

AN EXPERIMENTAL STUDY TO EVALUATE THE EFFECT OF SHATAVARI RASAYANA ON DEHABALA IN DIFFERENT DEHAPRAKRUTI

Dr. Shloka Ramesh Tirodkar^{1*}, Dr. Rutika Adhikari², Dr. Aman Umakant Raikar³

¹PG Scholar, Dept. of Kriyasharir, DY Patil Deemed to be University School of Ayurveda, Nerul, Navi Mumbai, India.

²Assistant Professor, Dept. of Kriyasharir, DY Patil Deemed to be University School of Ayurveda, Nerul, Navi Mumbai, India.

³PG Scholar, Dept. of Kayachikitsa, Gomantak Ayurveda Mahavidyalaya & Research Center, Shiroda, Goa, India.

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*Corresponding Author

Dr. Shloka Ramesh Tirodkar

PG Scholar, Dept. of Kriyasharir, DY Patil
Deemed to be University School of
Ayurveda, Nerul, Navi Mumbai, India.



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ABSTRACT

Ayurveda's approach towards the way of living life is spread across multiple spectrums of physical health, mental health as well as at a spiritual level. But in today's fast paced life, people have forgot to take care of their health thereby neglecting it and becoming susceptible to many diseases. As a result, their immunity gets compromised and also affects their physical strength. This physical strength termed as *Dehabala* in Ayurveda, is not only essential to sustain healthy life but also to fight against diseased condition. A parallel factor which is responsible for the varied *Dehabala* in each individual is *Dehaprakruti*. Hence, each individual will exhibit different levels of *Dehabala*. *Dravyas* like *Shatavari* play an important role in maintaining this *bala* in the body. It is mentioned in *Balya Mahakashaya* in *Charak Samhita* and it also has *rasayan* effect on the body as well. So, efforts have been made to evaluate the physical strength improving activity i.e. *dehabala* improving activity of both *Shatavari* and *Rasayana* together in

the present study.

KEYWORDS: *Shatavari, Rasayana, Dehabala, Dehaprakruti.*

INTRODUCTION

In today's era, while matching the pace of world, people are forgetting the importance of health. Their life is burdened with so much of physical and mental stress, faulty food habits, lack of exercise, and change in the sleep pattern. This change in the lifestyle of individuals not only makes them diseased but also reduces their physical strength and thereby working efficiency. In *Ayurveda*, the disease is termed as *Vyadhi* and physical strength as *Dehabala*. *Ayurveda* emphasizes more on healthy life so maintaining physical strength or *Dehabala* is essential not only for sustained healthy life but also for combating the diseased condition. Assessment of *Dehabala* is important clinically to determine the doses of drugs according to one's *dehabala*.

Ayurveda is a science based on its unique concepts hence it is a *Shashvata Shastra*. One of the concepts is *Prakruti*. *Prakruti* is defined as the state of an individual in its natural form. *Ayurveda* classifies people on the basis of *Prakruti* as every person is supposed to have fixed *Prakruti* that is formulated by the condition of *Tridosha* at the time of union of sperm and ovum inside the uterus. Predominance of any one, two or all three *Doshas* determines the *Prakruti* of an individual. Therefore, *Prakruti* refers to genetically determined anatomical, physiological and psychological constitution of an individual. *Prakruti* also determines the response of an individual to environmental factors, drugs, susceptibility to disease making it one of the earliest known concepts of preventive and personalized or genomic medicine.

Another unique concept of *Ayurveda* in the form of treatment to keep oneself healthy is '*Rasayana*'. In short, *Ayurvedic* medicines are divided into two groups, one that increases the strength and promotes the health of healthy person and second which cures the diseases of the patient. *Rasayana* comes under second category. As stated by *Acharya Charaka*, *Rasayana* helps the body to form *Prashasta Sapta Dhatus*, right from *Rasa* till *Shukra*.

