

DEVELOPMENT OF ASSESSMENT CRITERIA FOR SHLAKSHNA GUNA OF KAPHA DOSHA: A POSSIBLE MODEL

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ABSTRACT

Tridosha are functional units of the human body. Functions of *Tridoshas* depend on the properties i.e. *Gurvadi Gunas*. *Kapha Dosha* is responsible for the structural union of the human body. Physical as well as mental strength depend on the normal functionality of the *Kapha Dosha* & ultimately normal functions of the *Gunas*. *Kapha* possess *Snigdha*, *Guru*, *Sheeta*, *Pichchila*, *Shlakshna*, etc. properties. Out of these properties *Shlakshna* always remains unnoticed for its normal actions. *Shlaksha* (Smoothness) is exactly opposite property to the *Khara* (Roughness). *Shlakshna* refers to the smooth surface of a hard substance So here an effort is made to develop assessment criteria to assess *Shlakshna Guna* of *Kapha Dosha* based on its various functions.

Keywords: *Shlaksna Guna*, *Kapha Dosha*, Assessment Criteria.

INTRODUCTION

According to *Loka – Purush Samya* fundamental *Kapha Dosha* resembles with *Soma Tatva* in nature i.e. Moon which is supposed to be responsible for growth and nourishment¹. (1. Cha. Su. 25/)

Various functions of *Kapha Dosha* in the human body are due to its various properties. *Kapha Dosha* possess *Guru* (Heavy), *Sheeta* (Cold), *Mridu* (Soft), *Snigdha* (Unctuous), *Shlakshna* (Smooth), *Mritsna* (soft and yielding) and *Sthira* (stable) properties which are responsible for sturdiness, firmness as well as smoothness of the human body². *Bahya* (external) & *Abyantara* (internal) smoothness is essential to maintain human body and body constituents for long time/life. This smoothness is due to *Shlakshna Guna* of *Kapha Dosha*.

Shlaksha (Smoothness) is exactly opposite property to the *Khara* (Roughness). *Shlakshna* refers to the smooth surface of a hard substance. It is the opposite to the rough surface of a hard surface.³

Acharya Sushruta described *Shlakshna Guna* as the property which increases *Bala* i.e. Strength, *Kapha Dosha* and *Jivaniya Shakti* i.e. Living force is *Shlakshna Guna* further he said that the *Shlakshna Guna* is like the *Pichchila Guna*. (Sticky property). Bhava Prakasha explained the difference between *Shlakshna* and *Pichchila* property as *Pichchila* is a smoothness of unctuous substances while smoothness of hard substances is *Shlakshna*. There is pleasant touch of hard substance due to *Shlakshna* property e.g.

touch of gems. Though gems are smooth and pleasant in touch, they possess hardness too.⁴

Functions of *Kapha Dosha* are *Snehana* (the promotion of unctuousness), *Bandhana* (binder), *Sthiratva* (stability), *Gurutva* (promotes weight or growth of the body), *Vrishtwa* (promotes sexual potency), *Bala* (promotes strength and resistance to the diseases and decay), *Kshama* (forgiveness), *Dhriti* (fortitude), *Alobha* (non-greedy) etc.

Aim & objectives: To develop assessment criteria to assess *Shlakshna Guna* of *Kapha Dosha* based on its various functions.

Review of literature: A review of *Kapha Dosha* from Ayurvedic classics, texts, research journals and recently published books leading importance to its *Shlakshna Guna* have been done

Guna: The word *Guna* is derived from the root “*Guna*” which means to invite. Etymology of this word is given as the features of *Dravya* by which one gets attracted or invited towards. The word *Guna* has several meanings such as quality, property, secondary strands of the rope, thread, bow string, deliberation, merit sense organ etc.

In the definition of Guna- there are three points:

1. *Samavayi* - The word. *Samavayi* differentiate *Guna* from *Dravya*. *Dravya* is *Adhara* while *Guna* is *Adheya*.
2. *Nischeshta* - The word *Nischeshta* differentiate *Guna* from *Karma*. Because *Karma* indicates *Kriyashilata* & *Guna* is *Nischeshta*.
3. *Karana* - The word *Karana* differentiate *Guna* from *Samanya-Vishesh-Samawaya*. *Guna* is *Karana* for similar *Guna* creation. *Samanya*, *Vishesha* and *Samavaya* are not causes.

