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Twak Saarta and Skin Moisture – An Analytical Study

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ABSTRACT

The present study explores the physiological correlation between *Snighdhata* (unctuousness) of *Twak* - an important expression of *Dosha Dhatu* equilibrium and *Rasa Dhatu Saarta*, which reflects the quality and nourishment status of the first body tissue *(Rasa Dhatu*). The study is expected to reveal a measurable relationship between the moisture content of *Twak* and the degree of *Rasa Dhatu Saarta*, thus validating an ancient *Ayurvedic* concept through modern technology. Such correlation can establish reliable, quantifiable markers for *Dhatu* assessment and promote integrative diagnostic approaches in *Ayurvedic* physiology.

Key words: *Snighdhata*, *twak*, *rasadhatusaarta*, skin moisture meter, *dhatu pariksha*, *ayurvedic* physiology

INTRODUCTION

Sara manifestation revells current operational physilogical states via specialized biomarkers. Through this lens, superior tissue quality amplifies physiological performance – a critical insight. As dhatus achieve peak refinement, the biological efficacy demonstrates measurable escalation. Twak saarta and rasa saarta are used as synonyms. Twak is derived from “Twak Savarne Dhatu” which means the covering of body. Twak means rasa underneath the twacha. As the function of rasa dhatu is preenana, which must be manifested on twak. It makes skin healthy and maintains nutritional state of body. According to ayurveda *twacha* is believed to be the *updhatu* of *mamsa dhatu*. The main function of *mamsa dhatu* is *lepan*. Skin is formed by the metabolism of *rakta dhatu* by its *dhatwagni*, which is made to cool after heating a layer of formed skin. This process represents how a thin layer of residue develops on the surface of milk once it has been heated *‘Ksheerasya Eva Santanika’. Twacha* is regarded as one of the *‘Gyanenindriyas Adhisthana’*, responsible for *‘Sparsh Gyana’*, indicating its important role in both the physical and mental well-being of an individual. *Twacha* is also considered as one of the ‘*gyanenindriya sadhisthana’* which is responsible for *‘Sparsh Gyana’*, therefore it plays important role in physical and psychological state of an individual. The internal balance of the physiological entities like *Doshas, Dhatus and Malas* decide the health of skin. A good quality of *Rasa Dhatu* resulted from a proper digestion of food and assimilation of food nutrients. This ensures a healthy skin/*Twak*. Thus, the quality of *Rasa Dhatu* decides the *Twak Saarta*. Variation in skin characteristics are found as per the predominance of *Deha Prakriti*, but the characteristics of *Twak* in different *Prakriti* mentioned in literature are mostly qualitative. Only one feature i.e., *Snighdhata of Twak* can be quantified. To make this concept more acceptable in present times, we need to apply quantitative measures tools to prove it. This study is an attempt to develop relation between *Twak* w.s.r *Twak Saarta* as the *Saarta* bestows health both physically and psychologically. In the present study, skin hydration was measured using 4 Beauty TherapyDigital Moisture Meter at the T-zone, exposed arms & cheeks. The aim was to study *Twak* according to different *Twak Dhatu Saarta.*

MATERIALS AND METHODS

Study design: Observational Cross sectional Study
Study Level: OPD level
Sample Size: 150
Inclusion criteria

- Subjects within the age group of 20 to 40 years
- Healthy subject

Exclusion criteria

- Subjects suffering from metabolic disorders
- Subject suffering from nutritional disorders
- Subjects who have undergone any kind of skin or cosmetic surgery
- Subjects who were under the influence of steroids
- Subjects using advanced cosmetic products

Plan of study

- Rasa Dhatu *Saarta* assessment of the subjects from the periphery of the institute.
- Moisture metre was used as an instrument to analyse the Snighdhata of Twak of subjects.

Assessment Criteria

- Subjective parameter:*Saarta* of subjects was evaluated using standardised *Dhatu Saarta* application "*VISHUDDHATARA*" developed by Dr. Hemangini Waghulade.
- Objective parameter: Analysis of *Snighdhata* of *Twak* using Moisture Metre.

RESULTS AND DISCUSSION

Out of 150 subjects, 112 were having *Madhyama Saarta*, 27 were having *Avara Saarta*, and 11 were having *Pravara Saarta* (Fig. 1).

