

Forest Fires and Jvara



Nature's Use of Fever

ॐ *Ragadi Rogan Satatanusaktan Asesa Kaya Prasrutanasesan Autsukya Moharatitan Jaghana*

Yô Purva Vyidyaya Namosutu Tasmî ॐ शान्तिः शान्तिः शान्तिः

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The basis of Ayurveda lies in the intrinsic connection between the fluctuations of nature in correlation with the fluctuations of the body's tissues and subtler structures. The Ayurvedic diagnosis and treatment of a patient often revolves around the reweaving of their internal energies with those external to them. This is to say, Ayurveda recommends using the natural environment as a means to stabilize the internal human landscape. Humans, in many ways, are microcosms of the Earth's macrocosm. Thus, we use the human experience to understand the universal experience and visa versa. According to Ayurveda, the body uses the five elements, of which it is composed, to balance itself. It can be surmised then, that since the Earth is a living, macro-structure of the human being, it also uses the five elements to balance her structural proportions. The five elements, which, according to Ayurveda make up all of material creation are Space, Air, Fire, Water, and Earth. Fire inside the human body is often seen as digestion related - whether it is of solid food or for the creation of tissues themselves. When fire moves into a more wild expression, it is called *jvara*, or fever. Just as there are many types of *jvara* in the body, responding to a host of preceptors, so then, must the Earth have an similar presentation of *jvara*. Using the classical texts of Ayurveda, I will explore the function of *jvara* in the body in relation to its counterpart in Earth's gorgeous forests.

Fire as *Agni* has a variety of presentations in the material world. As its subtlest form, it is *rajas*, the mobile and potent energy of creation. According to the philosophy of *Samkhya*, *Prakrti*, the feminine aspect of creation, was composed of unmanifested *sattva*, *rajas*, and *tamas*. *Rajas* is responsible for activating, mobilizing, projecting. It is hot, sharp, fast, and light. As *rajas* continues to manifest, its obvious solar aspect deepens and it becomes *tejas*. *Tejas* is the focused energy of the Sun, *Surya*, which is responsible for the transformation of one substance into another, often as a more refined form. *Tejas* is the essence of digestion itself, in which a particular concentration of heat breaks down the bonds between materials so that once they cool, they can comfortably exist as something else. According to Vaidya David Frawley,

Prana and tejas are rooted in ojas
and can be regarded as aspects of ojas.
Tejas is the heat and light energy of ojas
that has an oily quality and, like ghee,
can sustain a flame. Prana is the energy
and strength that comes from ojas after it
has been kindled into tejas. Ojas proper is
the potential, the stamina of the mind and
nervous system for holding tejas and prana.
Ojas has the capacity to turn into tejas (heat),
which has the capacity to turn into prana

(electricity).¹

It is through *tejas* that we are able to digest thoughts, foods, and our own tissues. It provides lustre to both our external complexion as well as to the manner in which we conduct ourselves, share ideas, work, and care for our home. It is through the balance of subtle *tejas* in the body and mind that we can guarantee a supportive interaction with the world in which we live.

As *tejas* continues its own metabolic manifestation, it becomes *agni*. “In the Rig Veda, the most ancient Vedic text, life or *Ayur* is defined as *Agni* or fire, which is our soul or life-essence. Ayurveda, therefore, is not only a ‘fire medicine’ but a ‘medicine of the soul’. Its definition of well-being is harmony with our inner soul and the soul of the universe, not just absence of physical disease.”² It is through *agni* that we interact directly with the world - because it is *agni* (whose force is determined by its strength of *tejas*) that works to make sense of the impressions and food we ingest in order for them to be useable.

The word *agni* means fire. It implies agent, which is concerned with disintegration or breakdown process. It comprehends various factors concerned with digestion and metabolism. The human body [and mind] can utilize food that is ingested, only if it undergoes proper digestion and metabolism.³

The creation of tissue and *dosha* itself, is due to the proper (or improper) function of the local and overall *agnis* - of which there are a total of thirteen.

As the meaning of *dosha* is “that which is susceptible to vitiation,”⁴ the strength of the local *agnis* to process and direct them is imperative. Otherwise they vitiate and bring about discomfort, improper conduct, and disease, known as *roga*.

