

AN OBSERVATIONAL STUDY OF SAMHANANA AS A MEASURING TOOL**Waghulade Hemangini Sanjay**Professor & HOD Department of Kriya shareer Dr. D.Y. Patil College of Ayurved and Research Centre,
Navi Mumbai**ABSTRACT**

For examination of healthy persons, *samadoshatva*, *samagnitva*, *samadhatutva*, *samamatatva* & *samakriya* should be assessed. For assessing *samadhatutva*, Ayurved has mentioned some examinations like *anguli pramana*, *aayamvistar samatva*, *pourushmana*, *samhanan*, *sara* etc. *Samhanana* examination has been chosen for the study which is mentioned in ten-fold examination of Charaksamhita. *Samhanana* examination is useful for knowing the strength as well as immunity of a particular person. The parameters given by Charakacharya are mainly subjective & assessment may change due to subjective bias. So this is an attempt to decide objective parameters to get uniformity & to avoid subjectivity in *samhanana* examination. It will be better to understand *samhanana* in healthy individuals before understanding *samhanana* in *rogi avastha*, so healthy individuals have been selected for this study.

In the definition of *samhanana* given by Charakacharya, it is mentioned that *samhanana* of three *dhatu*s i.e. *rakta*, *asthi* & *mamsa* should be assessed. So it has been tried to assess the qualities & functions of *raktadhatu*, *mamsadhatu* & *asthidhatu*. It has also been tried to decide parameters for *samhanana* examination so as to bring objectivity in this examination. Proforma has been prepared for the assessment of qualities & functions of *raktadhatu*, *mamsadhatu* & *asthidhatu* as mentioned in the definition of *samhanana*.

It is observed that *samhanana* examination can be done more precisely & accurately with the help of parameters & this examination will be definitely helpful in assessing the strength & immunity of a particular person. Also it is observed that persons having *madhyama samhanana* are more as compared to *uttama* & *heen samhanana*. It is concluded that with the help of objective parameters, *samhanana* examination is more precise for its practical use by reducing subjective bias. *Samhanana* examination can be used as a measuring tool for examination of study subjects in various clinical studies.

Key words: - *Samhanana*, *Bala*, *Samadhatutva*

INTRODUCTION

Ayurveda gives priority to maintain healthy state of an individual & its second aim is to treat the disease of patient.¹ The criterion for the person to be called healthy is *samadoshatva* (equilibrium of bio-ener-

gies), *samagnitva* (equilibrium of digestive fire), *samadhatutva* (equilibrium of tissues), *samamatatva* (equilibrium of wastes), *samakriya* (equilibrium of body functions) and is happy with balanced state of soul, sense organs and mind.² For assessing *sa-*

madhatutva, Ayurved has mentioned some examinations like *anguli pramana*, *aayamvistara samatva*, *pourushmana*, *samhanan*, *sara* etc.

Examination of a diseased person becomes necessary to obtain knowledge regarding the span of life, strength & the intensity of morbidity, because it is on the basis of intensity of morbidity that the dosage of the therapy is determined & the latter is dependent upon the strength or the power of resistance of the individual. Therefore the patient should be examined with reference to his *prakruti* (physical constitution), *vikruti* (morbidity), *sara* (excellence of dhatus), *samhanana* (compactness of organs), *pramana* (measurement of body organs), *satmya* (homologation), *sattva* (psychic constitution), *aaharshakti* (power of intake & digestion of food), *vyayamshakti* (power of performing exercise) & *vaya* (age) in order to ascertain the strength of a person.³ From these examinations, one can know about the strength & immunity of that particular person. *Samhanana* examination has been chosen for the study which is one of the criterions of *dashavidha pariksha* (tenfold examination) in Charaksamhita. A person is to be examined with reference to his *samhanana* or compactness of the body. *Samhanana*, *samhati* & *samyojana* terms are synonymous. A *samhata* (compact) body is characterized by the symmetrical & well divided bones, well-knit joints & well bound muscles & blood. An individual having *susamhata* (compact) body is said to possess *uttama bala* (good strength) otherwise he is of *heen bala* (poor strength). When the body is moderately compact, the individual is possessed of *madhyama bala* (moderate strength).⁴

Samhanana is a concept given by Charakacharya. Concepts are mental images or perceptions & therefore their meanings vary markedly from person to person whereas variables are measurable. It is important for the concepts to be converted into variables as they can be subjected to measurement. Therefore this is an attempt to develop objective parameters for *samhanana* examination. It will be better to understand *samhanana* in healthy individuals before understanding *samhanana* in *rogi avastha* (diseased condition).⁵ So healthy individuals have been selected for this study.

