

"MAJJADHATUSARATA AND BUDDHIMATTA"(IQ): AN EXPERIMENTAL STUDY

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ABSTRACT

Sara is said to be the purest form of *Dhatu* (constitutional elements of body), which is expressed as physical and physio-psychological characteristics in the person. It is remarkable that, *Acharyas* have made use of this to assess *Bala* (power) and *Ayu* (life) of the patient. *Bala* means physical and mental strength or power of resistance against the diseases. The person who has a particular *Dhatu Sara* (excellent quality of body constitutional elements) is known to have more resistance against the diseases related to the concerned *Dhatu* (body constitutional elements). According to *Ayurveda*; *Majjasara* (excellent marrow quality) people are said to be *Shrut* (best heard), *Vitta* (money), *vidgyan* (intelligent), *sammanna bhajaschya* (honoured) that means they are respectable; knowledge full; highly intellectual and always honoured by others. *Majja* means marrow as in bone-marrow (*asthi-majja*). The *Majjavaha strotas* is one of the main locations of *majjadhatu* (marrow), and *mastulunga* (Brain & Spinal cord) is also said to be made of *majja dhatu* (marrow). The nervous system and the bone marrow are treated as homologous structures in *ayurveda*. Hence, in this study we tried to prove the relation between the *Majjadhatusarata* (excellent marrow quality) and *Buddhimatta* (IQ). A total 100 volunteers between 18 to 25 years of age were assessed for determining *Majjadhatu Sarata* (excellent marrow quality) and for Intelligence Quotient (IQ) also. They were divided into three groups, according to dominance of *Majja Dhatu Sara* (excellent marrow quality) into *Pravara* (superior), *Madhyam* (middle) and *Awara* (inferior) *Majjadhatusara*. According to results *pravara Majjadhatusarata* (superior marrow quality) showed IQ in genius category, *Madhyam Majjadhatusarata* (middle marrow quality) showed IQ in very superior and superior category while *Awar Majjadhatusarata* (inferior marrow quality) showed IQ in normal category. Hence the fundamental concept of *Majjadhatusarata* (excellent marrow quality) and *Budhhimatta* (intelligence) has been proved.

Keywords: *Dhatusara*, *Majjadhatusara*, *Buddhimatta*, Intelligence Quotient (IQ), *Dashvidha Atur Pariksha*

INTRODUCTION

As per *Acharya Charaka*,^[1,2] one should not commit the mistake by deciding any person as strong or weak by merely looking at the good or weak build up of body, as strong; is not depend only on physical build up but it depends on the

Sara means the excellence quality of *Dhatu*. In *Vimana Sthana*, *Chakrapani*^[3] comments on term '*Sara*' (excellent quality) as the *Vishuddhatara Dhatu* and is used to assess *Bala Pramana* (power assessment) of an individual. It is

responsible for strength and stability. It has been included among *Dasha Vidha Atura Pareeksha* (tenfold patient investigation process) [4]. *Datu sarata* (excellent constitutional elements of body) is described with respect to *Sapta Dhatu* (seven constitutional body elements) viz. *Rasa*(~lymph), *Rakta*(blood), *Mansa*(muscles), *Medas*(fat), *Asthi*(bones), *Majja*(marrow), *Shukra* (semem & sperm) & *Sattva* (mental) i.e. *Ashtavidhasarata* [5-8]. Beside these *Acharya Kashyapa* has mentioned *Ojasara* [9]. *Dhatu sarata* or tissue excellence is a quality assessment of *seven dhatu*(seven constitutional body elements). Examination of *Dhatu sarata* (excellent quality of body constitutional elements) is done at physical and psychological level. *Sara* is said to be the purest form of *Dhatu* (constitutional elements of body), which is expressed as physical and physio-psychological characteristics in the person. It is remarkable that *Acharyas* have made use of this to assess *Bala* (power) and *Ayu* (life) of the patient. *Bala* (power) means physical and mental strength or power of resistance against the diseases. The person who has a particular *Dhatu Sara* (excellent quality of body constitutional elements) is known to have more resistance against the diseases related to the concerned *Dhatu*. That is why *Sarva Sara* individuals have relatively higher *Deha Bala* (power) in comparison with *Madhyama* and *Avara Sara* individuals.

For determining the *Datusarata*, when the positive features are present above 60%, it will be considered as best quality (*Pravara sarata*). When the positive features are present between 59% and 50%, it will be considered as moderate tissue quality (*Madhyam Sarata*). When the positive features are present between

49 to 35%, it will be labelled as poor tissue quality (*Heen Sarata*) [10].

