

**INDEXED BY:**

INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
ADVANCED SCIENCES INDEX (ASI) -GERMANY  
INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)

**A COMPARATIVE STUDY OF PLANTAR PRESSURE DISTRIBUTION  
BASED ON SELECTED BIOMECHANICAL PARAMETERS OF  
FOOTBALL PLAYERS<sup>p.p:21-35</sup>**



**Bhandari Arun<sup>1\*</sup>**

<sup>1</sup>Research Scholar, Department of Sports Biomechanics, LNIPE, Gwalior (M.P), India.

<sup>2</sup>Professor, Department of Sports Biomechanics, LNIPE, Gwalior, (M.P), India.

\*Corresponding Author: Bhandari Arun

Email: [arunbhandari09@gmail.com](mailto:arunbhandari09@gmail.com)



**Singh Joseph<sup>2</sup>**


**ABSTRACT**


The main objective of the study was to compare the planter pressure distribution based on selected biomechanical parameters of football players. A total of 14 subjects agreed to participate in the study and were present during the process of introduction to the pressure platform, familiarization, and collection of data. A total of 14 subjects, 7 right foot dominant and 7 left foot dominant male players participated in the study. (Mean  $\pm$  SD; age  $19 \pm 1.2$  years; height  $165 \pm 8$  cm; body mass  $66.8 \pm 7$  kg; fat percentage (%)  $13.2 \pm 2.4$ ) for male athletes. The study was conducted during the off-season after the completion of the university games. Inclusion criteria for the study were the absence of major lower limb injury in the past 6 months, any other recent injury, or neuromuscular disorder that could potentially limit performing jumps. In Arch index ( $p < 0.05$ ) showed a significant difference between right-leg dominant and left-leg dominant football players and other variables Maximum Pressure, Average Pressure, Surface Area Coverage, Center of Pressure ( $p > 0.05$ ) showed no significant difference between right leg dominant and left leg dominant football players.


**Keywords:** Maximum Pressure, Average Pressure, Surface Area Coverage, Center of Pressure, and arch index.


**INTRODUCTION**

Soccer is a demanding, high-intensity sport that requires considerable endurance, agility, speed and strength. The core component of moving in soccer is running, with an

 -INDIA

 TOGETHER WE REACH THE GOAL-INDIA

 -UAE

 -GERMANY

Page 21

**‘Curiosity is the best Quality of a Good Researcher’**

**INDEXED BY:**

**INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE**

**ADVANCED SCIENCES INDEX (ASI) -GERMANY**

**INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA**

**SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPSS**

IRJPSS Research Journal Impact Factor (ISRA & SJIF): 7.436  
Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPSS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)

average distance of 10 km covered during a match. Running in soccer is highly cyclical and unstructured. It comprises quick accelerations, slow jogs, jumps, lunges and instantaneous changes in direction with and without the ball. Hence, involvement in soccer on a professional level may induce significant loads on the osteoarticular and muscle systems not seen in typical running modalities(Nicola Maffulli, 2011).The human foot is integral to upholding the biomechanical dynamics of the lower extremities, encompassing the essential roles of equilibrium maintenance and bodily stabilization throughout the gait cycle (Giacomozzi, 2010)The anatomical regions where most injuries occur are the knee joint, ankle joint, thigh, groin, hip joint and foot (Höltke, 2005).The lowering of the center of gravity in the mid foot occurs in sprinting during the first and second half-straight, while the lateral side of the foot is the most loaded during the kick (Strey, 2004). Being a footballer and having a high arch index is also a major cause of injury, the negative relationship between arch height and muscle power of lower limbs in adult men (PhD, 2022).The ability to maintain single limb support has previously been identified as an important determinant of gait stability and current indices of temporal symmetry may partially reflect this challenge (a & Eng, 2003). The centre of pressure (COP) represents the cumulative neuromuscular response that controls the centre of mass (COM) movement to help maintain forward progression and upright balance. The anterior-posterior (AP) COP trajectory can reveal how the center of mass (COM) is managed during forward movement in the stance phase. In contrast, medial-lateral (ML) COP movement primarily reflects the processes involved in maintaining lateral stability, especially during the single-support phase, and the ability to shift weight from one limb to the other. Furthermore, as walking speed increases, changes in the COP trajectory may occur due to a reduction in single-support time, potentially offering insights into mechanisms of gait dysfunction (a, a, b, a, & Kauler, 2018).

