

# Foot Index in Right Footed Adults

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Quantitative analysis of foot anthropometry is important to the study of ergonomics, orthotics designing and forensic science. This short communication is in reference to our previously published paper on foot anthropometry titled "A Study of foot anthropometry in right footed Indian Population" [1]. On hindsight we decided to carry out the research further and calculate the foot index of the 140 right footed males (total 150) and 130 right footed females (total 150) in relation to footedness. The foot parameters, foot length and foot breadth had been taken in 300 adults using an osteometric board. Footedness is one's preference to put one's left or right foot forward in surfing and completing task. Footedness was analyzed by

- By kicking the ball.
- Preference of subject's foot (right or left) to initiate the walking pattern or gait.

Parameter (cm)	Side	Male (Mean±SD)	Female (Mean±SD)	p-value
Foot index	RF	36.76±1.84	36.00±2.17	0.79
(Fl)	8.28	36.63±2.00	36.68±2.13	0.99

**[Table/Fig-1]:** Comparison of foot parameters in right footed males and females

Author	Population	Sex	No.	Foot Index (Mean±SD)		Foot p-value
				Right Foot	Left Foot	
Present study	Medical students	M	140	36.76±1.84	36.63±2.00	p>0.05
		F	130	36.00±2.17	36.68±2.13	p>0.05
Jaydip Sen et al.,[2]	Bengal (Rajbanshi)	M	175	41.32±1.8	41.30±1.8	
		F	175	40.48±2.1	40.50±2.1	
Kewal Krishan et al.,[3]	Himachal Pradesh	M	123	38.89±2.2	38.65±2.1	
		F	123	38.17±2.1	37.93±1.9	
Agnihotri et al.,[4]	Mauritius Populations	M	125	36.90±0.54	36.91±0.54	
		F	125	37.79±0.50	37.62±0.52	
Barnabas et al.,[5]	Nigerians	M	250	34.17±2.67	34.28±2.19	p<0.05
			150	33.65±2.19	32.60±2.35	p<0.001

**[Table/Fig-2]:** Comparison of foot indices in right footed males and females with those of previous workers

Foot index was calculated using the formula:

$$\text{Foot Index} = \frac{\text{Foot breadth} \times 100}{\text{Foot length}}$$

The foot indices of right footed subjects were statistically analyzed using SPSS software, tabulated and co-related with each other [Table/Fig-1].

The mean right foot index was found to be more in males in studies by Jaydip sen et al., [2] and Kewal Krishan et al., [3] in accordance with our observations. However [4] Barnabas et al., [5] on Nigerians and Agnihotri et al., [4] observed higher mean foot indices on left side in males. In accordance with Jaydip Sen et al., [2] we found mean left foot index more than right in females [Table/Fig-2].

Our results disagree with the Agnihotri et al., [4] (Mauritian population) and Barnabas et al., [5] (Nigerian population) who observed higher foot index on left side in males and higher foot index on right side in females. This may be because of environmental and genetic differences. Somatic asymmetry is well known and widespread in the animal kingdom. It was suggested by some authors that sex hormones may affect the growth of the two sides of the body differentially. It was reported that in right-handers, the right foot was more often larger in males, while the left foot was larger in females [6].

We have observed the right foot index to be more in right footed males whereas the left foot index was more in right footed females. Our research needs to be correlated with handedness to support these observations.

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