NEED OF STUDY

Samhanana examination is useful for knowing strength as well as immunity of a particular person. Immunity or strength depends on *dhatubala* (strength of tissues). *Dhatubala* can be measured by subjective & objective criteria. Subjective criteria can differ from person to person. Objective criteria can bring uniformity in assessment. Charakacharya has explained *dashavidha pariksha* to assess strength of a person. *Samhanana* examination is one out of those criterion but this type of assessment is neglected now a days. In definition of *samhanana*, it is mentioned that *samhanana* of three *dhatus* i.e. *rakta* (blood tissue), *asthi* (osseous tissue) & *mamsa* (muscle tissue) should be assessed.⁴ So it has been tried to assess the qualities & functions of *raktadhatu*, *mamsadhatu* & *asthi dhatu* with the help of parameters for *samhanana* examination so as to bring objectivity in this examination.

AIMS & OBJECTIVES

1. To develop parameters & to bring objectivity in *samhanana* examination with the help of parameters for assessment of *samhanana*.

2. To assess strength & immunity of a person from his/her *samhanana*.

HYPOTHESIS

Null hypothesis (H₀) – There is no significant difference in proportion of persons from all categories of *samhanana* .

Alternative hypothesis(H₁) – There is significant difference among these three categories.

For this,study subjects were categorized in *uttama* (Excellent),*madhyama* (moderate) & *heena* (poor) *samhanana*.

MATERIALS & METHOD

1. **Literature search** -Brihatrayi & laghu-trayi, Modern texts & relevant websites were searched.
2. **Sample size** – 50 subjects were selected randomly.
3. **Type of study** – Observational study
4. **Study site** – Residential area in Malad west, Mumbai.
5. **Criteria for selection of subjects** –

Inclusion criteria -

- A. Age -30 to 40 years [*sampurnata* (full growth) is up to forty years with full growth of all tissues, sense faculties, strength & vitality according to Su-shruta]⁶.
- B. Sex – Both male & female
- C. Community-Indian
- D. Socio-economy class – Higher middle class
- E. According to diet – Mixed (veg & non veg)

Exclusion criteria –

- A. Below 30 & above 40 years
- B. Pregnant ladies
- C. Chronic ill patients

6. Plan of study –

1. Proforma has been prepared for the assessment of *samhanana*.

2. Written informed consent was taken.

6. Criteria for assessment Qualities & functions of *rakta dhatu*,*mamsa dhatu* & *asthi dhatu* were assessed.

Table No.1 Criteria for rakta dhatu assessment While assessing qualities of *rakta dhatu*,

Organs to be assessed	Quality	Gradation
<i>Raktasara</i> organs like ears, eyes, mouth, tongue, nose, lips, palms & soles, nails, forehead	<i>Snigdha</i> (unctuous)	1
	<i>Snigdha</i> + <i>Raktavarna</i> (red)	2
	<i>Snigdha</i> + <i>Raktavarna</i> + <i>Shri-mad</i> (beautiful)	3
	<i>Snigdha</i> + <i>Raktavarna</i> + <i>Shrimad</i> + <i>Bhrajishnu</i> (dazzling)	4

If the blood is pure & in appropriate quantity, then the other *dhatu*s get nourished properly. The strength of other *dhatu*s& ultimately the strength of body will increase due to proper quality & quantity of *raktadhatu*. RBCs are major vehicle for O₂& CO₂ transport. Haemoglobin present in RBCs acts as a buffer &

helps in maintaining O₂ transport.Haemoglobin is a combination of haem& globin. Globin is a protein which is a body building material. So *bala*(strength) of *raktadhatu*was assessed by measuring RBCs. *Varna prasdana* (complexion) depends on pure *raktadhatu* so it was as-

essed by *darshan* examination. *Varna prasadan* was recorded as Yes-1 & No-2.

While assessing *sukha* (comfort or happiness) function of *raktadhatu*, intellectual comfort or happiness was assessed. As *raktadhatu* is responsible for *medha* i.e. intellect, intellectual happiness was judged by interest in reading, discussion & listening & it was graded as reading -1, reading + discussion -2 & reading + discussion + listening -3. *Raktadhatu* circulates throughout the body & nourishes all *dhatu*s & is responsible for aggravation & alleviation of all *dhatu*s.⁷ This can be understood by *nadibala* (strength of pulse). By knowing *nadibala*, *Puran karma* was graded as *utam-3, madhyam-2 & hina-1* accordingly.

It is observed from textual literature that *sparshadnyana* (tactile) disorders get cured by using drugs that are useful for treatment of *raktadhatu* or for purifying *raktadhatu*. For proper functioning of *sparshanendriya* (sense organ of touch), *raktadhatu* should be in proper condition. Hence *sparshadnyana* can be understood as a function of *raktadhatu*. For assessing *sparshadnyana*, sphygmomanometer was used. The sphygmomanometer was tied around the upper extremity. The mercury level was raised up to 150 mm & the time when the person felt numbness in hands was noted.

