



Research Article

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Applied Knowledge of 'Shrama' (Fatigue) in Sushruta Samhita

Bidhan Mahajon^{1*}, A. Rama Murthy²

¹ Ph.D. Scholar, PG Department of Dravyaguna Vigyana, National Institute of Ayurveda, Jaipur, Rajasthan, India

² Assistant Professor, PG Department of Dravyaguna Vigyana, National Institute of Ayurveda, Jaipur, Rajasthan, India

ABSTRACT

Ayurveda is an antique conventional system of medicine of India. It has projected copious supposition and speculation for the contentment of society. The majority of these thought are in implied language. Contravention these implied languages is the technique of rationalization for discriminating the inner meaning of the subject. Present review was under taken to find out the concept of 'shrama' in ancient book of surgery, *Sushruta Samhita*. Review was made based on searching criteria 'shrama' in the transcript of *Sushruta Samhita* and discussion was made by analysing the concept of fatigue with contemporary science. Review find out there are total 28 references are available regarding 'shrama' in *Sushruta Samhita*. Among them in *sutrasthana* 11, *nidanasthana* 2, *chikitsasthana* 10 and in *uttartantra* 5 references are available. After analysing all these concept, present review depict that the concept of *shrama* explained by *acharya Sushruta* can be explained through the theory of fatigue, as per modern researcher. There is lots of scope for further scientific research on views of *acharya Sushruta* regarding theory of *shrama*.

Keywords: *Shrama*, Fatigue, *Ayurveda* concept, *Sushruta Samhita*.

INTRODUCTION

Ayurveda is not simply a scheme of medicine rather it is the way of life. Its primary objective is to promote and preserve physical and mental health. Due to this holistic approach *Ayurveda* became extensive realistic with time. It is a time adept perpetual science. The time thrilled *Ayurveda* science has planned various concepts and principles for the general welfare of civilization. The majority of these thought are in implied language. Breaking these implied languages is the technique for rationalizing and discriminating the inner meaning of the subject matter [1]. In support of realistic operation, simplification as well as globalization of *Ayurveda*, it is become crucial to evaluate these primeval theories of health in the course existing modern knowledge. One such theory is 'Shrama' which requires critical scrutiny and elucidation in comparison with contemporary facts. The word *shrama* denotes weariness, fatigue, exhaustion or exertion either physically or mentally [2]. It is a subjective experience that appears with physical stress or exhaustive exercises. It can reduce the endurance capacity in physically and mentally [3]. The ancient *Ayurveda* scholar has explained *shrama* under physiological, psychological and pathological phenomenon [4]. Present study aimed to find out the concept of *shrama* in the eyes of father of surgery *acharya Sushruta*. Review was made based on searching criteria 'shrama' in the verse of *Sushruta Samhita* along with concept and mechanism of 'fatigue' available in modern literature.

METHODOLOGY

Present review was made based on searching criteria 'shrama' in the transcript of *Sushruta Samhita*. Literary sources regarding the concept of 'fatigue' from contemporary science were also incorporated for making the discussion.

RESULT AND OBSERVATION

Concept of *shrama* in *Sushruta Samhita* has been documented in the table no 1-4. Table 1 depicts the description of *shrama* in *Sushruta Samhita sutrasthana*. Total 11 references are available regarding *shrama* in *sutrasthana*. In *nidanasthana* 2 references are available regarding *shrama* (Table 2). Similarly in *Chikitsasthana* 11 references are available (Table 3) and total 5 references are available in *Uttartantra* (Table 4).

DISCUSSION

Sushruta Samhita written by *acharya Sushruta* is considered as book of *Ayurveda* surgery. Various surgical methods applicable for different diseases have been clarified by author in this book. The aim of the

*Corresponding author:

Dr. Bidhan Mahajon

Ph.D. Scholar, PG Department of
Dravyaguna Vigyana, National
Institute of Ayurveda, Jaipur,
Rajasthan, India

