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Effect of Water Bottle Stretch on Planter Fasciitis Among Security Guards

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ABSTRACT:

A study on water bottle stretch was conducted to assess the effect on planter fasciitis related pain among the security guards. Study was conducted by using pre-test post-test control group research design. 80 samples were selected by using purposive sampling method. Standardized numerical pain scale was selected as the tool for assessing pain score. The reliability co-efficient was done by using split half method and ' r' was calculated by Karl Pearson formula and found that the tool is reliable as the 'r' value is 0.97.

The findings revealed that, the level of heel pain in control group, the mean score of heel pain on plantar fasciitis was 3.05, S.D. was 1.3577 and the mean score of heel pain scale after giving water bottle stretch in experimental group was 6.225, S.D. was 1.65616 and t – value is 9.3762 and p – value is 0.00001 < 0.05 (at 5 % level of significance).This clearly shows that the water bottle stretch on plantar fasciitis among security guard had significant improvement in their heel pain in the post- test. This reveals that, the water bottle stretch on plantar fasciitis among security guard was effective to decrease heel pain.

Keywords: Effectiveness, Plantar fasciitis, Water bottle stretch, heal pain, security guard

1. Introduction

A frequent condition that hurts the heel and sole of the foot is plantar fasciitis. It is brought on by inflammation of the plantar fascia, a substantial band of connective tissue that runs from the heel to the toes on the bottom of the foot. The plantar fascia aids in shock absorption during physical activity and supports the foot arch. [1]

Sharp, stabbing heel pain that is worse in the morning or after periods of rest is a common symptom of plantar fasciitis. At the bottom of the foot, there is also pain, and it could get worse with activity. Obesity, extended standing, flat feet, high arches, and repetitive impact sports like jogging or jumping are risk factors for developing plantar fasciitis. [2]

Rest, stretching, and strengthening exercises are frequently used in the treatment of plantar fasciitis, in addition to wearing supportive footwear and employing orthotics. Non-steroidal anti-inflammatory medications (NSAIDs) or corticosteroid injections may be suggested in specific circumstances to treat pain and inflammation. Although it may take many months for symptoms to completely disappear, conservative treatment helps the majority of people with plantar fasciitis heal. Surgery may occasionally be required if symptoms don't go away after trying conservative measures. [3]

A straight forward instrument that can be used to gauge pain severity is the numerical pain evaluation scale. The 0–10 numerical rating scale, where 0 denotes no pain and 10 denotes the worst conceivable agony, is the most often used scale.

The person who is experiencing the pain is asked to rate it on a scale of 0 to 10, with 0 representing no pain, 1-3 representing mild pain, 4-6 representing moderate pain, and 7–10 representing severe pain.

The Water Bottle Stretch is a simple home treatment for heel spurs, plantar fasciitis, and foot pain. By lengthening and stretching the plantar fascia ligament and releasing tension in the feet, it benefits. Stretching and strengthening the part that is bothering you is one of the finest ways to find relief. Having the plantar fascia loosen can relieve pain, stop the plantar fascia from tearing, and strengthen the muscles that support the ligament. [4]

Need of the study

One of the most prevalent foot-related orthopedic issues is plantar fasciitis. Security personnel, nurses, runners, and volleyball players are more likely to develop this illness and experience arch pain. Inflammation of the plantar fascia caused by a calcaneal tuberosity medical condition is known as plantar fasciitis. The stability of the gait cycle is significantly influenced by plantar fascia. When the tension applied to the plantar fascia while walking or running is too great or too powerful, injury to theplantar fascia may result. [5]

According to recent studies, plantar fasciitis is becoming more common, impacting approximately 10% of the general population. 83% of those affected are active, working individuals between the ages of 25 and 65, 22% of whom run or participate in sports that require running, and 65-70% of whom are overweight. no sex preference exists. to comprehend the issue that people with plantar fasciitis face in their daily activities, and to lessen the discomfort and enhance functional dependency through water bottle stretching exercises. [6]

Research objectives:

1. To assess the level of heel pain before giving water bottle stretch on plantar fasciitisin experimental and control group.
2. To assess the level of heel pain after giving water bottle stretch on plantar fasciitis in experimental and control group.
3. To compare between pre-test and post-test level of heel pain on plantar fasciitis in experimental and control group.