Information on *Bala* is available in *ayurvedic* texts but in different context. Broadly there are two main aspects of *bala* i.e. *Vyayamshakti* and *Vyadhikshamatva*. *Acharya Charaka* has said that *bala* is assessed on the basis of *Vyayamshakti*. So, this study is an attempt to assess *bala* on the basis of *Vyayamshakti*. According to modern science also, the physical strength is assessed with the help of parameters of Physical fitness.

Asparagus racemosus Willd. i.e. *Shatavari* is a widely used herbal medicine in many ayurvedic formulations, which are designed to improve overall health, and it is used as a key drug in many formulations for specific disease condition. *Acharya Charaka* has mentioned *Shatavari* in *Balya mahakashaya*. There are many studies on *Shatavari* to prove its galactagogue, immunomodulatory, anti-oxidant, peptic ulcer healing activity. Also, there are many studies proving the effect of *Rasayana* as anti-aging, anti-oxidant, Nootropic and adaptogenic activity. So, efforts have been made to evaluate the physical strength improving activity i.e. *dehabala* improving activity of both *Shatavari* and *Rasayana* together in present study.

REVIEW OF LITERATURE

Prakruti

Qualitative and quantitative, unchangeable *doshik* predominance from birth to death is called as *Prakruti*. According to *Acharya Sushruta*, formation of *Prakruti* takes place by the condition of *Tridosha* at the time of union of *Shukra* (sperm) and *Shonita* (ovum) in the *Garbhashaya* of mother.^[1] Predominance of any one, two or all three *doshas* determine the characteristic features of future child. These *dosha* predominance is in normal state and not aggravated. According to *Dalhana*, these predominant *Vata* etc. are of two types Normal and Abnormal; of which the former emerging simultaneously with the body are the source of natural constitution while the latter causes abnormality in fetus.

Acharya Sushruta has mentioned that the condition at the time of union of male and female gametes also affect the formation of *Prakruti*. *Acharya Charaka* has mentioned following additional factors which determine the *Prakruti*.

- I. Nature of season
- II. Condition inside the uterus
- III. Food of mother
- IV. Other regimens adopted by mother during pregnancy.

Acharya Charaka has described following Intra-uterine factors that are responsible for the formation of *Prakruti*.^[2]

- a. *Shukrashonit Prakruti* (sperms and ovum)
- b. *Kal Garbhashaya Prakruti* (Season and condition of uterus)
- c. *Matur Ahar-Vihar Prakruti* (Foods and regimes of mother)
- d. *Mahabhutvikar Prakruti* (Role of Mahabhuta comprising fetus)

Charaka referred to Extra-uterine factors influencing *Prakruti* as.^[3]

- a. *Jati-Prasakta* (Race)
- b. *Kula Prasakta* (Family disposition)
- c. *Deshanupatini* (Land and Patient)
- d. *Kalanupatini* (Season)
- e. *Vayanupatini* (Age)
- f. *Pratyatmaniyata* (Personal Habit)

If we observe different individuals and their nutritional requirements, their tolerance to the atmosphere or their behavior patterns, we find that for maintaining health, they have different needs. They may prefer different types of food, drink and activity. Even if two people with identical weight and height are chosen, their requirements still may vary. One may prefer large amounts of food while other may prefer less. If we analyze the serum or blood in these individuals, we may not find any substantial difference yet differences clearly exist. Therefore, it becomes clear that tolerance to food, drink or environment cannot be decided by the analytical study of body tissue. It depends on individual constitution. *Prakruti* analysis by means of *tridosha* plays an important role in diagnosis and treatment of the disease. This analysis also enables us to know about particular dietary regimen, herbs to be used or avoid. *Prakruti* analysis helps us to maintain healthy lifestyle as well.

Deha and Dehabala

Deha means *sharir* or human body.^[4] The formation of *deha* is a beautiful concept explained in *Ayurvedic* embryology i.e *Garbha sharir*.