It is one among the *Dasha Vidha Atura Pariksha* by which the *Balapramana* has to be analysed to plan the kind of treatment to be adopted, by screening whether the patient is capable enough to undergo it or not. In spite of its great importance [11], it is usually neglected while examining the patient.

The *Sara* is used to evaluate the status of *Dhatu*s and *Satva* in the body. The *Vishuddha Majja Dhatu* expresses itself in the form of physical characteristics like *mrudu anga*(soft body), *balwant*(powerful), *singha Varna*(unctuous skin) and *swara*(commanding voice); *sthul; dirgha; vrutta sandhi*(stiff & round Joints) and the person will be endowed with *Dirgha Aayushya*(long life), *Balwant*(powerful), and *Shrut*(always listen by others) *Vitta*(richfull), *vidgyan* (intelligent) *apatya*(having children), *sammanna*(always honoured) [12]. *Acharya Sushruta* added '*Mahanetra*'(big eyes), [13] a special character of *Majjadhatu sarata*. According to *Ayurveda; Majjasara* people are said to be *Shrut, Vitta, vidgyan, sammanna bhajaschya* that means they are respectable; knowledge full; highly intellectual and always honoured by others. In this study we tried to prove the relation between the *Majjadhatu sarata* and *Buddhimatta* (IQ).

Majja means marrow as in bone-marrow [14-17] (*asthi-majja*). The *Majjavaha strotas* [18] is one of the main locations of *majjadhatu* and *mastulunga* [19-23] is also said to be made of *majja dhatu*. However, the term has become synonymous with nervous system which like bone marrow, is encased within bone. The skull is the casing of the brain. The vertebrae are the casing of the spinal cord.

While the brain and spinal cord make up the central nervous system, the *Majja dhatu* is associated with the entire nervous system. The nervous system and the bone marrow are treated as homologous structures in *Ayurveda*. The proportion of *Majja dhatu* in the human body is one *anjali*. *Mastishkya*, a part of *majja dhatu*, amounts to the quantity of half *anjali* [24].

In the physical body, *Majja dhatu* is formed as *posaka* (unstable) *asthi dhatu* flows through the *majjavaha srota* into the *majja dhara kala* and is digested by the *majjagni* [25]. In addition to the formation of the marrow, the sclera and the sclerotic fluids of the eye are formed. The mala formed during the production of *Majjadhatu* is *Akshivitsneha* [26-28] or lachrymal secretions oozing out from eye. *Sushruta* does not mention any mala in this context, while *Charaka* and *Sushruta* both do not mention any *updhatu* for *Majja*. *Acharya Sharangdhara* [29] mentions *Kesha* (hair) as *Updhatu* of *Majja*, while all the other scholars opine that *kesha* is a *mala* of *Asthidhatu* (Bone). The health of the *majja dhatu* is dependent upon the state of the *majjagni* residing within the *majjadhara kala*.

The practical difficulty what a physician faces while diagnosing a person as *Majjasara Purusha* is to evaluate *Snigdhatu* in complexion, voice. In our science we have subjective parameters to judge *Majja Sara*, but fail to make an objective version of it.

AIM & OBJECTIVES:

- 1) To create awareness in the society about *Dhatu Sara*.
- 2) To evaluate intellectual capacity according to *Majjasara*.

MATERIALS AND METHODS:

Healthy Volunteers were selected randomly irrespective of their sex, caste, religion and socio-economic conditions.

Firstly *Majja Dhatusarata* (excellent marrow quality) assessment of healthy Volunteers was done by *Majja Dhatusara* (excellent marrow quality) Assessment Proforma. Then assessed volunteers were divided into three groups; *Pravara*, *Madhyam* and *Awara* groups as per the dominance of *Majja Dhatu sarata* (excellent marrow quality). For determining the *Datusarata*, when the positive features are present above 60%, it will be considered as best quality (*Pravara sarata*). When the positive features are present between 59% and 50%, it will be considered as moderate tissue quality (*Madhyam Sarata*). When the positive features are present between 49 to 35%, it will be labelled as poor tissue quality (*Heen Sarata*).

Total 100 volunteers were selected for study. Then IQ of volunteers was drawn out by applying Binnet Kamat IQ Test. Obtained data was analysed and compared statistically.

Inclusion criteria:

- 1) Persons of age group 18 to 25 years were selected from either sex.
- 2) Minimum Educational Qualification having passed H.S.C. was selected.

