RESEARCH PAPER

"Percentage of Medial Tibial Stress Syndrome Among Police Trainees Around Sangli City; An Observational Study"

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Background: Medial tibial stress syndrome (MTSS), commonly known as shin splints, is a frequent overuse injury caused by repetitive stress on the tibial bone and surrounding soft tissues. It is often associated with biomechanical factors, training load, footwear, and training surface. Pain in MTSS typically spreads along the distal two-thirds of the tibia, which helps differentiate it from stress fractures where pain is localized to a specific point.

Aim and objectives: Medial tibial stress syndrome (MTSS), commonly known as shin splints, is a frequent overuse injury caused by repetitive stress on the tibial bone and surrounding soft tissues. It is often associated with biomechanical factors, training load, footwear, and training surface. Pain in MTSS typically spreads along the distal two-thirds of the tibia, which helps differentiate it from stress fractures where pain is localized to a specific point. .Determine the percentage of medial tibial stress syndrome (MTSS) among police trainees using the MTSS scoring system.

Method: One seventyone were selected based on the inclusion criteria. Participants were informed about the study and written consent was obtained. The Study used Medial tibial stress syndrome scale:- Reliability: 0.81There are various scoring system for MTSS but one common system is the Medial tibial stress syndrome score. The study also include Shin Palpation test and Numeric pain rating scale.

Result: The results showed that the percentage of MTSS was 45.9%, indicating that nearly half of the participants had some degree of MTSS.

Conclusion: The study concludes that MTSS was common and strongly related to pain severity, mainly influenced by training intensity and surface. Early physiotherapy and proper footwear help reduce severity.

Keywords: MTSScore , Shin splint, Police trainees , NPRS , Shin palpation test.

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Introduction

Medial tibial stress syndrome (MTSS), commonly known as shin splints, is a frequent overuse injury caused by repetitive stress on the tibial bone and surrounding soft tissues. It is often associated with biomechanical factors, training load, footwear, and training surface[1]. Pain in MTSS typically spreads along the distal two-thirds of the tibia, which helps differentiate it from stress fractures where pain is localized to a specific point[1]. Pain along the shinbone (tibia) is termed "shin splints" which occurs due to the inflammation of the tissue in the area. It is also known as medial tibial stress syndrome (MTSS). Many athletes suffer from medial tibial stress syndrome (MTSS), commonly known as "shin splints," which is a common overuse condition of the lower limbs[2]. Studies suggest that it affects 4-35% of athletic populations and up to 20% of military personnel during basic training. MTSS can result from a number of reasons, such as overtraining, inadequate footwear, ankle muscular imbalances, weak or overtight triceps-surae muscles, thoracolumbar complex imbalances, and a body mass index (BMI) greater than thirty[3]. After activity, injuries generally manifest as a dull soreness. Resting usually relieves the ache. MTSS are often diagnosed by a physical examination and medical history[3]. Other possible sources of discomfort, including a stress fracture, can occasionally be found with the use of an X-ray or other tests like magnetic resonance imaging or a

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bone scan[4]. Orthotics and physiotherapy are widely used to treat and prevent medial tibial stress syndrome. MTSS are often relieved by rest; if exercise is not interrupted, the pain will worsen and become more severe[4]. Several elements should be taken into consideration in order to rule out the medial tibial stress syndrome in athletes[4]. Most athletes who have MTSS never experience any performance limitations, never see a doctor, and are able to continue training without any running-related issues. onset of symptoms, either abruptly or gradually[4]. Running and jumping are examples of activities that exacerbate or lessen symptoms. Symptom duration and severity. History of Activities and Training: recent modifications to the surface, intensity, or frequency of training[5]. shoes (fit, age, and type). Prior Injuries: history of overuse disorders or injuries to the lower limbs.

Additional Factors: medicine, general health, or underlying problems (such osteoporosis[5] .

