

# PILOT STUDY OF GULPHA SANDHI (ANKLE JOINT) OF MAJJASARAPURUSHA WITH RESPECT TO PRAMAN SHARIR AND ANTHROPOMETRY

Dr. Kulkarni Swarup Purushottam.<sup>1\*</sup>

<sup>1\*</sup> Associate Professor & H.O.D.,  
Ph.D. (Registered Scholar)

Department of Rachana Sharir,  
Sant Gajanan Maharaj Ayurved Medical College, Mahagaon, Maharashtra, India.

## AUTHOR FOR CORRESPONDENCE:

Dr. Swarup P. Kulkarni

**Abstract:** Fundamental specifics of Ayurved concern with Rachana Sharir (Anatomy). It gives information about the basic Rachana (Structure) of human body which is significant with respect to analysis and treatment. In Rachana Sharir the topic of Praman Sharir (magnitude of human body) is also fixed. In this subject matter, vital parameters of human body are explained by acharyas. In praman sharir, swa-angulipraman (Individual finger breadth measurement) is explained in Charak-Samhita Vimansthan, Sushrut-Sutrasthan and Ashtang-sangraha. In ayurved the notion of sarataparikshan is also mentioned. In this laxanas of Majjasara purusha are explained by various acharyas. Sara is nothing but most potent part interms of dhatu in that particular person. Sara means best, real, strong etc. In case of Majjasarapurusha, acharyas specially Charakacharya in Vimansthan 8th adhyaya and 108<sup>th</sup> sootra, have used the words sthool (big), deergha (long) and vritta (round) while explaining the sandhis (Joints) of majjasarapurusha. So, it is essential to realize these words in terms of proportions. So, the study of praman sharir and majjasarapurusha is needed to figure out and evaluate the hypothesis about the sandhis (Gulpha sandhi, ankle joint) of majjasarapurusha using anguli praman and anthropometric measurements.

**Keywords:** Praman sharir, Sarata, Majjasarapurusha sandhis, Gulpha sandhi, Anthropometry

## INTRODUCTION –

### Sarata -

Sara is the most compelling part interm of dhatu in individual. Sara is used to point to the superiority of some particular tissue or quality in the person, on account of which he or she is said to possess the finest of that thing. There are eight sara purushas are mentioned in ayurved as Twacha sara, Rakta sara, Mansa sara, Meda sara, Majja sara, Asthi sara, Shukra sara and satwa sara purusha. In sara-dhatu also, some are uttam-sara (Best), some are madhyam-sara (Moderate), alpa-sara (Minimum) and asara (Absence), these four types are found.

Again, every dhatu is sarawan in two ways as,

- (1) Quantity wise
- (2) Quality wise

In a society, one can find many such cases in which, the body development i.e. the body parts (pratyangas) are phenomenal i.e. the Pramantaha-sarata. But in such cases, there may be lacking of manasik-bhava-lananas (mentally not tough) i.e. (Gunataha). In Majjadhatu-praman-saratwa, there should be sthoola (big, bulky), vritta (round) and deergha (long) sandhis (Big Joints) should be present. Also, one should posse's qualities like Balawanta (physically strong), Shastra dnyan sampanna (Knowledgeful) then only one can asses as majjasara-purusha. That's why, it is indispensable to look in both ways as Pramantaha and Gunataha while assessing the dhatu-saratwa. So, this is the attempt to compare the measurements of Gulpha sandhi (ankle joint) interms of anguli praman and anthropometry.

