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An Awareness and Approach Towards Calcaneal Spur Among Female Having Prolonged Standing Work

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Abstract

Introduction: Calcaneal spur, also known as heel spur, is a condition where a bony outgrowth forms on the heel bone. It can affect both men and women. Women, especially those with prolonged standing jobs, may be more prone to developing calcaneal spurs due to the continuous pressure on the feet. Wearing proper footwear, maintaining a healthy weight, and incorporating foot exercises into a routine can help manage and prevent calcaneal spurs in women and others at risk. Consultation with a healthcare professional is advised for accurate diagnosis and tailored treatment recommendations.

An Awareness and Approach Towards Calcaneal Spur Among Female Having Prolonged Standing Work may vary. It's essential to consider factors such as education, awareness programs, and access to healthcare in influencing their understanding and approach towards managing this condition. Employers can play a role in promoting foot health and providing ergonomic solutions to alleviate discomfort associated with prolonged standing.

Physiotherapy plays a crucial role in the treatment of calcaneal spur by focusing on pain management, improving flexibility, and strengthening the affected area. Therapeutic exercises, stretching routines, and manual therapies can help alleviate symptoms, reduce inflammation, and enhance overall foot function. Additionally, physiotherapists may provide advice on footwear and lifestyle modifications to prevent further strain on the heel. Regular sessions with a

physiotherapist can contribute to a comprehensive and tailored approach to managing calcaneal spur.

Material and Methodology: Online Questionnaire was circulated in the form of Google Forms. The study population was composed of 150 individuals with age group between 20-60 years of age.

Results: This Survey was done to check the Awareness and attitude towards calcaneal spur among women having prolonged standing jobs. On studying the data analysis, we found that different questions focused on different amount of Awareness each individual possesses. Mean difference =2.600. The 95% confidence interval of the difference: 2.072 to 3.128.

Conclusion: Lack of Awareness was concluded among the prolonged standing working women regarding the ways to prevent the forming of the calcaneal spur and its early symptoms.

Keywords: Older Adults, Women, Heel Pain, foot skeleton.

Introduction

The calcaneus, which acts as the posterior pillars for the bony arches of the foot, is a significant component of the foot skeleton. The largest of the seven tarsal bones in the foot is what gives the heel its prominence. Anterior to the calcaneal tuberosity, a calcaneal spur with a total width of around 2-2.5 cm has frequently been observed. Prior to its emergence, the spur's apex can be seen embedded in the plantar fascia. As a result, calcaneal spur study has been conducted. The spur's peak is enclosed in the plantar fascia just anterior to its origin. Enthesophyte development occurs at the site where ligaments and tendons attach to bone. It typically grows in the direction of the downwards pull of the tendons. The German doctor Plettner, who named the condition "osseous spurring of the plantar aspect of the calcaneus," originally described it in 1900. [1] Calcaneal spurs come in two varieties: plantar/inferior spurs and dorsal/posterior spurs. Clinically, it may continue to be asymptomatic or cause impairing heel pain.[2] They most likely indicate differences in the calcaneus' typical development.[3] Though extremely diverse, PCS's physical appearance can be largely bifurcated into two categories: simple or irregular.[4] Simple PCS are triangle structures featuring a large base and a sharp end.[5] They have clearly defined smooth sclerotic cortical margins and trabeculae that have been well-developed.[6] Contrarily, irregular spurs lack distinct trabeculae and have ill-defined edges. [7] Plantar spurs develop as a result of prolonged standing and extra weight, whereas dorsal spurs are partly caused by extended activity. [8] People who indulge in activities like running, ballet, or work in occupations that involve continuous standing, like barbers, dentists, police officers, and store personnel, are more prone to develop heel spurs, which can also result from trauma from using the wrong shoes. [9] Obese people, older adults, women, and those with a diminished plantar heel fat pad are more likely to experience it. Instead of infectious factors, it is dependent on mechanical elements.[10] The plantar heel spur is an osteophytic bone growth that extends in front of the tuberocyte of the calcaneus, and the dorsal heel spur is an osteophytic degeneration of the achilles tendon where the calcaneus enters on the dorsal aspect.[11] Plantar and dorsal heel spurs can be quite painful, although they can also be present without showing any symptoms. They are typically observed in conjunction with achilles tendinitis and plantar fasciitis. [12] German physician Plettner used the term "heel spur" in 1900 to refer to the growth of exostotic bone on the plantar side of the calcaneus.[13] This development is an osteophytic growth that extends beyond the tuberocyte of the

calcaneus by at least 2 millimetres.[14] These spurs, which are also known as entesophytes, are implanted in the plantar fascia at their tops.[15] they arise where the ligaments and tendons adhere to the bone.

