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Research Article

### CLINICAL EXAMINATION OF *BALA* (STRENGTH)

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### ABSTRACT

Ayurvedic scholars have opined to reveal the disease *bala* (strength) is an important factor. It indicates the span of life. It helps to detect the disease and grant the medicine according to entity. Methods of examination of *bala* has mentioned in Ayurvedic classical texts through *anumana pramana* (knowledge of inference). Different types of *bala* are available in classical texts, among of them *sharirik bala* (physical strength) and *manashik bala* (mental strength) are most important. Present study aimed to provide a scientific and practical scrutiny of ancient thought of *bala*. All related Ayurvedic and modern sources regarding *bala* were analyzed. Study showed that the normal functions of *bala* can be assessed with the help of some modern investigation technique. But assessment of some other parameters is not possible on this way. Hence a preliminary approach was taken to find out an arbitrary grading system to assess those parameters in order to find out the level of *bala* (strength) of an individual. Study concluded that ultimately the extrinsic expression of *bala* is the *vyāyāma śakti* (exercise power) and the intrinsic expression of *bala* is *vyādhiḥsamatva* (immunity). If the ability to work is normal then all the functions work properly and the person can lead a healthy life. Hence each and every parameters should be assessed for justification of level of *bala* of an individual. However further study is needed for validation of these concept.

**Keywords:** *Bala*, Strength, Clinical, Examination.

### INTRODUCTION

*Ayurveda* the science of life maintains the health of a healthy individual and cures the disease of a patient. At present peoples are suffering from different kinds of diseases which are idiopathic and immunosuppressive. To reveal the diseases, *bala* is one of the most important factors. *Bala* is the strength of an individual<sup>1</sup>. It may be physical or mental strength. *Bala* has no *rasa*(taste), *varna*(colour), *vīrya*(active principle) and it is the subject of *anumana* (knowledge of inference) only<sup>2</sup>. It helps to diagnose the diseases and to administer the drugs<sup>3</sup>. It indicates the span of life. Ayurvedic classical texts described about different types of *bala* among them, *śārīrik bala* (physical strength) and *mānasik bala* (mental strength) are most important. *Bala* can be compared with the ability to work and with the immunity. In present study an attempt was taken to evaluate the *bala* (strength) of an individual in clinical point of view. All relevant data regarding *bala* from Ayurvedic classical text as well as other related sources has analyzed. The review found out that some bodily and mentally functions associated with *bala* can be assessed based on modern investigation technique like Hematological test, Bio-chemical

test, Radiological test, by some Instruments and by Clinical examination. But assessment of some other parameters associated with *bala* like *gatra laghava* (lightness of body), *utsaha* (enthusiasm), *dhriti* (mental stability), *kshudha* (appetite), *prasada* (cheerfulness), *kshama* (forgiveness) and *alobha* (greedlessness) mentioned by classics, are difficult to assess as there is no appropriate tools are available for their assessment. Hence the present study has tried to find out an arbitrary grading system to assess these parameters in order to find out the level of *bala* (strength) of an individual. That preliminary grading system has done on the basis of actual meaning of terms which are mentioned in Ayurvedic classical text and various commentaries. Further extensive study is needed for validation and standardization of these concepts.

### METHODOLOGY

Various Ayurvedic classical text as well as other related sources regarding the concept of *bala* (strength) were analyzed in this study.

**Types of *Bala*** : *Bala* is of three types<sup>4</sup> like

**a. SAHAJA**: *Sahaja bala* (natural strength) is also termed as *prākṛitabala* (*Cakrapani*: *Ca.Su.11/36*). *prākṛita bala* is constituted from the very time of formation of embryo. The

*dhātus* which constitute the *prākṛita bala* grows independently of other nutritive factors and. So *prakṛita bala* is genetically decided. Hence clinically it is observed that while some are strong by their very nature, others are weak either physically or mentally. It is provided by *prakṛita bala* and varies from person to person<sup>5</sup>.

