



## Review Article

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### **GRIVA PARINAHAH IN SWANGULI PRAMAAN COULD BE UNIQUE PERSONALIZED ANTHROPOMETRIC MARKER FOR PREDICTION OF MEDOVRUDDHI: A REVIEW**

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#### ABSTRACT

The concept of Personalized medicine (PM) gives new dimensions to modern medicine but it is a well-established concept in Ayurveda. Ayurveda suggests different medicine for different people because every person is different from each other. *Swa-anguli pramaan* is a unique *pramaan* (self-finger measurement) described in the classic text of Ayurveda in terms of *ayaam*, *vistaar* and *parinaah* for the determination of the magnitude of a body organ. *Medodhatu* is one of the *sapta dhatu*. *Meda dhatu vridhhi* means an increase in *meda dhatu*. Shows the similarity with signs and symptoms of obesity. BMI, waist circumference, waist to hip ratio are anthropometric measurements used to categorize obesity with some limitations. All these measures are generalized metric way, but *grivaparinaah* in *swanguli pramaan* is a Personalized quantifying anthropometric measurement. So, intending to highlight the importance of *griva parinaah* described in *medo dhatuvruddhi* comprehensive studies of available literature have been carried out. It was found that all the methods of assessment are generalized in the rising world of personalized medicine the person *griva parinaah* with individuals own *Anguli pramaan* could become a unique Personalized predictor of *medovruddhi*.

**Keywords:** *Griva parinaah*, *swanguli pramaan*, *medovridhi*, anthropometric.

#### INTRODUCTION

Ayurveda defines three *doshas* *vata*, *pitta*, *kapha*, *sapta dhatu* *rasa*, *rakta*, *mans*, *meda*, *asthi*, *majja* and *shukra* and three *mala* *purish*, *mutra* and *sweda* as a basis for holding the body<sup>1</sup>. The concept of Personalized medicine gives new dimensions to modern medicine but it is a well-established concept in Ayurveda. Ayurveda suggests different medicine for different people because every person is different from each other<sup>2</sup>. So, Ayurveda considered the concept of *dosha*, *kala*, *prakriti*, *sarata*, *samhanan*, *agnibala*, *kostha* during diagnosis and treating the disease. *Prakriti* (body constituents) form at the time of conception due to a combination of *doshas*<sup>3</sup>.

*Prakriti* is a unique combination of *doshas* and makes the person different from each other. *Swa-anguli pramaan* is a distinctive *pramaan* (anthropometric measurement) represented in the classic text of Ayurveda in terms of *ayaam*, *vistar*, and *parinaah* for determination of the magnitude of the body organ.

According to the FDA, the objectives of Personalized medicine are to raise edges reduced risk to the patient by preventing the patients from diseases and by giving them needed appropriate treatment<sup>4</sup>. Personalized medicine helps to make easy and early detection of diseases and enhance the use of an existing biological marker to enhance health standing. Personalized medicine execution will cut back monetary burden up to some extent. It will offer quality life to patients and helps to feature life. Personalized medicine will increase the health impact of existing treatment as it offers the matching process between patient and treatment related to their disease condition<sup>5</sup>.

Ayurveda considers the human body is formed of *saptha dhatu* (seven body tissues), *rasa*, *rakta*, *maans*, *meda*, *asthi*, *majja* and *shukra*<sup>6</sup>. *Medodhatu* is one in all of them. *Meda dhatuvridhhi* means an increase in *meda dhatu*. *Vridhhi* of *medo dhatu* shows the symptoms like an increased size of buttocks, breasts and abdomen. The person shows the sign of *shwasha* (breathlessness) when a small movement additionally<sup>7</sup>. Even Sangrahakara mentioned that early symptoms of *prameha* (diabetes) included in the *sthaulya* (overweight, obesity)<sup>8</sup>.