### PRAMAN-SHARIRA-

Praman means measurements and sharira means deha (body). Praman sharir includes the essential measurements of the body. According to Ayurved, it includes Swa-anguli-praman. Mostly, Swa-anguli praman is taken by measuring the breadth of middle interphalangeal joint of middle finger of a hand of a particular individual as explained in Sushrut Sutrasthan 35<sup>th</sup> adhyaya and commented by Adhamalla. It varies from person to person. According to Charakacharya, explained in Charak Vimansthan 8<sup>th</sup> adhyay and 117<sup>th</sup> shloka, human body is 84 angula. According to Sushrutacharya, explained in Charak Vimansthan 35<sup>th</sup> adhyay and 16<sup>th</sup> shloka, by raising both the hands upwards and by standing on the padagra (heel), the length of sharira is 120 angula by Swa-anguli-praman. The standard measurements in terms of anguli praman are explained by various acharyas. In case of Majjasarapurusha, related to the sandhis means big joints of our body. So, I am assessing the measurements of Gulpha sandhi (ankle

joint) in terms of circumference, Acharyas have mentioned the words like sthoola (big, bulky), vritta (round) and deergha (long). Means ankle joint is more specifically present in majjasarapurusha. Ankle joint is selected because its measurement is mentioned in samhitas. Its measurement is explained in samhitas as follows,

**Gulpha** – Paridhi (Circumference) – 14 angula (Sushrut) <sup>1,2,3 & 4</sup>

### **ANTHROPOMETRY** -

The word anthropometry factually means measurements of humans.

Anthro:-Man and Pometry:-Measure.

The study of anthropometry is the study of human body measurements to assist in understanding human physical variations. The study of physical scale in people including the measurement of human body description such as size, breadth, girth and distance is termed as anthropometry.

The term anthropometry refers to relative measurements commonly used as index of growth and development include length, weight, breadth, etc.

Anthropometry plays significant role in the field of individuals design, clothing and architecture where statistical data about the distribution of body dimensions in the population are used to optimix products. Changes in life styles, nutrition and composition of populations lead to changes in the distribution of body measurements (dimensions).<sup>5</sup>

### **AIM AND OBJECTIVES** -

#### **Aim:-**

To study Majjasarapurusha using anguli praman and anthropometric measurements with respect to Gulpha sandhi (Ankle Joint).

#### **Objectives:-**

1. To assess the laxanas of Majjasarapurusha with respect to Gulpha sandhi (Ankle Joint).
2. To recognize the perception of Angulipraman in Ayurved and Anthropometry.
3. To verify the effectiveness of Praman Sharir.
4. To revise the sarata and dhatusara laxanani.

### **MATERIAL AND METHODS** -

#### **Material:-**

- (1) Ayurvedic samhitas as Brihatrayee and Sharangdhar Samhita.
- (2) Rachana Sharir text books as Dristant-Sharir, Sharir Rachana Vigyan and Sushrut Samhita Sharirsthan.
- (3) Kriya Sharir textbooks as Sharir-Kriya-Vijnan, Dhatusarata and Human-Physiology.
- (4) Randomly selected 20 male healthy individuals (Majjasara-purusha) by using Sarata-parikshan-proforma by C-DAC.
- (5) Textbooks on Anthropometry.
- (6) Instrument: Micrometer and Metertape.

#### **Inclusion-Criteria:-**

1. Randomly selected 20 healthy male individuals (Majjasarpurusha) by using Sarata-parikshan-proforma by CDAC (according to highest percentage of respective sarata laxanas).
2. Age: - 25years to 50 years.

#### **Exclusion-Criteria:-**

- (1) The other sara purushas except the Majjasara-Purusha.
- (2) Individuals below 25 years and above 50 years.
- (3) Individuals which are suffering from major illness and which are physically handicapped.

