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Original Research Paper

Ayurveda

METEOROLOGICAL RELEVANCE OF UTTARAYANA KALA AND DAKSHINAYANA KALA

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ABSTRACT Rithucharya is one of the important concepts explained in Ayurveda. It deals with comprehensive management of diet pattern, behavior and lifestyle modification in relation to change in the seasons. In short, Ritucharya is the seasonal regimen, rules and regulation to what to do and what not during season and seasonal changes. If one follow the regimens prescribed under each and every rithu such person is never inflicted with seasonal diseases or disorders and he always remains as a healthy person. As we know that there are two Ayana or Solstices are there in one year or we can say that Sun changes its position twice every year. These changes are known as Uttarayana i.e. summer Solstice and Dakshinayana i.e. winter solstice. Meteorology is the study of weather and climate. The weather has found to have a profound effect on human health and well beings.

KEYWORDS : Meteorology, Uttarayana kala, Dakshinayana kala

INTRODUCTION

Ayurveda is known as science of living beings. It concerns the maintenance of health of healthy living beings and restoration of health of the diseased ones. Meteorology is the study of weather and climate. Climate is the geographical concept representing a summation of whole range of meteorological phenomenon. The weather has found to have a profound effect on human health and well beings. Medical disorders such as bronchitis, peptic ulcer, adrenal ulcer, glaucoma, goitre, eczema and harps zoster are related to seasonal variations in temperature. Humidity has also a considerable influence on morbidity in the winter because cold, dry air leads to excessive dehydration of nasal passages and upper respiratory tract and increased chance of viral and microbial infection.[1]

Components of meteorology: Atmospheric pressure, air temperature, humidity, rainfall, direction and speed of wind and movements of clouds and character of weather.

Air pressure is determined by barometer, preferably mercuric barometer is used.

Temperature is determined by Thermometer.

Humidity: Amount of moisture present in the air, determined by hydrometer

Winds: Produced by the disturbance of equilibrium of the low masses of air in a free mobile atmosphere and the cause of disturbance are difference of atmospheric pressure it can changes in temperature. Wind speed is measured by Anemometer.

Clouds: Masses of vapor condensed into minute H_2Oparticles which float in the air in the highest regional of atmosphere (1 to 4 miles above the surface of earth). Ceilometers are measuring the cloud heights.

Visibility: Transmissometer is measure the total effect of smoke, fog and other restriction to vision in atmosphere.

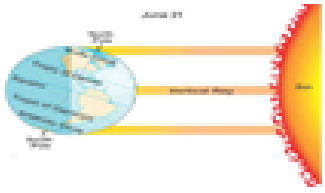
Precipitation: Indicated by the amount of rain or snow that has fallen. Measure by rain gauge and snow gauge. [2]

Various branch of meteorology

1. Synoptic meteorology
2. Dynamic meteorology
3. Physical meteorology
4. Agricultural meteorology
5. Applied meteorology
6. Bio-meteorology

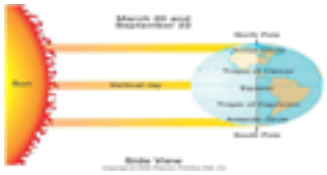
Seasons and the Positions of the Earth around the Sun with reference to the Northern Hemisphere

Summer solstice



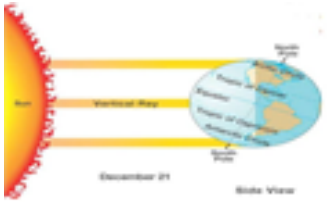
North Pole is directly tilted toward the Sun. It occurs every June 21 or 22. Longest day and shortest night are experienced. Vertical rays of the Sun strike the Tropic of Cancer.

Autumnal equinox



No pole is tilted toward the Sun. It occurs every September 22 or 23. Equal length of day and night is experienced. Vertical rays of the Sun strike along the Equator.

Winter solstice



South Pole is directly tilted toward the Sun. It occurs every December 21 or 22. Shortest day and longest night are experienced. Vertical rays of the Sun strike the Tropic of Capricorn.

Spring equinox

No pole is tilted toward the Sun. It occurs every March 21 or 22. Equal length of day and night is experienced. Vertical rays of the Sun strike along the equator.[3]

Bases of the division of ritu and ayana: Seetha lakshana, ushna lakshana, varsha lakshana, chandra marga gamana, surya marga gamana.

Seasons in Ayurveda and Modern view: Ayurveda is consider the apparent movement of the sun with respect to the earth assuming that earth always in same position but in Moden science consider the movement of earth with respect to sun. Samvasara is divided in two ayana, uttarayana and dakshinayana, each ayana has 3 ritu.