Further, the human body can serve as a substratum, which is functional in the presence of *agni* (bio-fire) only. The very concept of *svasthya* (homeostasis, well-being) is a delicately balanced rope play; the balance being mediated by this bio-fire. Many of the diseases are explained on the basis of an

¹ Yoga And Ayurveda, David Frawley, 88.

² American Institute of Vedic Studies, Agni and Ayurveda, vedanet.com/2012/06/13/agni-ayurveda/

³ Astanga Hrdaya, T. Sreekumar, 1.1.8

⁴ AH, T. Sreekumar, 1.1.6

imbalance of this bio-fire. Thus, *agni* and more precisely speaking, *jatharagni* (digestive fire) is an accurate marker of many diseases.⁵

As *agni* (presenting as *jatharagni*, *bhutagni*, and *dhatuagni*) interacts with the human system, it either runs smoothly - transitioning cleanly from one substance to another, or due to *doshic* imbalance and/or the presence of *ama*, the transformation is incomplete, over-zealous, or irregular. *Ama* is described to arise

in the course of transformation of ingested food (GI tract level) and of the tissues (*dhātu level*), there occurs a metabolic stagnation due to weakness of the requisite fire for transformation. This stagnation is christened as *ama*. Transformation in aberrated pathways leads to diseases. Instead of traversing through the preordained routes, if a wrong path is used for travel, the destination is never reached and the purpose of the journey itself is undermined.⁶

One manifestation of this digestive incoherence leading to *roga* is with *jvara*, fever.

Fever is often known as the king of diseases. This is “because of its attributes to afflict the body, the mind and the senses.”⁷ It arose from the third eye of an incensed

Rudra who opened it to destroy Daksa’s [incomplete] sacrifice. Feeding on *ojas*, it deranges consciousness at birth and death, and torments the body with heat...it owes its trigger to unwholesome food and conduct.⁸

Jvara can exist under a variety of circumstances. Some are meant to be managed and extinguished, and others to be supported until it destroys whatever invader it has been built to vanquish. Its presence however, exists to support a strong, transformative attempt to right an intense derangement of the body and/or mind. *Jvara* is originally born of Lord Shiva’s third eye, but its manifestation is as *Virabhadra*, who was born of the fire Lord Shiva used to destroy Daksa’s incomplete *yajna*. According to Lord Shiva, when asked about his purpose for taking form, Lord Shiva replied, “You will become

⁵ AH T. Shreekumar, 1.1.9

⁶ AH, T Shreekumar, 1.13.23-24

⁷ Caraka Samhita, RK Sharma Bhagawan Dash, 3.3.10

⁸ The Legacy of Vagbhata, MS Valiathan, 279

jvara in this world and afflict those who will resort to erratic regimens.”⁹ Since many classical texts present *jvara* itself as having a moment of birth, it is only natural to wonder how else he manifests in nature. How does the Earth, *Bhumi devi*, experience the pangs of *jvara* and why?

Caraka states that “living beings do not get afflicted with *jvara* without the involvement of the *doshas*.”¹⁰ These include *Vata*, *Pitta*, *Kapha*, combinations of two or more *doshas*, *ama*, exogenous causes, as well as the *doshas* of the mind which are *Rajas* and *Tamas*. According to a study in Jaipur, India, “the amplitude of the classification of the disease *jvara* may be implied in the classification of different disorders and likewise the *sannipata* state of different diseases. *Sannipata* diseases signify the advanced stage.”¹¹ This is to say that the intensity of *jvara* is dependent on the *doshas* vitiated and the environment in which they vitiate. The Earth herself, is certainly a living being, created like humans with all five elements. She seems to present a strong sense of consciousness which indicates she is likewise susceptible to all *dosha*, exogenous forces as well as *rajas* and *tamas*. Forest fires are *Prakriti’s* equivalent expression of *jvara*.

Natural disturbances (e.g., wildfires, floods, storms, insect outbreaks) play a central role in structuring ecosystems worldwide, but multiple disturbances can potentially interact in synergistic (i.e., compound) ways that alter ecosystem resilience (the capacity to tolerate disturbance without shifting to a different state). Understanding these potential interactions and their consequences is critical for conserving and managing ecosystems in a period of increasing climate-driven disturbance activity.¹²

Though it can be argued that all circumstances of fire are exogenous, the circumstances within the forest ecosystem presents a need for cleansing that these more internally ignited fires offer. The natural disturbances present indicate with *doshas* may have vitiated within the forest. The more “synergistic” the disturbances as the previous study states, indicates the severity and consequence reaped. Synergistic disturbances are the forests equivalent of *dosha* and multiple *doshic* vitiation. Thus, the same rules apply here as to humans. The more complex the vitiation, the more complex the treatment and means to healing.