Physical Characteristics of Kapha Dosha :

According to Acharya Charak, *Kapha* is *Guru* (heavy), *Shita* (cold), *Mridu* (soft), *Snigdha* (viscous), *Madhura* (Sweet), *Sthira* (Stable, Sturdy) and *Pichchila* (slimy).

Elsewhere in *Adhyaya Vatakalakaliya*, it is quoted that *Kapha* is a *Somatmaka* element (Watery element) alone, which is present in the *Kapha* of the body that gives rise to beneficial or adverse consequences as it is normal or abnormal.

Acharya Charaka again recorded that the physical characteristics of *Kapha* are *Sneha* (unctuousness), *Shaitya* (Coldness), *Shouklya* (whitishness), *Gurutva* (Heaviness), *Madhurya* (Sweetish), *Sthairya* (Stability), *Paichchilya* (Sliminess) and *Martsnya* (Soft and yielding).

If the physical characteristics of *Kapha* appear in general, to parallel those of protoplasm, functions ascribed to it (the *Kapha*) in the Samhita Granthas are likewise, the same as those of the cell protoplasm. 1) It contributes to the growth bulk and weight of the body – *Brinhanam*, *Puranam*, *Gauravam* 2) It has an inherent capacity to reproduce itself, both as cellular level (*Paramanu*) as well as the level of entire animal. This is spoken as *Vrishya* which co relates to the virility or sexual stamina and productivity.

3) It imparts stability and durability to the body and strength to the limbs-*Sthairya*

4) it is held to responsible for conferring the strength require to perform vigorous physical (Manual) work-*Vyayama Shakti* and power to resists the disease and decay- *Vyadhikshamatwa* viz, *Vyadhibala Nirodhitwa* and *Vyadhibala Utpata Nibandhatwa*.

5) It is a factor which is responsible promotion of healing process – *Ropana*

6) *Kapha* itself is repository of water, makes this important fluid available to the body to sub serve its vital functions specially by its secretory activities. It is also responsible for the keeping both internal and external body surfaces moist, and the articular joints and the serous surfaces lubricated. – *Ambukarma*

7) It is a factor which is responsible for the promotion of cohesion (and adhesion) of the various units and structures of the body – including joints – *Shleshanam* and *Sandhi Bandhanam*.

8) It is the basis for the exhibition of forbearance, fortitude, non-greedy, zest, knowledge and intelligence – *Kshama*, *Dhriti*, *Alobha*, *Utsaha*, *Gnana* and *Buddhi*.

Shlakshna Guna: Which is responsible for increase of strength, *Kapha Dosha* & *Jivaniya Shakti* is called as *Shlakshna Guna*. It heals wound or injury. *Shlaksha* (Smoothness) is exactly opposite property to the *Khara* (Roughness). *Shlakshna* refers to the smooth surface of a hard substance. Functions of *Shlakshna*

Guna are *Ropana* – Healing of wound, *Jivan* – gives life, *Sanghata* – responsible for healing of fracture and it increases *Kapha*.

DISCUSSION

Ropana i.e. wound healing function of *Kapha Dosha* is due its *Shlakshna* property⁴. *Kapha* is responsible for *Jivana* function i.e. it is life force of human body due to its *Shlakshna* property it decreases catabolism rate and increases rate of anabolism & life span and gives stability to the human body. *Kapaha Dosha* repairs bone fractures due to its *Shlakshna* and *Pichchila* as well as *Snigdha* properties.

Guna mostly functions with another *Guna*. Acharya Charaka said that which substances are having *Sheeta*, *Manda*, *Mridu*, *Ruksha*, *Sukshma*, *Sthira*, *Drava*, *Laghu*, *Guru*, *Snighda*, *Pichchila* & *Sthula* properties are also possess *Shakta* property by the *Ekarth Samavaya* relation.