Classification of ritu

Uttarayana -Sisira , Vasantha and Greshma
Dakshinayana- Varsha, Sharad and Hemantha
Susrutha, two rainy seasons are included varsha and pravrit

Uttarayana (Adanakala)

Sun appears to moving from south to north day by day and this movement continues for 6 months. It is correlated to Summer solstice (Sun is over tropic of cancer). The period during which rising sun appears on the sky moving from southern end towards north day by day. Sun become powerful but wind and moon become weak (Agneya predominance) and length of day time will be more.

Uttarayana: Agneya- agni guna paradhana, ruksha gunayukta, tikta, kashaya and katu rasa pradhana, bala gradually decreases.

Dakshinayana (Visargakala)

Sun appears to be moving from north to south day by day and movement continuous for 6 months. It is correlated to Winter solstice (sun is over the tropic of Capricorn). The period during which the rising sun appears on the sky moving from northern end towards south day by day and longer night than day. Astrological view, Sun enter karkidaka rasi.

Dakshinayana: Soumya- seeta guna pradhana, snegdha guna yukta, amla, lavana and madhura rasa pradhana, bala gradually increases. [4]

Vishuvattu day

Correlated to 2 equinoxes, it is happening twice in each year. Sun enter the Thulam rasi is correlated to Autumnal equinox (September-October) and sun enter the Meda rasi is correlated to spring equinox(March-April) in Kerala, Makara is consider starting of one year and Meda is the middle of uttarayana and celebrated as Vishu. 10th day of Meda consider as extract middle of uttarayana.

Indian season-Correlation to modern view

Ritu	Season	Solstice	Position of the Sun
Vasantha	Spring	Spring equinox	Equator(medium amount of sun rays)
Greshma	Summer	Summer solstice	Tropic of cancer
Pravit and varsha	Monsoon		
Sarath	Autum	Autum equinox	Equator(medium amount of sun rays)
Hemantha ,Sisira	Winter	Winter Solstice	Tropic of capricorn(less amount of sun rays)

Meteorological Relevance Of Uttarayana And Dakshinayana

Sisira ritu: Cold get increased more by the clouds, breeze and rain, dryness is seen also will be seen since it starting of adana kala, low temperature with occasional rainfall.

Vasantha ritu: Wind blows from south, sunrays are coppery in colour, temperature will be rising, and trees are full of fresh buds.

Greshma: Sun rays become extremely hot, all animal suffer from the effect of hot wind and sun and constant sweating.

Varsha: Rainy season, wind blows from west, clouds move slowly making the sky appear dirty, rainbows and thunderstorms are also feature of season.

Sarath rithu: Cloud will be white in colours, sunrays will become sharp because of the clear atmosphere, rise of agasthya nakshatra.

Pravrit rithu: Rainy season, sky will be covered with clouds, wind from west will blow, thunder and little rain.

Hemantha: Atmosphere temperature low, Smoky covering of mist, cold breeze

Influence of rithu on tridosha

Dosha	Sanchaya (accumulation)	Prakopa (aggravation)	Prashamana (pacification)
Vata	Grishma	Varsha	Sharad
Pitta	Varsha	Sharad	Hemantha
Kapha	Sisira	Vasantha	Grishma

Greshma (vatha chayam): Agravated agnyabhva of environment, H_2O is laghu quality, katu rasa predominant nature and Increased of rooksha, laghu, vidaha quality in body, (kapha prasamana) External environment is rooksha and ushna guna are increase

Varsha (vata prokopa/pitta chaya): Rain and cold winter favors the prakopa of vata, amla rasa predominant, amla vipaka in the body usage leads to pitta increase and reaches pitta chaya but cold atmosphere it will not proceed to prokopa. Sarath (pitta prakopa) : Sky become clear and sun shine produce more heat

Hemantha (pitta prasamana): Cold atmosphere, manda quality etc

Sisira (kapha chaya): Cold season with increase kapha

Vasantha (kapha prakopa): Ushna guna increase with frozen kapha start to melt [5]

Influence of rithu on human body

Bala or strength: Uttarayana kala strength of the people will be maximum and poor in dakshinayana kala.

Agni: Cold season agni concentrate interior of the body. So digestive power will become maximum. In vasantha rithu agni is increased heat in external environment course melt kapha and produce kapha prakopa it may cause decrease digestive power. In greshma and vasantha agni will be least (increased vata). In sarath, agni improve and slowly reaches maximum and continuous at hemanta.

