IJBPAS, April, 2024, 13(4): 1949-1954

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

A DEMOGRAPHIC STUDY TO VALIDATE SELECTED AYURVEDIC ANTHROPOMETRIC MEASUREMENTS

VIJAYNATH V[1*], BANDAPALLE DN[2], MUKUNDAN M[3] AND RENJITH V RAJ[4]

1: Assistant Professor, Dept. of Rachana Shareera. Govt. Ayurveda College, Tripunithura & PhD Scholar, Parul University, Vadodara

2: Prof & HOD Dept. of Rachana Shareera, Parul Institute of Ayurveda, Parul University, Vadodara

3: Associate Professor, Dept. of Rachana Shareera. Govt. Ayurveda College, Tripunithura

4: Junior Research Fellow, Govt. Ayurveda College, Tripunithura

***Corresponding Author: Mr. Vijaynath V: E Mail: drvijaynathv@gmail.com**

Received 14th May 2023; Revised 15th July 2023; Accepted 15th Aug. 2023; Available online 1st April 2024

https://doi.org/10.31032/IJBPAS/2024/13.4.7966

ABSTRACT

Anthropometry is the science that deals with measuring various body parts of an individual and delivering comparative results about the several human body propotions. Ayurvedic Pramana Shareera concept has meticulously dealt with anthropometry. Charaka Samhita mentions it as a tool to assess the patient, whereas Susrutha Samhitha cites it as a criterion to evaluate an individual's lifespan. Angula pramana is the linear measurement scale. Angula is a Sanskrit word that means finger and it is a purely subjective parameter. Pramana is a recognized tool for acquiring knowledge. An Angula is defined in this study as the width of the palm divided by four. Certain Ayurvedic anthropometric measurements such as height of an individual, Ura Vistara (chest width), Kati Vistara (waist width), Uru Parinaha (mid-thigh circumference) and Jangha Parinaha (calf circumference) are being measured and revalidated.

Keywords: Angula, Pramana, Anthropometry

INTRODUCTION

Anthropometry is a well-developed branch of the science of human measurement that is widely used in fields such as forensic medicine and the textile industry. It derives from the Greek words anthropos (meaning "human") and metron (meaning

"measurement") **[1]**. Pramana Shareera is the name given to elaborately detailed anthropometry in Ayurvedic treatises. Charaka Samhitha mentions it as one of the Dasa vidha rogi pareekshya bhavas (ten tools to diagnose the patient) **[2]**, whereas Susrutha Samhitha mentions it as a criterion to assess an individual's Ayu (life span) **[3]**. Pramana is regarded as a learning tool in Ayurveda **[4]**. In Ayurvedic classics, there are two types of Pramana: Anjali pramana and Angula pramana. The Anjali pramana is used to calculate body volume, which includes fluids **[5]**, Angula pramana, on the other hand, is based on Swa-angula pramana (one's anthropometric dimensions) and is used for linear measurement of the dimensions like Ayama (length), Vistara (width), and Parinaha (circumference) of the various Anga-pratyanga (structures of the human body) **[6]**. The patient or an individual having appropriate pramana of different anga-pratyanga mentioned is considered to attain deerghayu (longevity) **[7]**.

Subcutaneous fat deposition is greatest in the chest, waist, thigh & calf. In this study, one angula is equal to the width of a palm divided by four. The height of an individual along with anthropometric measurements of sites with higher fat deposition has been revalidated as per the measurements prescribed in Susrutha Samhitha.

METHODOLOGY

Five hundred healthy male volunteers from selected four wards of Tripunithura municipality were included in the current study.

Inclusion criteria

1. Those who are willing to give the written consent.
2. Age 25-60 years.

Exclusion criteria

1. Non cooperative males
2. Those with terminal illness
3. Participants who are under medication of any system of medicine for diabetes mellitus (type I and type II)

Trial design

This project was executed as a cross sectional survey in which random sampling was done to select the sample, which fulfil both the inclusion criteria and those who are available during the data collection was selected for the study.

