Pranayama* can produce any disease. It can cause hiccough, Asthma, cough, headache, ear ache or eye pain etc[35]. Holger and team reviewed 76 unique cases of Yoga - associated adverse events. They too found 4 reported cases of adverse events associated with *Pranayama* or Yoga breathing[36].According to Bussing for patients with psychotic or personality disorders the meditative and self-reflective (cognitive) aspects of Yoga could be problematic[7].The musculoskeletal, nervous, or visual system was the mostly affected systems with adverse events associated with Yoga.

4.4. Role of motivation for regular practice:

Motivation is a desire to act and move toward a goal. Staying motivated for a regular yoa practice is tricky and difficult to figure out. Bussing and team also noted that some of the analyzed studies found relatively low participation and high dropout rates for Yoga practice. The reasons might be variable. Patients with psychological burdens and/or low motivations (i.e., depression, anxiety, fatigue, etc.) might be less willing to participate fully in intensive Yoga interventions[7]. Motivations can be individualistic and need a psychological aspect. It is further elaborated in [5.3].

5. Yoga as a regimen according to *prakriti*

An individual's*prakriti* is considered to be normal for him/her and any derangement of the doshaof his/her*prakriti* can lead to diseases. Drawbacks of *prakriti* and its disease susceptibility and the physiological reasons that can affect the dosha as well as *prakriti* are well established. [Table 1] The individualized approach of Ayurveda to therapeutics and therapeutic Yoga is also very well appraised. [Table 2, 3 and 4]Dey and Pahawa put forward the theory of *prakriti* screening of new born using their genetic profile for lifetime personalized prevention; likewise personalized Yoga practice can be planned for every person. Ayurvedic method of *prakriti* classification has led scientists to identify biochemical and gene expression differences among normal

individuals[1] which can be used to figure a personalized preventive Yoga program.

Normally Yoga is done according to age, physical strength and/or for specific disorder. Studies show that yoga therapy positively influences cardiac autonomic function, and improves anxiety, depression, resting heart rate and blood pressure and the quality of life in patients [37]. Each *prakriti* has its own strengths as well as disadvantages. Specific Yoga practice can help to keep the equilibrium in *dosha* and also keep the health issues away targeting healthy life. Simultaneously it will also guide the most appropriate Yoga according to *prakriti*, season, age and time of the day.

5.1. Yoga according to physical, physiological, psychological/ emotional characteristics and disease susceptibility. [With reference to Table 1]

According to distinct physical, physiological and psychological/ emotional characteristics of each *prakriti*, it can be easy to deduce Yoga postures and breathing exercises. Such as, *Vata prakriti* will need more relaxing and soothing postures compare to *Pitta Prakriti*. Sitting or lying postures with less frequency and longer duration are more appropriate for *Vata* and *Pitta*. On the other hand *Kapha* will require strenuous standing or bending postures, with short duration and more frequency than *Vata* and *Pitta*. In very young age bodies can better tolerate the more aerobic styles of Yoga and practice of more calming *asanas* as the age increases also preferable for the *Kapha* and *Vata* dominant age respectively. Aggressive *Pitta* needs non competitive environment while *Kapha* will need to set goals. More attention and more reminders are needed for *Vata* while conducting the practice. Each season has dominated by a *dosha* or set of qualities associated with it. Hence the season also affects healthy practice. Early morning Yoga or Yoga practice in open air in cool weather will not suit *Vata* and *Kapha* but can be comfortable for *Pitta*. These facts also should be taken for consideration for the drop outs of Yoga practice mentioned here before.

