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**Pragati Garg, Swati Yadav**
*Department of Ophthalmology*
*Era's Lucknow Medical College & Hospital, Sarfarazganj Lucknow, U.P., India-226003*

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**Aditi Srivastava, Rumana Ahmad, A.N. Srivastava***
*Department of Biochemistry, Department of Pathology**
*Era's Lucknow Medical College & Hospital, Sarfarazganj Lucknow, U.P., India-226003*

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**Hemlata Rathore, Brijesh Rathore* and Seema Singh**
*Department of Physiology and Department of Biochemistry**
*Era's Lucknow Medical College & Hospital, Sarfarazganj Lucknow, U.P., India-226003*

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**Anamika Gupta, Rumana Ahmad, Shivbrat Upadhayay, A. N. Srivastava***
*Department of Biochemistry, Department of Pathology**
*Era's Lucknow Medical College & Hospital, Sarfarazganj Lucknow, U.P., India-226003*

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Mrinal Ranjan Srivastava, Farzana Mahdi*, Abbas Ali Mahdi*, Sharique Ahmad** and Anu Chandra*
*Department Of Community Medicine, Department Of Biochemistry*, Department Of Pathology***
*Era's Lucknow Medical College & Hospital, Sarfarazganj Lucknow, U.P., India-226003*

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RELATIONSHIP BETWEEN FOOT LENGTH, BODY MASS INDEX, AND HEIGHT IN COMPARISON WITH PHALLUS LENGTH AMONG HEALTHY YOUNG NIGERIAN MEN

Alabi Ade Stephen, Ogungbesan Ajibola Adesina, Lewu Folashade Susan, Kareem Suwebat Bidemi, Oyewopo Adeoye Oyetunji, Adeleke Opeyemi Samson*, Aigbogun Eric Junior** Department of Anatomy Faculty of Basic Medical Sciences, University of Ilorin, Nigeria. College of Health Sciences, Osun State University, Osogbo, Nigeria.* Faculty of Basic Medical Sciences, University of Portharcourt, Nigeria.**

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*Department of Pathology & Department of ENT**
*MLB Medical College,(kumaon University), Jhansi, U.P., India-284001*

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*Department of Oral and Maxillofacial surgery*
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*Department of Anatomy, Department of Forensic Medicine & Toxicology***
*Autonomous State Medical College & Hospital, Bahraich*
*King George's Medical University, Lucknow**
*Era's Lucknow Medical College & Hospital, Sarfarazganj Lucknow, U.P., India-226003***

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*Original Article*

ERA'S JOURNAL OF MEDICAL RESEARCH VOL.6 NO.1

DOI:10.24041/ejmr2019.105

# RELATIONSHIP BETWEEN FOOT LENGTH, BODY MASS INDEX, AND HEIGHT IN COMPARISON WITH PHALLUS LENGTH AMONG HEALTHY YOUNG NIGERIAN MEN

**Alabi Ade Stephen, Ogungbesan Ajibola Adesina, Lewu Folashade Susan, Kareem Suwebat Bidemi, Oyewopo Adeoye Oyetunji, Adeleke Opeyemi Samson*, Aigbogun Eric Junior****

*Department of Anatomy*

Faculty of Basic Medical Sciences, University of Ilorin, Nigeria.

College of Health Sciences, Osun State University, Osogbo, Nigeria.*

Faculty of Basic Medical Sciences, University of Portharcourt, Nigeria.**

*Received on : 10-05-2019*
*Accepted on : 16-06-2019*

Address for correspondence

**Dr. Adeleke Opeyemi Samson**
Department of Anatomy
College of Health Sciences, Osun State University, Osogbo, Nigeria
Email: opeyemi.adeleke@uniosun.edu.ng
Contact no: +234-8131323268

## ABSTRACT

Most men have misleading information about the normal penis length so they get depressed thinking what they have is small and most go as far as doing surgery to try increasing the length. The aim of this study was to determine the average penile length and investigate the relationship between penile length and somatometric parameters in a group of healthy Nigerian men.

