

A SURVEY BASED COMPREHENSIVE STUDY OF *BALA* (VITAL STRENGTH) W. S. R. TO *VISARGA KALA* (SOUTHERN SOLISTICE)

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ABSTRACT

The *bala* or vital strength of the body is the resultant of *prakriti* (genetic), *sara* (physiological), and *aahar* (diet) etc. But the most important unavoidable factor which governs all these is the *kala* (time). It is the status of *kala* which decides the strength of our body. A complete year is divided into *adana kala* and *visarga kala* based on the position and status of Sun and Moon. In a year the *bala* gradually decreases in *adana kala* & gradually increases in *visarga kala*. So, it is the *kala* which increases the *bala* of human beings in *visarga kala*. A survey study has been conducted on a sample population with the help of a objectively designed proforma based on *dashvidha atura bala pareeksha* from *charak samhita vimanstan* to assess the impact of *visarga kala* on human body. On the basis of the data collection and interpretation, it is found that *bala* is a conjugate effect of *saptadhatusara* (healthy status of *dhatus*) and it gradually increases in *visarga kala* i.e from *varsha ritu* (rainy season) to *hemanta ritu* (winter season).

Keywords: *bala*, *ritu*, *visarga kala*, *dashvidha atur pareeksha*

INTRODUCTION

Ayurveda, being an eternal science of human life deals with physical, psychological as well as spiritual well being of an individual¹. It covers all the spheres of human life. Human body greatly influenced by external environment. The change of external environment (*kala*) from one season to other affects the human body. There is the variation in the vital power of human beings called as *bala*². *Kala* (time) is divided into two types- *Nityaga kala* (daily and seasonal rhythms) & *Avasthika kala* (Conditional). The *acharyas* have the opinion that the beginning of the *visarga kala* i.e. *varsha ritu* and the end of the *adana kala* i.e. *grisma ritu* mark *daurbalyata* (decreased *bala*) of the human beings. While the end of *visarga kala* i.e.

hemanta and the beginning of *adana kala* i.e. *sisira ritu* signify maximum *bala* and middle of the both *kala* i.e. *sarad* & *vasanta ritu* respectively medium *bala* is observed. Decreased *bala* enhance the unfavourable progressive changes associated with decline in vigour and ending in death. *Bala* in individuals is also affected by genetic factors (*beeja* and *prakriti*), diet (*aahara*), psychological conditions³ (*manas prakriti*) and age (*jara*). Thus, the importance of *bala* is enormous which in turn is influenced by the *kala*. While prescribing different categories of food and medicines to the patient dose (*matra*) must be decided according to *atura bala pramana*, thus there is a very close relationship among the quantity of medicine and *bala*⁴. In the results of *shodhana cikitsa* / *panchkarma*

We found that the *bala varna* also increases⁵. The proper diet taken by a person is responsible for his *bala*, healthy complexion and healthy life. It means there is a relationship between *bala* and *kala*. The *bala*, varies with *kala* in a systematic way. It gradually decreases and increases in *adana* and *visarga kala* respectively. So, the survey study will reveal the real status of the *bala* variation on the population and it also proves the fundamental mentioned in the classical texts.

MATERIAL & METHODS

A Survey Study of 600 (Six Hundred) healthy volunteers of middle age group i.e between 16 yrs to 70 yrs on a constant population in the National Institute of *Ayurveda* premises and its surrounding colonies to avoid the impact of *desha* on *bala*. The survey was conducted during *Visarga Kala* which was commenced from July,08-2009 and up to December,31-2009 and as per *vikram samvat panchang* it is from *shravan mass-krishna paksha- pratipada- vikram samvat -2066*. To *paush mass- shukla paksha-poornima -vikram samvat -2066*.

A detailed research-proforma and a specific scoring pattern^{6,7} was developed and used to assess the various aspects of *bala* particularly based on *Dasavidha Atura-Pariksha*. Some modern parameters and procedures i.e. B.M.I., Breath Holding exercise (BH), Peak Expiratory Flow Rate (PEFR) and stepping exercise (SE) were also included for the assessment. The objective of our study is the *bala* assessment through survey study. So, nine parameters, excluding the *vikriti pariska*, of the *dasavidha pareeksha* were selected as tool in survey proforma. The nine parameters were graded to make objective for numerical assessment. All the

parameters were given score maximum 10 and minimum 03.

1. The *prakriti* was assessed on the basis of present symptoms of particular status of *dosha* in the individual. For having >75% symptoms of *kapha, pitta or vata dosha* they are graded as 5, 3.5 and 2.5 marks respectively. If 50-75% symptoms of *kapha, pitta and vata dosha* are found then they are graded as 3, 2, and 1.5 marks respectively. If <50% symptoms of *kapha, pitta or vata dosha* are found then they are graded with 2, 1.5 and 1 mark respectively. The highest marks are given to *kapha prakriti* for same percentage of symptoms, medium to *pitta* and less to *Vata* because of the reason that *kapha prakriti* have more *bala* than *pitta* and *vata prakriti* with same %age of features.