Bala is usually divided into 3 types, i.e. *sahaj bala*, *kalaja bala* and *yuktikrut bala*. The word *Bala* has been used invariably for strength of mind, body and its components. However, the term is also used as a synonym for those components of the body which have the function of providing strength, protection, nourishment and stability to the other parts of the body. Hence, the word *Bala* is synonymously used for normal *Kapha dosha* (the factor primarily responsible for strengthening and lubricating the body) and *Ojus* (bioenergy or body component that helps in sustaining of life). It also stands for immunity and immune system in normal state.^[5]

According to *Sushruta*, '*Bala*' is defined as 'the factor due to which one obtains the nourishment and stability of *mamsdhatu*, ability to perform various tasks efficiently, good

complexion, clearness and pleasantness of voice along with clear and efficient working of all the organs either external like *Gyanendriya* (sense organs) or *Karmendriya* (organs with motor functions) and internal like *Manas* (mind), *Aatma* (Spirit) etc.^[6]

Acharya Charaka stated the method to assess *bala*. It is to be assessed by *Vyayamshakti*.^[7]

Vyadhikshamatva

Inborn resistance towards disease is called *Vyadhikshamatva* in *Ayurveda*. *Charaka* stated that it varies from individual to individual.^[8] *Chakrapanidatta* in his commentary defined the term *Vyadhikshmatva* as the power of the body to resist and prevent the disease.^[9]

Balavruddhikar Bhavas

Acharya Charaka has explained the strength promoting factors known as *balavruddhikar bhavas*.^[10]

- *Desh* (birth place) – Place of excellent strength i.e. *Sadharan desha* where animals and plants are with excellence of constitution, complexion and strength. *Sadharan desha* has no degrade or extreme conditions at this place. Here water of rivers and air in the environment is always fresh. So, birth at such place leads to an individual with excellent strength.
- *Kala – Visarga kala* is best to improve the strength.
- *Sukhascha kalayoga* – That means favorable conditions in all aspects leading to good *dehabala*.
- *Beeja kshetra sampat* – Excellence of maternal and paternal endowment.
- *Ahara sampat* – Proper *matra* and *kala* of *ahar sevan* and good quality of food and following proper methods to cook food leads to proper digestion of food and thereby nourishment of body.
- *Sharir sampat* – Individuals with excellence of bodily constitution have *uttam dehabala*.
- *Satmya sampat* – Being habitual to all conditions related to diet, medicine and environment helps to keep good physical strength.
- *Satva sampat* – Excellence of mind also leads to development of good physical strength.
- *Swabhav samsidhi* – Excellence of natural endowment is also one of the *bala* improving factor.
- *Yauvanavastha* – *Vaya* is divided into three stages viz *Balyavastha* (childhood), *Madhyamavastha* (youth) and *Vruddhavastha* (old age). *Acharyas* have said that the *bala*

is excellent in the *Madhyamavastha* stage as it is a stage where all the dhatus of body are properly developed.

- *Karma sampat* – There are three types of Karma viz *Kayik*, *Vachik* and *Mansik*. Karma is also considered as *Bharvahanadi Shakti*, which is a *bala* improving factor.
- *Samharsha* – Enthusiastic condition of mind that is helpful to improve the strength of body.

Rasayana

According to *Acharya Sushruta*, *Rasayana Shastra* is one of the eight clinical specialities of *Ayurveda* and its aim are to increase longevity to hundred years, to increase power of brain, to improve health and to make a person more active, to remove all morbidity from the body and to maintain the youth of an individual. *Rasayana* means the way for attaining excellent *Rasadi dhatus*.

As mentioned by *Acharya Charaka* from the *Rasayana* method of treatment an individual draws benefits of longevity, heightened memory and intelligence, health, youthfulness, excellence of luster, complexion and voice, optimum strength of body and mind, tones the voice and speech and a glow to the body.^[11] *Rasayana* keeps away *Jara*, removes *daurbalya*, cures diseases and overcomes even *mrutyu* and person lives for thousand years. The individual not only gets his life span prolonged but also attains salvation.^[12]

Factors to be avoided during *Rasayana*^[13]

- ✓ Substandard, sour, salty, pungent and alkali diet.
- ✓ Dry vegetables and meat, Derivatives of Sesame
- ✓ Germinated cereals and pulses, freshly harvested
- ✓ Contradictory, unwholesome, dry, Abhishyandi food
- ✓ Softened, heavy, putrid, and stale food
- ✓ Irregular food intake and food taken before the digestion of earlier food
- ✓ Alcoholic drinks
- ✓ Day sleep, over work
- ✓ Regular sexual intercourse
- ✓ Irregular and excessive exercise
- ✓ Excess fear, anger, grief, greed, and infatuation.