**DESIGN OF THE STUDY**

In this study, authors investigated the footballer's Maximum Pressure, Average Pressure, Surface Area Coverage, Center of Pressure, and arch index. Fourteen male footballers were recruited for the study including 7 right leg dominant and 7 left leg dominant.

ISRA  
JIF  
-INDIA

Scientific Journal  
Impact Factor

TOGETHER WE REACH THE GOAL-INDIA

INTERNATIONAL  
Scientific Indexing  
-UAE

ADVANCED SCIENCES INDEX  
-GERMANY

Page 22

**‘Curiosity is the best Quality of a Good Researcher’**

**INDEXED BY:**

INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)


A total of 14 subjects agreed to participate in the study and were present during the process of introduction to the pressure platform, familiarization, and collection of data. A total of 14 subjects, 7 right foot dominant and 7 left foot dominant male players participated in the study. (Mean ± SD; age 19 ± 1.2 years; height 165 ± 8 cm; body mass 66.8 ± 7 kg; fat percentage (%) 13.2 ± 2.4) for male athletes. The study was conducted during the off-season after the completion of the university games.

**Selection of Variables:**

- Maximum pressure of both legs.
- Average pressure of both legs.
- Arch index of both legs.
- Centre of pressure of both the legs.
- Surface area coverage.
- Stability of both legs.
- Centre of pressure distance of each leg.
- Centre of speed.


**TABLE 1**

MAXIMUM PRESSURE DESCRIPTIVE		
	LEFT FOOT	RIGHT FOOT
Mean	38.4333333	42.8333333
Standard error	4.05616129	3.68995634
Median	39.05	38.4
Mode	N/A	9.0385102
Standard deviation	9.93552549	81.6946667
Kurtosis	-0.4502187	-1.23709086
Skewness	0.43665677	0.97151354
Range	26.3	21.5
Minimum	27.5	35
Maximum	53.8	56.5




**ISRA**  
**JIF**

-INDIA




Scientific Journal  
Impact Factor

TOGETHER WE REACH THE GOAL-INDIA



INTERNATIONAL  
Scientific Indexing

-UAE



ADVANCED  
SCIENCE  
INDEX

-GERMANY

Page 23

‘Curiosity is the best Quality of a Good Researcher’

**INDEXED BY:**

INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)

Table 1 indicates description of maximum pressure for left and right foot dominant players. And the mean Maximum pressure of left foot dominant players has been found (38.43kPa) and for right foot dominant players it is found to be (42.83kPa), the standard error for left foot dominant players has been found (4.05) and standard error for right foot dominant players has been found (3.68). The maximum pressure for left foot players has been found (53.8kPa) and for right foot dominant players was found to be (56.5kPa).


**TABLE 2**

AVERAGE PRESSURE DESCRIPTIVE		
	LEFT FOOT	RIGHT FOOT
Mean	9.5833333	11.76666667
Standard error	0.9693354	0.750851369
Median	8.85	11.6
Mode	N/A	N/A
Standard deviation	2.3743771	1.839202726
Sample variance	5.6376667	3.382666667
Kurtosis	2.7653503	1.5554022
Skewness	1.6088913	1.133451572
Minimum	7.4	9.9
Maximum	14	15


Table 2 indicates description of average pressure for left and right foot dominant players and the mean of Average pressure of left foot dominant players has been found (9.58kPa) and for right foot dominant players found to be (11.76kPa), the standard error for left foot dominant players has been found (0.96) and standard deviation for right foot dominant players has been found (0.75) and the maximum average pressure for right foot dominant players was found to be (15kPa) and for left foot dominant players has been found (14kPa).



-INDIA



TOGETHER WE REACH THE GOAL-INDIA



-UAE



-GERMANY

Page 24

‘Curiosity is the best Quality of a Good Researcher’

**INDEXED BY:**

INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)

**TABLE 3**

SURFACE AREA COVERAGE DESCRIPTIVE		
	LEFT FOOT	RIGHT FOOT
Mean	97	111.833333
Standard error	6.356099433	4.27720054
Median	92.5	109
Mode	N/A	109
Standard deviation	15.56920036	10.4769588
Kurtosis	0.869828938	-0.76793489
Skewness	0.863280949	0.08072317
Range	45	97
Minimum	78	125
Maximum	123	

Table 3 indicates description of surface area coverage for left and right foot dominant players and the mean of Surface area coverage of left foot has been found **97** and for right foot found to be **111.83**, the standard error for left foot players has been found **6.35** and standard error for right footed players has been found **4.27** and the maximum surface area coverage for right foot players was found to be **123** and for left foot players was nil.