On this basis it is very hard to explain functions of single *Guna* because *Guna* themselves are inactive, but they are responsible for specific actions of *Draavya*.

So, by considering predominant actions due to *Shlakshna Guna* there possible questioner can concrete to assess *Shlakshna Guna* of *Kapha Dohsa*. As above mentioned, that *Ropana* function is due predominance of *Shlakshna Guna* so on this basis gradation of *Ropana* function is possible.

1) Smoothness of the body and body organs – Acharya Charaka told smoothness of body and body organs in *Kapha* predominant *Prakriti* person is due to its *Shlakshna* property. Here smoothness may be external smoothness as well as internal smoothness.⁵

To assess smoothness of the human body in modern science various studies have been carried out.

a) Friction Coefficient of skin⁶ -

The coefficient of friction is a dimensionless scalar value which describes the ratio of the force of friction between two bodies and the force pressing them together. The coefficient of friction depends on the materials used; for example, ice on steel has a low coefficient of friction, while rubber on pavement has a high

coefficient of friction. Coefficients of friction range from near zero to greater than one.

b) Smoothness is widely regarded as a hallmark of skilled, coordinated movement. Jerk, the time-derivative of acceleration, has been used as an empirical measure of this quality. ‘Sensitivity of Smoothness Measures to Movement Duration, Amplitude and Arrests’ study reported that Studies of sensory-motor performance, including those concerned with changes due to age, disease or therapeutic intervention, often use measures based on jerk, the time-derivative of acceleration, to quantify smoothness and coordination. However, results have been mixed, some studies reporting sensitive discrimination of subtle differences, others failing to find significant differences, even when they are obviously present. One reason for this is that different measures have been used with different scaling factors. These measures are sensitive to movement amplitude and/or duration to different degrees. We show that jerk-based measures with dimensions vary counter-intuitively with movement smoothness, whereas a dimensionless jerk-based measure properly quantifies common deviations from smooth, coordinated movement⁷

c) Analysis of skin surface roughness by visual assessment and surface measurement by Rie Ohtsuki, Takeshi Sakamaki & Shoji Tominaga, stated following observations & results In this study, Authors analyze the surface roughness of human skin using human visual assessment and statistical features of three-dimensional shape data and goniometric reflectance data. We use eight skin replicas taken from the cheeks of women. First, they perform human visual assessment to obtain the roughness rankings. Second, Authors measure three roughness parameters by currently used methods. These parameters show no significant correlation with the roughness rankings. Third, measure the skin surface shape to calculate surface normal vectors. They show that the surface normal distribution of the skin is isotropic and Gaussian, and the standard deviation has a good correlation with the roughness rankings. Finally, they analyze the goniometric reflectance data to approximate the surface reflection using the Oren-Nayar model they find that the

standard deviation estimated using this model corresponds to the roughness rankings. Thus, this parameter can be effectively used for describing skin roughness.⁸

d) On the analysis of movement smoothness- Quantitative measures of smoothness play an important role in the assessment of sensorimotor impairment and motor learning. Traditionally, movement smoothness has been computed mainly for discrete movements, arm, reaching and circle drawing, using kinematic data. In this context, this paper presents the first step towards a unified framework for the analysis of smoothness of arbitrary movements and using various data. A method is then introduced to analyse the smoothness of rhythmic movements by generalizing the techniques developed for discrete movements. Finally propose recommendations for analyzing smoothness of any general sensorimotor behaviour⁹.

e) An alternative approach to measure quantity and smoothness of the human limb motions- In this paper, an alternative approach to measure and model changes in motor functions is proposed. Unlike feature extraction or pattern recognition techniques, the proposed approach concentrates its attention on the total quantity and smoothness of the human limb movements.

When changes of human motor functions are caused by learning of a new motor activity, amount and smoothness of the movements may provide necessary information to measure the effectiveness of the training technique. The notion “motion mass” is introduced as a measure associated with the motion, which describes how much and how smoothly certain joints have moved. Practical example of learning the ball throwing is used to demonstrate the ability of the proposed approach to measure the changes in motor functions and distinguish their performance on different stages of the learning process¹⁰.