### **METHODOLOGY** -

- (1) Majjasara-purusha was selected according to sarata-parikshan-proforma by C-DAC.
- (2) Then, Swa-anguli-praman of each individual was measured by micrometer. (Breadth of first interphalangeal joint of middle finger of hand.). It was finalized after taking the above said measurements of right and left hand's (Breadth of first interphalangeal joint of middle finger) and divided by 2.
- (3) Micrometer was touched to the skin of finger and does not kept too tight or too loose while measuring anguli-praman. Average measurement of breadth first interphalangeal joint of middle finger of hand was taken and after that this measurement was used as Swaanguli-Praman as reference by Adhamalla.
- (4) The measurement (circumference with respect to hypothesis) of Gulpha (Ankle joint) was taken by measuring-tape (in centimetres) and then it was converted in to anguli praman by dividing the measuring tape value with the swaanguli praman which was already taken.
- (5) The range of observations and results are prepared for majjasarapurusha Gulpha sandhi.
- (6) The comparative results correlated with the measurements which are given by acharyas of Gulpha sandhi of majjasarapurusha.

(7) Informed consent of each participant is taken before the study.

### PHOTOGRAPHS –

Photo – 1 - Micrometer



Photo – 2 – Swaanguli Praman



Photo – 3 – Gulpha sandhi



### OBSERVATIONS AND RESULTS –

Final range of observations achieved after assessing twenty cases of Majjasarapurusha -