A total of 200 healthy men were included in the study. The age, height and weight of the subjects were recorded. Penile length was measure in flaccid state. The correlation between penile length and somatometric parameters was analyzed by Pearson s analysis.

The mean age of the subjects was 22.51±2.97 years. The mean penile length in flaccid states was 10.5±0.09cm. There was a weak positive correlation found between penile length and height, weight, and Body mass index respectively ($P \leq 0.001$, for all).

The penile length must be known to be able to determine the abnormal penile sizes and to make convenient decisions in the counseling and treatment of people with short penis concern. These results demonstrate that somatometric parameters are correlated with penile length. We believe that further studies would provide more information about the casual relationship.

**KEYWORDS:** Phallus length, Body mass index, Foot length, Somatometric.

## INTRODUCTION

From the ancient time till date, penis size has been an esoteric and sensitive topic and a regular subject in the art world. It is even represented in artwork by prehistoric cave dwellers. In addition, various penile shaped images were often created by inhabitants of ancient countries like Rome, Turkey, and Greece where special attention is paid to a male sexuality (1). Human penis size refers to the length and width of the human male genitalia (2). Today, increasing numbers of men complain about their penile size and see Urologist day after day wanting a bigger phallus is now the norms of male in this 21st century (3). It is therefore important to recognize this condition before planning any medical or surgical intervention for penis size.

Researchers discovered the high increase in the number of men complaining about their penis size, hence researches are being carried out to reveal the average penis length and also give assurance to several men that they are 'normal'. Most men have the wrong idea when it comes to the normal penis size [4]. It was surprisingly discovered to that 99% of men have a completely flawed idea of what the average penis size actually is (4).

Shamloul studied 92 men who complained of small phallus size at an Egyptian Andrology Clinic in Cairo and found out none actually had a small phallus (5). Moreover, Smiler wonders if size of a penis is just another number we should ignore just like age. Smiler observed that majority, if not all males in their lifetime measures their erect penis at least once especially as a teenage (6). This is the beginning of insecurity in most males because they start thinking they are not big enough and they start having low self esteem issue (4).

The average phallus length needs to be known because at the end of the day, not knowing what is normal can lead to a debilitating and completely self created social handicap (4). Furthermore, knowing the average normal phallus size may help to correct the general

believe that the bigger the penis the better and also increases the chances to conceive a child. More so, majority of people erroneously believed that size of a penis is directly proportional to the height of a man (4) and owing to the rise in aggressive marketing by companies promising a bigger and longer penis through the use of extenders and enlarger, coupled with the presence of free, easily accessible internet pornography, it is glaring to see why men have heightened anxieties about their manhood. Also, knowledge of normal penis length is important for manufacturing of condoms, catheter and for academic research purposes (4).

There are a lot of controversial reports as regards relationship between penis size and foot length/shoe size, finger length and even weight. Some people believe that height has a lot to do with the size or length of the penis while there have been some instances where short males have penis length that is beyond average length (7). In view of these, it is very pertinent to see the relationship between foot length, body mass index and height in comparison with Phallus length among healthy young Nigerian men.

## MATERIALS AND METHODS

### Study Sample:

Two hundred healthy young men (Based on informed consent of the available human subject) were used for this research. All the measurements were taken by the same examiner (to reduce inter-observer error) and the measurements were taken under the same environmental conditions in other to prevent natural variability in size due to temporal factors such as room temperature, time of the day and unreliability of measurement methods.

### Location

This includes the examination of students of University of Ilorin, Kwara State Nigeria, who gave their consent and signed the informed consent form.

### Method of Data Collection

Purposive sampling method was used where young healthy male students of the University of Ilorin aged between 18 to 30years were accosted in the study between August to November 2018. All the males were circumcised.

Those excluded from the study include men with history of penile pathology or congenital abnormalities. The weight and height of the participants were taken. Body mass Index was computed as the ratio of weight to the square of height (kg/m2). The entire participant provided and filled the informed consent form and ethical approval was gotten from the Department of Anatomy, University of Ilorin, Research Ethical Committee.

Owing to the fact that there is no standard technique for penile length measurement, the technique that was described by Wessells et al. was used[8].