Study tools required for data collection are

I. Questionnaire.

A standardised Questionnaire was used for the survey, which was created after discussions with academicians and teachers and was applied to the study settings. The developed questionnaire can be pretested and refined. All individual participants who met the inclusion criteria, the authorities of Tripunithura municipality, and IEC, Government Ayurveda College, Tripunithura provided written consent for the study. The subjects were assured that any data obtained

through the survey would be kept confidential.

Participants for the study were selected from the four wards of Tripunithura municipality by multistage random sampling.

Stage 1: Tripunithura municipality in Ernakulam district have been selected for the project.

Stage 2: Four wards had been considered for sampling.

Stage 3: From the four wards, 500 males were selected randomly

Data had been collected by the study Questionnaire and by direct analytical method using the materials and equipment

II. Materials and Equipment.

1. Calipers
2. Measuring tape
3. Stadiometer
4. Cotton thread
5. Materials required to record results

III. Assessment criteria

1.Angula assessment - using Calipers

Measure the width of palm using calipers (in centimeter) & divide it by four **[8]**.

2.Total height assessment- using stadiometer

Measurement was taken in standing position.

3.Assessment of Kati visthara (waist width) – using thread and measuring tape.

The waist width was measured as the distance between the tubercles of right and left iliac crest (inter tubercular plane) using thread and stretch-resistant tape.

4.Assessment of Ura visthara (chest width) – using thread and measuring tape.

The chest width was measured as the distance between right and left mid axillary lines at the level of nipples, using thread and stretch-resistant tape at the end of expiration.

5. Assessment of Uru parinaha (mid- thigh circumference) - using thread & measuring tape (subject in standing position).

It was measured at the point half the distance between the greater trochanter and the lateral condyle of the femur of right and left lower limb, with the thread parallel to the floor.

6. Assessment of Jangha parinaha (calf circumference) – using thread and measuring tape.

Calf circumference was measured around the fullest portion of the right and left calf, with the thread parallel to the floor (subject in standing position).

The value obtained in centimetres of assessment criteria numbered 2,3,4,5, and 6 was divided by the individual value of assessment criteria numbered 1 (angula assessment) and was considered the final value in Angula.

The following chart shows the standard measurements mentioned in Susrutha Samhitha in accordance to Angula Pramana **[9]**.

Table 1: Pramana as Mentioned in Susrutha Samhitha

S. No.	Pratyangas	Measurements (in terms of one's own angula)		
		Length (Ayama)	Width (Visthara)	Circumference (Parinaha)
1	Purusha ura (chest of male)	-	18	-
2	Purusha kati (waist of male)	-	12	-
3	Uru (thigh region)	18	-	32
4	Jangha (Calf region)	18	-	14
5	Total Body Height	120 angula		

RESULTS

Table 2: Measured Angula Pramana

PALM WIDTH (ANGULA)	FREQUENCY	PERCENTAGE
< 2.0	70	14.0%
2.0 – 2.2	329	65.8%
>2.2	101	20.2%

Table 3: Anthropometric Measurements in Angula Pramana

Parameters (Angula)	Mean	SD	Test Value	Difference	t - value	p – value
Height	79.46	3.784	120	-40.54	-239.6	<0.001
Ura visthara (Chest Width)	22.56	2.035	18	4.561	50.12	<0.001
Kati visthara (Waist Width)	23.49	2.439	12	11.49	105.3	<0.001
Uru parinaha (Mid-Thigh Circumference)	21.76	3.021	32	-10.24	-75.82	<0.001
Jangha parinaha (Calf Circumference)	16.66	1.452	14	2.662	40.98	<0.001

DISCUSSION

Height: Here the p-value (< 0.05) suggests that the difference in height compared to test value is significant. The table reveals that the height is significantly lower (79.46 ± 3.784) compared to the test value (120) with a difference of 40.54 angula.

