

**Research Article****To Design an Objectively Graded Proforma Based on *Dasvidha Atura Pareeksha* (*Charak Samhita Vimansthan-8/94*) for *Bala* (Vitality) Assessment**

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**Abstract:** The *Bala* is the essential part of our life. We daily found ourselves grabbed by it either in depressed mood or having a stage of uneasiness. It is the factor which must be explored before taking the patient under consideration because "*Bala adhisthanm aaraogyam*". So, what are the factors which are associated with the *Bala*. On account of *Bala* the *dashvidh atura Bala pareeksha* is stated in *charak samhita vimanasthana-08/94* which has ten fold examination parameters. Which include all the multi- disciplines of a human being. The *prakriti* etc parameters were given in a subjective way so it is quiet difficult to access them for statistical purposes. There must be some Grading Pattern for the ten parameters so that they can be judged on the basis of our daily routine factors which are relative or compatible to the *dasvidh atura Bala pareeksha*. So, the subjective parameters of *dasvidh atura Bala pareeksha* were graded numerically in relation to the easily applicable routine modern parameters. This scoring pattern will act as a diagnostic tool for vitality.

**Keywords:** *Bala*, *Dasvidha Atura Pareeksha*, *Prakriti*, *Sara*

**INTRODUCTION**

Ayurveda is an empirical science which had made its existence from the divine origin in the form of basic principles which are practically applicable [1]. The *Bala* (Vitality) of the body is the base of life, it covers all areas of humans because it is the conjugative expression in the form of physical strength, psychological strength and immune strength of body. *Bala* is essential for healthy body & mind. In patients it is the factor which will decide the virulence of disease by providing the immunity to body. So, it is essential to judge the level of *Bala* in the body before considering the patient under treatment [2]. Research is an endeavour to discover new & co-relate old facts with the present scenario by scientific studies, surveys, experiments of subject, course of critical investigations [3]. The tenfold examination mentioned in *charak samhita* for *atura Bala pramana* is a basic principle which has a great clinical interpretation [4]. This is an attempt to narrow the gap between traditional and modern practice of medicine by practically demonstrating the reliability and usefulness of the tenfold examination. The multidimensional assessment parameters like *prakriti* (genetic), *vikriti* (pathological), *sara* (biological), *samhana* (physical), *pramana* (anthropological), *satmaya* (homologation), *sattva* (psychological), *aahar* (food habits), *vayayama* (exercise) and *vaya* (age) of *dashvidha atura pareeksha* will be graded objectively in relation to their comparative modern parameters so, that they will be easily monitored & examined. This work will further promote the areas of health examination, sports medicine, public health surveys & feedback policies.

**MATERIAL AND METHODS**

The topic was explored in the classical compendiums of Ayurveda, health journals [5], modern health care systems, physical & sports medicine areas to find the comparable areas. On the basis of the matter found the comparative assessment was done and the grading pattern is designed.

*Dasavidha atura Bala pareeksha* which is very distinctly, descriptively and collectively mentioned in *caraka samhita* for *Bala assessment*. The *prakritiadi* ten parameters were used as tools to develop the proforma to assess the *Pranibala* of a healthy & diseased person. Among *dasavidha atura pareeksha* except *vikriti*, rest nine examinations are for *Bala assessment of healthy persons and vikriti examination* is mentioned for dosha *Bala* assessment which is a pathological status of virulence of disease in the body [6]. For data analysis and to draw a proper conclusion about a person or patient it is convenient to have the grading of the ten factors of *dasavidha atura pareeksha*.

By giving equal importance to all the 09 factors of *dasavidha pareeksha* and special weight age to *sara pareeksha* [7] with Marks 20, a hypothesis, was made to grade the factors to make them objective and assess them numerically. All the factors of *Bala pareeksha* were given score ranging 03 to 10.

***Prakriti Pareeksha:***

*Prakriti* is mainly considered as the *swabhava* of an individual. This *swabhava* is determined by anatomical,

physiological and psychological characters of the individuals. In the description of *prakriti pareeksha acharya caraka* mentioned total seven types of *deha prakriti*. But with practical experiences it was observed

that *ekadoshaja prakriti* and *samadosha prakriti* are few or rare to find. So, on the basis of involved dominant *dosha* in formation of *prakriti* the grading scale was developed.