⁹ CS, RK Sharma Bhagawan Dash, 3.3.18

¹⁰ CS, RK Sharma Bhagawan Dash 3.3.12

¹¹ A Comprehensive outlook of Sannipata <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3296333/>

¹² Recent Mountain Pine Beetle Outbreaks <http://www.pnas.org/content/111/42/15120.long>

Wildfires are a natural occurrence and serve important ecosystem functions. Forest landscapes are dynamic and change in response to variations in climate and to disturbances from natural sources, such as fires caused by lightning strikes. Many tree species have evolved to take advantage of fire, and periodic burns can contribute to overall forest health. Fires typically move through burning lower branches and clearing dead wood from the forest floor which kick-starts regeneration by providing ideal growing conditions. It also improves floor habitat for many species that prefer relatively open spaces.¹³

Forests have their own internal *agnis* graciously supported by the local bacteria, fungi, and natural decay that all living beings experience. However, there are times when the *srotamsi* of the forest become clogged or covered with *ama* such as when the forest floor is overwhelmed with debris. If the natural *agnis* of time, bacteria, and fungi are not able to break down the detritus, it is necessary for a stronger force to come and support transformation. Depending on the length of the time the undigested matter has been laying on the floor and its density, it will determine the intensity of *jvara* necessary to clear it.

In general, there are two varieties of fever, which require differing responses for treatment. Superficial fevers are considered “young.” These either have been running for less than twenty-four hours or at a temperature of less than 101 degrees Fahrenheit. In terms of *dhātu* and *srotamsi*, they have only relocated into the *rasa dhātu* and *srota*. This indicates that the fever has come to pass due to vitiation of the *jatharagni* in some way. Thus, if the forest has a generally healthy biosphere, but whose *agni* became backed up due to change of season, a quick burning fire can be a supportive jumpstart to this *jatharagni*. Since season changes are known to be complicated for any *agni*, whether human or otherwise, it supports logic that forest fires would be most common during these periods. When *agnis* vitiate and need a boost to restore their rhythms, a low grade fever presenting as forest fire can accomplish this.

According to the Department of Natural Resources of Wisconsin, “wild fires are most common in the[se deciduous forests during] spring from when the snow melts until foliage fully appears. Fall

¹³ Environmental Literacy Council, Forest Fires, <https://enviroliteracy.org/land-use/forests/forest-fires/>

can also be a time of heightened wild fire concern when foliage begins to drop.”¹⁴ These are the exact seasonal transformations when humans also suffer stagnated *agnis*. It is especially notable that most common time for forest fires are when the forest is exiting its winter season and *kapha dosha* is high, and when it is exiting summer season and *pitta dosha* is high. When entering into spring, the unctuous aspect of the environment is increasing as the warmth of the sun melts the frozen *kapha*, but since the trees have yet to grow leaves, they do not retain the water. This likely leaves their insides dry and *ojas* levels low. “The *kapha* that increases and accumulates during *Sivira* (extreme winter) is liquefied by the hot sun-rays of *Vasanta rtu* (spring season). This weakens the digestive fire causing various diseases. Hence the aggravated *kapha* is quickly pacified by various means.”¹⁵ The same process is true when exiting *pitta* season. However, rather than excess water in the forest, the summer’s rays have increased the dry, light, hot, and mobile qualities present. *Ojas* as well is likely low as the *rajasic* aspect of summer generally leaves the body depleted and with excess heat throughout. In terms of the forest, as the winds of the autumn begin to pick up, if she is not able to cool itself with rains, then the ecology is susceptible to a quick burn. Anything that is excessively dry or dead will be consumed therefore removing any excess *ama* from the forest itself. What remains is ideally viable plants who will be able to last through the winter. Thus, it is intention of the forest ecosystem to support the re-establishment of its *agni*, which can requires the power of the localized and seasonal fire.