6 Rithu charya-maintenance of homeostasis: Pre designed plan of food and regimen varies for each season thus prevent disease formation. Opposite guna of the season will be neutralize tendency of dosha vitiation.

Evacuation therapy like emesis, purgation etc are stopped in season ending with early winter, summer and rainy season except in the case of emergency. In emergency therapy should administer carefully after modifying the seasonal effects by artificial means.

Seasonal variation and internal chemical environment: Cellular and humeral immunity is reduced in rainy season,

plasma cortisol is elevated in autumn and constriction of sodium space is more in summer season.

Effect of climate on human health

Effect of hot climate on the body: Diminution of metabolism is result in loss of weight; diminish respiration result in to reduction of O_2 in blood and digestive power decreased.

Effect of cold climate on the body: Increase metabolism, oxygenation of blood, elimination of CO_2 and excretion of urine increased and Increased body and mental activity.

Effect of humidity on health: Impairing normal function of skin, growth and development of micro-organisms and hinder in perspiration.

Effect of high altitude on climate: Mountain sickness (symptoms are deep breathing, quick pulse, mental fatigue, cyanosis, nausea, head ache, intestinal disturbance & fainting, palpitation, bleeding from nose)

Effect of increased atmospheric pressure on health: Increase absorption of O_2 may cause caisson's disease.

Effect of rainfall on climate: Reduce atmospheric pressure and washes the impurities and microbes contained air may produce infectious diseases. [7]

Disease prevalence due to avoidance of rithucharya

Hemanta and Sisira (cold environment): Myocardial infraction, different type of paralysis, hyper tension, heart burn, acid regurgitation, arthritis, stiff joint, swollen sinus. Same effect and much intensity were seen in sisira.

Vasantha: Digestive system affects (agnimandya due to reduction in secretion of digestive enzyme) kaphaja vyadi and digestive problem. Eg-tamaka swasa, pneumonia, rhinitis, common cold, cough, anorexia, dyspepsia, allergic manifestation.

Greshma: Excessive heat outside, heat stroke, hemorrhagic disease, dehydration, acidosis, chickenpox, hepatitis, jaundice and conjunctivitis.

Varsha: Vitiation of tridosha ,alimentary problems are more in varsha ritu, impurity of water may cause water born diseases (diarrhea, bacillary dysentery, viral hepatitis, cholera, typhoid, worm infestations etc,) and varsha rithu enhance breeding of mosquito (malaria, filariasis, dengue fever etc)

Sarath rithu: Kopa kala of pitta, pittaja vyadhi are more seen (burning sensation, viral fever, and influenza will be noted) [8]

Previous research works regarding this subject:

Floris AD et. Al (2009) examined the effect of birth season on foetal development and longevity and found that significantly increased birth weight, gestational age and longevity in individual born during the autumn and winter seasons of the year.

These individual also established statistically significant lower prevalence rates for foetal growth restriction and premature birth. Also they observed increased temperature at the time of birth linked with adverse effects on foetal development and longevity.

Heart failure and cerebrovascular accidents have been correlated many times with ambient monthly temperatures. Seasonal changes in skin disease were reported in Nepal.[9]

According to research the metabolic and temperature response to mild cold were investigated in summer and winter in a moderate oceanic climate. The average metabolic responses during cold exposure were significantly higher in winter as compared to summer.

Fast changes in temperature are probably may produce a number of physiological changes in the body. Rapid drops may affect blood pH, blood pressure, urine volume and tissue permeability.

Also, platelet counts in healthy subjects were significantly higher in summer than in winter. Hormone secretions are periodic variation release that may be influenced by seasonal variation; same is observed in the case of liver function and serum uric acid and triglycerides levels.

Some study suggests that systolic and diastolic blood pressure values differed significantly across the four seasons and in these seasons, due to moderate cold, heat and rain the season having common character are most convenient and not harmful to body and drugs.

CONCLUSION

In Ayurveda is not only mentioned the preventive aspect but also mentioned how treatment should be given considering seasonal effects. This indicates that Acharya was aware about the variations in physiological parameters in various seasons. Due to change in global warming, there are marked seasonal variations observed in India and abroad. Heavy rainfall with extended monsoon seasons or varies short duration of rainy season with scanty rainfall as described by Acharya as atiyoga and hinayoga respectively are observed nowadays. Thus the seasonal regimens prescribed by Acharya if followed cautiously and strictly will surely prevent many diseases known to be produced due to lack of seasonal homologation. This marks the importance of Acharya thoughts which are still applicable and useful for the preventive perspective of Ayurveda.

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