**Table 1: Prakriti Pareeksha**

Sl. No.	Lakshana	29-21 (>75%)	20-14 (75-50%)	13-01 (<50%)
	Prakriti	Grades		
01.	Kaphaja	5.0	3.5	2.5
02.	Paitika	3.0	2.0	1.5
03.	Vatika	2.0	1.5	1.0
	Total	10.0	7.0	5.0

**Vikriti Pareeksha**

The vikriti pareeksha is stated for dosha Bala pramana of atura. For the assessment of vyadhi - hetu (cause), dosha, dusya, prakriti, desha, kala and Bala must be observed with there sub-types also. The vyadhi

Bala is assessed by the intensity of etiology (hetu ), symptoms of diseases parameters. They are collectively described as the conditions namely of easily curable (sukh sadhya), moderately curable ( krich sadhya) and in-curable ( asadhya).[8]

**Table 2: Vikriti Pareeksha**

Sl. No.	LAKSHANA	(>75%)	(75-50%)	(<50%)
	Curability	Grades		
01.	Easily curable (sukh sadhya)	5.0	3.5	2.5
02.	Moderately curable (krich sadhya)	3.0	2.0	1.5
03.	In-curable (asadhya)	2.0	1.5	1.0
	Total	10.0	7.0	5.0

**Sara Pareeksha**

*Sara pareeksha* is one of the most reliable and practical examination for *Bala pramana*[9]. During the description of *sara* features *acharya caraka* used the term *Balam / Balavanta* for three *saras* i.e. *mamsa sara*, *majja sara* and *sukra sara* to denote better body strength (*Bala*). Taking this statement as authority these three *saras* and one *sattva sara* is graded as maximum

(03) grade for *sara pareeksha*. The rest four *saras* i.e *tvak sara*, *rakta sara*, *meda sara*, *asthi sara* were graded with maximum (02) grade. According to classical reference the presence of eight *saras* are considered as *pravara sara* and (2-7) *sara* as *madhyama sara* and single *sara* as *avara sara*. The grade marks of all the *saras* was added and conjugative results were compared.

**Table 3: Sara Pareeksha**

Sl. No.	Lakshana	>75%	75-50%	<50%
	Dhatusarata	Score		
01.	Tvak-Sarata	2	1.5	1
02.	Rakta-Sarata	2	1.5	1
03.	Mamsa-Sarata	3	2	1.5
04.	Meda-Sarata	2	1.5	1
05.	Asthi-Sarata	2	1.5	1
06.	Majja-Sarata	3	2	1.5
07.	Sukra-Sarata	3	2	1.5
08.	Sattva-Sarata	3	2	1.5
	Total	20	14	10

**Samhanana Pareeksha**

*Samhanana*, *samhati* and *samyojana* are its synonyms. Evenly well-demarcated bones, well-bound joints, well-formed muscles are known as compact body. Who having well compact body they are strong

and having good strength. For grading the *samhanana*, the parameters mentioned by *caraka* are graded with maximum grade if they are present in maximum number and vice –versa.

**Table 4: Samhanana Pareeksha**

Sl. No.	I. Sama Suvibhakta Asthi (Bilaterally proportionate & symmetrical bones)	Score
01.	Completely	3.5
02.	Moderately	2.0
03.	Same sort of disproportion & asymmetry	1.0

S.No.	2. <i>Sunivista Mamsa Sonita</i> (Musculature of the Body)	Score
01.	Well developed	3.5
02.	Moderately developed	2.0
03.	Under developed	1.0

Sl. No.	3. <i>Subaddha Sandhi</i> (Structurally & Functionally Joints)	Score
01.	Normal & Strong	3.0
02.	Some sort of difficulties	2.0
03.	Difficulties which hamper daily routine	1.0

### **Pramana Pareeksha**

All classical texts described *pramana pareeksha* through linear measurement of the body for *Bala pramana* and used *angul pramana* as a unit. Here height was measured in meter scale. In respect of *Bala pramana*, height has an important relation with body weight and this relation is expressed through Body Mass Index (BMI= Body Mass Index =Weight (kg)/

height (m<sup>2</sup>). Body frame is also important parameter for *Bala pramana*. Bone structures vary in size and density from person to person. Bone-mass and muscle-mass plays a major part in *Bala pareeksha*. Hence, body frame also considered for *pramana pareeksha*. These parameters are graded as per *caraka* for *pramana pareeksha*.