4. To compare between post-test level of heel pain in experimental and control group.

Hypothesis:
H_0: There is no significant difference between the mean pre-test and post-test level ofheel pain related to plantar fasciitis among security guards.

H_1: There is significant difference between the mean pre-test and post-test level of heelpain related to plantar fasciitis among security guards.

2. Research Methodology

The permission to conduct the study was taken from the institute ethics committee. Consent from the participants was taken prior to collection of the data. Study was conducted by using Quasi experimental one group pretest posttest research design. 80 samples divided into 40 experimental group and 40 control group were selected by Purposive sampling method. The samples for the study was selected based on inclusion and exclusion criteria. The participants having pain for at-least 6 months were included in the study. And the participants having wound on the heal and fracture of the lower limb were excluded from the study. Established the content validity of the tool from 16 experts of different areas. The reliability value was r = 0.97 which revealed that the tool is reliable.

3. Results

Table-1 Frequency and percentage wise distribution of the socio- demographic variables.
n=80

Sr. No.	Demographical Variables		Experimental Group		Control Group	
			Frequency	Percentage	Frequency	Percentage
1	Education	Primary	10	25%	14	35%
		Secondary	28	70%	25	62.5%
		Graduate & above	2	5%	1	2.5%
2	Working Hours	8 Hrs.	10	25%	20	50%
		12 Hrs.	30	75%	20	50
3	Period ofHeel Pain	6 Month to 1 Year	25	62.5%	21	52.5%
		2 Year to 5 Year	15	37.5%	19	47.5%

Table no -2 Assessment of level of heel pain on plantar fasciitis in experimental and control group.
n=80

LEVEL OF HEEL PAIN	**Experimental group**				**Control group**			
	Pre-test		**Post test**		**Pre-test**		**Post test**	
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**
1-3 (Mild Pain)	1	2%	27	68%	7	18%	1	2%
4-6 (moderate pain)	27	68%	13	32%	26	64%	23	58%
7-10 (Severe Pain)	12	30%	0	0%	7	18%	16	40%

Table No 3: Comparison between pre- test and post- test level of heel pain on plantar fasciitis in experimental and control group.
n=80

Experimental Group	**Mean**	**S.D.**	**D.F.**	**Pairedt-test**	**p- value**
Pre- test	5.675	1.4743	39	-22.4253	0.00001 < 0.05
Post- test	3.05	1.3577			
ControlGroup	**Mean**	**S.D.**	**D.F**	**Pairedt-test**	**p-value**
Pre-test	5.025	1.5768	39	9.2244	0.00001 < 0.05
Post - test	6.225	1.6561			

Table No: 4 Comparison between post- test level of heel pain on plantar fasciitis in experimental and control group.
n=80

Post- test	**Mean**	**S.D.**	**D.F.**	**Unpaired t-test**	**p- value**
Experimental Group	3.05	1.3577	39	9.3762	0.00001 < 0.05
ControlGroup	6.225	1.6561			

The table shows that, according to post-test level of heel pain in control group,the mean score of heel pain on plantar fasciitis was 3.05, S.D. is 1.3577 and the mean score ofheel pain scale after giving water bottle stretch in experimental group was 6.225, S.D. is 1.65616 and t – value is 9.3762 and p – value is 0.00001 < 0.05 (at 5 % level of significance). It is evident from the table that the water bottle stretch on heal pain among planter fasciitis patients was effective.

4. Discussion

In our study total 80 samples were included and randomly allocated to group A and B. Out of 80 samples 50 (62.5%) were male and 30 (37.5%) were female. In the present study we have observed the predominance of male guards over the female guards. The study concludes that there is reduction in the level of heel pain with the use of water bottle stretch among plantar fasciitis patients.

In another study by David Rodriguez, heel pain was found to be more common in female population 49 males and 51 females were recruited. This disparity between male and female ratios in our sample may be attributed to factors such as long periods of standing, more frequent use of overweight or high heel boots etc.

5. Conclusion:

The findings of study revealed that the water bottle stretch is more effective measure in decreasing level of heel pain in patients with plantar fasciitis. Hence it is recommended to incorporate this technique in routine practice along withdrug administration. This clearly shows that the water bottle stretches on plantar fasciitis among security guard had significant improvement in their heel pain in the post- test. This reveals that, the waterbottle stretch on plantar fasciitis among security guard was effective to decrease heel pain.

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