As observations were quantitative, ANOVA test was carried out to show association between *Twak Saarta*, moisture content and *Snighdhata of Twak*. P-Value was less than 0.01 (Fig. 2). The results revealed highly significant associations between the variables.

One-way ANOVA analysis to compare mean moisture content across the three Saarta categories showed highly significant differences ($p < 0.001$) with very large effect on sizes, providing robust statistical evidence for the *Ayurvedic* concept of *Saarta* as a predictor of skin moisture status (Table 1 and 2).

Chi-Square test was carried out to test association between *Twak Saarta* and moisture content of skin. It was observed that, P-Value was less than 0.01. There was significant association observed between *Twak Saarta* moisture content of skin (Table 3 and 4).

Contingency table analysis showed that 70.4% *Avara saarta* had dry/very dry skin (poor skin health), 85.6% *Madhyama saarta* had normal skin (balanced skin health) and 45.5% *Pravara saarta* had ideally moist skin (optimal skin health) (Table 5).

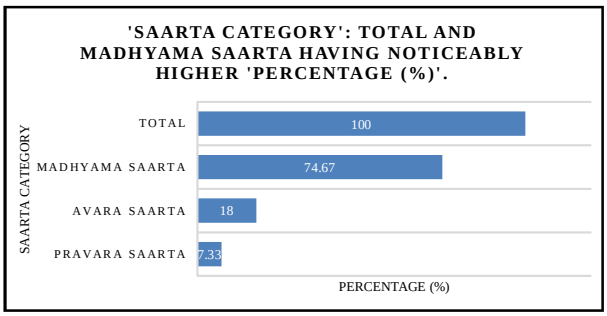

Fig. 1. Frequency and percentage of patients suffering from *Saarta*.

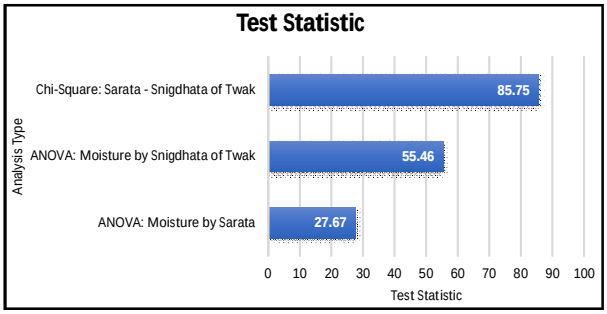

Fig. 2. Association between *Twak Saarta*, Moisture content and *Snighdhata of Twak* using ANOVA and Chi-Square test.

Table 1. Comparison of mean skin moisture content among different *dhatu saarta* using ANOVA test

Saarta category	N	Mean	SD	SE	Median
Avara saarta	27	29.99	7.77	1.49	32.8
Madhyama saarta	112	37.70	4.19	0.40	38.3
Pravara saarta	11	39.44	7.85	2.37	38.9

Table 2. Descriptive Stats by *Saarta* using ANOVA Test

Saarta analysis	Count	Mean	Std	Min	25%	50%	75%	Max
Avara Saarta	27	30.0	7.8	17.3	21.55	32.8	37.3	39.9
Madhyama Saarta	111	37.9	3.8	18.5	37.8	38.3	39	46
Pravara Saarta	11	39.4	7.8	20.6	36.4	38.9	45.95	46

Table 3. Association between *Twak Saarta* and moisture content of skin using Chi-Square test

Saarta analysis	Low moisture	Medium moisture	High moisture	Row total
Avara saarta	21	3	3	27
Madhyama saarta	28	45	39	112
Pravara saarta	3	1	7	11
Column total	52	49	49	150

Table 4. Chi square test

Test	Chi-square statistic	Degrees of freedom	P-value	Significance
Chi-Square test	32.5439	4	0.00000148	p < 0.001 ***
No. of valid cases	150			

Table 5. Contingency table analysis (*twak saarta*, moisture content and *snighdhata* of *twak)*

Saarta analysis	Dry	Ideally moist	Normal	Very dry	Total
Avara saarta	5 (18.5%)	0 (0%)	8 (29.6%)	14 (51.9%)	27
Madhyama saarta	1 (0.9%)	3 (2.7%)	95 (85.6%)	12 (10.8%)	111
Pravara saarta	2 (18.2%)	5 (45.5%)	2 (18.2%)	2 (18.2%)	11