**Table 5: Pramana Pareeksha**

Sl. No.	1. <i>Ayamatah</i> (height – Inches)	Score
01.	5'6"- 6'4" (170.68cm-193.04 cm)	3.0
02.	5'0"-5'5" (152.4 cm – 167.6 cm)	2.0
03.	Less than 5' (< 152.4 cm)	1.0

Sl. No.	2. <i>Body Mass Index</i> (BMI)	Score
01.	18.5 – 24.9 kg/m <sup>2</sup>	4.0
02.	25.0 – 29.9 kg/m <sup>2</sup> Or < 18.5 kg/m <sup>2</sup>	2.0
03.	> 30 kg/m <sup>2</sup>	1.0

Sl. No.	3. <i>Body Frame</i>	Score
01.	Large-Medium	3.0
02.	Large-Lean and Large-Stout	2.5
03.	Medium-medium	2.0
04.	Small-Stout, Medium, lean and medium-stout.	1.0

### **Satmya Pareeksha**

*Satmya* is that which being used constantly has wholesome effect; those used to *ghrita, kshera, taila, mamsa rasa*, and all *rasas* are strong, enduring and long-lived. On the contrary, those used to rough diet

and single *rasa* are often weak, un-enduring, and short-lived with a little means. Those having mixed suitability have medium strength [10]. As per these parameters along with *okasatmya* (drug-addiction etc.) grade was divided in the following manner.

**Table 6: Satmya Pareeksha**

Sl. No.	1. <i>Rasa – Satmya</i>	Score
01.	Favourable to all <i>rasas</i>	3.0
02.	Favourable to 3 – 5 <i>rasas</i>	2.0
03.	Favourable to 1 – 2 <i>rasas</i>	1.0

Sl. No.	2. <i>Dravya &amp; Guna Satmya</i> (Consumption of <i>ghrita, taila, khira, mamsa, rasa, snigdha guna dravyas</i> )	Score
01.	Regularly habituated	3.5
02.	Irregularly habituated alongwith <i>ruksha aahar</i>	2.0
03.	Never habituated and take only <i>ruksha aahar</i>	1.0

Sl. No.	3. <i>Okasatmya</i> (drug-addiction etc.)	Score
01.	No addiction physically & psychologically	3.5
02.	Psychologically dependent	2.0
03.	Physically & psychologically dependent	1.0

**Sattva Pareeksha**

Sattva controls the body by conjunction with the self. Based on *sattva* persons are of three types having superior (*pravara*), medium (*madhya*) and inferior (*avara*) *sattva*. Among them, those having superior *sattva* are in fact *sattvasara purusa*. Their stout body frame seems to be stable even in severe affliction either innate or exogenous because of the dominance of *sattva lakshnas*. Those having medium *sattva* sustain

themselves at the instance of other. But those who possess inferior *sattva* can't sustain neither by themselves nor by others. although having big body frame, they are unable to endure even during fierce, frightening, disliked, disgusting and ugly narratives or with the on the look of the animals / human flesh or blood get afflicted with anxiety abnormal complexion, fainting, giddiness or falling on the ground or even succumb to death.

**Table 7: Sattva Pereeksaha**

Sl. No.	1. Presence of Features of Sattva Sara	Score
01.	> 75%	4.0
02.	50-74 %	3.5
03.	30-50 %	3.0
04.	< 30 %	2.0

  

Sl. No.	2. Pain Tolerance	Score
01.	By own will power	3.0
02.	After being supported by others	2.0
03.	Doesn't tolerate at all	1.0

  

Sl. No.	3. Incidence of Depression, Pallor, Madness, Giddiness, Fall on Ground After Seeing Flesh & Blood or Hearing Same Terrifying News.	Score
01.	Never experienced	3.0
02.	Sometimes	2.0
03.	Frequently	1.0

**Aahara-shakti pareeksha**

This is examined by the power of ingestion (*abhyavaharana shakti*) as well as digestion (*Jarana shakti*). Strength and life depend on diet.