2. *Sara* examination is the most reliable and compatible for *bala* examination is awarded with total maximum 20 marks. Here the symptoms of each *sara* are assessed and if >75% symptoms of *mamsa, majja, sukra* and *sattva sara* are found they are awarded with maximum 3 marks because these four *sara* symptoms are associated with *pravara bala sara*. In case of 50-75% symptoms 2 marks and less than this is with 1.5 marks. For *twak, rakta, meda* and *asthi sara* the marks for >75% symptoms is 2, for 50-75% symptoms 1.5 and < 50% symptoms is 1 marked for having comparative less *bala* than *mamsa, majja, sukra* and *sattva sara*.

3. *Samhanana* examination is done with 3 sub parameters:

i. Bilaterally propositional and symmetrical bones, if found completely then 3.5, if moderately then 2 and with some asymmetry and disproportion then 1 mark is awarded.

ii. Musculature of the body, if well developed then 3.5, if moderately 2 and under developed then with 1 mark.

iii. Structurally and functionally joints, if normal and strong then 3 marks, if some sort of difficulties then 2 marks and 1 mark for difficulty with hampered functions is awarded.

4. *Pramana* examination is also done with 3 sub-parameters:

i. Height: fully proportionate and well developed height with 3 marks, moderate height 2 marks and short structure is awarded with 1 mark.

ii. Body Mass Index: if in normal range then 4 marks because it includes the weight of the person in relation to height. So, highest marks are awarded for it. If less or more than this is found then 2 marks and more than 30 kg/m² is with 1 mark.

iii. Body frame: large frame with medium weight are with 3 marks, large lean or stout 2.5, medium frame with medium weight 2 marks, dwarf 1 mark.

5. *Satmya* examination is done for *rasa*, *dravya*, *guna* and *oaksatmya*. If the consumption all six *rasas* with *snigdhaadi gunayukta foods* and no physical and psychological addictions are found then maximum grades. If moderate condition than medium marks and for least or no character least marks are awarded.

6. *Sattva* examination is done on the basis of *sattva sara* symptoms maximum 4 marks for >75% symptoms and for 50-75%, 30-50%, <30% then 3.5, 3 and 2 marks are given respectively. Tolerance of pain and grief are also assessed here with maximum stable character in pain and grief maximum 3 marks and least 1 mark for none or frequent symptoms.

7. *Aahar shakti examination* is done by ingestion capacity, frequency of daily meal and digestion power. The maximum characters are awarded with maximum 3 marks, moderate with 2 marks and least with 1 mark except in digestion capacity

where maximum 4 marks and rest as 3, 2 and 1 mark are given.

8. *Vyayama shakti* examination alone compatible with the *bala* assessment. But for complete assessment here it is done along with other parameters. Here 3 sub-parameters are selected:

i. Breath holding exercise⁸ : The maximum duration 90 seconds is given 3 marks, 60-89 sec 2.5 marks, 30-60 sec 2 marks and <30 sec is given 1 mark.

ii. Stepping exercise⁹ for 5 minute is done and the basal pulse and respiration rates are observed after one minute of rest. If proper decline in pulse and respiratory rate is found then 3 marks, moderate 2 marks and poor relation is given 1 mark.

9. The *Vaya* is the internal factor, which changes the status of *bala* in a person. The capacity for maximum *bala* is found in the age group 21-30 years with 10 marks and 16-20 and 21-30 year age group with little less 07 marks and 41-50 years with 05 and 51-70 is with 4 marks¹⁰. Because of gradual decline in the metabolism, deposition of waste bio-products and free radical in the body with growing age.

Table 1: Scoring pattern for *bala* assessment based on *dasavidha atura bala* examination

S.No.	Parameters	Maximum score	Minimum score
01.	<i>Prakriti</i>	10	05
02.	<i>Sara</i>	20	10
03.	<i>Samhanana</i>	10	03
04.	<i>Pramana</i>	10	03
05.	<i>Satmya</i>	10	03
06.	<i>Sattva</i>	10	04
07.	<i>Aahara-Shakti</i>	10	03
08.	<i>Vyayama-Shakti</i>	10	03
09.	<i>Vaya</i>	10	04
	Total	100	38

The total *bala* is assessed on the conjugative effect of all the nine parameters. If the total score of all the nine parameters is in the range of >75% then it is *pravara bala*, if between 50-75% then *madhyam bala* and <50% are in *avara*

bala conditions. Based on the score acquired, Volunteers were assessed and categorized in following three groups¹¹.