The plantar fascia's insertion into the calcaneum is repeatedly pulled, causing inflammation and reactive ossification of the enthesis, which leads to the spur creation. [16] However, it can also be explained by vertical compression rather than traction.[17] It has been hypothesised that those who do suffer discomfort with Posterior calcaneal spur do so for a variety of reasons, including the size, form, nerve compression, and accompanying inflammation, as well as if the Posterior calcaneal spur is weight-bearing or whether a micro fracture is present. [18] Body mass index (BMI) and Posterior calcaneal spur are two characteristics connected to chronic plantar heel pain, according to two meta-analyses. Additionally, there is some evidence of a connection between ageing, decreased ankle dorsiflexion, and extended periods of standing. [19] Spurs are a prevalent symptom of all arthritis, with estimates for osteoarthritis patients reaching 80% and rheumatology patients older than 61 years reaching 72%.[20]

Method

Permission will be taken by the participant, where the study will be conducted. Based on the inclusion and exclusion criteria, sample population was selected. The procedure of the study was explained to the participants. A consent form was filled out by those who were willing to participate in the study. Then a self-made questionnaire was given to participants who had filled out the consent form. It was provided in online mode. Subjects should be given instructions to fill out the questionnaire. After that, responses were collected and on the basis of responses, statistical data was analysed. At last, results and conclusions were determined.

Statistical Analysis and Result

- Percentage for each demographic variable was calculated.
- Data was calculated.
- MS Excel was used for drawing various graphs with given frequencies and for master chart.

What is your work experience in long standing	Frequency	Percent
1-5yrs	11	15.9
10-15yrs	11	15.9
15 yrs	37	53.6
5-10 yrs	10	14.5
Total	69	100.0
How long do you stand while you are working?	**Frequency**	**Percent**
4-6 hours	19	27.5
6-8 hours	13	18.8
Less than 4 hours	22	31.9
More than 8 hours	15	21.7
Total	69	100.0
Whom have you consulted for your problem?	**Frequency**	**Percent**
None	42	60.9
Other	8	11.6
Physiotherapist	8	11.6
Total	69	100.0
Which side of your shoe's sole is more worn out/ flattened?	**Frequency**	**Percent**
Both equal	25	36.2
Left Sole	8	11.6
None	18	26.1
Right Sole	18	26.1
Total	69	100.0
Does your heel pain vary with the number of working hours you stand for? If yes, then by how many hours ?	**Frequency**	**Percent**
4-6 hours	19	27.5
6-8 hours	13	18.8
Less than 4 hours	22	31.9
More than 8 hours	15	21.7
Total	69	100.0
Does your pain tend to aggravate on weight bearing/ standing continuously on putting weight on one foot?	**Frequency**	**Percent**
Extremely	9	13.0
Moderately	28	40.6
None	10	14.5
Slightly	22	31.9
Total	69	100.0
What type of footwear do you wear while working?	**Frequency**	**Percent**
Firm Sole	18	26.1
Hard Sole	3	4.3
I do not	7	10.1
Soft sole	41	59.4
Total	69	100.0
Do you take rest after experiencing pain?	**Frequency**	**Percent**
Never	6	8.7
On maximum pain	11	15.9
Sometimes	37	53.6
Usually	15	21.7
Total	69	100.0
Do you experience swelling in the heels post working?	**Frequency**	**Percent**
Extremely	1	1.4
Moderately	13	18.8
None	39	56.5
Slightly	16	23.2
Total	69	100.0
Have you been diagnosed with arthritis?	**Frequency**	**Percent**
In the past 1	2	2.9
In the past 2	3	4.3
In the past 5	6	8.7
Not as of now	58	84.1
Total	69	100.0
What helps to relieve your pain after long hours of working?	**Frequency**	**Percent**
Any gel/cream	4	5.8
Medication	9	13.0