Foot biomechanics (e.g., arch height, overpronation). Palpation: Tenderness along the tibia's medial edge. looking for lumps or localized oedema. Motion Range (ROM): Flexibility of the ankle and foot joints (e.g., dorsiflexion, plantarflexion) is evaluated[6]. Strength of Muscles: testing the tibialis anterior and the gastrocnemius and soleus muscles in the calf. Determining any weaknesses or imbalances in the muscles[6]. The single-leg hop test is used for functional testing. To observe biomechanics, perform weight-bearing exercises like squats. Contributing Elements Evaluation Analysis of Biomechanics: lower limb alignment (valgus or varus malformation[7]. Foot anatomy and gait (e.g., supination, pronation). Flexibility: Tightness in the iliotibial band, hamstrings, or calf muscles. Rest Avoid activities that aggravate symptoms, such as running or jumping. Cross-training options (e.g., swimming or cycling) may help maintain fitness while minimizing stress on the tibia[8]. Non-Steroidal Anti- Inflammatory Drugs (NSAIDs) (e.g., ibuprofen, naproxen): Help reduce pain and inflammation. Topical analgesics: May be used for localized pain relief. Gradual progression in training intensity and volume[9]. Proper warm-up and cool-down routines. Strengthening exercises for the lower limbs (e.g., calf raises, core stabilization) Maintaining flexibility through regular stretching, especially for the calves, hamstrings, and Achilles tendon[10]. Avoiding running on hard or uneven surfaces As Police trainees undergo rigorous physical training that includes running, jumping, and other endurance activities[10].

Need of Study

This study has not been conducted on police trainees in sangli district. Police trainees undergo rigorous physical training that includes running, jumping, and other endurance activities. As these trainees can be more prone to developing MTSS (medial tibial stress syndrome) it is necessary to determine its percentage and risk factors in this group. Previous studies on the percentage of medial tibial stress syndrome have been conducted among Military trainees and athletes. Since police trainees are similarly physically active as military trainees and athletes, they may exhibit comparable risk factors for MTSS.

AIM-

The aim of the study is to determine the percentage of among police trainees and to identify risk factors, such as training intensity, physical fitness levels, that are associated with them.

OBJECTIVES-

1. Determine the percentage of medial tibial stress syndrome (MTSS) among police trainees using the MTSS scoring system.

2. Assess the severity of symptoms in trainees with MTSS based on the MTSS scoring system.

Review of Literature

1.Alessa M et al. (2024) reviewed MTSS among military recruits and reported a high prevalence due to intense physical training, The study explained that MTSS is commonly observed in recruits due to intense physical training, prolonged marching, and repetitive impact activities. Risk factors such as poor conditioning, sudden increase in training load, and inappropriate footwear were discussed. The review highlighted the importance of preventive strategies, early diagnosis, and physiotherapy interventions to reduce injury rates and improve functional outcomes in military populations. suggesting that populations with similar physical demands are at increased risk.

2 Bhusari N and Deshmukh M (2023) described medial tibial stress syndrome (MTSS) as a common overuse injury of the lower limb characterized by diffuse pain along the medial border of the tibia due to repetitive stress and inflammation of surrounding tissues. They highlighted contributing factors such as poor biomechanics, improper training techniques, and inadequate footwear**.** The study also discussed various conservative treatment approaches including rest, ice application, stretching, strengthening exercises, footwear modification, and physiotherapy management. The authors emphasized the importance of early diagnosis and preventive strategies to reduce pain and improve functional recovery in affected individuals.

3 Fallon K (2023) discussed shin pain as a common complaint among athletes, especially runners and individuals involved in high-impact sports activities. The study described medial tibial stress syndrome (MTSS), stress fractures, and compartment syndrome as major causes of shin pain. The author emphasized clinical examination and proper differential diagnosis for accurate identification of the condition. Conservative management including activity modification, physiotherapy, stretching, and strengthening exercises was recommended for recovery and prevention of recurrence. reported that shin pain is highly prevalent among athletes and is commonly associated with excessive training loads and insufficient recovery. The study emphasized the importance of early identification

and modification of training practices to prevent progression of MTSS.