Table 2: Categorisation according to bala pareeksha

Group	1.Pravara Bala	2.Madhya Bala	3.Avara Bala
Score	> 75%	50 -75 %	< 50%

OBSERVATION AND RESULTS

During the survey study, total 600 healthy volunteers (H.V.) were registered @ 100 H.V per month of vikram samvatsara for the complete visarga kala from shravan month to poash month for the assessment of bala.

Maximum number of healthy-volunteers 346 (61.13 %) was belonging to age group of 21 – 30 yrs, 116 (20.49 %) healthy-volunteers were found in 31-40 yrs age group, 58 (10.25 %) healthy-volunteers were in 40-70 yrs age group and minimum 46 (08.13 %) healthy-volunteers belongs to 16 – 20 yrs. A detailed distribution of surveyed H.V according to the tenfold examination accepted for bala examination is given in table 3.

Table 3: Number of HV surveyed as per factors of dasavidha pareeksha

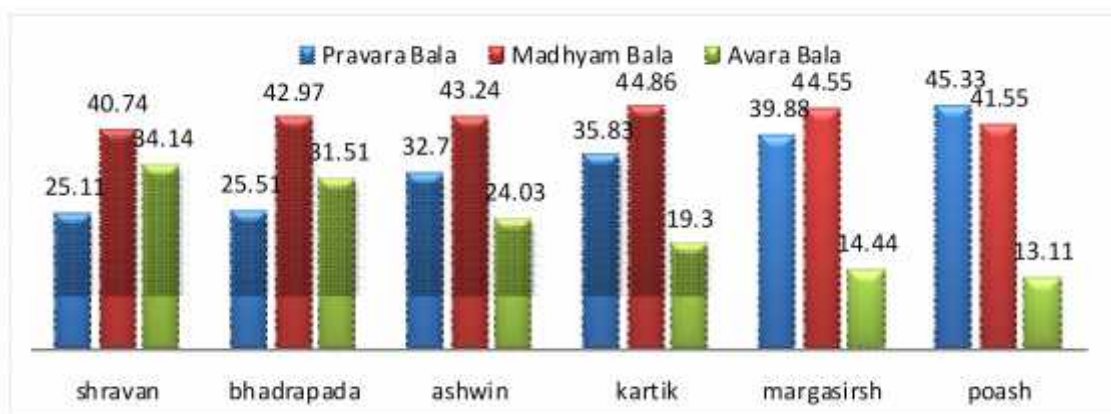
S.NO	Dasavidha preeksha	Pravara bala		Madhyam bala		Avara bala	
		No. of HV	% AGE	No. of HV	% AGE	No. of HV	% AGE
1	Deha prakriti	205	36.22	177	31.27	184	32.51
2	Sara	171	30.21	281	49.65	114	20.14
3	Samhanana	143	25.26	365	64.49	58	10.25
4	Pramana	135	23.85	364	64.31	67	11.84
5	Satmaya	217	38.34	181	31.98	168	29.68
6	Sattva	145	25.62	307	54.24	114	20.14
7	Aahar	192	33.92	191	33.57	183	32.33
8	Vayayam	184	32.51	205	36.22	177	31.27
9	Vaya	346	61.13	116	20.50	104	18.37

Table 4: Bala observation in 600 H.V in Six months of Visarga Kala

S.No	Month	Pravara Bala (%)	Madhya Bala (%)	Avara Bala (%)
1	Shravan	25.11	40.74	34.14
2	Bhadrapada	25.51	42.97	31.51
3	Ashwin	32.70	43.24	24.03
4	Kartik	35.83	44.86	19.30
5	Margasirsh	39.88	44.55	14.44
6	Poash	45.33	41.55	13.11

The comparative data of bala in six months of visarga kala shows that pravara bala was least in shravan month and maximum in poash month, madhyam bala was minimum in shravan month and maximum in kartik month and avara bala was minimum in poash month and maximum in shravan month.

Graph 1: Graphical Comparison of Bala in Visrga kala



From the graph we can observe that there is a gradual increase in *pravara bala* from *varsha* to *hemanta ritu*. In the same way the *avara bala* decreases from *varsha* to *hemanta ritu*. This proves the hypothesis that the *bala* increase with *visarga kala*.

DISCUSSION

The data collected through the survey study results in the findings as per the objective. The *bala* of the body is found as increased from *varsha ritu* to *hemanta ritu*. On the basis of the observations the following discussions has been done to find the probable causes for the rise of *bala* in *visarga kala*.