Table No.2 Criteria for *mamsadhatu* assessment While assessing qualities of *mamsadhatu*

Organs to be assessed	Quality	Gradation
<i>Mamsasara</i> organs like temples, forehead, atlanto-occipital joint, eyes, cheeks, chin, neck, shoulder, abdomen, axilla, chest, hands, legs, joints	<i>Sthira</i> (stable)	1
	<i>Sthira + Guru</i> (heavy)	2
	<i>Sthira + Guru + Shubha</i> (good looking)	3
	<i>Sthira + Guru + Shubha + Mamsopachita</i> (well covered with muscles)	4

Sthira & *Shubha* qualities were judged by *darshana* (visual) examination. *Guruta* was measured by a measuring tape. To measure *mamsopachitata*, vernier caliper was used. While observing *sandhi* (joints); height, breadth & circumference of *janusandhi* (knee joint as it is a major joint) was measured & graded accordingly. While assessing functions of *mamsadhatu*, *Lepa* (covering) is one of the functions of *mamsadhatu*. So it was assessed by observing *acchidragatrata* (well bounded muscles) which was ob-

served by yes/no criteria. *Medapushti* (nourishment of adipose tissue) depends on *mamsadhatu* so it was assessed by measuring *snigdhakala*. For this assessment, time for absorption of oil was noted. *Bala* i.e. *sharirbala* (physical strength) was assessed by *vyayamshakti* (power of performing exercise) & *vyayamshakti* was determined by one's ability to perform work.⁸ So this function of *mamsadhatu* was assessed with the help of bull worker & the reading on the scale was noted.

Criteria for *asthidhatu* assessment, While assessing qualities of *asthidhatu*, *Asthisara* organs like heels, ankle, knee, distance between elbow & tip of small finger, sternum, head were measured by a measuring tape to assess *sthulata* (robustness). Small joints, nails, teeth, chin were measured by vernier caliper. Skeleton is formed by bones i.e. *asthi* so while doing *asthi* examination, *aayam* & *vistaar* (anthropometry) of whole body was measured.

While assessing functions of *asthidhatu* For *dharana* (to provide support to the body) & *majjaposhana* karma (nourishment of nervous tissue), serum calcium & serum phos-

phorus was measured. As calcium & phosphorus are the important minerals that provide rigidity to skeleton & are responsible for strength of bones, *dharana* & *majja poshana karma* were assessed from these criteria.

OBSERVATIONS

The study subjects have been categorized in *Uttama* (U), *Madhyama* (M) and *Heen* (H).3 points have been assigned to *Uttama* category, 2 points to *Madhyama* category and 1 point to *Heen* category.Total points of each individual have been calculated based on the parameter values assigned.

Table No.3: Categorization of study subjects based on parameter value & IQR (Inter-quartile range)

Sr. No.	Males	Based on IQR	Based on parameter value	Females	Based on IQR	Based on parameter value
1	102	M	M	104	M	M
2	91	M	M	91	M	M
3	92	M	U	104	M	U
4	99	M	U	107	M	U
5	58	H	H	88	M	M
6	104	M	M	97	M	M
7	124	U	U	75	M	M
8	90	M	M	88	M	M
9	99	M	U	83	M	M
10	109	M	U	64	H	H
11	80	M	M	93	M	M
12	80	M	M	69	M	H
13	87	M	M	107	M	U
14	102	M	M	107	M	U
15	115	U	U	113	U	U
16	116	U	U	116	U	U
17	59	H	H	89	M	M
18	58	H	H	95	M	M
19	92	M	M	64	H	H

20	107	M	U	106	M	U
21	101	M	M	88	M	M
22	96	M	M	93	M	M
23	91	M	M	64	H	H
24	89	M	M	88	M	M
25	91	M	M	68	M	H

The category having the highest value of the parameters has been assigned as *Uttama*, *Madhyama* or *Heena*. For the IQR column it has been found the maximum and the minimum values that each individual can take and the middle 50% (i.e. the interquartile range) has been considered as the *Madhyama* category. Any value above this range has been considered as *Uttama* and any value below this range is considered as *Heen*. From the above table, it has been observed that there is not much difference between the categories assigned based on the IQR and the one based on parameter value.