4 Fatima K et al. (2023) The study found a considerable occurrence of shin splints in individuals performing prolonged treadmill running and high-intensity exercise. Improper footwear, sudden increase in exercise intensity, and inadequate warm-up were identified as important contributing factors. The authors highlighted the importance of preventive measures and awareness regarding proper exercise techniques to reduce the incidence of MTSS among gym users. studied the prevalence of shin splints among treadmill users and found that repetitive mechanical stress, even in controlled environments, can lead to MTSS. The findings suggest that duration and intensity of activity play a crucial role in symptom development.

5 Okunuki T et al. (2022) studied the prevalence and effects of pain sites in female soccer players suffering from medial shin pain. The research found that medial shin pain was highly prevalent among female soccer players due to repetitive running, jumping, and training activities. The study highlighted that the location and severity of pain significantly affected sports performance and physical activity levels. The authors emphasized the importance of early assessment and targeted rehabilitation programs for female athletes with shin pain. studied female soccer players and found that medial shin pain significantly affects performance and participation, emphasizing the importance of early diagnosis and intervention.

6 Winters M et al. (2016) developed and evaluated a patient-reported outcome measure specifically for medial tibial stress syndrome. The study introduced the MTSS score as a reliable and valid tool to assess symptoms, severity, and functional limitations in affected individuals. The authors reported that the scoring system can help clinicians monitor patient progress and treatment outcomes effectively. This outcome measure was considered useful in both clinical practice and research related to shin splints. the Medial Tibial Stress Syndrome Score, a reliable and valid patient-reported outcome measure used to assess symptom severity and functional limitations, improving both clinical assessment and research standardization.

7 Newman P et al. (2013) conducted a systematic review and meta-analysis to identify risk factors associated with medial tibial stress syndrome in runners. The study reported that increased body mass index, navicular drop, ankle plantar flexion range, and hip external rotation range were significantly associated with MTSS. Female gender and previous history of MTSS were also identified as important risk factors. The authors concluded that understanding these risk factors can help clinicians develop preventive and rehabilitation strategies for runners. performed a systematic review and meta-analysis and reported that increased body mass index, overpronation, and limited ankle range of motion are important risk factors associated with MTSS in runners .

8 Moen MH et al. (2009) provided a comprehensive critical review describing MTSS as an overuse injury caused by repetitive tibial loading, highlighting risk factors, diagnostic methods, and management strategies including rest, physiotherapy, and gradual return to activity .

9 Thacker SB et al. (2002) performed a systematic review to evaluate preventive strategies for shin splints in sports participants. The study reviewed various interventions including shock-absorbing insoles, stretching programs, footwear modifications, and training adjustments. The authors concluded that evidence regarding prevention methods was limited, although some measures showed potential benefits in reducing the risk of shin splints. The review emphasized the need for further high-quality research on prevention and management strategies for MTSS. A systematic review on the prevention of shin splints and identified key preventive strategies such as gradual progression of training, use of appropriate footwear, and strengthening and flexibility exercises to reduce injury risk.

10 Myburgh KH et al. (1988) The study identified several contributing factors such as excessive training intensity, improper running techniques, inadequate footwear, and biomechanical abnormalities. The authors suggested that repetitive stress on the tibia and surrounding musculature plays a major role in the development of shin soreness. Early recognition of risk factors and appropriate preventive strategies were recommended to reduce the occurrence of medial tibial stress syndrome in athletes.

Methodology:

Material used:

1. Consent form- a signed consent form from the patient
2. Assessment proforma

Data collection tools and process-

Medial Tibial Stress Syndrome Scale.
Shin Palpation Test.
Numerical Pain Rating Scale.