Bala is the vital force which made a person full of energy and enthusiasm to perform all the tasks conveniently either physical or psychological. Power, energy, vigour, force, strength, vitality and *ojas* these are the terms which are compatible with the same meaning as that of *bala*. *Bala* is assumed as the supreme essence of *rasadi dhatus*, *prakrat slesma*, physical strength, ability to carryout *cestas*, *utasaha-upacaya lakshana*, *ojas*, *sukra-upadhatu*, *sukra-mala*, *vyadhikshamatva* etc. All the above stated factors are comparable with *bala* in one or two aspects. *Bala* is the supreme essence of *rasadi dhatus* which is called as *ojas*, a synonym of *bala*. After the formation of *aahara rasa* it comes in contact with the *dhatvagnis* and converted into *rasa dhatu* (extract part) and *kitta* part (waste) and the same process is carried up to *sukra dhatu*. Now it is converted into *ojas* and *ojas* is said to be the *bala*. *Prakrat slesma* is also synonymies with *bala*. The reason for this relativity is that *kapha* is the cause for anabolic activities in the body. *Kapha prakriti* person is found with *pravara bala*. So, the anabolic activity of *slesma* and of *ojas* are seen which are then compared and

given name of *bala*. Because to do something properly the mental and physical co-ordination is must, without the conjugation of *manas* with our sense organs we are not able to do any physical actions. This feature is assessed and called as *sattvabala*. *Ojas* is stated as *bala* but *bala* is not a compatible identity with it because *ojas* has functions *sthira-upchitamamsa*, *sarva-cesta-svapratighata*, *svara-varna-prasada* etc. Which are the outputs of *pravara bala* but *bala* is not a material and can be known with the help of *anumana pramana* whereas *ojas* is a matter that can be assessed by its properties. *Vyadhikshamatva* is the capacity of the body to resist the external infections. *Bala* has not such a property to fight against germs. It is found that the person with *pravara bala* have good status of *vyadhikshamatva*. If *bala* increases then *vyadhikshamatva* also increases but *bala* itself is not *vyadhikshamatva*. *Vyadhikshamatva* is the action of *bala* in our body.

Kala is the factor which causes transformation of objects or phase transition of body elements i.e. *dosha*, *dhatu* and *mala*. It decides the entity in terms of present past and future. *Kala* is the cause behind the origin of six *rasas* in the nature. Starting with *amla rasa*, which is dominated in *varsha ritu*, *lavana rasa* in *sarad ritu*, *madhura rasa* in *hemanta ritu*. The *rasas amla*, *lavana* and *madhura* have the properties similar to that of *kapha dosha* and opposite to that of *vata dosha*. These *rasa* dominates the seasons of *visarga kala* viz: - *varsha*, *sarad* and *hemanta* respectively. That results in the increase of anabolic properties. In *visarga kala* the *chandra* (moon) *bala* increases because of the obstructed or subsided strength of sun. In *visarga kala* the earth is

in winter solstice. So that our position on earth is farthest from the sun hence the impact of sun declines and moon is fully dominant during this period. All these changes manifest the improvement of *bala* in the body of human beings.

The seasonal variation have the deposition, vitiation and subsidation of *dosha*. It is because of the origin of particular *rasa* and *guna* in the specific season. This *agnibala* variation is directly proportional to the metabolism and *bala* (strength) of our body for e.g. in *hemanta ritu* the *agni* is at its increased state so, *guru*, *snigdha* foods are used in diets results in increased *dhatu*. This shows itself in the form of increased *bala*.

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CONCLUSION

Bala is a multidimensional functional identity of the body, which is the output of proper equilibrium state of *dosha*, *dhatu* and *mala* in the body. The expression of this supreme essence in the body results in the good musculature, stable body, and ability to perform activities, clarity of voice, good complexion, healthy motor and sensory organs and healthy immunity of body. *Bala* is the effect and *ojas* is the cause for *bala uttapati*.

Kala is the factor which causes transformation of objects or phase transition of body elements i.e. *dosha*, *dhatu* and *mala*. *Kala* is the cause behind the dominance of different tastes (*rasas*) according to seasons. The *amla rasa* is dominates in *varsha ritu*, *lavana rasa* in *sarad ritu*, *madhura rasa* in *hemanta ritu*.

These tastes have the properties similar to that of *kapha dosha* i.e. anabolic. In *visarga kala* the *chandra* (moon) *bala* increases because of the obstructed or subsided strength of sun. In *visarga kala* the earth is in winter solstice. So that our position on earth is farthest from the sun hence the impact of sun declines and moon is fully dominant during this period. All these changes manifest the improvement of *bala* in the body of human beings.

Bala gradually increases in the *visarga kala*. The reason being that there is the deposition, vitiation and subsidation of *dosha* occurs because of specific *rasa* and *guna* accumulation according to the seasons. This results in the *agnibala* variation in the seasons which is directly proportional to the body metabolism and *bala* (strength) of our body. A observed in *hemanta ritu* the *agni* is at its increased state so, *guru*, *snigdha* foods are used in diets results in increased *dhatu*. This shows itself in the form of increased *bala*.

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