Email: bidhanmahajon[at]gmail.com

present study was to evaluate the concept of *shrama* in the ancient surgical point of view. *Acharya Sushruta* has mentioned *shrama* as stage of loss of body strength (Table-1, Sl.no-1) that makes his unique concept regarding this theory. In *sutrasthana* in different aspect *Acharya* has clarified process of *shrama*, what all surgical procedure should be avoided during this procedure along with various activities, drinks, food substances to overcome from this condition (Table-1). Mechanism action of such fruits (*kola, badara, karkandhu* i.e variety of palm etc), drinks (milk, meat soup, rainwater, Ayurveda wine etc), activities and special Ayurveda food items (*ragasadav, peya* etc.) can be explained through the “exhaustion theory” (described by Wang *et al.*, 2008) which suggests that during exercise, many energy sources, such as glucose and liver glycogen, will be exhausted which may leads to physical fatigue. Post-exercise nutrition through the administration of proteins, peptides or amino acids can facilitate recovery from this type of fatigue [5]. In *nidanasthana acharya Sushruta* has opined that *shrama* may arise as etiological factor of anorectal fistula and alopecia (Table-2). Both of these diseases may associate with physical and mental exhaustion. As per modern researcher fatigue is a physiological phenomenon that appears with physical stress or exhaustive exercises, which reduces the physical endurance capacity [6]. Likewise in *Chikitsasthana* and in *Uttartantra acharya* has opined different facets for measurement of *shrama* along with different procedure or activity to overcome this phenomenon (e.g.-use of comfortable bed, external application of medicated paste, fomentation etc) (Table-3). When *shrama* is an etiological factor of a disease there will be special type of

treatment which is also a contribution of *Acharya sushruta* (Table-4). As per modern scientist there are another two theory of fatigue which can be through the concept of *shrama* as per *acharya Sushruta*. One is “clogging theory” which explains the over accumulation of serum lactic acid (LA) and blood urea nitrogen (BUN) in body will also result in metabolic disorders leading to fatigue. Another one is “radical theory” which suggests that intense exercise can create a discrepancy between the body’s oxidation system and its anti-oxidation system. The accumulations of reactive free radicals in body will bring a state of oxidative Stress and injury to the body by attacking large molecules and cell organs. Muscle cells contain complex endogenous cellular defence mechanisms to eliminate reactive oxygen species, such as superoxide dismutase (SOD), glutathione peroxidase (GPx) and catalase (CAT), and to protect among other things against exercise-induced oxidative injury [7].

CONCLUSION

Theory of *shrama* explained by *Acharya sushruta* can be concluded as, it is a subjective phenomenon may arise in different stage physical as well as pathological conditions. It is a state of decrease physical and mental endurance capacity. It may arise as an etiological factor of various diseases along with sign and indicator of various diseases also. The various factors like food, drink and activities mentioned by *Acharya sushruta* for getting relief from *shrama* can be explained through the modern theory of fatigue. There is lots of scope for further scientific research on views of acharya Sushruta regarding theory of *shrama*.

Table 1: Description of *Shrama* in *Sushrutasamhita sutrasthana* [8]:

Sl. No.	Name of chapter	Description	References
1.	<i>Doshadhatumalakshayavridhivigyaniyadhya</i>	<i>Shrama</i> has mentioned as a sign of <i>balavisramsa</i> (stage of loss of body strength).	<i>Su.Su-15/25</i>
2.	<i>Karnavyadhvandhavidhyadhaya</i>	<i>Shrama</i> is a restricted factor during <i>karnavandhan</i> (special surgical procedure in ear).	<i>Su.Su-16/16</i>
3.	<i>Dravadravayavidhyadhaya</i>	Property of <i>Antareekshya paniya</i> (natural rain warter) <i>shramahara</i> (anti-fatigue).	<i>Su.Su- 45/3</i>
4.	<i>Dravadravayavidhyadhaya</i>	<i>Shramahara</i> (anti-fatigue) is one of the property of milk.	<i>Su.Su-45/49</i>
5.	<i>Dravadravayavidhyadhaya</i>	<i>Shramaghna</i> (anti-fatigue)	<i>Su.Su-45/61</i>
6.	<i>Annapanavidhyadhaya</i>	Property of <i>peya</i> (special type of diet) is <i>shramahara</i> (anti-fatigue).	<i>Su.Su-46/342</i>
7.	<i>Annapanavidhyadhaya</i>	<i>Karkandhu, Kola, Badar</i> (types of plum) <i>shramaghna</i> (anti-fatigue)	<i>Su.Su-46/146</i>
8.	<i>Annapanavidhyadhaya</i>	Property of <i>Mamsarasa</i> (meat soup) is <i>shramahara</i> (anti-fatigue).	<i>Su.Su-46/359</i>
9.	<i>Annapanavidhyadhaya</i>	<i>Shramaghna</i> (anti-fatigue) is a property of <i>ragasadava</i> (special food item).	<i>Su.Su-46/383</i>
10.	<i>Annapanavidhyadhaya</i>	<i>Shramahara</i> (anti-fatigue) is a property of <i>madvika</i>	<i>Su.Su-46/390</i>
11.	<i>Annapanavidhyadhaya</i>	Property of <i>Anupana</i> (adjuvent) <i>shramahara</i> (anti-fatigue).	<i>Su.Su-46/437</i>