2) *Ropana* - Time taken for Wound healing - PUSH tool¹¹-

“Healing is a matter of time, but it is sometimes also a matter of opportunity.” —Hippocrates

As the above quote suggests, conduct regular and systematic wound assessments, and seize every opportunity to improve your patient’s potential to heal. Wound assessment and management is only fractionally addressed by selecting the most effective topical treatment. If you try only to manage the pressure ulcer, you cheat your patient of the collective wisdom of the team and will be unable to ensure the most effective outcomes possible.

The PUSH Tool is designed to monitor the three parameters that are most indicative of healing:

- Length x width—scored 0 to 10, based on the measurements obtained
 - Exudate amount—scored 0 (none) to 3 (heavy)
 - Tissue type—scored 0 (closed) to 4 (necrotic tissue)
- Each characteristic is assigned a numerical score, and the three sub scores are added to obtain the total score. This total score is then placed on a pressure-ulcer-healing graph (part of the tool), which makes it easy to determine whether the wound is progressing, staying the same, or deteriorating over time. If the wound is healing, the score will decrease. If the wound is deteriorating, the score will increase.

The following is an example of how this objective tool can affect your practice. For a patient with a 100% necrotic pressure ulcer that has light drainage and measures 2.1 cm x 2.2 cm, make the following calculations:

- 2.1 cm x 2.2 cm: Multiply the two numbers for a total of 4.62. When correlated with the PUSH tool, it would score as a 7.
- Light drainage is scored as 1.
- 100% necrotic tissue type is scored as 4 (it is scored as 4 if there is any amount of necrotic eschar).
- Total PUSH score = 12.

3) *Sanghata* – It is also important function of *Shlakshna Guna*. *Sanghata* means to repair or join. It helps to repair fracture of bones (*Asthibhagna*)

On the basis of scoring of repairing of fracture we can assess *Sanghata* function of *Kapha Dosha* due to *Shlakshna Guna*.

So, we can summarize few objective parameters to measure *Shlakshna* property in the following manner–

Table 1: Objective Parameters for Assessment of *Shlakshna Guna*:

Parameter	Score 0	Score 1	Score 2	Score 3
By seeing the skin one can give score to the skin from 1 to 4	Rough			
How much time or many days are required to heal your wound?	1 day to 1 week	1 week to 15 days	15 days to one month	More than one month
Total PUSH score	one day to one week	five days to three months	one month to six months	six months to one year.
Touch of your body surface or skin is	Smooth	Somewhat	Dry	Rough
Touch of your body surface or skin is	Pleasant	Moderate Pleasant	Somewhat Pleasant	Unpleasant
Is there tendency of frequent fractures of bones or dislocations of joints?	Rarely	Sometimes	Many times,	Always
How many days are required to heal/repair fracture?	Less than 21 days	21 days to 30 days	More than 30 days	More than 45 days
Movements of body are	Smooth	Little jerky	More Jerky	Jerky
Is there sound production during joint movements?	Rarely	Sometimes	Many times,	Always
Can you do your work without fatigue?	Rarely	Sometimes	Many times	Always
Do you suffer from diseases frequently?	Rarely	Sometimes	Many times	Always
Can you pass stool & urine without difficulty?	Rarely	Sometimes	Many times	Always

CONCLUSION

Shlakshna Guna is very important *Guna* of *Kapha dosha*. Main function of *Shlakshna Guna* is to heal wound. *Shlakshna Guna* incorporates with other *Gunas* like *Sheeta*, *Mridu*, *Snigdha* *Guna* of *Kapha Dosha* to carry various functions of *Kapha Dosha*. The predominance of *Shlakshna Guna* may be at the sites of bones, joints, ligaments, skin etc. According to Ayurved Darshan *Shlakshna Guna* is *Akashiya*. So, *Srotas* can be said a site of *Shlakshna* Property. Acharya Charaka quoted *Shlakshna Guna* along with other *Gunas* in the treatment of *Brimhan* and *Stambhan*.

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