As per modern science obesity leads to numerous metabolic changes chronic accumulation of additional fat in obese persons increasing cardiovascular diseases risk dyslipidemia, hypertension, glucose intolerance and probably many unknown factors. There are numerous methods to assess overweight and obesity. Some of which techniques applicable at medical aid as height, weight, waist-hip ratio, body mass index, however the relevance of technique hampered repeatedly on the clinical aspect. That would be the opening move in direction of obesity control needs strong, reliable, simple, quick applicable, cost-effective markers to assess the *medovruddhi*.

The word *pramaan* is expounded to the measurement described in Ayurveda for the examination of persons. *Anguli pramaan* is an ancient quantitative expression of the magnitude of human body parts. This quantifying measurement was additionally accustomed to assess the signs of longevity, prosperity, happiness, wealth, *ojas* and strength. Sushruta described *Anguli pramaan* to know the longevity of life (*dirghayu*)<sup>9</sup>. It is the measurement of various *anga-pratyang* (organs of the body) in a self-finger unit in the form of *ayaam*, *vistaar* and *parinaah* which are similar to modern anthropometric measurement height, arm span and circumference respectively. Supported this

measurement one will conclude the condition of that specific organ. The second distinguishing feature of this *Anguli pramaan* measurement is a measurement in its fingers which is *swanguli pramana* (self-finger unit). It suggests that the female body should measure with her finger, the male body by his finger and the kid body by his/her self-finger<sup>10</sup>.

Acharya Dalhan mentioned the middle finger's middle interphalangeal joint is one *anguli*<sup>11</sup>. Recently research shows that the mediolateral proximal interphalangeal joint of the middle finger gives one's self-finger unit<sup>12</sup>. The one that has *Anguli pramaan* as mention within the text is healthy and having an extended life, a decrease or increase in *Anguli pramana* is an indication of morbidity. Acharya Bhavmishra mentions the oversize of *griva* in *medovrudhi*<sup>13</sup>.

Anthropometric measurement *swanguli pramaan* is a personalized quantifying measurement. *Griva Parinaah* (GP) described in *medodhatuvrudhi* should have the scientific value, must be evaluated through this text author desires to spotlight the importance of *Griva Parinaah* as a personalized marker for the prediction of *medovrudhi*. All the ways of assessment are generalized in the rising world of personalized medicine the person's *Griva Parinaah* with his *Anguli pramana* might become a unique predictor of *medovrudhi*.

Classical texts of Ayurveda viz. Charaka, Sushruta, and Vagbhata Samhita were consulted as literature references of ancient *Anguli pramaan*, *swanguli pramaan* and *Griva Parinaah*. Literature available concerning modern anthropometric measurement was additionally collected by looking out within the info as Pubmed, Medline, Scopus and Google scholar for references of anthropometric measurement BMI, waist to hip ratio, neck circumference. These references from each stream of data were compared and analyzed critically.

## DISCUSSION

One *Anguli pramana* suggests that the measurement of different *anga prtyanga* in individuals' fingers. For the calculation of one *Anguli pramaan* following formula is taken as Dalhanacharya mentioned one's folded palm (*swapanitala*) is 4 *anguli* in measurement<sup>14,15</sup>.

Measurement of four fingers from little to index finger at the joint of metacarpal and lower phalanges ought to be thought about as four *anguli*<sup>16</sup>. Self-finger measurement is equal to the sum of the breadth of the joint between the lower phalanges and metacarpals of each right and left hands divided by eight. Both right and left hands should take only to minimize error which may occur because of different sizes of the right and left hands. During this manner, we are going to get one *Anguli pramaan* in cm.

### Concept of *Griva parinaah*

*Parinaahoparivartulata* means the spherical measurement of body objects is *parinaah*. As per Ayurveda for measuring *parinaah* measurement is taken at the mid-point of that organ<sup>17-19</sup>. *Griva Parinaah* will measure at the mid-point of *griva*. According to Sushruta *Griva Parinaah* should be 20 *anguli* in *parinaah*<sup>20</sup>.