**b. KĀLAKRITA:** Is acquired by *ṛtucharya* (seasonal variation). Naturally people become weak in *ādāna kāla* and *balayukta* (strength) or *vṛiddha avasthā*<sup>6</sup> in *visarga kāla*.

**c. YUKTIKRITA:** It is attained by taking nutritious food like *māmsa* (meat), *sarpi* (ghee), *uchit vyama* (adequate exercise), *uchit vishram* (adequate rest), and application of *rasayana* (adjuvant therapy)<sup>7</sup>.

Again *bala* is classified as *pravaar* (highest level of strength), *Madhya* (medium level of strength), *avara* (lowest level of strength).

**Different opinion regarding bala:** *Vayu, pitta, kapha* are the three pillars in a person's life<sup>8</sup>. In Ayurvedic classics, it is described that *prākṛita sleshma* is *bala*<sup>9</sup>. *Vāyu* constitutes the basis of the *bala*, because *vāyu* is the regulator of all things<sup>10</sup>. In gastrointestinal level *pitta* is the *agni*<sup>11</sup>. *Agni* is responsible for digestion, metabolism and transformation of *āhāra rasa*. The *sāra* part is the source of *bala*<sup>12</sup>. So when these three are in *prākṛita avasthā* (natural stage) then they are known as *bala*.

At the *dhatu* (constituent) level *oja* (vitality) is also known as *bala*<sup>13</sup> because *oja* is the *param utkrishtha teja* of all *dhatu*s. *Param utkrishtha teja* is defined as the *utkrishtha sāra of dhatu* (essence of all constituents)<sup>14</sup>. *Oja* plays an important role in formation or development of embryo<sup>15</sup>. During the *sukra sonita samyoga* (fertilization) the *sāra bhuta sneha* helps in the formation of embryo and enhances the *hṛdaya's* (heart's) activity<sup>16</sup>. Although, the *bala* and *oja* are not same. *Bala* is the expression of strength of an individual which is expressed as working capacity<sup>17</sup>. But for the *chikitsa* (treatment) and clinical assessment they are considered as same.

On the other hand *Rakta* (second constituent) is the source of *bala* because *visuddha rakta* helps to form *bala*<sup>18</sup>. If the *rakta* is vitiated by *mala* (wastage) then the *bala* is not produced properly.

#### Methods of examination of bala:

Methods of examination of *bala* is mentioned in classical Ayurvedic texts, is mostly based on *anumana pramana* (inference). Like as-

**1. Deha bala :** *Deha bala* is examined by

**i. Vyāyāma śakti**<sup>19</sup>: It is also explained through the *samyak lakshana of vyāyāma* (sign of appropriate exercise)<sup>20</sup>.

- Sweda gamana*: Perspiration.
- Swas vṛiddhi*: Enhanced respiration.
- Gatra laghava*: Lightness of the body.
- Hridaya uparodha*: Inhibition of the heart and such other organs of the body.

**2. Mānasika bala** is examined by - *Utsāha* (Enthusiasm)<sup>21</sup>:

**3. Deha and manashik bala:** *Prakṛita doshas* (normal humor) are the *bala*, so *prākṛita doshas* can be explained only through their *karma* (action) and *Rakta* is also responsible for the formation of *bala*. Hence *Viśuddha rakta* can be explained through its *karma* (action). Some *karma*(action) responsible

for *deha bala* (physical strength) and some are for *manashik bala* (mental strength).

#### i. Karma (action) of vata dosha<sup>22</sup>:

a. *Utsāha*: Enthusiasm; b. *Ucchvāsa*: Inspiration; c. *Niśwāsa*: Expiration; d. *Cheṣṭa*: Movements; e. *Sama dhātu gati*: Normal metabolic transformation of *dhātus*; f. *Mala mutrādi gati*: Proper elimination of excreta

#### ii. Karma(action) of pitta dosha<sup>23</sup>:

a. *Darśana*: Good vision; b. *Pachana*: proper digestion; c. *Ushna*: normal temperature; d. *Kshudha*: Hunger; e. *Trishṇa*: Thirst; g. *Śārīra mṛiduta*: Softness of the body; h. *Prabha*: Lusture; i. *Prasāda*: Happiness; j. *Medha*: Intelligence

#### iii. Karma (action) of sleshma dosha<sup>24</sup>:

a. *Sneha*: Unctuousness; b. *Sandhi bandha*: Cohesion; c. *Sthirata*: Steadiness; d. *Guruta*: Heaviness; e. *Vṛishata*: Virility; f. *Śārīrik bala*: Strength; g. *Kshama*: Forbearance; h. *Dhṛiti*: Patience; i. *Alobha*: Altruism.