Phallus measurements were carried out on the participant between 10:00am and 3:00pm.Under ambient light and room temperature with participants standing up and with the penis held parallel to the floor. Penile length was taken by a ruler with millimeter markings along the dorsum of the penis from the pubopenile junction to the tip of the glans and while under maximal, but not painful extender. The measurement was taken during the flaccid states.

Height was measured using measuring tape while in supine position from the crown (vortex) of the head to the heel while the longest parts of both right and left foot were also measured using measuring tape from the tip of the first toe to the Heels. The subject weight was taken while standing on the weighing scale without the subject looking down. All the measurements were taken twice and then averaged so as to minimize errors.

Body Mass Index (BMI) was computed as the ratio of weight to the square of height (kg/m2).

### Statistical Analysis

The statistical package for social sciences (IBM, Version 23, Armonk, New York, USA) was used. Results were computed using descriptive statistic and Pearson correlation analysis (r or two tailed pearson correlation coefficient).The paired t-test was applied to compare numeric data. A.p value less than 0.05 was considered significant. Mean plus standard deviation, maximum, minimum and pearson s correlation was used to analyse the data.

## RESULTS

### Data Presentation

The anthropometric variables of human subjects were presented as mean±S.D, minimum and maximum.

| Variables | Age (yr) | Weight (kg) | Height (m) | Foot length (m) | BMI (kgm-2) | Phallus length |
|---|---|---|---|---|---|---|
| Mean | 22.51±2.97 | 68.95±11.79 | 1.66±0.14 | 0.40±0.03 | 25.54±6.1 | 0.105 |
| Min. | 19.00 | 32.00 | 1.32 | 0.30 | 11.35 | 0.04 |
| Median | 22.00 | 70.00 | 1.65 | 0.40 | 24.92 | 0.09 |
| Max | 30.00 | 98.00 | 1.91 | 0.48 | 44.21 | 0.92 |

***Table 1: Mean ± S.D, Minimum And Maximum Values Of The Subjects***

| Variables | P-value | Inference |
|---|---|---|
| BMI | 0.097<br>0.174 | Not significant |
| Height | 0.587<br>0.045 | Significant |

***Table 2: Correlation Between The Measured Dimensions***

| Variable | Mean±S.D | Minimum | Maximum |
|---|---|---|---|
| Height(m) | 1.66±0.14 | 1.32 | 1.91 |
| Phallus length(m) | 0.105±0.09 | 0.04 | 0.92 |

***Table 3: Mean±S.D, Minimum And Maximum Values Of Human Subjects***

| Variables | R | $R^2$ | P-value | R |
|---|---|---|---|---|
| Phallus length | 0.587 | 34.51% | 0.045 | 162.43 |
| Height | 0.587 | 34.51% | 0.045 | 40.19 |

***Table 4: Regression Equation For Estimating Height From Phallus Length Of Human Subject***

**Data Analysis**

Result from Table 1 shows the Mean±S.D, minimum and maximum values of the measured dimensions of the human subjects, the mean penile length and age of the study group were 10.5±0.09 and 22.51±2.97 years respectively while the average weight was 68.95±11.79kg. The BMI and height are 25.54±6.17kgm-2 and 1.66±0.14m respectively.

Table 2 represents the correlations between the measured parameters i.e. correlation of phallus length with height, BMI and foot length of the human subjects. No significant difference in subjects' height while positive significant correlation was observed in subjects BMI.

Moreover, Table 3 shows the minimum and maximum values of the measured dimensions of the human subjects. There was a positive correlation between the penile length and height (r=0.587; P=0.045). Furthermore, result from Table 4 estimate the subject height from phallus length and the phallus length from the subject height. Here, estimation of height can be gotten from penile length and the phallus length can be measured and significant correlation was seen between height and phallus length

**DISCUSSION**

Penis size is a symbol of masculinity, and the perception of having a large penis has been linked to higher self-esteem and power. Paintings, drawings and other art objects from both Eastern and Western cultures over 1000 years ago attest to this fact. Today, many men place great importance on the size of their penis in both the erect and flaccid states. Recently, increasing numbers of men complain about their penis size. Measurements of penis have great importance because the collection and reporting of scientific data have been used to address the concerns of men with regard to their normality (9), particularly in response to increased reported dissatisfaction with phallus dimensions and increased request for surgical enhancement. Are these men candidates for "small penis syndrome"? Possibly, but this is unlikely.