**INDEXED BY:**  
 INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)

**TABLE 4**

CENTRE OF PRESSURE DESCRIPTIVE		
	LEFT FOOT	RIGHT FOOT
Mean	298.066667	257.3333333
Standard error	21.3464387	23.00137194
Median	304.05	259.75
Standard deviation	52.2878826	56.34162464
Kurtosis	1.76664669	1.100618739
Skewness	-0.9301369	0.895727295
Minimum	207.6	198.5
Maximum	363	353.5

Table 4 shows description of Centre of pressure for left and right foot dominant players. And the mean of center pressure of left foot has been found as **298.06** and for right foot found as **257.33**, the standard error for left foot players has been found **21.34** and standard error for right foot players has been found **23.00** and the maximum center of pressure for left foot players it has been found as **363** and for right foot players was found to be **353.5**.




**ISRA  
JIF**  
-INDIA



Scientific Journal  
Impact Factor

TOGETHER WE REACH THE GOAL-INDIA



INTERNATIONAL  
Scientific Indexing  
-UAE



ADVANCED  
SCIENCE  
INDEX  
-GERMANY

Page 26

‘Curiosity is the best Quality of a Good Researcher’

**INDEXED BY:**

INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)

**TABLE 5**

ARCH INDEX DESCRIPTIVE		
	LEFT FOOT	RIGHT FOOT
Mean	13.66	24
Standard error	2.34860952	0.71389542
Median	13.18	24.35
Standard deviation	5.75289492	1.7486795
Sample variance	33.0958	3.05788
Kurtosis	-0.77495018	-2.4069055
Skewness	0.24754397	-0.2646488
Range	15.76	4
Minimum	6.19	21.91
Maximum	21.95	25.91

Table 5 shows description of arch index for left and right foot dominant players. And the mean of arch index of left foot has been found as **(13.66)** and for right foot found to be **(24)**, the standard error for left footed players has been found **(2.34)** and standard deviation for right footed players has been found **(0.71)** and the maximum arch index for left foot players has been found to be **(21.95)** and for right foot players has been found **(25.91)**.

**INDEXED BY:**

INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)

**TABLE 6**


T-test (Maximum Pressure)		
	LEFT FOOT	RIGHT FOOT
Mean	38.43333333	42.83333333
Variance	98.71466667	81.69466667
Observations	6	6
Pooled variance		90.20466667
Hypothesized mean difference		0
df		10
t Stat		0.802414561
P(T<=t) one-tail		0.220482948
t Critical one-tail		1.812461123
P(T<=t) two-tail		0.440965897
t Critical two-tail		2.228138852

The above table shows comparison of maximum pressure between left foot and right foot dominant players. The **t stat value** is **0.8024** and the **t critical two tail value** is **2.2281**. The “t stat” value is less than the “t critical two tail” thus the alternate hypothesis in this case is rejected as no significant difference is found between the compared groups included in the study.



**ISRA**  
**JIF**

-INDIA



Scientific Journal  
Impact Factor

TOGETHER WE REACH THE GOAL-INDIA



INTERNATIONAL  
Scientific Indexing

-UAE



ADVANCED  
SCIENCE  
INDEX

-GERMANY

Page 28

‘Curiosity is the best Quality of a Good Researcher’



**INDEXED BY:**  
 INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)

Table 7

T-TEST (AVERAGE PRESSURE)		
	LEFT FOOT	RIGHT FOOT
MEAN	9.583333333	11.76666667
VARIANCE	5.637666667	3.826666667
df		10
t Stat		1.780673835
P(T<=t) one-tail		0.052655837
t Critical one-tail		1.812461123
P(T<=t) two-tail		0.105311674
t Critical two-tail		2.228138852


The above table shows comparison of average pressure between left foot and right foot dominant players. And the results are **t-stat value** is **1.7806** and the **t-critical two tail value** is **2.2281**. The “t stat” value is less than the “t critical two tail” thus the alternate hypothesis in this case is rejected as no significant difference is found between the comparison groups included in the study.