Especially in the *Kapha* season, when an otherwise healthy forest is unctuous and heavy, the presence of a fire or superficial fever can be said to exist in the *rasa dhatu*. This indicates that the stagnation presents in the first level of digestive power of the forest but does not indicate that there is anything else that is necessarily stagnated in any other major way. The effect is visible as general water retention of the forest, but everything remains clearly alive and functional, albeit it perhaps a little sleepy. “The *jvara* that is manifested in *vasanta*...and *sarat* (autumn season), is called *prakrta* (seasonal). It is easily curable.”¹⁶ The treatment for humans with *jvara* in the *rasa dhatu* is often fasting, rest, and slow reestablishment of normal eating via the practice of *samsarjana krama*.

If the *jvara* is dominated by *kapha* and if this *kapha* located in the *amasaya* (stomach and small intestines), is in the stage of *utkleśa* (detached or about to come out of its receptacle), then it should

¹⁴ Department of Natural Resources, Wildfires, <http://dnr.wi.gov/topic/forestmanagement/documents/pub/FR-439.pdf>

¹⁵ AH, T Shreekumar, 1.3.18

¹⁶ CS, RK Sharma Bhagavan, 3.3.42-27

be removed by administration of emetics...
After the patient has been administered
emetic therapy and after he is kept on
fasting, he should be given *yavagu* (gruel)...
in appropriate time. This should be continued
by the wise for six days or till the fever becomes
mild.¹⁷

This process of slow reestablishment can be witnessed in the forest as well post fire. A local fire that sweeps through the forest bed will consume anything in its path. Thus, after the fire, there will be a time when the ground cools (the fever reduces), when there is no perceived movement in the area (rest) until the surrounding nature feels hungry and ready to creep its way back home. A study of Wildfire Rehabilitation reveals that, "Biochar, a soil amendment that originates from the pyrolysis of woody forest residues and other organic feedstocks, is promoted for use in degraded soils due to its potential to enhance soil chemical, physical, and biological properties... Coupled with application of wood mulch, biochar may have potential to create favorable soil water and nutrient conditions."¹⁸ This is similar to the human practice of diet and *agni* rekindling post fire. The goal is to use the organic residue from the fire to create simple, digestive stimulating and demulcent conditions for the forest to quickly regenerate itself. The life that returns to the forest will be slow of course, and *agni* will restore over time beginning with small creatures and then extending to the complex.

Most animals flee from the initial scene of the fire but over time, they return. Certain types of wood boring beetles can detect a fire's heat or smoke from more than 30 miles away. They are usually the first to arrive on scene of a forest fire. These types of insects are always present in the forest, living underneath the bark of trees, and their activities help burnt trees decompose. Other animals that follow the beetle post-fire are woodpeckers, as some species feed on beetle larvae and other insects. Next to return are small ground animals, that will make homes out of shrubs that may have survived the fire. Once the population of small animals returns, coyotes will follow, thus over time reinvigorating the burnt forest with life. Trees and other plant life have evolved ways to

¹⁷ CS, RK Sharma Bhagavan, 3.3.146-155

¹⁸ Examining the Potential for Forest Residue-Based Amendments <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5340941/>

survive forest fires. They can re-grow from their leaves or needles, re-sprout from their roots, and some even have fire resistant seeds that will sprout after a fire. According to Dr. Peter F. Kolb of the University of Montana, their success depends on the intensity and duration of the fire. In other words, a fire that burnt at a high temperature for a long period of time could inflict the greatest damage to plant life and reduce survival rates.¹⁹

When *Bhumi devi* is generally healthy, a superficial fire will permit a natural expression of fasting and *samsarjana krama*, whereas more intense fires equivalent to higher fevers can cause irreparable damage to the ability of the forest to live at all.

The second type of fever is called “deep fever” and is considerably more complex. This is due to the fact that it has lasted for over twenty-four hours or is above 101 degrees Fahrenheit. Its existence indicates that the fever has relocated beyond the *rasa dhātu* into the *rakta* or deeper tissues. It can increase in complication because it is often caused by issues beyond digestion and thus can be composed of multiple *doshas* and/or the presence of *ama*. Fevers which are superficial are usually treated by assisting the flow of the fire, encouraging it to burn. Its premature suppression however, can be the cause of deeper fever settling in thereafter. This is due to the fact that the fever’s presence exists to counteract some localized imbalance, likely due to *ama* or excess *dosha*. To extinguish this early will leave the process incomplete and thus issues may remain. As study of prescription drug use in Pune, India reveals that, “patients who suffer from acute fever i.e. fever of less than 2 weeks duration, are usually treated by General Practitioners (GPs). The routine use of antipyretics which are given automatically in all cases of fever, not only masks the fever but also other important clinical indicators, giving a lead to the diagnosis. Therefore, too much aggressive treatment of acute fever leads to misuse of antipyretics.”²⁰ In terms of the Earth,