Methodology:

The observational study was conducted in Sangli, Maharashtra, India. This study was approved by the Institutional Ethics Committee (IEC) of Bharati Vidyapeeth, Deemed to be University (DU).

Study design- Observational Study

Study type-

Observational Study

Study setting-

Police Academy in sangli city.

Targeted population-

Police Trainees in Sangli City.

Duration of study-
6 months

Sampling techniques-
Convenient Sampling Technique

Eligibility criteria: police trainees
Inclusion criteria-
Inclusion criteria are as follows:
1) Trainees to be police recruits.
2) Engaged in physical training for at least 6 months.
3) Both male and female.
4) Age criteria- 18-27yrs.
5) Patients who have signed consent form.

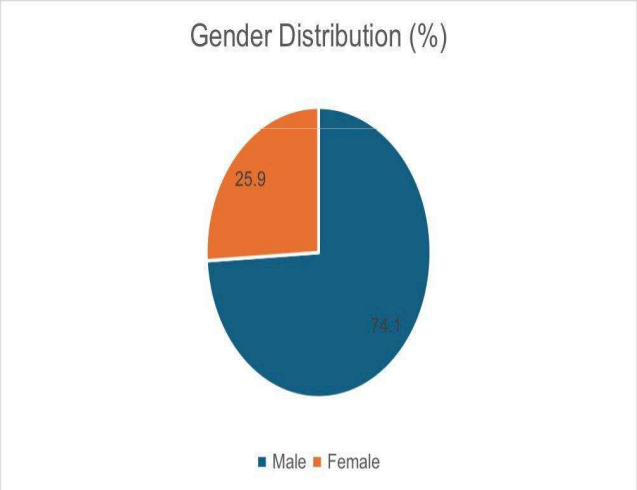
Exclusion criteria-
1) Trainees with recent injury or surgery within the last 6 months.
2) Trainees who are not willing to participate.

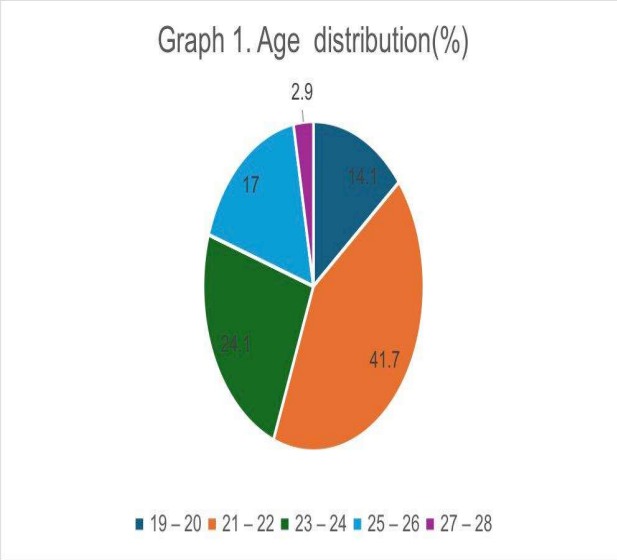
Results:

The study will commence following the approval from the scientific committee and the institutional research ethics committee. Participants aged 18to 27years will be recruited. Eligibility will be assessed using specific inclusion and exclusion criteria, and informed consent will be obtained after providing detailed information about the study's purpose, procedures, risks, and benefits. A comprehensive baseline assessment will be done, and the outcome measures will be assessed. Findings will be reported and documented. Confidentiality about the study participant's data will be maintained throughout the study. A Standardized assessment tool; MTSS score , NPRScale and shin palpation test will be used for collecting the data. Ethical approval will be obtained from the Institutional ethics committee of the concerned institution after reviewing the proposal. The motive behind conducting this study will be explained to the study participants and written informed consent will be obtained from them for the same. Data collection will be done based on MTSS SCORE , NPR Scale and shin palpation test in the respective police academy of Sangli trainees. The Medial tibial stress syndrome often associated with the Shin splint syndrome is a condition Characterized by a dull ache or pain along the media (inner) aspect of the tibia (Shinbone) due to repetitive stress and strain on the lower legs muscle, tendon, and bone. There are various scoring system for MTSS but one common system is the Medial tibial stress syndrome score. MTSS score will be used to assess type of the pain which will consist of 4 score that are current sporting activities , pain while performing sporting activities, pain while walking , pain at rest. The pain of the patient will be assessed by using Verbal NPR scale. The patient is asked to rate their pain intensity on scale from 0 to 10 where 0 is no pain and 10 is worst pain. If the pain exceeds score 6 then the patient will be considered positive for the MTSS . Shin palpation test will be used to asses pain on the shin of patient. Press down on the shin bone, two- third down and on the inside. Squeeze the muscles with your finger has if you are trying to squeeze out a wet sponge if you experience pain during this test it may indicate positive sign. The MTSS SCORE, NPRS and Shin Palpation test is used to asses the percentage of MTSS among police trainees.

A total of 170 subjects were considered for the analysis. The mean age of the subjects was 22.53 ± 2.02 years, with a greater number of males (74.1%). The mean body mass index (BMI) was 18.79 ± 1.44 kg/m². A great majority of the subjects trained thrice a week (89.4%) with an exercise period of 1-6 years.

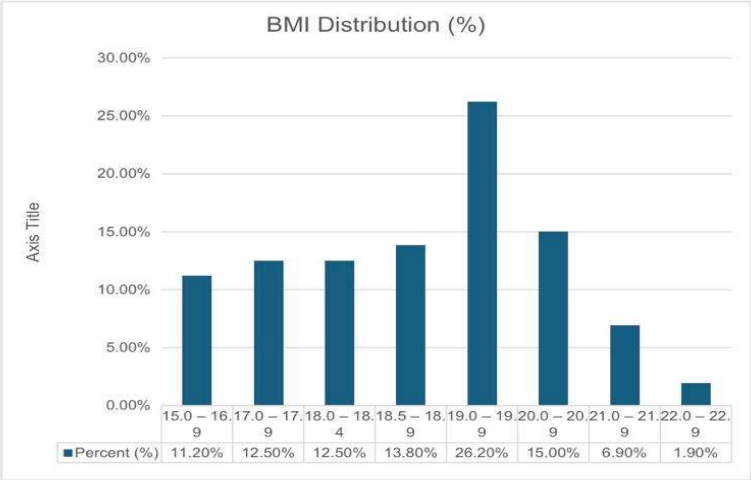
Training modalities and surfaces are quite homogeneous.

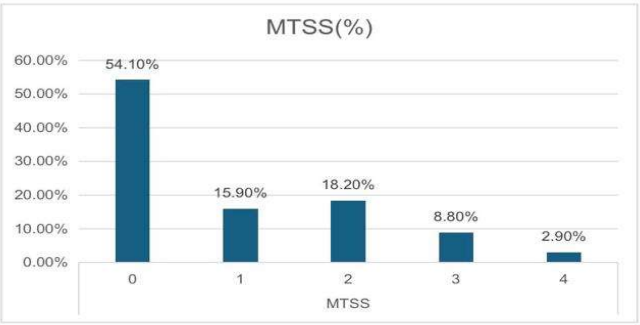




Prevalence of Medial Tibial Stress Syndrome (MTSS)
Among 170 people, a total of 78 people were found to have MTSS, which has a prevalence of 45.9% with scores 1–4. The prevalence for mild MTSS was 15.9%, for moderate MTSS it was 18.2%, for severe MTSS it was 8.8%, and for very severe MTSS, it was 2.9%, while the rest were free from MTSS with 54
Pain Characteristics and clinical findings
Type 2 pain was exhibited by more than half of the participants (54.7%). Tenderness along the tibia was found in 45.9% of participants, while 47.1% of participants had a positive shin palpation test result. The scores of the pain severity, which range from 0 to 8, tend to be higher among participants with higher levels of MTSS severity.
A strong positive correlation was found to exist between the severity of MTSS and Pain Severity Scale ($r = 0.938$, $p = 0.001$), which confirmed that higher severity of MTSS was significantly related to higher intensity of pain.