From birth through puberty bodies and minds are more affected by *Kapha*. From puberty until around 50 years the influence of *Pitta* increases. After that it is most dominated by *Vata*. During each of these periods appropriate modification of Yoga practice is necessary. During the day 6am to 10 am, 10am to 2pm and 2pm to 6pm *Kapha, Pitta* and *Vata* doshas are dominated respectively. Any small reason is sufficient to make *prakriti* prone disease vulnerable for the same specific *prakriti*[38]. For instance an inappropriate Yoga posture can significantly elevate the pain of arthritic (one of the *Vata* prone diseases) person of *Vata prakriti*. While in the same situation it will be less bothering for *Kapha prakriti*. Simultaneously Yoga practice recommended

for arthritis contemplating the irritation, anxiety and tolerance of *Vata Prakriti*, will be more beneficial for reduction of pain. Again pain in arthritis will differ according to age and season. It will be greater in rainy season (*Vata* dominant season) and in elderly patient (*Vata* dominant age), and that of *Kapha prakriti* of same age will be lesser or tolerable. Hence an elderly person suffering from arthritis should start regular Yoga practice much before rainy season to keep him fit. Thus for the greatest benefits of Yoga, it's important to personalize the practice for unique mind and body constitution of *dosha*.

In order to maintain good health and prevent disease, constantly monitoring and balancing the *dosha* of body and mind is necessary. A number of studies demonstrated the possible association of constitutional types with the individual genetic make-up, metabolic abilities and chronic diseases. So it can be assumed that avoidance of any hereditary disease or a specific health issue may be possible by properly recommended regular Yoga practice.[Table 2]An obese *Kapha prakriti* person should practice *Mayurasana, Pashchimottasana*and *Pranayama* more regularly to maintain the weight and to prevent atherosclerosis. *Vata Pitta prakriti* persons should always practice *Shavasana* to avoid fluctuations in blood pressure.[Table 3 and 4]Keeping healthy digestive system with bending postures and breathing exercises, for *Pitta prakriti* in young age can keep away from many gastro intestinal disorders. In the case of hereditary diseases specific Yoga can be started as early as possible for a future healthy life.

5.2. Other *prakriti* related aspects and Yoga practice

Yogic /meditative practitioners have found that Yoga practices may positively affect gene expression profiles in immune cells in the circulation[26].Many randomized clinical trials mentioned with the frequency and duration of Yoga practice, revealed the health potential of Yoga which was primarily believed to be a system of philosophy and psychological science. [Table 4] Duration of Yoga practice and its benefits are proportional to each other, hence recommended regularly and frequently. Any routine physical, psychological, social, and cultural components can induce gene expression changes in circulating immune cells[27]and consequently can affect the *prakriti*[10].For Yoga practitioner, classics have described certain ethical rules which are significant for balancing dosha. [4.1] For instance *Pranayama* is a breathing exercise which is related to *Vata* [*Prana* and *Udanavayu*]. In the beginning days of *Pranayama* practice it has been advised to include milk and ghee in the diet. Both the edibles are known to regulate *Vata* but can elevate *Kapha* in long term. Therefore milk and

ghee are asked to consume only in the initial stage of practice to avoid *Vata* imbalance and to avoid *Kapha* elevation. It also suggests that *Vata* can get imbalanced in the beginning stage of *Pranayama* practice in case not done properly. Consequently the adverse effects described for improperly done *Pranayama*, like hiccough, Asthma, cough, headache, and ear ache are the results of imbalanced *Vata* [4.2]. On the other hand *Pranayama* is the treatment suggested for Hiccough (a *Vata* dominant disease)[39].Thus it can be assume that negligence of ethical rules or improper Yoga practice can result in to imbalance of dosha and can be the reason for the disease.

5.3. Motivation and *prakriti* correlation:

Classics suggested that *utsaha* (enthusiasm), *sahasa* (courage), *nishchaya* (persistence) and patience are some *niyama* a Yoga practitioner should posses [40]. *Utsaha*, courage and patience are the important attributes of *vata, pitta* and *kapha* respectively. All these are the psychological factors related to each *dosha* and also suggest that the practitioner should have balanced *dosha*. Active participation is quite necessary and a dropout is a hindrance for Yoga practice. Also it is the sign of lack of *nishchaya* (persistence).Thus *prakriti* and dominant *dosha* plays an important role in motivation and for reducing dropouts. Motivations can vary according to *prakriti* as well. Such as, some creative modifications in postures, music and fragrance can undoubtedly brighten up *Vata* and *Pitta*. *Vata* resembles the volatile person whose moods or attitudes change quickly and frequently, will often need stimulations compare to *Kapha*.