Chest Width: Here the p-value (< 0.05) suggests that the difference in chest width compared to test value is significant. The table reveals that the chest width is significantly higher (22.56 ± 2.035) compared to the test value (18) with a difference of 4.561 angula.

Waist Width: Here the p-value (< 0.05) suggests that the difference in waist width compared to test value is significant. The table reveals that the waist width is significantly higher (23.49 ± 2.439) compared to the test value (12) with a difference of 11.49 angula.

Mid-Thigh Circumference: Here the p-value (< 0.05) suggests that the difference in Mid-thigh circumference compared to test value is significant. The table reveals that the Mid-thigh circumference is significantly lower (21.76 ± 3.021) compared to the test value (32) with a difference of 10.24 angula.

Calf Circumference: Here the p-value (< 0.05) suggests that the difference in calf circumference compared to test value is significant. The table reveals that the calf circumference is significantly higher (16.66 ± 1.452) compared to the test value (14) with a difference of 2.662 angula.

CONCLUSION

Anthropometry is a rapidly expanding field. The results of the studies have been applied in industries such as fashion, optometry, and surgery. Ayurveda is a subjective medicine that considers each individual to be a separate entity. For this study, males from a restricted geographical area were recruited. The chest breadth, waist width, and calf circumference were found to be much larger than those specified in the Susrutha Samhitha, although the height and mid-thigh circumference were significantly smaller. Pramana Shareera is a broad topic, and different measurements listed in Ayurvedic treatises must be revalidated and merged with anthropometry for the sake of humanity.

REFERENCES

[1] https://www.etymonline.com/word/anthropometry

[2] Agnivesha. Vaidya Jadhavji Trikamji Acharya, editor. Charaka Samhitha revised by Charaka and Dridhabala with Sri Chakrapanidatta Ayurvedadipika Commentary in Sanskrit. 5th ed. Varanasi: Choukambha Sanskrit Sansthan; 2008. Pp-738, p- 276.

[3] Sushruta. Yadavji Trikamji Acharya, editor. Sushrutha Smhitha with Nibandha Sangraha of Dalhanacharya. 8thed. Varanasi: Choukambha Orientalia; 2008. Pp-824, p- 151.

[4] Agnivesha. Vaidya Jadhavji Trikamji Acharya, editor. Charaka Samhitha revised by Charaka and Dridhabala with Sri Chakrapanidatta Ayurvedadipika Commentary in Sanskrit. 5th ed. Varanasi: Choukambha Sanskrit Sansthan; 2008. Pp-738, p- 279.

[5] Agnivesha. Vaidya Jadhavji Trikamji Acharya, editor. Charaka Samhitha revised by Charaka and Dridhabala with Sri Chakrapanidatta Ayurvedadipika Commentary in Sanskrit. 5th ed. Varanasi: Choukambha Sanskrit Sansthan; 2008. Pp-738, p-339.

[6] Agnivesha. Vaidya Jadhavji Trikamji Acharya, editor. Charaka Samhitha revised by Charaka and Dridhabala with Sri Chakrapanidatta Ayurvedadipika Commentary in Sanskrit. 5th ed. Varanasi: Choukambha Sanskrit Sansthan; 2008. Pp-738, p-289.

[7] Sushruta. Yadavji Trikamji Acharya, editor. Sushrutha Smhitha with

Nibandha Sangraha of Dalhanacharya. 8thed. Varanasi: Choukambha Orientalia; 2008. Pp-824, p-150.

[8] Sushruta. Yadavji Trikamji Acharya, editor. Sushrutha Smhitha with Nibandha Sangraha of Dalhanacharya. 8thed. Varanasi: Choukambha Orientalia; 2008. Pp-824, p-150.

[9] Sushruta. Yadavji Trikamji Acharya, editor. Sushrutha Smhitha with Nibandha Sangraha of Dalhanacharya. 8thed. Varanasi: Choukambha Orientalia; 2008. Pp-824, p-150.