Age Group	Gender	MTSS = 0	MTSS = 1	MTSS = 2	MTSS = 3	MTSS = 4	Total	Chi square (p value)
18–20		15	4	2	3	0	24	1.321(0.851)
21–23		44	16	18	6	5	89	
24–26		30	6	10	6	0	52	
27–28		3	1	1	0	0	5	
	Female	27	6	7	3	1	44	1.402(0.884)
	Male	65	21	24	12	4	126	
Total		92	27	31	15	5	170	





Training Related risk factors

Multiple linear regression analysis indicated that the intensity of the training (B = 0.038, p = 0.035) and the terrain on which the training took place (B = 0.086, p = 0.047) were significantly related to severity in the MTSS group. Other aspects of the training, such as the duration, number, type of the training itself, or recent alterations to the training, failed to provide any evidence regarding a meaningful association (p > 0.05).

Footwear related risk factors

Results of the regression analysis indicated that the type of shoes (B = −0.033, p = 0.039) and footwear fit (B = −0.023, p = 0.027) were significant predictors of MTSS severity, implying that proper footwear provided a protective function. The age of the shoes and the use of orthotics did not show significance in relation to MTSS severity.

PAIN SEVERITY SCALE:

		MTSS					Total	Pearson r corelation
		.00	1.00	2.00	3.00	4.00		
Pain severity scale	.00	92	0	0	0	0	92	0.938 (0.001)*
	4.00	0	6	1	0	0	7	
	5.00	0	20	10	0	0	30	
	6.00	0	1	11	4	0	16	
	7.00	0	0	9	2	0	11	
	8.00	0	0	0	9	5	14	
Total		92	27	31	15	5	170	

Pain related predictors.

Among the pain variables, the pain severity scale had the highest prediction for

MTSS severity with a B value of 0.618 and significance of $p < 0.001$.

Pain relief measures had a significant effect on the severity of MTSS with a B value of 0.256 and significance of $p = 0.004$. Other pain parameters had non-significant effects.

Palpation and management factors.

Those who were told to rest had higher levels of MTSS Severity (B=0.379, p=0.042), while being referred to physiotherapist had a significant relation with lower levels of MTSS Severity (B=-1.285, p=0.005). Tenderness and the presence of lumps did not significantly predict MTSS Severity.

Association with demographic and anthropometric variables

The analysis showed that there was no statistically significant relation between MTSS severity and age group, gender, height, weight, and BMI because p-values for all were > 0.05.

This indicates there were no demographic/anthropometric variables which influenced MTSS severity in this population.

PERCENTAGE OF MTSS:

MTSS Score	Interpretation	Frequency (n)
0	No MTSS	92
1	Mild MTSS	27
2	Moderate MTSS	31
3	Severe MTSS	15
4	Very Severe MTSS	5
Total		170
Prevalence=	45.9%	Prevalence of MTSS= Total cases with MTSS (Scores 1–4) ×100/ total participants

Discussion:

The prevalence, intensity, and risk factors for Medial Tibial Stress Syndrome (MTSS) among physically active recruits were examined in this study. The prevalence rate for MTSS established in the study was 45.9%, which translates to nearly all the participants being affected. This rate can be approximated to prevalence rates established in previous studies involving athletes and military recruits, with MTSS prevalence standing between 35% and 55% in these groups.

This indicates further that MTSS persists as an overuse injury among groups subjected to high impact repeated exercises. In the current study, it was found that a majority of individuals experienced mild to moderate MTSS, while a few experienced severe or very severe symptoms. This is in line with previous studies, which found that the early stage MTSS was more prevalent than the advanced stage. This can be explained by the fact that training and reporting of symptoms occur after the early-stage symptoms.