The study provides a framework of Yoga practice based on the data found in classics and clinical research for understanding the correlation of *prakriti* and Yoga. The conduct of the Yoga practice suggested [table 5] is just for the *asanas*, breathing exercises and meditation. This is just a guideline (need a lot more work) to point out various aspects to be considered for the Yoga practice. Also for convenience only *asanas* according to *dosha* from Hathayog Pradipika are stated.

Table 5. Recommendation of Yoga according to dominance of Doshaja Prakriti:

Yoga Suggestions	**Vata**	**Pitta**	**Kapha**
Physical aspects:			
Dominant organs	Colon, Pelvis, nervous system, lumbar spine, and sacroiliac joint	skin, liver, eyes, brain and small intestine	Joints, stomach, mouth and lymph nodes
Postures	Bending, Sitting, sleeping	Bending, sitting, sleeping	Standing, backward bending

Frequency	Simple asanas for longer duration		Short duration asanas with more frequency
Asanas	*Pranayama, Sukhasana, Parvatasana, Gomukhasana*	*Halasana, Bhujangasana, Dhanurasana, Mayurasana, Matsyendriyasana*	*Padmasana, Pashchimottasan, Tadasana, Shalabhasana, Dhanurasana*and*Vakrasana*
Suitable climate **Suitable Season**	Warm	Cool	Warm
Time	Morning	Morning /evening	Morning
Duration	5-6 days/wk	5-6days/wk	6-7days/wk
According to age	› 50yrs regular, small duration exercise	Between 16-50yrs, vigorous exercise can be done	upto16yrs, More vigorous exercise can be done
Psychological aspects and breathing exercises :			
Dhyana(meditation)	Initially Short with steadily increasing time	Regular	Walking meditation
Pranayama (breathing exercises)	*Anulom, vilom*	*Shitalī* and *sitkari*	*Kapalbhati, Suryabheda*
Shavasana(relaxation)	> 10 min	≥ 10 min	≤ 10 min
Specific addition	Variations of exercises	Noncompetitive class	Challenging, warming and vigorous *asanas*

Each person is truly unique and should be treated as such. Every human experience may be emotional, physical or environmental has an effect on the balance of the *dosha*. Disease is said to be the result of an imbalance in one or more of the three *dosha*. Reason for Yoga practice varies for each person. If the *prakriti* is known, other regions including yogic postures, breathing exercises can be advised correctly, both for disease treatment and for promoting longevity.

5.4. Balancing *dosha* routinely:

Specific characteristics of each *prakriti* are the seat of future *prakriti* prone diseases. They are the unchanged identity of the physiological and psychological status of the *prakriti*. Even if total eradication is tough; they can be checked methodically with well planned Yoga.

Balancing *Vata*: *Chala* (mobile nature / quick movements), *kshobha* (irritating), *alpasmruti* (poor memory), *alpabala* (low strength), *anavasthitaatma* (unsteady mind)[8,9]are some of the characteristics of *Vata prakriti* which can be taken care by routine Yoga practice to balance *Vata*. Since *Vata* tend to be unpredictable, it is best to make Yoga routine with daily activities. Systematic practice at a certain time of a day at certain days of the week will be necessary. Keeping *Vata* person steady for a long time is a task. Therefore initially small sessions will comfort them. Frequency and duration can be increased steadily.

Balancing *Pitta*: *kshiprakopa* (short temper) and *Madhya bala* (medium strength) [8, 9] are some of the characteristics of *Pitta prakriti* that can be taken care by routine Yoga practice to keep it balanced. *Pitta* governs the digestion absorption and assimilation of nutrients in the body and also plays a central role in metabolism or conversion of food into energy. It is important to work the abdominal area for balancing. As *Pitta prakriti* is delicate difficult postures should be avoided or given after a proper practice.