SR NO	NAME OF PRATYANGA	PRAMAN
1	GULPHA SANDHI (ANKLE JOINT)	C- 14-15.5 A, 26.5-30.5cm

**Abbreviations -**

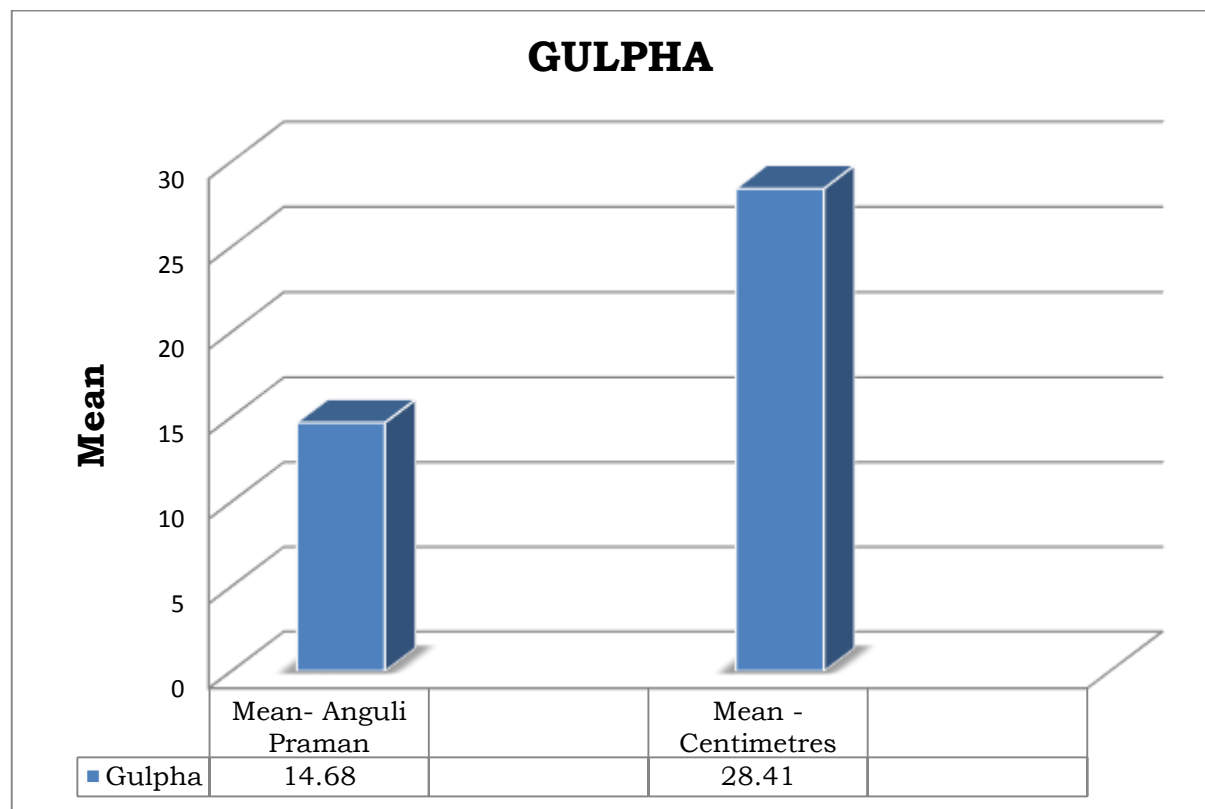
A- Anguli Praman

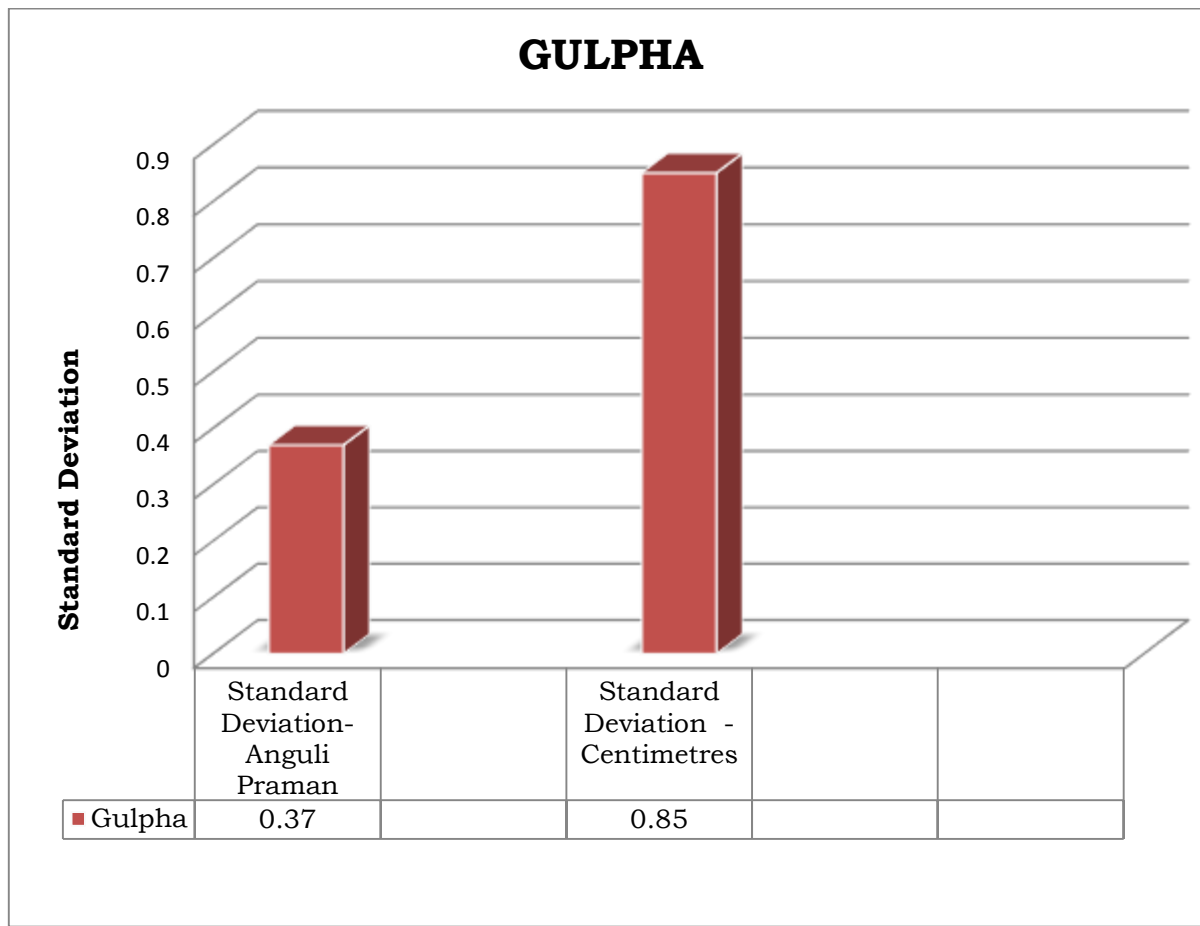
C- Circumference

Cm- Centimetres

**STATISTICAL ANALYSIS -**

The data is collected and mean and standard deviation is calculated of measurement of Gulpha sandhi, both in terms of anguli praman and centimetres. These results are presented by the graphs.