According to modern anthropometry, the borderline encompassing a section or object is called the circumference. According to modern science, Neck circumference will measure using non-stretchable measuring tape at the middle of the neck between the mid-cervical spine and mid anterior neck and horizontally at just inferior Adam's apple<sup>21</sup>. Thus, we can convert

the measured circumference of *Griva* (neck) to *Anguli pramaan*. *Griva Parinaah* thus obtained is in *Anguli pramaan* and not in terms of a cm. It should be 20 *anguli* in a normal person more or less measurement suggests the morbidity. *Grivavrudhi* larger than 20 *anguli* might recommend the *medovrudhi* mentioned by Bhavamishra.

### Body Mass Index (BMI)

BMI is calculated by using the formula (Quetelet index) weight in kilograms divided by height in meter sq. BMI is predicted on the height and weight of the person. In clinical terms, a BMI of 25-29 kg/m<sup>2</sup> is called overweight; higher BMIs ( $\geq 30$  kg/m<sup>2</sup>) are named obesity<sup>22</sup>. Measurement of BMI does not take into account bone density, muscle mass, and other body composition all over the body.

Analysis reviews show that BMI is not equally valid in all told races, ages, genders, and ethnicity<sup>23</sup>. Thus, *Griva Parinaah* in *Anguli pramana* will facilitate the higher prediction of *medovrudhi* as this measurement does not affect the age, gender, races and origin of the person because the measurement calculated with the individual's finger. As height is one of the components of measurement, the BMI could also be height dependent. The assumption that BMI is freelance of height is not very true, particularly for children. Kids, adolescents, or adults with short legs for his or her height have a higher BMI<sup>24</sup> on the other hand *Griva Parinaah* measurement does not depends on height. It is a measurement of the circumference (*parinaah*) of the neck. Though BMI is used as a standard anthropometric measurement to categorized underweight, normal, overweight and obese person. It has one other limitation, as it is unable to distinguish between lean and fat mass. The muscular athlete may show high BMI due to lean mass therefore may be categorized as obese. On the other hand, conversely, an individual with a high amount of body fat however low lean mass could also be categorized as normal weight<sup>25</sup>.

Fat distribution is considered a significant factor in assessing health risk in numerous metabolic disorders however typically identification of fat distribution is not attainable with BMI. Upper body subcutaneous fat in the neck region is a unique fat deposition located in a separate compartment, anatomically this fat deposition has a hypothetical value that will recommend the pathological and physiological characteristics<sup>26</sup>.

So, it is considered as a substitute measure of body fat because it measures excess weight instead of excess body fat.

### Waist circumference (WC)

Waist circumference will be measured at the mid-point of half-way between the right iliac crest and the lower coastal region if there is no obvious narrowing<sup>27</sup>. Waist circumference has its limitation as during examination participants should wear thin clothes, so that thickness of clothes does not affect the outcome measurement. The measurement is typically conducted before taking a meal and after emptying the bladder. Abnormal breathing pattern affects this measurement. This measurement is not possible in pregnancy. So, it involves discomfort to the subject. *Griva Parinaah* measurement is not affected by above all situation as the measurement site is the neck region<sup>28</sup>.

### Waist to hip ratio (WHR)

Waist and hip circumference will be taken in standing position. Waist circumference will be measured as mentioned above. The hip is measured at maximum value over the buttocks as viewed

from the right side. Participants should stand with feet fairly close together (about 12-15 cm apart) with weight equally distributed on each leg. Waist to hip ratio is obtained by dividing the waist circumference by hip circumference using the same measurement unit for both.

Hip circumferences measure a different set of body composition as bone mass, muscle mass and Fat also. An individual may have a high quantity of abdominal fat but the Waist to hip ratio may fail to determine if the hip circumference is large. Waist to hip ratio is less correlated with body fat content than other measures of fat distribution<sup>29</sup>.

Computed tomography and magnetic resonance imaging are considered the gold standard modalities for measurement of visceral fat, but these modalities are costly and not feasible for large studies<sup>30</sup>.

## CONCLUSION

The concept of *swanguli pramaan* is a unique entity of Ayurveda. *Griva Parinaah* in *Anguli pramaan* can become a unique personalized quantitative screening measurement to assess obesity in an individual. It is a unique, reproducible, and cost-effective screening measure not affected by respiration phases of stomach fullness.

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