Exclusion criteria:

- 1) Persons who were known case of major Psychological disorders.
- 2) Persons having less than 18 years and more than 25 years of age.

Method of collection of data:

The Proforma was prepared for *Majja Dhatu Sara* assessment. In the Performa, criteria of *Majja Dhatu Sara* (excellent marrow quality) (*Pravara*, *Madhyam*, and *Awara*) were selected from given literature in compendium. Only those criteria were selected which could be assessed the *Majja Dhatu sarata* to avoid the unnecessary expansion of topic. Proforma consist of total ten points. Then

Majja Dhatu Sarata (excellent marrow quality) was assessed by the score obtained, more than 60% to 100%, in between 50% to 59%, below 49% to 35% which shows *Pravara* (superior), *Madhyam* (middle) and *Awara* (inferior) *Majja Dhatu Sara* (excellent marrow quality) of volunteers respectively. Such 100 volunteers were selected. These selected total 100 volunteers were divided into three groups, according to dominance of *Majja Dhatu Sara* (excellent marrow quality) as follows.

- 1) Group A - *Pravara Majja Dhatu Sara* (Superior Quality of Marrow)
- 2) Group B - *Madhyam Majja Dhatu Sara* (Middle Quality of Marrow)
- 3) Group C - *Awara Majja Dhatu Sara* (Inferior Quality of Marrow)

Binnet-Kamath Intelligence Scale [30-34]:

It was used to assess the Intellectual development of children. It is widely used intelligence Scale. This scale has been standardised on the Indian population & has Indian norms. It concentrates on verbal and simple manipulative tasks to test and assess complex intellectual processes such as judgement, reasoning, memory,

comprehension, word definition and problem solving. It covers a span of three years to adulthood. Six test items are presented in each age group. The investigator has to start with the tests for three years old and proceed to the items of the next level till the child does none.

In three to ten years age group, for every year; six test items are presented. Each test item carries a score of two months. In 10 to 16 years age group, for every two years and in 16 to 22 years age group, for every three years; there are also six test items each carries a score of 04 months and 06 months respectively. The age at which the child completes all six items will be considered as basal age. The mental age will be calculated by adding the score each for the total number of completed items along with the basal age. Then the Intelligence Quotient (IQ) can be calculated using the formula.

$$IQ = \frac{MA}{CA} * 100$$

Where MA is Mental age and CA is Chronological age.

Table 1: Classification of Intelligence Quotient (IQ)

IQ Range	Category
Above 130	Genius
115 to 130	Very Superior
85 to 115	Superior
70 to 85	Normal
55 to 70	Dullness
Below 55	Borderline/Deficiency

RESULT:

Table 2- Showing Distribution of *Pravara*, *Madhyam* and *Awara Majjadhatu Sarata*.

Majjadhatu Sara	No. Of Volunteers Found
<i>Pravara Majjadhatu Sara</i>	17
<i>Madhyam Majjadhatu Sara</i>	56
<i>Awara Majjadhatu Sara</i>	27
TOTAL	100

A total 100 volunteers between 18 to 25 years of age were assessed for determining *Majjadhatu Sarata* and for Intelligence Quotient (IQ) also. *Majjadhatu Sarata* was found as per positive features recommended by *Acharyas* (Table 1). *Uttam (Pravara) Majjasara* was found in 17 (17%) volunteers, *Madhyam*

Majjadhatu Sarata was found in 56 (56%) volunteers and *Heen Majjadhatu Sarata* was found in 27 (27%) volunteers. (Table 2, Graph 1)

Table 3-Showing Distribution of different *Majjadhatu Sarata* and *Buddhimatta* (IQ).

<i>Majja Dhatu Sarata</i>	IQ Category						Total No. Of Volunteers
	Genius (>130)	Very Superior (115-130)	Superior (85-115)	Normal (70-85)	Dullness (55-70)	Borderline /Deficiency (<55)	
<i>Pravara Majja Dhatu sara</i>	17						17
<i>Madhyam Majja Dhatu sara</i>	03	24	29				56
<i>Avara Majja Dhatu sara</i>			05	22			27
TOTAL							100