[f]orests in which fires are regularly suppressed can burn much hotter and more dangerously when a fire finally does break out. With suppression, large amounts of underbrush accumulate on the forest floor, certain tree species cannot regenerate (oak and pine, for example, need fire to crack their seeds), and trees that do flourish become densely packed. Within this forest structure, the number of fires continues to increase,

¹⁹ Nature’s Packaging, Life Returns after a Forest Fire www.naturespackaging.org/en/happens-forest-fire/

²⁰ The Pattern of Drug Use in Acute Fever <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3616558/>

getting larger and gaining in intensity.²¹

Thus, even a fire, which was once natural and superficial, can transmute into something more wild, dangerous, and intense. This is because *dhātu* forms hastily and in excess or depletion, while at the same time leaving more *ama* to accumulate. In the case of the forest, the issues resulting from *dhātu* in depletion are visible as trees that are unable to regenerate due to the incomplete burn. Those who struggle due to excess are the trees that may flourish but are too densely packed. Circumstances like this leave the forest susceptible to further fire. Additionally, as homogeneity increases the forest is left vulnerable to disease and blight. This similar pattern is visible in the human body as well. For example, someone with a fever may attempt to take a tepid bath. This choice encourages *ama* to settle and/or increase and thus can actually provoke the fever to worsen. Often a fever that breaks and then returns indicates that the pathogen has taken control of the body and has transmuted away from the arena of the superficial.

When the forest itself is out of balance, it is visible through a variety of avenues. The forest can be in a state of overgrowth of one or more species, certain species compete for sunlight, invasive species can be present, as well as fungi, bacteria, and preying insects and animals to name a few.

Our primary forest health issues are the result of insects, diseases, and abiotic (non-living) factors. Most of these “pests” will not be able to kill a tree on their own, but the damage they cause adds stress to the tree. When a tree is stressed, it taps into the food (carbohydrates) stored in its roots or trunk to continue to survive. Stressed trees need to recharge just like humans do. If the stress is mild, the tree usually recovers. If the tree is hit with an additional stressor, it may not be able to recover as well and will begin to decline. Decline is when the growth rate slows down - leaves are small and discolored, annual twig growth is short, and little diameter growth is added to the trunk. Once a tree has started to go into decline, and if stress continues, it likely will die in three to five years.²²

This situation essentially describes the forest moving into a state of low *ojas* where the forest displays low resilience and immunity. Depleted *ojas* challenges the homeostasis of the forest which forces the forest to adjust to the changing factors by allowing the trees to eat their “fat reserves.” This kind of

²¹ Environmental Literacy Council, Forest Fires, enviroliteracy.org/land-use/forests/forest-fires/

²² Tree and Forest Health, Cornell University and NYSDEC

resilience is also visible in the forest's ability to maintain a stable *agni*, which according to a study in South Africa, is a means to understand recurring fire. "There is a strong support...for a relationship between the estimated recovery time and observed fire return intervals in this system...suggesting that recovery time can be used to estimate mean fire return intervals given environmental conditions."²³ This research suggests that a forest's high resilience (*ojas*) is directly related to its ability to maintain homeostasis without fire. This is similar to the human body attempting to rebalance itself by pulling from other, richer tissues like muscle and fat. Fertility of forests and humans are affected by this process and their more subtle *dhatus* are stressed. Thus, while forests are working to manage their present pressures, if they continue to compound, their ability to withstand begins to decrease. This is true in humans as well and explains why *jvara* is known as the king of diseases. If the body is not able to manage the pathogen, bacteria, heat, or there is too much *ama* or *doshic* imbalance to cope, the deep fevers can vanquish the systems, leading to death. According to Caraka,