**Table 8: Aahara-shakti Pareeksha**

Sl. No.	1. Abhyavaharana Shakti (intake capacity)	Score
01.	Diet intake fulfils the energy requirement	3.0
02.	Diet intake in ± 10% to energy requirement	2.0
03.	Diet intake is ± (11 – 20%) to energy requirement	1.0

  

Sl. No.	2. Frequency of Grand Meal Per Day	Score
01.	Thrice	3.0
02.	Twice or more than three times	2.0
03.	Ones	1.0

  

Sl. No.	3. JARANA SHAKTI {1.Udgara-suddhi, 2.utsaha, 3.vegotsarga-yathocita, 4.laghuta, 5.ksut (appetite) & 6.pipasa (thirst)} [Presence of symptoms with in 4 Hr after ingestion]	Score
01.	All	4.0
02.	4 – 6 symptoms	3.0
03.	2 – 4 Symptoms	2.0
04.	1 -2 symptoms or later	1.0

**Vyayama-Shakti Pareeksha**

The *vyayama shakti* (power of exercise) should be examined by the capacity for work. *Vyayama shakti* is an important component of *dasavidha pareeksha*. It is alone a competent for assessment of *Bala*. For the

assessment of *vyayama shakti* three parameters were selected which are as follows-

**Breath Holding Exercise**

Healthy persons, at the end of respiration can hold up his breath for about 50 seconds, the subject feels distressed and develops a strong desire to breathe. At this point (called the breaking point) he is forced to breathe once again. At the “breaking point”, typically the PaO<sub>2</sub> and PaCO<sub>2</sub> are both about 50 mm Hg (normally, about 95 and 40 mm Hg respectively). The breaking point depends mainly on the PaCO<sub>2</sub>. Thus, if the PaCO<sub>2</sub> of 50 mm reached quickly, as in breath holding following muscular exercise, the duration of breath holding will be short. On the other hand, if one holds up breath after a voluntary hyperventilation, the duration may be substantially prolonged. This is because the

hyperventilation causes, washing out of CO<sub>2</sub>. So, that building up of PaCO<sub>2</sub> requires more time. Although PaCO<sub>2</sub> value is the most important influencing factor for determining the breaking point, other factors are also important. Such factors are – (i) the concomitant hypoxemia. (ii) Neural factors like the role of vagus and the glossopharyngeal nerves [11].

So, the grading for breath holding exercise was done in this manner-maximum time of breath holding is 1.5 min (90 seconds) which is graded as 3, the exercise was repeated for three times and the average was considered and in the same way other grades were awarded.

**Table 9: Vayayama Pareeksha (Breath Holding Exercise)**

Sl. No.	A. BREATH HOLDING EXERCISE (Can hold the breath for.....duration.)	Score
01.	≥ 90 seconds	3.0
02.	60 – 89 seconds	2.5
03.	30 - 60 seconds	2.0
04.	≤ 30 seconds	1.0

**Stepping Exercise**

Stepping up & down on a two-step platform (each step 16 inches high) can be used. In this study patients were allowed for stepping up & down in staircase. The duration of exercise should be 5 minutes or lesser (if the subject fails to continue for 5 minutes). The duration should be noted correctly with the help of a stopwatch. The rate of exercise should be such that the subject takes 30 steps up & down per minute or in other words using two step platform the whole cycle of stepping the

two steps up and two steps down should be at a rate of 15 cycles per minutes. Here person was directed as fast as he can go up & down in the staircase [12].