Contraindication of *rasayana*^[14]

Rasayana should not be administered to following 7 persons

- ✓ *Anatmavan* (Intemperate)
- ✓ *Aalasi* (Lazy)
- ✓ *Daridri* (Poor)
- ✓ *Pramadi* (Careless)
- ✓ *Vyasani* (Immoral)
- ✓ *Paapkrut* (Sinful)
- ✓ *Bheshaj apamani* (One who disrespect medicines)

Drug review

Shatavari classification – *Charaka: Balya, Vayasthapan, Madhurskand*

Sushruta: Vidarigandhadi, Kantakpanchamula, Pitta shaman

Its properties are *Rasa*: Madhur, tikta; *Guna*: Guru, Snigdha; *Virya*: Shita; *Vipaka*: Madhura; *Dosha karma*: Vata *Pitta* shamak.

MATERIALS AND METHODS

The following is the description of Materials and Methods used in this study.

1. Review of literature

All available Ayurvedic classics, modern available texts, magazines, journals, M. D. dissertations & research papers.

2. Type of study

An experimental, comparative prospective study.

3. Sample size

Total number of subjects included in this study were 90 and they were categorized as follows-

Group A- *Vata* pradhan *Prakruti*-30

Group B- *Pitta* pradhan *Prakruti*-30

Group C- *Kapha* pradhan *Prakruti*-30

4. Selection criteria – Inclusion criteria

- Healthy individuals from the age group of 16 to 40 years.
- Both sexes i.e. male & female were inclusive.

Exclusion criteria

- Pregnant & lactating women.
- Subject having any acute or chronic illness within past 1 year.
- Subjects were having any chronic infectious disorders
- Physically disabled.

Withdrawal Criteria

- The researcher feels that the protocol had been violated or subject become non-co-operative.
- Subject not willing to continue the trial.
- Occurrence of unexpected harmful effect regarding given drug administration and other than it.

5. Sampling Method: Stratified sampling.**6. Method of preparation**

Fine powder (churna) of Shatavari was obtained from a reliable local vendor. The standardization of dry and fine powder, was performed from a reputed Ayurved pharmacy before administration.

- Trial Drug: *Shatavari churna*
- Kalpana: Churna
- Matra: 10gms [1karsha]
- Anupana: Dugdha [40 ml]
- Sevanakala: Pratah kal [Empty stomach in morning].
- Kalawadhi: 30 days.

7. Pathya-Apathya: General Pathya-Apathya regarding Dinacharya, Rutucharya and with respect to *Rasayana* sevan was advised.

8. Plan of study

- As per inclusion criteria, 90 subjects had been selected for the study.
- First of all, written consent was obtained from each volunteer.
- Subject was examined thoroughly according to CRF for their healthy status.
- Evaluation of *Prakruti* was done using standard format.
- *Dehabala* was assessed by Harvard step test & sit up test before administration of *Rasayana*.

- *Koshthashodhan* was done before administration of *Rasayana* with the oral administration of *Haritakyadi Churna* in the dosage of 3 gms for 7 days at *Nishakala* with luke warm water.
- *Shatavari Rasayana* was given to 90 healthy individuals of different *Deha Prakruti*.
- *Dehabala* was assessed with Parameters i.e. Harvard step test & Sit up test after administration of *Shatavari Rasayana*.
- Results were assessed.

OBSERVATION AND RESULTS

The study was done with the sample size of 90. Healthy individuals screened from population were divided into 3 groups according to their *Prakruti* in order to compare total effect of therapy. So, each group consisted of 30 healthy individuals. Each individual of each group was advised 'Shatavari Rasayana' as described in material and methods. A detailed history was taken according to case record form mentioned in material and methods. Observations were noted and results were recorded.