Reducing measures are recommended to begin with because the disturbed *doshas* in fever put out the gastric fire and hamper digestion in the early stage. Subsequently, the disturbed *doshas* enter the seven *dhatus* and are themselves digested in seven days. Therefore the maturation of fever is said to occur on the eighth day...When two or more *doshas* are disturbed, the measures - diet, medications, and physical procedures - should be carefully chosen to counteract the increase and decrease of particular *doshas* in the given context...Fever becomes chronic when the body is weak; it should therefore be countered by strengthening the diet. In summary, fever lodged in the *rasa* should be treated by emesis and fasting, in blood by bloodletting, in muscle and fat, by purgation and fasting, and in bone and marrow by enema.²⁴

Fever in general is something that directly challenges *ojas*. Living out of one's own nature or being disconnected from the surrounding nature is a clean route to *ojas*' distortion. In such a metropolitan age, this can be interpreted to mean living in harmony with the environment, but where this environment is disharmonious with itself. When humans adapt their biorhythms to the demands of a

²³ Climatic Controls on Ecosystem Resilience <http://www.pnas.org/content/112/29/9058.long>

²⁴ Legacy of Caraka, M S Valiathan, 266

city, or toxic air, or farmland covered in pesticides, or a sickly forest, they are likely to develop similar *rajasic* or *tamasic* issues as the environment itself suffers. Weather and temperature changes can be causes of fever, as well as grief or fear. In humans, the general manifestation of a fever comes from an issue of *agni* due to *doshic* vitiation. This vitiation disrupts the internal fire's ability to regulate itself, to remain steady, stable, and to appropriately break down the materials with which it interacts. This disruption causes *ama* to form which not only disrupts the *agni* itself, but also clogs the pathways that release excess heat through sweat.

The world of wild nature is affected by these same circumstantial practices of adapting to disharmonies. Depleting soil, competitive root and branch systems, competition for light, toxic air, changing landscapes and climates all challenge the the ability of the forest's *ojas* to rejuvenate. Human beings experience the same struggles. We suffer from depleting nutrition - our food practices are poor and we lack the education to prioritize whole, pesticide free food that we prepare ourselves. Our choices for regaining health often force us to rely on external factors - doctors who treat symptoms with pills as mentioned earlier in the Indian study. This kind of practice leave us disconnected from our internal voice and the faith that we have the ability to both be in touch with our suffering and our means to healing. Challenges to housing, education, and art all cause us to lose synchronicity with ourselves and with the natural rhythms of our innate world.

I would argue that the most damaging factor to our human bio system is the destruction of our wild lands. If the primary reason for *doshic* vitiation is living out of harmony with Spirit, who resides so peacefully as *Prakrti*, the forcing of her lands into depletion, stress, and homogeny threatens our own existence. If the forests are forced to adapt to disharmonious patterns in order to accommodate the stresses surrounding them, and we adapt to their disharmonies, our ability to recalibrate is effectively dismantled. Forcing nature to live out of rhythm with herself is an invitation for *ama* to accumulate. It will intensify in her forests, in her waters, in her air, in her clays. Ayurveda teaches us to observe the patterns that follow the aggregation of *ama*. The texts have highlighted again and again that once *ama* forms, *agni* is threatened. If *agni* is not restored, *dosha* vitiate. If the *dosha* are not mitigated, the imbalances will matriculate through all the tissues. It is clear our bodies and that of *Prakrti* follow the same paths of life's forces. As she begins to suffer *doshic* imbalance in deeper *dhatus*, we as humans will surely pay the price. "*Vrid̥dhi samani sarvesha vipariti vipayayaya* : Similarity augments everything; dissimilarity, the contrary."²⁵ We become like our environment. If *Bhumi devi* lives lushly, so will we.

²⁵ AH, T Shreekumar, 1.1.13

Notes

1. David Frawley, *Yoga and Ayurveda*, Lotus Press, 2009, 88.
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5. T. Sreekumar, MD (Ay), PhD, *Astanga Hrdaya, Vagbhata Sutrasthana I*, 1.1.9.
6. T. Sreekumar, MD (Ay), PhD, *Astanga Hrdaya, Vagbhata Sutrasthana I*, 1.13.23-24.
7. R K Sharma Bhagavan, *Caraka Sambita Volume III*, (Chowkhamba Sanskrit Series Office, Varanasi, India, 2008), 3.3.10.
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9. R K Sharma Bhagavan, *Caraka Sambita Volume III*, 3.3.18.
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16. R K Sharma Bhagavan, *Caraka Sambita Volume III*, 3.3.42-27.

17. R K Sharma Bhagavan, *Caraka Sambita Volume III*, 3.3.146-155.
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