Table 6. Effect of season on moisture content, and interaction of season and *saarta* using two-way ANOVA test

Sources	Sum of squares	df	F-statistic	p-value	Significance
Saarta	24.38	2	25.91	<0.001	p < 0.001*
Season	4.34	2	4.61	*0.012	p < 0.05
Saarta× Season	13.01	4	6.92	<0.001	p < 0.001*
Residual	65.86	140	-	-	-

Table 7. Mean Moisture content in each saarta in different seasons

Ritu	*Avara saarta*	*Madhyama saarta*	*Pravara saarta*
Hemanata	2.13 ± 0.99 (n=8)	2.43 ± 0.90 (n=37)	2.67 ± 1.53 (n=3)
Sharat	1.67 ± 0.98 (n=12)	2.94 ± 0.34 (n=35)	4.00 ± 0.00 (n=4)
Varsha	1.57 ± 0.53 (n=7)	3.03 ± 0.43 (n=39)	2.00 ± 0.82

There was a significant association between the chosen variables i.e. *Twak Saarta* and skin moisture levels. Since observations were quantitative, ANOVA test was carried out for comparison of mean among three different *Twak saarta* (Tables 6, 7). Chi-Square test was carried out to test the association (Table 8).

One-Way ANOVA analysis to compare mean moisture content across the three *Saarta* categories showed highly significant differences ($p < 0.001$) with very large effect sizes, providing robust statistical evidence for the *Ayurvedic* concept of *Saarta* as a predictor of skin moisture and *Snighdhata* of *Twak*. This ANOVA analysis provided strong statistical evidence for significant associations between:

- *Twak saarta* and *snighdhata* of *twak*
- Moisture content and *snighdhata* of *twak*
- *Twak saarta* and *saarta* Analysis

Table 8. Association between *twak saarta, snighdhata of twak* in different seasons using Chi-Square test

Category	Chi-square	p-value	df
Saarta vs. season	1.91	0.75	4
Snighdhata vs. season	13.76	0.03	6

All associations were highly significant ($p<0.001$) with large effect sizes, indicating both statistical and clinical importance. The *Saarta* analysis classification system demonstrated excellent discriminant validity. Moisture content served as the primary objective determinant of *snighdhata* of *twak*. The moderate positive correlation ($r = 0.38$) between *Twak Saarta* and moisture content suggests that these are related with skin quality parameters, supporting a comprehensive assessment approach in *Ayurvedic* dermatological evaluation. These findings scientifically validate traditional *Ayurvedic* skin assessment

methods and provide objective evidence for their clinical utility.

Effect of season on moisture content, *Snighdhata of Twak* and interaction of season with *Saarta* was analysed using two-way ANOVA test observed that season had a statistically significant but modest effect on skin moisture content. *Hemanata* (cold season) showed slightly lower moisture (2.40) compared to sharat and varsha (both ~2.74).

Chi-Square test was carried out to test association between *Twak Saarta* and skin moisture content. The P-value came to be less than 0.01. Hence, it was concluded that there was significant association between *Twak Saarta* and skin moisture content.

Chi square was again applied to find association between *Twak Saarta, Snighdhata of Twak* in different Seasons. It was found that there was no statistically significant association between *Twak Saarta* and season, but there was a statistically significant association between *Snighdhata of Twak* and season at the 5% level.

CONCLUSION

- *Saarta* is the one of the important tools to decide the normal physiology of the body.
- *Twak Saarta* is a physiological process which vary in different *Daihik Prakriti* combinations. It is difficult to mention one's *Twak Saarta* based on subjective parameters. So, moisture level was selected as the parameter to measure *Twak Saarta* in an individual.
- Data collected in this study underscore the significant relationship between *Twak Saarta* and moisture content of the skin.
- ANOVA test was applied to the collected data to find difference between mean moisture content and different *Twak Saarta* and a strong association was found between the two.
- Chi-Square test was carried out to test association between *Twak Saarta* and skin moisture content. The P-Value came to be less than 0.01. Hence, it can be concluded that there is significant association between *Twak Saarta* and skin moisture content.
- Based on the results and after discussing the facts one can conclude that moisture meter can be used as a standardized tool to analyse *Twak* in relation to *Twak Saarta*

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