There was a strong positive correlation observed between MTSS severity and pain severity with a correlation of 0.938 and p = 0.001. This result is consistent with previously conducted studies, which have shown pain severity as an effective indicator of MTSS progression. There has been a collective emphasis on how higher stress on the tibia and periosteal irritation directly correlates with higher pain scores, thus ensuring the reliability of pain severity measurements in MTSS. Some training factors were seen to significantly affect the severity of MTSS.

Greater training intensity and training surface were seen to significantly positively relate to MTSS scores. These results agree with previous research, which has revealed high-impact training loads and hard training surfaces to be key risk factors for tibial stress injuries. Various research publications for military recruits as well as long-distance runners indicated higher vulnerability to MTSS with sudden surges in training intensity and training on hard surfaces for longer periods of training[6]. In contrast, training hours and frequency, and recent changes to training did not reveal significant associations with the severity of MTSS in the present study.

In contrast to previous reports that emphasized training volume and sudden training changes as strong risk factors, this may be attributed to the quite similar training regimes participants followed in the current study, reducing variance in these parameters[7]. Among the footwear-related factors, there was a protective association seen with regard to MTSS severity. Correct fitting of shoes and proper shoe type were significantly related to lesser MTSS severity.

These results support previous studies that have highlighted footwear factors, which could provide shock absorption, distribute the loads, and reduce tibial strain. On the other hand, the lack of a significant association with orthotic use contrasts with some previous studies that reported positive effects of orthoses; these differences might be due to the different types of orthotics used or the duration of their use in this study, or to individual aspects of biomechanics.

Results for the pain-related predictors showed pain severity scale to be the predictor with the highest influence on the level of MTSS, in line with prior studies. The use of measures by the participants to alleviate pain increased the level of MTSS, in line with prior studies where the presence of symptoms enhances the use of pain management practices.

In regard to management-related factors, reference to physiotherapy had been found to be significantly related to decreased severity of MTSS, which is consistent with current evidence stating that physiotherapeutic management modalities such as activity modification programs, strength exercises, stretching exercises, and gait retraining can be very effective in decreasing the severity of MTSS. On the contrary, rest advice had been

found to be related to increased severity of MTSS, possibly because rest is generally advised in more severe cases, as stated earlier. There were no significant associations found between the severity of MTSS and demographic and anthropometric variables such as age, sex, height, weight, and BMI. This supports several other studies stating that there was an inconsistent association between ankle anthropometric values and MTSS, with biomechanical elements being more dominant. Overall, the findings emphasize the multifactorial nature of MTSS, with training intensity, training surface, footwear characteristics, and pain severity emerging as key contributors. Early identification, appropriate training modifications, proper footwear, and timely physiotherapy intervention may play a crucial role in reducing MTSS severity and improving functional outcomes in physically active populations.

Conclusion:

The study found that MTSS is common among recruits, with a prevalence of 45.9%.

Findings from this study clearly show that Medial Tibial Stress Syndrome (MTSS) has a significant prevalence in physically active trainees, as almost half of the participants reported its impacts.

MTSS severity has a significant relationship with pain, training, and surfaces, as well as footwear, and no significant impact from demographic/anthropometric variables. Training load management, surfaces, footwear, and physiotherapy interventions can contribute to reducing MTSS severity.

This study clearly shows that early interventions and strategies to prevent MTSS can be helpful in reducing its burden in physically active populations.

Clinical Implication:

The study's conclusions demonstrate how widespread medial tibial stress syndrome (MTSS) is among police trainees in the Sangli area. This emphasizes how urgently police training programs need to incorporate early detection and prevention measures. Clinicians, physiotherapists, and trainers can identify at-risk individuals and promptly implement interventions, such as modifying training intensity, correcting biomechanical anomalies, and improving footwear and surface conditions, by using MTSS scores as a screening tool. Both trainees and training personnel can benefit from increased performance, decreased injury-related dropout rates, and maintained physical preparedness for duty by being aware of and educated about shin splints. Furthermore, incorporating regular musculoskeletal screenings into recruitment and training protocols could significantly reduce the long-term impact of such overuse injuries on the health and productivity of police personnel.