Nothing	3	4.3
Rest	53	76.8
Total	69	100.0
Do you have any needle pricking pain that has aggravated as the time has progressed?	**Frequency**	**Percent**
Extremely	4	5.8
Moderately	6	8.7
None	39	56.5
Slightly	20	29.0
Total	69	100.0
During walking, where do you experience pain?	**Frequency**	**Percent**
Above the heel	14	20.3
At the heel	25	36.2
Below heel	11	15.9
None	19	27.5
Total	69	100.0
How does heel pain affect your work?	**Frequency**	**Percent**
Extremely	4	5.8
Moderately	18	26.1
None	18	26.1
Slightly	29	42.0
Total	69	100.0
How does heel pain affect your work?	**Frequency**	**Percent**
Extremely	4	5.8
Moderately	18	26.1
None	18	26.1
Slightly	29	42
Total	69	100

Discussion

The plantar fascia's insertion into the calcaneum is repeatedly pulled, causing inflammation and reactive ossification of the enthesis, which leads to the spur creation. Additionally, there is some evidence of a connection between ageing, decreased ankle dorsiflexion, and extended periods of standing. Spurs are a prevalent symptom of all arthritides, with estimates for osteoarthritis patients reaching 80% and rheumatology patients older than 61 years reaching 72%.

37 (53.6%) participants had 5 to 10 years of experience, it was discovered during the participant discussion about job experience. 22 (31.9%) people were found to be working fewer than 4 hours per day when standing hours were discussed. Only 8 (11.6%) of the people in the inclusion criteria who had been consulted for their issue had gone to a physiotherapist. When asked which side of the sole was more worn out or flattened, 25 (36.2%) participants said that both soles were equally worn out. The maximum participants had less than 4 hours of time they were working for when asked whether working hours affect heel discomfort and, if so, by how many hours. The largest number of participants had worked fewer than 4 hours when asked whether working hours affected their heel discomfort and, if so, by how many hours. When asked if working hours affect heel discomfort and, if so, by how many hours, the maximum participants had worked less than 4 hours. Maximum replies were seen for "sometimes" option 37 (53.6%) if participants rest after experiencing pain. When asked whether their heels swelled after working, "None" received the most responses, with a frequency of 39 (56.5). When asked about how many people had arthritis diagnoses in the previous few years, 58 (84.1%) had the fewest diagnoses. 53 (76.8%) participants chose "Rest" as their top option for what relieves their pain after lengthy shifts at work. When asked if the patient's needle pricking pain gets worse over time, the majority of responses ("None") were selected by 39 people (56. 5%).The majority of comments when asked where heel discomfort while walking was felt were "At the heel" 25 (36.2%)Minimum replies ("extremely") were given in response to the question on how heel discomfort affects work.

Result

This Survey was done to check an Awareness and Approach Towards Calcaneal Spur Among Female Having Prolonged Standing Work. On studying the data analysis, we found that different questions focused on different amount of Awareness each individual possesses. Mean difference =2.600. The 95% confidence interval of the difference: 2.072 to 3.128. 37 participants had 5-10 years of experience. 22 participants were found

to be working fewer than 4 hours. Only 8 had consulted a physiotherapist for their underlying problem, due to the lack of Awareness of Calcaneal spur and it's after effects. As far as the sole worn out or flattened was concerned 25 participants said both were equally worn out as they were aware of not bearing weight only on one foot. On being asked about taking sufficient rest after prolonged standing, they chose "sometimes" as they lacked Awareness about taking adequate amount of rest. And the most discomfort was felt at the heel supporting the Calcaneal spur as an underlying cause. Concluding the previous question, which asked how heel soreness affects one's ability to work, the woman who knows that she should avoid working longer hours in order to prevent deformities such as Calcaneal Spurs, noted that the fewest responses were "extremely"

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