**GRAPH 1– Mean observations in Gulpha sandhi**

**GRAPH 2– Standard Deviation observations in Gulpha sandhi as per anguli praman and Centimetres****DISCUSSION -**

After case study, I found the mostly constructive relation between the hypothesis given by Charakacharya about the laxanas of Majjasara-purusha and the results (observations) obtained. As Charakacharya has stated the word sthoola, vrutta, deergha about the sandhis of Majjasara-purusha, it is necessary to see the meaning of sthoola, i.e. Big, Huge, Large, Massive, Bulky, Stout etc. Deergha means long and Vrutta means round. So, it is obligatory to interpret these meanings in terms of exact measurements of Gulpha sandhi of Majjasara-purusha. So I have taken Gulpha sandhi for the measurements, both by Swanguli-praman and by meter tape (in centimeters). I studied 20 male Majjasara-purusha cases, by taking their swaanguli-praman. As the swaanguli-praman is different from one another, the measurements also vary from person to person. I have taken the cases of males and mixed religions. So the observations or results obtained in this study are related to above mentioned criterias. The range of measurements of Gulpha sandhi, I have found is concerned with that particular age, sex etc. factors. Means, measurements which I found are the measurements of Gulpha sandhi of Majjasara-purusha which I have got or selected. This range of measurements is differs according to person to person and according to different conditions. So from above it is clear that, the word sthoola, vrutta, deergha means huge, large, long and round i.e. more than dictated anguli measurements indicated. The observations I have found justifies above sentence (100%). So, from the above discussion it is obvious that, the observations and results that I have got during this study is either equal or more than the anguli praman which are given by acharyas related to Gulpha sandhi. The Majjasara-purusha is having more often than not more illustrious Gulpha sandhi from others.

**CONCLUSION -**

Assessing sarata, praman sharir and anthropometry, in case of Gulpha sandhi (ankle joint) of majjasarpurusha, is selected as its standard measurements in terms of circumference is mentioned by acharyas. Its measurements can be calculated by Swanguli praman and by using other anthropometrical method in terms of centimeters like units. To conclude, one thing is clear that, the measurements of Gulpha sandhi of Majjasara-purusha which I have got during my research work are justifying the hypothesis. The range of each measurement can vary from individual to individual. So, these measurements may vary in other Majjasara-purusha.

**REFERENCES**

- [1] Shreemad Agniveshen Praneeta Charak Drudhabal pratisanskrita, Charak Samhita, Vimansthan, Chapter 8, citation no. 102 and 108, Choukhmabha Bharati Academy, Varanasi Reprint 2001, Page no. 775 and 776.
- [2] A text book of dhatusarata, by Venu Madhav Shastri
- [3] Shreemad Agniveshen Praneeta Charak Drudhabal pratisanskrita, Charak Samhita, Vimansthan, Chapter 8, citation no. 117, Choukhmabha Bharati Academy, Varanasi Reprint 2001, Page no. 778 and 779.
- [4] Sushrut Samhita Sharirsthan, Kaviraj Ambikadattashastri, Sutrasthan, Chapter 35, citation no.16 and 17, Reprint Nov. 2003, Choukhambha Sanskrit Samsthan, Page no. 132.
- [5] <https://en.m.wikipedia.org/wiki/Anthropometry> citation dated 24/03/2021.