Out of 30 subjects of *Vata* pradhan *Prakruti*, 2 subjects (6.66%) improved, 20 subjects (66.66%) showed moderate improvement and 8 subjects (26.66%) showed no improvement. Out of 30 subjects of *Pitta* pradhan *Prakruti*, 14 subjects (46.66%) improved, 15 subjects (50%) showed moderate improvement and 1 subject (3.33%) showed no improvement. Similarly, out of 30 subjects of *Kapha* pradhan *Prakruti*, 1 subject (3.33%) improved, 13 subjects (43.33%) showed moderate improvement and 16 subjects (53.33%) showed no improvement.

As a result, out of 90 subjects, 17 subjects (18.88%) improved, 48 subjects (53.33%) showed moderate improvement and 25 subjects (27.77%) showed no improvement.

DISCUSSION

In today's era the need of exercise in the society is increasing day by day, which is a quite good thing. Because exercise not only gives us physical strength but also keeps us away from many diseases. In such scenarios *Ayurveda* is definitely a game changer, as it not only emphasizes on treatment of disease but also on maintaining a good health with the help of *Rasayana*. So along with exercise for improving strength we can use *Rasayana* therapy as a supplementation. *Prakruti* is one of the unique concepts of *Ayurveda*. *Doshas* play a key role in the formation of *Prakruti*. Many permutations and combinations of these three *Doshas* create infinite types of *Prakruti* which are yet distinct from each other. The assessment of

Bala in these *Prakruti* is also important to determine Strength of each *Prakruti* and with the intervention of *Rasayana* to improve their strength. Also, we may find that the *Dehabala* of these three *Prakruti* is different from each other hence different therapeutic measures can be used as per *Prakruti*. Hence, it is essential to develop a relationship between *Prakruti* and *Dehabala* with the intervention of some therapy like *Rasayana*.

The observations noted in 90 subjects was discussed in the following three sections.

1. General Discussion
2. Clinical Parameter
3. Effect of the therapy

The results obtained from the observations are discussed here.

1. General discussion

1. The effect of Shatavari *Rasayana* on *Dehabala* was observed more in *Pitta* pradhan *Prakruti*.
2. The effect of Shatavari *Rasayana* on *Dehabala* was observed more in males (33.3%) than in females (16.7%). This might be due to musculature difference between two.
3. The effect of Shatavari *Rasayana* on *Dehabala* of age 16-30 years was found more (47.77%) than age group 31-40 years (2.22%). As the sample size is deficient to conclude concrete inferences, so no conclusion can be drawn.
4. The effect of Shatavari *Rasayana* on *Dehabala* was observed more in Hindu subjects (35.9%) than in Muslim subjects (2.6%). As the sample size is deficient to conclude concrete inferences, so no conclusion can be drawn.
5. The effect of Shatavari *Rasayana* on *Dehabala* was observed more in students (22.2%) than in working subjects (16.3%). As the sample size is deficient to conclude concrete inferences, so no conclusion can be drawn.
6. The effect of Shatavari *Rasayana* on *Dehabala* was observed more in subjects having vegetarian diet (27.8%) than subjects having mixed diet (22.2%). As the sample size is deficient to conclude concrete inferences, so no conclusion can be drawn.
7. The effect of Shatavari *Rasayana* was observed more in subjects with normal *Nidra* (44.4%) than with disturbed *nidra* (5.6%). Acharya Charaka stated that proper sleep helps in maintaining *bala*.