#### iv. Karma (action) of Rakta dhatu<sup>25</sup>:

a. *Varna Prasāda*: proper complexion; b. *Māmsa puṣṭi*: Nourishment of *māmsa dhātu*; c. *Jīvan dān* (sustain life).

#### 4. The normal state of bala constitutes the following sign in an individual<sup>26</sup>.

a. *Sthira upachita māmsa*: All the *dhātus* are equally produced and the resultant effect is growth of the body.

b. *Sarvacheṣṭa*: (*Kāyika and mānasika cheṣṭa*): Endeavor in physically and mentally.

c. *Aprtighāta*: Strong working capability with *bhārvahanādi*

d. *Swara varṇa Prasāda*: Clear vocal tone and normal complexion

e. *bāhya karaṇa*: That is specific function of

*Vak*: *vachan* (speech); *Pani*: *Adana* (swap over); *Pada*: *Gaman* (movement); *Payu*: *Visarga* (excretion); *Upastha*: *Nandana* (pleasure).

f. *Abhyantar karan*:

*Srotra*: *Sabda*(sound); *Twaka*: *Sparsha*(touch); *Cakshu*: *Rupa*(vision); *Jibha*: *Rasa*(taste); *Nashika*: *Gandha*(smell) etc.

If all the above functions are normal, then we can say *bala* is in normal state.

The normal functions are to be asses by the uses of some Hematological test, Bio-chemical test, Radiological test, by some Instruments and by Clinical examination. like- Blood for Hb%, Semen analysis, Examination of urine and Stool, Serum sodium, serum pepsin, serum lipase, serum amylase, ECG, PFT (Pulmonary Function Test), Refractometry, Thermometer, Osmometers, Skin gloss meter, Scanning Electron Microscopy in conjunction with x-ray diffraction, Sebumeter, Bone Mineral Density (BMD), Handgrip dynamometer, Specific Repetition Maximum test, Respiration rate, I.Q test, Body Mass Index (BMI), Muscle bulk, vocal resonance, Examination of Speech, Receiving, Movement, Elimination, Enjoyment, Examination of Hearing, Touch, Vision, Taste, and smell, etc. So, the functions which can be assessed by these parameters are tabulated in Table no. 1. Some other functions can be assessed by arbitrary grading system. Grading should be done on the basis of actual meaning of terms which are mentioned in our classical text by the various commentators, Table no. 2.

**Bala and Motor function:** *Bala* is expressed externally by *vyāyāma śakti* (exercise strength). We can compare the *vyāyāma śakti* with the motor system of our body. The motor system is responsible for muscle contraction along with the rate, range and force of contraction, and hence responsible for the muscle power. It is responsible for posture, equilibrium and various body movements along with co-ordination between different muscles. Therefore, testing of motor system including size of the muscle, muscle tone, muscle power, muscular co-ordination, gait etc must be performed to assess the *bala*. Motor system individually cannot do anything without the help of sensory system and so many other factors<sup>32</sup>. Muscle strength also depends on the body mass index. If motor function is in normal state then ability to work also occurs normally.