**(B.1) Measurement of basal pulse rate**

Let the subject do the exercise. At exactly 1 minute after the exercise ends begin to count pulse rate for 1 minute. Pulse rate increase is proportional to the severity of exercise. As per the discussion the grading is awarded as-

**Table 10: Stepping Exercise (basal pulse rate measurement)**

1. Stepping Exercise (basal pulse rate measurement)			
Duration of exercise (minutes)	Pulse count / min after rest of one minute	Fitness	Score
Up to 2	Any rise above resting	Poor	1
2 - 2.5	>90	Poor	1
	80	Normal	2
2.5 - 3	>100	Poor	1
	80-100	Normal	2
3 - 3.5	>130	Poor	1
	90-130	Normal	2
	80-90	Good	3
3.5 - 4	>160	Poor	1
	100-160	Normal	2
	<100	Good	3
4 - 4.5	110-180	Normal	2
	<110	Good	3
4.5 - 5	130-180	Normal	2
	<130	Good	3

**(B.2) Measurement of respiration rate**

Let the subject do the exercise. At exactly 1 minute after the exercise ends begin to count for 1 minute.  
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Ratio of respiratory rate & pulse rate is approximately 1:4. On the basis of this relation fitness may be calculated as follows

**Table 11: Stepping Exercise (Respiratory Rate Measurement)**

3. Stepping Exercise (respiratory rate measurement)			
Duration of exercise (minutes)	Pulse count / min after rest of one minute	Fitness	Score
Up to 2	Any rise above resting	Poor	1
2 - 2.5	>23	Poor	1
	20	Normal	2
2.5 - 3	>25	Poor	1
	20-25	Normal	2
3 - 3.5	>33	Poor	1
	23-33	Normal	2
	20-23	Good	3
3.5 - 4	>40	Poor	1
	25-40	Normal	2
	<25	Good	3
4 - 4.5	33-45	Normal	2
	<28	Good	3
4.5 - 5	33-45	Normal	2
	<33	Good	3

**Vaya Pareeksha**

Age is defined as the state of body corresponding to the duration of time. Age is broadly divided into three stages *balya*, *madhya*, and *jirna*. Childhood is determined up to sixteen years when the *dhatu*s are immature, sexual characters are not manifested, the body is delicate with incomplete strength and predominant of *kapha dosha*. This again with *dhatu*s in developing stage and unstable mind remains up to thirty years. The middle age is characterized by strength, energy, virility, prowess, acquisition, retention, recollection, speech, understanding and qualities of all

*dhatu*s having reached the normal limit; with proper physical and mental strength, without degeneration in qualities of *dhatu*s, with predominance of *pitta dosha* and is up to sixty years. *Susruta* considered the *madhya vaya* up to 70 years with four division of *madhya avastha* [13]. The old age is characterized by the gradual degeneration or decline of strength, organs, energy, virility, prowess, acquisition, retention, recollection, speech and understanding. Qualities of *dhatu*s go down and there is predominance of *vayu*, during this age the measure of life span is one hundred years.

**Table 12: Vaya Pareeksha**

Sl. No.	Age (Vaya)	Score
01.	21 – 30 yrs	10
02.	16 – 20 yrs & 31 – 40 yrs	07
03.	41 -50 yrs	05
04.	51 – 70 yrs	04

**DISCUSSION & RESULT**

For the assessment of *Bala*, ten subjective parameters of *dasavidha Bala pareeksha* are assessed with special weightage to *sara pareeksha*. The proforma with the scoring pattern based on *dasvidh*

*atura Bala pareeksha* was designed in such a way that is clearly discussed above. The conclusion is derived in the following pattern. Based on the score acquired, Volunteers were assessed and categorized in following three groups.

**Table 13: Cumulative result of Dasvidha atura Bala Pareeksha Bala Pareeksha**

Sl. No.	Bala Pramana	Cumulative score of 10 parameters of <i>Dashvidha Atura Bala pareeksha</i>
1.	<i>Pravara Bala</i>	>75%
2.	<i>Madhyam Bala</i>	50-75 %
3.	<i>Avara Bala</i>	<50%

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**CONCLUSION**

The *Bala* is the vitality power of the body which can be assessed by the objectively graded scoring

pattern based on multi-factorial *dasavidha (Bala) pareeksha* which consists of *prakriti* (genetic), *sara* (biochemical parameters), *samhanana* (compactness), *pramana* (anthropological & anatomical), *satmya* (homologation) *sattva* (psychological), *aahara* (capacity of ingestion and digestion), *vayayama* (capacity of exercise & physical strength) and *vaya* (internal environment). The outcome of the scoring pattern is concluded in there categories namely pravara, badhyam and avara *Bala* based on their scores >75%, 50-75% and <50% respectively.

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