Balancing *Kapha*: *Kapha prakriti* is described as the most strong and healthy *prakriti*. The postures that will strain the muscles are good for persons of *Kapha* constitution. Yoga practice for a *Kapha* should be one that creating space, stimulation and warmth. Movements that produce a lot of physical exertion are beneficial. Walking meditation is also great option to increase movement and decrease stagnation for *Kapha*. Challenging, warming and vigorous Yoga practice to balance and to build stamina for *mandacheshta* (lethargic)*Kapha* is the most beneficial.

6. CONCLUSION

Yoga practice should encourage the opposite qualities of *prakriti* that naturally bring back into balance of *dosha*. Yoga according to *prakriti* can give physical as well as mental equilibrium to a greater extent. Modifications of time, duration and frequency of Yoga practice, considering physiological changes of *dosha* like age, season and time of day can create greater balance and harmony. A standardized protocol for therapeutic Yoga according to *prakriti* can be possible. That can also prevent *prakriti* prone probable ailments as well as hereditary diseases and can increase immunity. It will give more specificity and therapeutic standardization to Yoga practice. Also it can help in setting motivations and certain directives to avoid consequences related to physiological variations. It can be utilized as a personalized preventive health regimen.

REFERENCES:

1. Dey S,Pahwa P. Prakriti and its associations with metabolism, chronic diseases, and genotypes: Possibilities of new born screening and a lifetime of personalized prevention.J Ayurveda Integr Med. 2014 Jan-Mar; 5(1): 15–24.doi: 10.4103/0975-9476.128848
2. JadavajiTrikamaji(editor).CharakaSamhita ofAgnivesha,ShariraSthana, Chapter 6, verse no.8,Reprint ed., Varanasi;ChaukhambaOrientalia; 2011:330.
3. Murthy SK(editor). AshtangaSamgraha ofVagbhata,Sutrasthana,Chapter 1, verse 23,9th ed.,Varanasi;ChaukhambhaOrientalia; 2005:5.
4. JadavajiTrikamaji (editor).CharakaSamhita ofAgnivesha,ShariraSthana, Chapter 1, verse 137,Reprint ed., Varanasi;ChaukhambaOrientalia; 2011: 300.
5. Murthy SK(editor). SushrutaSamhita of Sushruta. Sutrasthana, Chapter 15, verse 41,2nd ed., Varanasi;ChaukhambhaOrientalia; 2005:110.
6. HariprasadTripathi (editor).Commentary: 'Hari' Hindion Hatha Yoga Pradipika,Chapter 1, verse 39. 1st ed., Varanasi;ChowkhambaKrishnadas Academy; 2006:18.
7. Büssing A,Michalsen A, Khalsa S, Telles S, and Sherman KJ. Effects of Yoga on mental and physical health: a short summary of reviews. Evidence-based Complementary and Alternative Medicine, vol.2012. Article ID 165410. http://dx.doi.org/10.1155/2012/165410.
8. JadavajiTrikamaji (editor).CharakaSamhita ofAgnivesha,VimanaSthana, Chapter 8, verse 96-8,Reprint ed., Varanasi;ChaukhambaOrientalia; 2011: 277.
9. Murthy SK (editor). SushrutaSamhita of Sushruta. Sharirasthana, Chapter 4, verse 67-76, 2nd ed., Varanasi; ChaukhambhaOrientalia; 2005:70-2.
10. Prasher B, Negi S, Aggarwal S, Mandal AK, Sethi TP,Deshmukh SR*et al*. Indian Genome Variation Consortium. Whole genome expression and biochemical correlates of extreme constitutional types defined in Ayurveda. J TranslMed 2008; 6:48.
11. Hankey A.Establishing the Scientific Validity of Tridosha Part 1: Doshas, Subdoshas and DoshaPrakritis.AncSci Life.2010Jan;29(3):6-18. PMID:22557353
12. Aggarwal S,Negi S, Jha P, Singh PK, Stobdan T, Pasha Q*et al*. EGLN1 involvement in high- altitude adaptation revealed through genetic analysis of extreme constitution types defined in Ayurveda.ProcNatlAcadSci U S A. 2010 Nov 2; 107(44):18961-6.doi:10.1073/pnas.1006108107.
13. Hankey A. A test of the systems analysis underlying the scientific theory of Ayurveda's Tridosha. J Altern Complement Med. 2005 Jun; 11(3):385-90.PMID: 15992219. doi:10.1089/acm.2005.11.385.
14. Ghodake Y, Joshi K, Patwardhan B. Traditional Medicine to Modern Pharmacogenomics: AyurvedaPrakriti Type and CYP2C19 Gene Polymorphism Associated with Metabolic Variability. Evid Based Complement Alternat Med. 2011; 2011:249528.doi:10.1093/ecam/nep206.
15. Tiwari S, Gehlot S, Tiwari SK, Singh G. Effect of walking (aerobic isotonic exercise) on physiological variants with special reference to *Prameha* (diabetes mellitus) as per *Prakriti*. Ayu. 2012 Jan;33(1):44-9. PMID: 23049183. doi:10.4103/0974-8520.100308.
16. Tripathi JS, Singh RH. Concept of dehaprakriti vis-à-vis human constitution in Ayurveda. AncSci Life. 194 Jan- Jun; 13(3-4):314-325. PMID: 22556666.
17. Chatterjee B, Pancholi J. Prakriti-based medicine: A step towards personalized medicine.Ayu. 2011 Apr; 32(2):141-6. PMID: 22408293. doi: 10.4103/0974-8520.92539.
18. Chauhan NS, Pandey R, Mondal AK, Gupta S, Verma MK, Jain S *et al*. Western Indian Rural Gut Microbial Diversity in Extreme Prakriti Endo-Phenotypes