-INDIA



TOGETHER WE REACH THE GOAL-INDIA



-UAE



-GERMANY

Page 29

‘Curiosity is the best Quality of a Good Researcher’

**INDEXED BY:**  
 INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034


© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)

**Table 8**

T-Test (Surface Area Coverage)		
	LEFT FOOT	RIGHT FOOT
Mean	97	111.8333333
Variance	242.4	109.7666667
Observations	6	6
Pooled variance		176.0833333
Hypothesized mean difference		0
df		10
t Stat		1.936155607
P(T<=t) one-tail		0.040799395
t Critical one-tail		1.812461123
P(T<=t) two-tail		0.08159879
t Critical two-tail		2.228138852


The above table shows comparison of surface area coverage between left foot and right foot dominant players. And the result is **t stat value** is **1.9361** and the **t critical two tail value** is **2.2281**. The “t stat” value is less than the “t critical two tail” thus the alternate hypothesis in this case is rejected as no significant difference is found between the comparison groups included in the study.




**ISRA  
JIF**  
-INDIA



Scientific Journal  
Impact Factor  
TOGETHER WE REACH THE GOAL-INDIA



INTERNATIONAL  
Scientific Indexing  
-UAE



ADVANCED  
SCIENCE  
INDEX  
-GERMANY

Page 30

‘Curiosity is the best Quality of a Good Researcher’

**INDEXED BY:**

INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034


© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)


**Table 9**

<b>T-TEST (CENTRE OF PRESSURE)</b>		
	LEFT FOOT	RIGHT FOOT
Mean	257.3333333	298.0666667
Variance	3174.378667	2734.022667
df		10
t Stat		1.298047493
P(T<=t) one-tail		0.111705165
t Critical one-tail		1.812461123
P(T<=t) two-tail		0.223410331
t Critical two-tail		2.228138852


The above table shows comparison of centre of pressure between left foot and right foot dominant players. And the result is **t stat value** is **1.298** and the **t critical** two tail value is **2.2281**. The “t stat” value is less than the “t critical two tail” thus the alternate hypothesis in this case is rejected as no significant difference is found between the comparison groups included in the study.




**ISRA  
JIF**  
-INDIA



Scientific Journal  
Impact Factor  
TOGETHER WE REACH THE GOAL-INDIA



INTERNATIONAL  
Scientific Indexing  
-UAE



ADVANCED  
SCIENCE  
INDEX  
-GERMANY

Page 31

‘Curiosity is the best Quality of a Good Researcher’

**INDEXED BY:**

INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)

**TABLE 10**


<b>T-TEST (ARCH INDEX)</b>		
	LEFT FOOT	RIGHT FOOT
Mean	13.66	24
Variance	33.0958	3.05788
Observations	6	6
Hypothesized mean difference		0
df		10
t Stat		4.21230597
P(T<=t) one-tail		0.00089668
t Critical one-tail		1.812461123
P(T<=t) two-tail		0.00179335
t Critical two-tail		2.228138852

The above table shows comparison of arch index between left foot and right foot dominant players. And the results are **t stat** value is **4.2123** and the **t critical** two tail value is **2.2281**. The “t stat” value is more than the “t critical two tail” thus the alternate hypothesis in this case is “**failed to reject**” as there is significant difference between the comparison groups included in the study.


**INSTRUMENT RELIABILITY**

It can measure plantar pressure in static and dynamic phases. The machine supplies quantitative information on plantar support through the calculation of parameters such as foot contact area, maximum pressure, average pressure, and center of pressure. This test helps diagnose the existence of postural and walking alterations, to observe the benefit from the use of insoles and prostheses and to assess the pressure on the foot of players included in the study.

Our purpose for the study was to find the static analysis of planter pressure between the left leg dominated and right leg dominated football players. The players stand still for a few seconds in the center of the platform while the system measures




**-INDIA**



TOGETHER WE REACH THE GOAL-INDIA



**-UAE**



**-GERMANY**

Page 32

‘Curiosity is the best Quality of a Good Researcher’

**INDEXED BY:**

INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)


pressure distribution, contact surface and COP oscillations. This data allows for accurate evaluation of the ground contact, pressure, and balance variations in the static position.