Fortunately, most of them have penis sizes within normal limits. In a large Internet based survey of 52,031 heterosexual men and women, most men rated their penis as average sized (66%), and only 12% rated their penis as small. Science cannot remain silent while the expectations of men are increasing. As a result, more studies have tended to focus on this topic, especially in regard to the physical characteristics of penis size and how it may be influenced by related somatometric parameters.

Measurements of penile length are generally made during flaccid, stretched and erect states. Relevant literature suggests that measurements of a stretched and flaccid penis provide a reliable estimate of its erect size; hence, there is no need to measure penile length during an erection. In 1899, the first study about penile length was reported by Loeb, and the average flaccid penile length was 9.41cm (10). In 1942, Schonfield and Beebe found the average penile length to be 13.1cm in a stretched state (11). Kinsey *et al*. published his hallmark paper about penile length (12) while Ponchietti *et al*. published the largest study in the literature about penile length (13). The first data from a Turkish population were reported in 2002 by Sengezer *et al* (14). No study has been previously done in Nigeria. The above mentioned studies tried to determine normal penile length. However, the variability among these values reflects the diversity of populations that was studied and the different measurement techniques.

A few reports in the literature have investigated the relationship between penile length and somatometric parameters. Shah and Christopher reported no correlation between shoe size and penile length (15). Ponchetti *et al*. found a positive correlation between somatometric parameters (height, weight and BMI) and penile length in their study (13). In a large internet based survey, self reported penis size was found to be positively correlated with height and negatively correlated with body fat. In another study, authors reported a significant correlation among age, height, index finger length and penile dimensions, but no significant effect of waist hip ratio or weight. In the present study, weak positive correlations were found between penile length (flaccid) with height, weight, and BMI. Both the international literature and our results demonstrate that there is no exact association

between penile length and somatometric parameters. We believed that these results may demonstrate variability among different populations.

A number of male genital tract organs depend on androgens to promote growth and development. Penile growth before birth, during childhood and during puberty, is strongly influenced by testosterone and is completed by the end of puberty. In one study, patients who complained about a small penis size were asked when they believed the problem started. Most (62.7%) reported that their concern began in childhood and continued during teenage years after seeing pornographic images. Size related concerns should be approached cautiously before surgical planning for penis enlargement, and urologist must know the normal penile length in their specific population. The results suggest that somatometric parameters such as height, weight, and BMI are related to penile length, even if this relationship is not of clinical significance. We believe that further studies would provide more information about this casual relationship.

## CONCLUSION

Most men have misleading information about the normal penis length so they get depressed thinking what they have is small and most go as far as doing surgery to try increasing the length and from researches we have seen that those complaining about small penis usually have a normal penis length. Thus, in this study, there was no correlation between foot length and phallus length likewise no correlation between BMI and phallus length but there is correlation between height and phallus length with little or no clinical importance. Further studies should be carried out with higher sample size.

## ACKNOWLEDGMENT

The authors would like to appreciate all young men volunteers who make themselves available in making this research a reality, we say thank you.

### Human and Animal Rights

All experimental procedures in this study conformed with both ethical standards of the responsible committee on human experimentation (institutional and national) and the Helsinki Declaration of 1975, as revised in 2008. All participants provided informed consent and the ethical approval was gotten from the Department of Anatomy, University of Ilorin, Research Ethical Committee.

### Financial Disclosure

No funding source for this research.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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**How to cite this article** : Stephen A.A, Adesina O.A, Susan L.F, et al. Relationship Between Foot Length, Body Mass Index, And Height In Comparison With Phallus Length Among Healthy Young Nigerian Men. Era J. Med. Res. 2019; 6(1): 22-25.