Reveals Signature Microbes.https://www.researchgate.net/publication/323143154.doi: 10.3389/fmicb.2018.00118.

19. Mahalle NP, Kulkarni MV, Pendse NM, Naik SS. Association of constitutional type of Ayurveda with cardiovascular risk factors, inflammatory markers and insulin resistance. J Ayurveda Integr Med. 2012 Jul;3(3):150-7. PMID: 23125512. doi: 10.4103/0975-9476.100186.
20. Venkatraghavan S, Sunderesan TP, Rajgopalan V, Srinivasn K. Constitutional study of cancer patients-its prognostic and therapeutic scope. AncSci Life. 1987 Oct-Dec; 7(2): 110 -115. PMID:22557598.
21. Juyal RC, Negi S, Wakhode P, Bhat S, Bhat B, Thelma BK. Potential of ayurgenomics approach in complex trait research: Leads from a pilot study on rheumatoid arthritis. PLoS One. 2012; 7(9):e45752.doi:10.1371/journal.pone.0045752. PMID: 23049851.
22. Balasubramaniam M,Telles S, and Doraiswamy M.Yoga on Our Minds: A Systematic Review of Yoga for Neuropsychiatric Disorders. Front Psychiatry. 2013 Jan 25; 3:117.doi: 10.3389/fpsyt.2012.0011.PMCID: PMC3555015 PMID: 23355825
23. Mishra SP.Yoga as a health science.In: Mishra SP, editor. Yoga andAyurveda, 3rdedn. Varanasi: Chaukhambha Sanskrit Sansthan; 2004. p.68.
24. Arora S, Bhattacharjee J. Modulation of immune responses in stress by Yoga .Int J Yoga. 2008 Jul; 1(2):45-55.doi:10.4103/0973-6131.43541. PMID: 21829284.
25. HariharprasadTripathi(editor).Commentary: 'Hari' Hindion Hatha Yoga Pradipika, Chapter 1,verse 27-32. 1st ed., Varanasi; ChowkhambaKrishnadas Academy; 2006:14-6.
26. Qu S, Olafsrud SM, Meza-Zepeda LA, Saatcioglu F. Rapid Gene Expression Changes in Peripheral Blood Lymphocytes upon Practice of a Comprehensive Yoga Program.PLos ONE 8(4):e61910. https://doi:10.1371/journal.pone.0061910
27. Visweswraiah NK, Telles S. Randomized trial of Yoga as a complementary therapy for pulmonary tuberculosis. Respirology. 2004 Mar, 9(1):96-101. doi:10.1111/j.1440-1843.2003.00528.x.
28. Bosch PR, Traustadottir T, Howard P, Matt KS. Functional Physiological effects of Yoga in women with rheumatoid arthritis: A pilot study. AltermTher Health Med. 2009 Jul-Aug; 15(4):24-31. PMID: 19623830.
29. Ulger O, Yagli NV. Effects of Yoga on balance and gait properties in women with musculoskeletal problems: A pilot study. Complement TherClinPract. 2011; 17:13-5. doi: 10.1016/j.ctcp.2010.06.006.
30. Lee JA, Kim JW, Kim DY. Effects of Yoga exercise on serum adiponectin and metabolic syndrome factors in obese postmenopausal women. Menopause. 2012:19:296-301. doi: 10.1097/gme.0b013e31822d59a2.
31. Kristal AR, Littman AJ, Benitez D, White E. Yoga practice is associated with attenuated weight gain in healthy, middle-aged men and women.AlternmTher Health Med: 2005 Jul-Aug; 11(4):28-33. PMID: 16053119.
32. Cheemal BS, Marshall PW, Chang D, Colagiuri B, Machliss B.Effect of an office worksite-based Yoga program on heart rate variability: A randomized controlled trial. BMC Public Health. 2011; 11:578. doi: 10.1186/1471-2458-11-578.
33. Narendran S, Nagarathna R, Narendran V, Gunasheela S, Nagendra HR. Efficacy of Yoga on Pregnancy Outcome. The Journal of Alternativeand Complementary Medicine Volume 11, Number 2, 2005, p. 237–244. doi:10.1089/acm.2005.11.237.
34. Mishra SP. Ethics of Yoga . In: Mishra SP, editor. Yoga andAyurveda, 3rdedn. Varanasi: Chaukhambha Sanskrit Sansthan; 2004. p.33.