Further Scope of the study:

- Future studies can be conducted with a larger sample size involving participants from multiple cities and different populations to improve the generalizability of the findings.
- Longitudinal studies may help establish the causal relationship between training-related factors and the development of MTSS over time.
- Comparative studies between police trainees, athletes, military recruits, and college students can provide better understanding of population-specific risk factors.
- Future research may also include biomechanical assessments such as gait analysis, foot posture evaluation, muscle strength testing, and flexibility assessment for a more detailed understanding of MTSS risk factors.
- The inclusion of advanced imaging techniques such as MRI and diagnostic ultrasound can improve the accuracy of diagnosis and severity grading of MTSS.
- Intervention-based studies can further evaluate the effectiveness of physiotherapy management, orthotics, footwear modification, and training load adjustment in the prevention and treatment of MTSS.
- Additionally, factors such as nutritional status, vitamin D levels, psychological factors, and bone health assessment can be included for a more comprehensive evaluation of MTSS.

Limitation:

- The present study was conducted only among police trainees around Sangli city, which limits the generalization of the findings to other populations such as athletes, military recruits, and the general population.
- The sample size was limited to 170 participants, and a larger sample could have provided more accurate and representative results.
- Since this was an observational cross-sectional study, it was not possible to establish a cause-and-effect relationship between the identified risk factors and Medial Tibial Stress Syndrome (MTSS).
- The study also relied on self-reported responses regarding pain severity, training habits, footwear usage, and symptoms, which may have introduced recall bias and subjective errors.
- Most participants had similar training type, training surface, and footwear type, reducing variability and possibly affecting the strength of association analysis.
- Advanced diagnostic tools such as MRI or bone scans were not used for confirmation of MTSS, and diagnosis was mainly based on clinical findings and scoring systems.
- Additionally, factors such as nutritional status, muscle strength, flexibility, biomechanical abnormalities, and previous injury history were not assessed, although these may significantly influence the prevalence of MTSS.

Summary:

The observational study was conducted to determine the percentage and associated risk factors of Medial Tibial Stress Syndrome (MTSS) among police trainees in Sangli city. A total of 170 participants aged between 18 and 27 years were included using convenient sampling. Standardized assessment tools such as the MTSS scoring system, Numeric Pain Rating Scale (NPRS), and Shin Palpation Test were utilized for data collection.

The findings revealed that the overall prevalence of MTSS was 45.9%, indicating that nearly half of the study population experienced some degree of shin pain related to MTSS. Among these, 15.9% had mild, 18.2% moderate, 8.8% severe, and 2.9% very severe symptoms. A strong positive correlation ($r = 0.938$, $p < 0.001$) was observed between MTSS severity and pain intensity, suggesting that increased MTSS severity is significantly associated with higher pain levels.

Analysis of risk factors demonstrated that training intensity and training surface were significantly associated with MTSS, whereas variables such as duration and frequency of training showed no significant relationship. Footwear-related factors, particularly type of shoes and footwear fit, showed a significant association with MTSS severity, indicating their potential role in prevention. Pain-related factors, especially pain severity scale, emerged as a strong predictor of MTSS.

No statistically significant association was found between MTSS and demographic or anthropometric variables such as age, gender, height, weight, and BMI. Additionally, physiotherapy referral showed a significant negative association with MTSS severity, highlighting its importance in management and recovery.

In conclusion, MTSS is highly prevalent among police trainees due to rigorous physical training. Early identification of risk factors and implementation of preventive strategies, including proper training modification and footwear selection, along with timely physiotherapy intervention, are essential to reduce the burden of MTSS and improve overall functional performance.

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