**Bala and immunity:** Internally *bala* is expressed through *vyadhi kshamatwa*. *Vyadhi kshamatwa* indicates the strength by which a person fights against the disease. Inside that is the process by which *vyadhi prativandhyakatwa* is provided<sup>33</sup>. In modern science has also mentioned about immunity. Immunity can be defined as the self preparedness against invasion by microbes which also includes defense against non microbial antigens and malignancy. Classically it is divided into two categories. **a. The non-specific immunity or the innate immunity** is not affected by prior contact with the invader and it is effective against all without recognizing the specific identities of the enemies i.e *Vyadhibala virudhitwa*. It is composed of many factors. Firstly the constitutional factor due to which some individuals are more prone to some specific infections but others are not. **b. The specific immunity:** There is separate mechanism for each and every enemy (antigens).The weapon for one invader will not act against the other hence called specific. This immunity develops properly only when the body is exposed to the specific antigen. i. e. prior contact is essential, but the

provision is inborn, means *sahaja*. The specific immunity may be active or passive. Active immunity is developed within the body by the lymphocytes against antigens introduced in to the body i. e. *vyadhi utpada prativandhakatwa*. The passive immunity occurs due to transfer or introduction of antibodies from outside. It is a readymade immunity and can act immediately but it is short lasting<sup>34</sup>.

## DISCUSSION

Ultimately the extrinsic expression of *bala* is the *vyāyāma śakti* and the intrinsic expression of *bala* is *vyādhikshamatwa*. *Vyāyāmaśakti* indicates the strength of individual. If the ability to work is normal then all the functions work properly i.e. digestion, metabolism, absorption, etc and the person can lead a healthy life. This strength is varying from person to person. It may be achieved by proper *āhāra*(diet), *vihāra*(life style) and through *rasāyana*(adjuvant) therapy. Maintenance of *tridoṣa* (basic humor) and *sapta dhātu* (constituents) is also essential to achieve the strength. Healthy condition of *pancha jñānendriya* (five sense organ) and *pancha karmendriya* ( five operational organ) is also required. *Kāla* (time) is also an important factor for proper *bala*. Internal strength is *Vyadhikshamatwa*. It arises in a person who usually takes *pathya or hitāhara* (proper diet). In spite of taking *hitahara*(proper diet) a person is prone to have disease if he is exposed to *kālapariṇāma*, *prajñāparādha*, *asātmendriyārtha samyoga* and if *nidana bala* (etiological strength of diseases) is more. But occurrence of diseases and its grade of severity depend on several factors. A certain amount of *bala* is genetic and the rest is achieved. That means our body has its own defense mechanism against the disease processes. This is possible only when proper *bala* is present in our body externally and internally.

**Table 1: Clinical assessment of *bala* based on investigation:**

Objective parameters	Functions
<b>1. Hematological test:</b> a. Blood for Hb%.	a. <i>Varna prasada</i> .
<b>2. Bio- chemical test:</b> a. Serum sodium. b. Serum pepsin, amylase, lipase, Liver Function Test with gamma glutamyl transpeptidase. c. Examination of Stool and Urine for RE& ME. d. Semen analysis. e. Extra cellular fluid volume, Anti diuretic hormone. f. Level of Adrenalin, Noradrenalin	a. <i>Swedagamana</i> b. <i>Sama dhatu gati and pachana</i> c. <i>Mala mutradi gati</i> . d. <i>Vrishata</i> . e. <i>Trishna</i> . f. <i>Sarva cheshta</i> .
<b>3. Radiological test:</b> a. Scanning Electron Microscopy in conjunction with x-ray diffraction.	a. <i>Prabha</i> .
<b>4. By Instruments:</b> a. Electro cardiogram (ECG). b. Pulmonary function test. c. Muscle conduction test. d. By Snellen's distant vision chart and Jager's near vision chart and Refractometry etc. e. Clinical Thermometer. f. Osmometers. g. By Skin gloss meter. h. Sebumeter.	a. <i>Hridayuparodha</i> . b. <i>Ucchwasas and Nihswas</i> . c. <i>Sarva cheshta</i> . d. <i>Darshana</i> . e. <i>Ushna</i> . f. <i>Thrishna</i> . g. <i>Sharir mriduta</i> . h. <i>Snigdhatwa</i> .

i. Bone mineral density (BMD). j. Body Mass Index (BMI). k. Handgrip dynamometer. l. Muscle bulk. m. Specific Repetition Maximum test. n. By Vocal resonance.	i. Sandhi vandha. j. Guruta. k. Sharirik bala. l. Mamsa pusti. m. Apratighata. n. Swara prasada.
<b>5. Clinical Examination:</b> a. Respiration rate. b. By I.Q test. c. Examination of Speech, Receiving, Movement, Elimination, Enjoyment. d. Examination of Hearing, Touch, Vision, Taste, and smell.	a. Swas vriddhi or not. b. Medha. c. Vajhya karana. d. Abhyantar karana.