Table 2: Description of *Shrama* in *Sushrutasamhita nidanasthana* [9]:

Sl. No.	Name of chapter	Description	References
1.	<i>Bhagandaranidana</i>	<i>Shrama</i> is a <i>nidana</i> (etiological factor) of <i>bhagandara</i> (anorectal fistula).	<i>Su. Ni- 4/9</i>
2.	<i>Kshudraroganidana</i>	<i>Shrama</i> is a <i>nidana</i> (etiological factor) of <i>palita roga</i> (alopecia).	<i>Su. Ni-13/37</i>

Table 3: Description of *Shrama* in *Sushruta Samhita chikitsa sthana* [10]:

Sl. No.	Name of chapter	Description	References
1.	<i>Anagatavadhapratishedha</i>	Outcome of <i>seka</i> (fomentation) is <i>shramaghna</i> (anti-fatigue).	<i>Su. Ci-24/32</i>
2.	<i>Anagatavadhapratishedha</i>	<i>Shramasahisnuta</i> (tolerance capacity against fatigue) is one of the property of <i>vayam</i> (exercise).	<i>Su.Ci- 24/40</i>
3.	<i>Anagatavadhapratishedha</i>	Effect of <i>snana</i> (bath) is <i>shramahara</i> (anti-fatigue).	<i>Su.Ci- 24/57</i>
4.	<i>Anagatavadhapratishedha</i>	Property of <i>anulepa</i> (external application of paste all over body) is <i>shramaghnam</i> (anti-fatigue).	<i>Su.Ci- 24/63</i>
5.	<i>Anagatavadhapratishedha</i>	Property of <i>padabhyanga</i> (massage in leg) <i>shramanuta</i> (anti-fatigue).	<i>Su.Ci- 24/70</i>
6.	<i>Anagatavadhapratishedha</i>	Effect of <i>dandadharana</i> (use of stick) is <i>shramaghna</i> (anti-fatigue).	<i>Su.Ci- 24/77</i>

7.	<i>Anagatavadhapratishedha</i>	<i>Shramahara</i> (anti-fatigue) as outcome of <i>sukhasayashana</i> (lying on comfortable bed)	<i>Su.Ci- 24/81</i>
8.	<i>Anagatavadhapratishedha</i>	<i>Vyalvyajana shramahara</i> (getting fear from the animal)	<i>Su.Ci-24/82</i>
9.	<i>Dhumanasyakavalgrahachikitsa</i>	<i>Shramahara</i> (anti-fatigue) is a outcome <i>nasya</i> (Ayurveda medicated snuffing therapy)	<i>Su.Ci-40/11</i>
10.	<i>Dhumanasyakavalgrahachikitsa</i>	<i>Vyayam, maithuna, marga shramahara</i> (fatigue due to excessive exercise, coitus and walk) can be relief by <i>pratimarshanasya</i> (special type of Ayurveda snuffing therapy)	<i>Su.Ci-40/52</i>

Table 4: Description of *Shrama* in *Sushruta Samhita Uttartantra* ^[11]:

Sl. No.	Name of chapter	Description	References
1.	<i>Jvarapratishedhadhyaya</i>	<i>Shrama</i> (fatigue) is one of the etiological factor of <i>jvara</i> (~rise of body temperature)	<i>Su.U-39/80</i>
2.	<i>Jvarapratishedhadhyaya</i>	<i>Madya, Lajatarpana, Kshaudara, Yusha</i> (Ayurveda special drink and diet) for <i>shramajanita</i> (fatigue caused) <i>vatajvara</i>	<i>Su.U-39/166</i>
3.	<i>Jvarapratishedhadhyaya</i>	<i>Shramakshayajavra</i> (~fever due to excessive emaciation and fatigue) <i>ghritavyaktarasaudana</i> (food and rice mixed with ghee) should be provided.	<i>Su.U-39/266</i>
4.	<i>Trishnapratishedhadhyaya</i>	<i>Shrama</i> (fatigue) causes <i>trishna</i> (thirst)	<i>Su.U-48/4</i>
5.	<i>Udavartapratishedhaadhyaya</i>	<i>Mamsaras</i> (meat juice) should be provided in <i>shramaswasaturanara</i> (person suffering with fatigue or excessive exhaustion)	<i>Su.U-55/35</i>

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