35. HariharprasadTripathi(editor).Commentary: 'Hari' Hindion Hatha Yoga Pradipika, Chapter 2, verse 16, 17. 1st ed., Varanasi; ChowkhambaKrishnadas Academy; 2006:40.
36. Cramer H,Krucoff C, DobosG.Adverse Events Associated with Yoga: A Systematic Review of Published Case Reports and Case Series.PLoS One. 2013 Oct 16; 8(10):e75515. PMID: 24146758. doi:10.1371/journal.pone.0075515.
37. Lakkireddy D, Atkins D,Pillarisetti J, Ryschon K, Bommana S, Driksko Jet al. Effect of Yoga on Arrythmia Burden, Anxiety, Depression, and Quality of life in Paroxysmal Atrial Fibrillation: The YOGA My Heart Study.J Am Coll Cardiol. 2013 Mar 19; 61(11):1177-82.https://doi.org/10.1016/j.jacc.2012.11.060.
38. JadavajiTrikamaji (editor). CharakaSamhita of Agnivesha, VimanaSthana, Chapter 6, verse 15, Reprint ed., Varanasi; ChaukhambaOrientalia; 2011: 192.
39. Murthy SK (editor). SushrutaSamhita of Sushruta. UttaraSthana, Chapter 50, verse 16, 2nd ed., Varanasi; ChaukhambhaOrientalia; 2005:333.
40. HariharprasadTripathi(editor).Commentary: 'Hari' Hindion Hatha Yoga Pradipika, Chapter 1, verse 16. 1st ed., Varanasi; ChowkhambaKrishnadas Academy; 2006:9

Cite this article as: Jadhav Sangeeta S., Waghulade Hemangini S. Yoga as a Preventive Health Care according to *Prakriti:* A critical study. *J of Ayurveda and Hol Med (JAHM)*.2019; 7(4): 38-56

Source of support: Nil

Conflict of interest: None Declared