**Table 2: Clinical assessment of bala based on scoring system:**

**Table 2a. Scoring for Gatra laghava(lightness of body):**

Points	Score
a. Feeling of heaviness in moderate work.	3
b. Feeling of heaviness in mild work.	2
c. Feeling of heaviness in sedentary life.	1
d. Feeling of lightness in sedentary life.	0

**Table 2b. Scoring for Utsaha (Physical and mental force)<sup>27</sup>**

Points	Score
a. A sense of activeness not occurs.	3
b. A sense of activeness occurs occasionally in 24 hours.	2
c. A sense of activeness occurs intermittently in 24 hours.	1
d. A sense of activeness occurs continuously 24 hours.	0

**Table 2c. Scoring for Kshudha (appetite):**

Points	Score
a. Desire for food occurs one time in 24 hours.	3
b. Desire for food occurs two times in 24 hours.	2
c. Desire for food occurs more than 3 times in 24 hours.	1
d. Desire for food occurs 4 times in 24 hours.	0

**Table 2d. Scoring for Prasada (Cheerfulness):**

Points	Score
a. Cheerfulness not occurs.	3
b. Cheerfulness altered intermittently.	2
c. Cheerfulness altered occasionally.	1
d. Cheerfulness occurs all time.	0

**Table 2e. Scoring for Sthirata (Ashaithilya) [steadiness]<sup>28</sup>**

Points	Score
a. Steadiness not occurs.	3
b. Steadiness altered intermittently.	2
c. Steadiness altered occasionally.	1
d. Steadiness occurs all time.	0

**Table 2f. Scoring for Kshama(Sahishnuta)[forbearance]<sup>29</sup>**

Points	Score
a. Forbearance absent.	3
b. Forbearance intermittently absent.	2
c. Forbearance occasionally absent.	1
d. Forbearance present all time.	0

**Table 2g. Scoring for Dhriti (Manasa achanchalyam)<sup>30</sup>**

Points	Score
a. Stable condition of mind not occurs.	3
b. Stable condition of mind intermittently altered.	2
c. Stable condition of mind occasionally altered.	1
d. Stable condition of mind occurs all time.	0

Table 2h. Scoring for *Alobha (Vishaya anuchita aprarthana)*<sup>31</sup>

Points	Score
a. Greedlessness not occurs.	3
b. Greedlessness intermittently altered.	2
c. Greedlessness occasionally altered.	1
d. Greedlessness occurs all time.	0

Here, 0 = For normal function.

1= Mild alteration of normal function.

2= Moderate alteration of normal function.

3= Sever alteration of normal function.

Normal functions can be correlated with the *Pravar Bala* (highest level of physical strength). Mild alteration of normal function is *Madhyam Bala* (moderate level of physical strength). Moderate alteration of normal function is *Avara bala* (low level of physical strength) and Sever alteration of normal function is *Ati Avara Bala* (lowest level of physical strength).

### CONCLUSION

Hence from this study it can be concluded that to prevent the diseases or to cure the diseases *bala* is an essential factor. The utility of this science is to maintain the health of a healthy individual and cure of diseases of a patient. Hence *bala* is prime important as it is the strength of an individual and which is depended on various factors like *sukra sonita* of *mātr pitr*(hereditary factor), *āhāra*(proper diet), *vihāra* (life style), *tridoṣa's sāmyavastha* (normal state of basic humor) and *viśuddha rakta dhātu* and especially *oja* (vitality). Each and every parameter should be assessed for justification of level of *bala* of an individual to provide a healthy address. Preliminary approach of grading of parameters (table-2) for assessment of *bala* clinically, should be further validated and standardized.

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