17 (100%) *Pravara Majjadhatu Sara* (Superior Quality of Marrow) volunteers had found IQ above 130 i.e. in Genius category. Out of 56 *Madhyam Majjadhatu Sara* volunteers (middle Quality of Marrow), 24 (42.86%) volunteers had found IQ in the range of 115 to 130 i.e. very superior category and 29 (51.79%) volunteers had found IQ in the range of 85 to 115 i.e. superior category. But the IQ of 03 (05.36%) *Madhyam Majjadhatu Sara* (Middle Quality of Marrow) volunteers had found above 130 i.e. Genius category as found in *Pravara Majjadhatu Sara* (Superior Quality of Marrow). Among 27 volunteers of *Avara Majjadhatu Sara* (Inferior Quality of Marrow), 22 (81.88%) volunteers had found IQ in the range of 70

to 80 and 05 (18.12%) volunteers had found in the range of 85 to 115 i.e. in Normal and superior categories respectively. (Table-3, Graph 2)

CONCLUSION

As per the above results it is proved that *dhatu sarata* can be used to assess the *bala pramana* of *dhatu*. According to *Ayurveda Majjadhatu Sarata* people are brilliant, genius and highly appreciable in communities. According to above results *pravara Majjadhatu Sarata* shows IQ in genius category, *Madhyam Majjadhatu Sarata* shows IQ in very superior and superior category while *Awar Majjadhatu Sarata* shows IQ in normal category as stated above. Hence the fundamental concept of *Majjadhatu Sarata*

and *Buddhimatta* has been proved. But some *Madhyam Majjadhatusara* and some *Awara Majjadhatusara* volunteers shows variation in IQ irrespective of their category. Such variation in IQ was may be due to socio-economic conditions; backgrounds or presence of other *sarata* like *rakta sarata* etc. So further study may be required taking above points into considerations. As per the above result it can be state that Majjadhatusara people are brilliant. According to Ayurved Dhatusarata can be created and maintained after birth or it can be produced in intrauterine life also. So if people want their child intelligent, they can develop Majjadhatusara; keeping Majjadhatu developing ahara vihara. So firstly people are well aware about the characteristics of different Dhatusarata. So this study helps to highlight the importance of Dhatusarata.

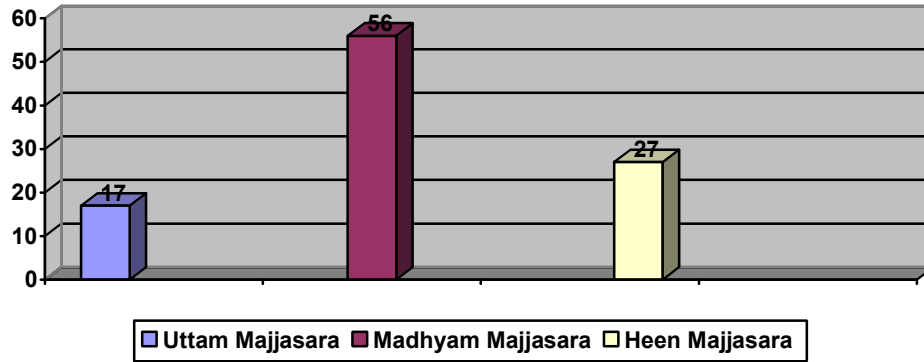
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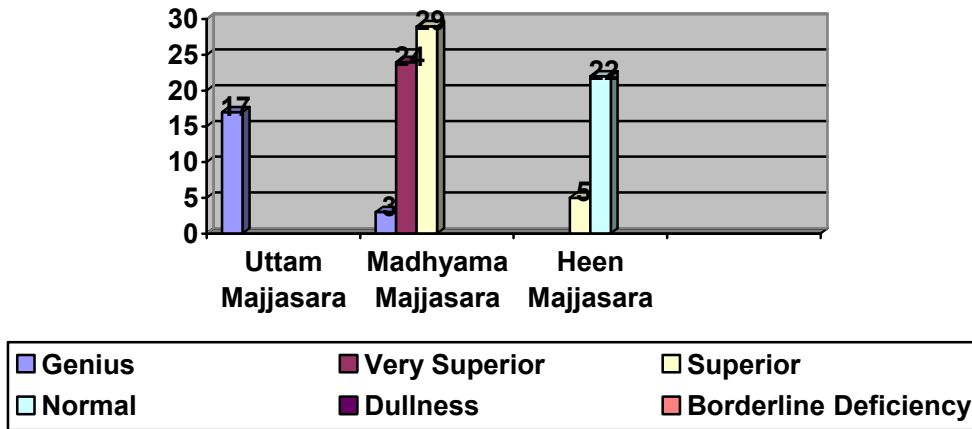
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GRAPHS:

Graph 2-Showing Distribution of Pravara, Madhyam and Avara Majjadhatu Sarata.



Graph 3-Showing Distribution of different Majjadhatu Sarata and Buddhimatta (IQ).



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