DISCUSSION & RESULTS

In Ayurveda the process of learning, research and clinical practice are experiential and scientific. Like other systems of ancient Indian learning, Ayurveda is discovered through most recognized schools of acquiring knowledge and producing evidence i.e. *Pramanas* viz. (1) *Pratyaksha* (Direct perception through sense organs), (2) *Anu-mana* (Inference) (3) *Aptopadesha* (Verbal texts from many of the trustworthy persons, who knows truth and communicate correctly) and (4) *Yukti* (Logical/rational interpretation), etc. The diagnosis in Ayurveda is based on a two-fold approach to diagnostics viz. (1) *Rogi-pareeksha* (Examination of the patient) and (2) *Roga-pareeksha* (Examination of the disease). Therefore, *Rogi- pa-*

reeksha is essentially concerned with ascertaining the constitution of the individual and status of his health and vitality. This is achieved through *Dashavidha pareeksha* i.e. ten fold examination of patients comprising of *prakruti* (physical constitution), *vikruti* (morbidity), *sara* (excellence of dhatus), *samhanana* (physical built or compactness of organs), *pramana* (measurement of body organs), *satmya* (homologation), *sattva* (psychic constitution), *aaharshakti* (power of intake & digestion of food), *vyayamshakti* (power of performing exercise) & *vaya* (age).

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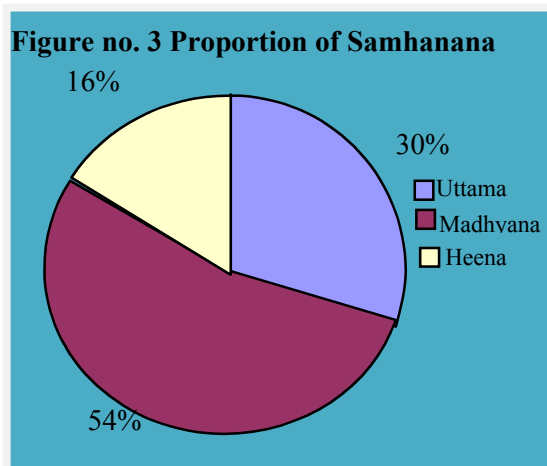
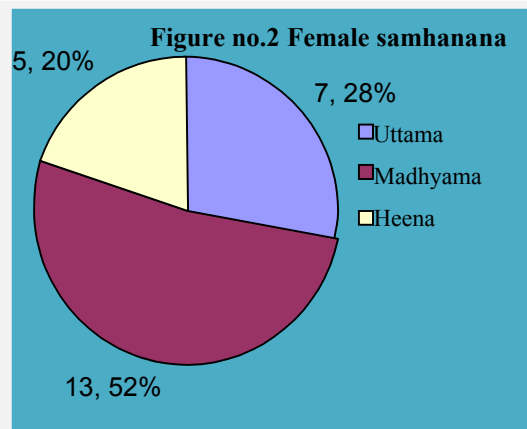
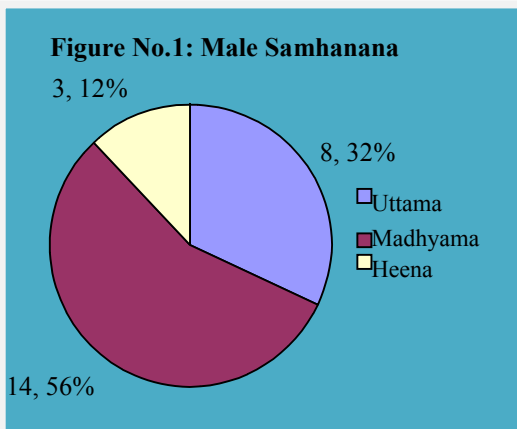
help of parameters for *samhanana* examination so as to bring objectivity in this examination. In present study, 25 males and 25 females have been considered. We need to test the hypothesis. Hypothesis (H₀):P₁=P₂=P₃ i.e. There is no significant difference in the proportion of people from

Table No.4

Category	Observed frequency	Expected frequency
Uttama	15	17
Madhyama	27	17
Heena	8	16

categories. Alternative Hypothesis (H₁): There is significant difference among these three categories. Considering males and females together, following frequencies have been found.

Decision Criterion: - Reject H₀ if the calculated value is greater than the tabulated value. Using the Chi-Square test, the calculated value is 11.08 which is greater than the tabulated value of 5.99. Also proportion explained by *Madhyama* Category is 54% compared to *Uttama* which is 30% and *Heena* which is 16%.



Hence it is concluded that the alternative hypothesis is true.i.e. Proportion of *Madhyama* category is more as compared to *Uttama* and *Heena*.

CONCLUSION

1. *Samhanana* examination is one of the major examinations for the assessment of strength & immunity of a person. With the help of objective parameters, *samhanana* examination is more suitable for its practical use by reducing subjec-

tive bias. From this observational study, it is concluded that persons having madhyama samhanana are more compared to uttama & heena samhanana.

2. *Samhanana* examination can be used as a measuring tool for examination of study subjects in various clinical studies.

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