8. The effect of Shatavari *Rasayana* on *Dehabala* was observed more in Madhyam sara (38.9%) than in Uttam sara (6.7%) than in Heen sara (4.4%). As the sample size is deficient to conclude concrete inferences, so no conclusion can be drawn.
9. The effect of Shatavari *Rasayana* on *Dehabala* was observed more in Madhyam satva subjects (32.2%) than in Pravar satva subjects (12.2%) than in Avar satva subjects (5.6%). As the sample size is deficient to conclude concrete inferences, so no conclusion can be drawn.
10. The effect of Shatavari *Rasayana* on *Dehabala* was observed more in Madhyam akruti (31.6%) than in Krusha akruti subjects (5.1%) than in Sthula akruti (1.7%). As the sample size is deficient to conclude concrete inferences, so no conclusion can be drawn.
11. The effect of Shatavari *Rasayana* on *Dehabala* was observed more in Sarva *Rasa* satmya subjects (41.1%) than in madhyam *Rasa* satmya subjects (8.9%). As the sample size is deficient to conclude concrete inferences, so no conclusion can be drawn.
12. The effect of Shatavari *Rasayana* on *Dehabala* was observed more in Tikshanagni subject. As the sample size is deficient to conclude concrete inferences, so no conclusion can be drawn.
13. The effect of Shatavari *Rasayana* on *Dehabala* was observed more in Madhyam koshtha (26.7%) than in Krura koshtha (14.4%) than in Mrudu koshtha (8.9%). As the sample size is deficient to conclude concrete inferences, so no conclusion can be drawn.

2. Clinical parameters

The clinical parameters for present study were Harvard step test (HST) and sit up test (SUT), which are employed for each individual before and after the treatment. From the above study, it is observed that there was a significant result of Shatavari *Rasayana* with both the parameters in *Vata* pradhan and *Pitta* pradhan *Prakruti*. In *Kapha* pradhan *Prakruti*, only one parameter was significant that is Sit up test.

As far as the parameters are concerned, sit ups are tested for muscular endurance. The endurance *Kapha* *Prakruti* individuals were good as per their scores noted. That may be due to the sara guna of *Kapha*; while in *Vata* prakruti individuals, early fatiguability was observed.

While testing HST in *Vata* prakruti individuals, chala guna of *Vata* helped the individuals to perform faster but early fatiguability was observed here as well.

3. Effect of therapy

From the above results, it was concluded that the effect of Shatavari *Rasayana* on *Dehabala* is dependent on *Deha Prakruti* and it showed highest effect in subjects with *Pitta* pradhan *Prakruti*. Shatavari has Madhur-tikta Rasa which are *Pitta dosha shamak* and hence results were seen more in their case. It also increased the digestive strength thereby improving the quality of Rasa dhatu. So, the *Dhatu sneha parampara* was well established. The action of Shatavari was considered and proved more on rasa dhatu, artava etc. Present study was an effort to evaluate its effect on Mamsa dhatu with the help of Vyayamshakti.

CONCLUSION

Based upon the results of the study, following conclusions are drawn.

- After comparing the three groups it was seen that the effect of Shatavari rasayana is dependent on doshapradhan prakruti as the One-way ANOVA test, applied for both parameters HST and SUT, showed significant results.
- The effect of *Shatavari rasayana* was found highest in *Pittapradhan prakruti*.
- Amongst 30 subjects of *Vata* pradhan *Prakruti*, 2 subjects improved and 8 subjects showed no improvement.
- Amongst 30 subjects with *Pitta* pradhan *Prakruti*, 14 subjects improved and 1 subject showed no improvement.
- Amongst 30 subjects with *Kapha* pradhan *Prakruti*, 1 subject improved and 16 subjects showed no improvement.
- As a result, out of 90 subjects, 17 subjects improved and 25 subjects showed no improvement.
- So, we can conclude that the effect of Shatavari *Rasayana* on *Dehabala* is dependent on *DehaPrakruti* as well as it shows highest effect in subjects with *Pitta* pradhan *Prakruti*.
- Shatavari *Rasayana* should be used mainly in the subjects having *Pitta* pradhan *Prakruti*.

Scope for further study

- Further study of *Shatavari Rasayana* can be conducted by selecting a specific disease-oriented subjects like in malnourishment.
- The study can be conducted with large sample size or as a survey.
- The study can also be done with control drug or placebo.
- The study can be done with more time duration that is for 3 months or 6 months.

- *Shatavari rasayana* can be used in individuals with regular work out like sports person /athletes/regular gym going individuals so as to introduce more no of parameters of assessment of *dehabala* and with the use of *Shatavari rasayana* provide them an alternative to regular whey protein consumption.

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