**Administration of Test**

The difference between left dominant players and right dominant players was administered on BTS pressure platform with the help of BTS G-Walk software. The player stands still for 10 seconds in the center of the platform while the system measures pressure distribution, contact surface and COP oscillations. This data allows for accurate evaluation of the ground contact and balance variations in the static position.







-INDIA



TOGETHER WE REACH THE GOAL-INDIA



-UAE



-GERMANY

Page 33

‘Curiosity is the best Quality of a Good Researcher’

**INDEXED BY:**

INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
ADVANCED SCIENCES INDEX (ASI) -GERMANY  
INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
Research Unique Number (RUN): 16.09.2022.2034

© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)

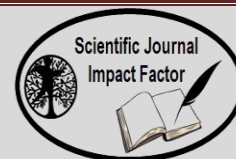


**DISCUSSION AND FINDING**

In Arch index ( $p < 0.05$ ) showed a significant difference between right-leg dominant and left-leg dominant football players because right-leg dominant and left-leg dominant players may have different foot structures. Dominance could lead to variations in arch height and foot alignment due to differential loading patterns over time. The dominant leg might develop stronger and more flexible muscles, affecting the foot's arch support. Dominant legs are often used more frequently for kicking, pivoting, and stabilizing, leading to unique stress and wear patterns on the foot arch. Due to compensatory mechanism players may develop compensatory postures to optimize performance with their dominant leg, which can impact the structure and function of the foot arch. Right-leg dominant players might use specialized footwear or insoles differently than left-leg dominant players, affecting arch development and measurement. The lack of significant difference in Maximum Pressure, Average Pressure, Surface Area



-INDIA



TOGETHER WE REACH THE GOAL-INDIA



-UAE



-GERMANY

**INDEXED BY:**

INTERNATIONAL SCIENTIFIC INDEXING (ISI) -UAE  
 ADVANCED SCIENCES INDEX (ASI) -GERMANY  
 INTERNATIONAL SOCIETY FOR RESEARCH ACTIVITY (ISRA) -INDIA  
 SCIENTIFIC JOURNAL IMPACT FACTOR (SJIF)–INDIA @AUGUST2024IRJPRESS

IRJPRESS Research Journal Impact Factor (ISRA & SJIF): 7.436  
 Research Unique Number (RUN): 16.09.2022.2034


© 2024 IRJPRESS

Website: [www.sportjournals.org.in](http://www.sportjournals.org.in)


Coverage, and Center of Pressure between right-leg dominant and left-leg dominant football players can be attributed to symmetrical training regimens. The nature of football requires frequent use of both legs for various tasks, promoting symmetry in pressure and load distribution. The body may naturally compensate for dominant leg activities, ensuring that both legs handle pressure and load similarly to maintain balance and prevent injury. Mostly footballers used, orthotics are often designed to provide balanced support and pressure distribution for both feet. The inherent variability in pressure and coverage data might be low, making it harder to find significant differences.

**REFERENCES**


- C. K., & Eng, J. J. (2003). Symmetry in vertical ground reaction force is accompanied by symmetry in temporal but not distance variables of gait in persons with stroke. *Gait & Posture*, 23-28.
- S. V., P. K., b, Z. S., a, R. K., & Kauler, J. (2018). Gait symmetry measures: A review of current and prospective methods. *Biomedical Signal Processing and Control*, 89-100.
- Giacomozzi, C. (2010). Appropriateness of plantar pressure measurement devices: A comparative technical assessment. *Gait & Posture*, 141-144.
- Höltke, T. S. (2005). Injuries and overload-damages at players of the German lady-soccer-national-team. *Sportver-letz. Sportschaden Organ Der Ges. Fur Orthop. Traumatol. Sportmed*, 33-36.
- Nicola Maffulli, U. G. (2011). Aetiology and prevention of injuries in elite young athletes. *Medicine and sports science*, 187-200.
- PhD, X. Z. (2022). Do Arch Height and Arch Stiffness Relate to Physical Performance in Adult Men? *The Journal of Foot and Ankle Surgery*, 259-263.
- Strey, E. E. (2004). Characteristic Plantar Pressure Distribution Patterns during Soccer-specific Movements. *The American Journal of Sports Medicine*, 140-145.




-INDIA



TOGETHER WE REACH THE GOAL-INDIA



-UAE



-GERMANY

Page 35

‘Curiosity is the best Quality of a Good Researcher’