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Study on Health Impacts of Workers in Small Scale Industry

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Abstract

This journal speaks the significant of Peripheral Artery Disease, Chronic fatigue syndrome, Correct footwear fitting. have emerged as leading causes of morbidity and mortality in developed and developing regions of the world. The disease burden attributed continues to increase worldwide, with cardiovascular diseases the leading cause of mortality and morbidity. Chronic fatigue syndrome, also called myalgic encephalomyelitis, is a complex multisystem disease commonly characterized by severe fatigue, cognitive dysfunction, sleep problems, autonomic dysfunction, and post-exertional malaise severely impairing activities of daily living. Footwear fitting is acknowledged as being vitally important as in most cases fit governs function. This means that footwear cannot fulfil its intended purpose if it does not fit the foot correctly.

Keywords: peripheral artery disease, chronic fatigue syndrome, correct foot wear fitting.

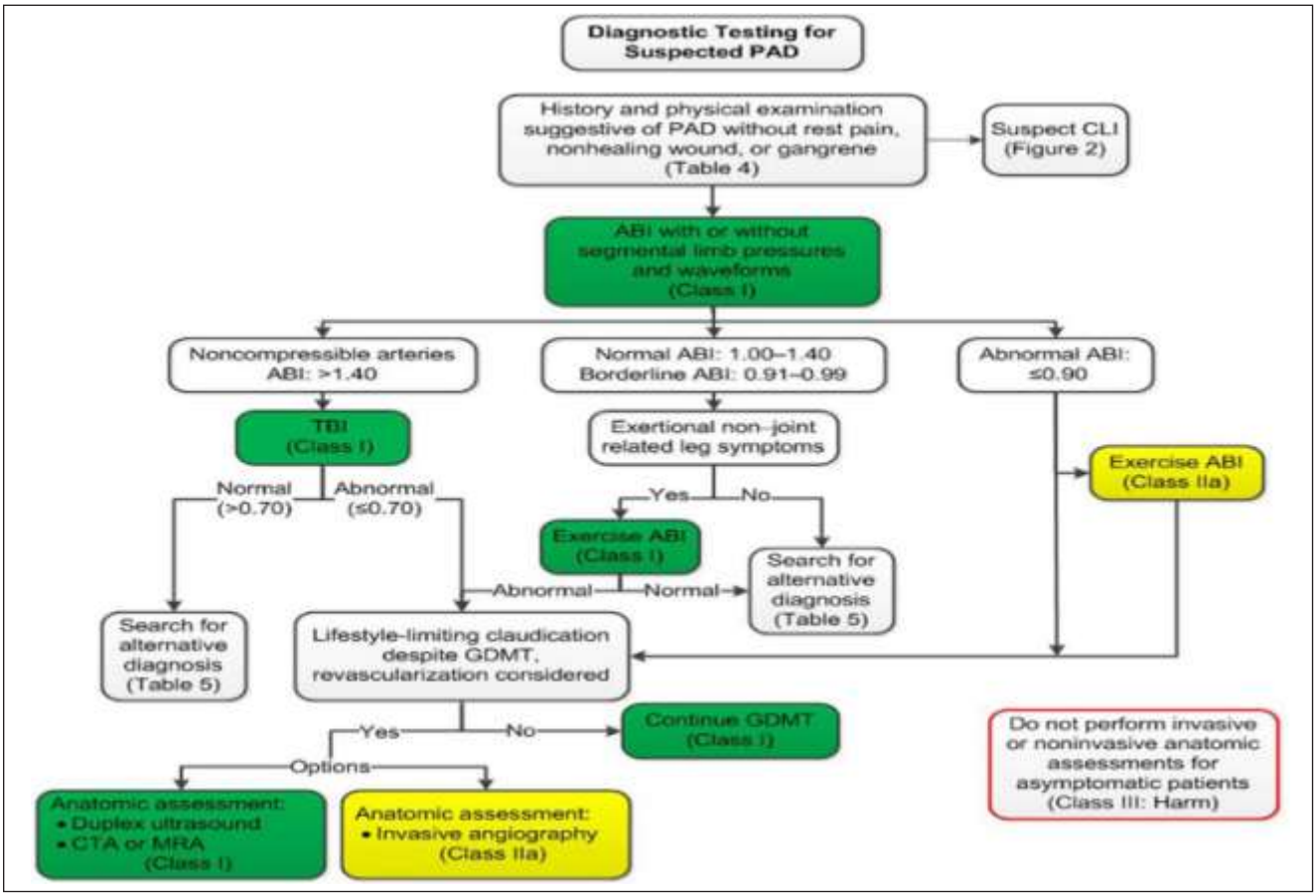
1. Introduction

One of the most common diseases is peripheral artery disease, which frequently coexists with vascular disease in other regions of the body. In order to improve the patient's quality of life and lower the risk of serious secondary vascular events like acute myocardial infarction (AMI) or stroke, early identification is crucial. The ankle-brachial index, which can also be used to assess the prognosis of the affected extremities and forecast the likelihood of AMI during follow-up, is the best noninvasive tool for detecting the existence of occlusive artery disease. The most typical clinical manifestation is intermittent claudication in the lower limbs.

educating the public on ME/CFS (Myalgic Encephalomyelitis/Chronic Fatigue Syndrome). The genesis, pathophysiology, management strategy, long-term prognosis, and economic burden of ME/CFS are all covered in this article, with an emphasis on how to identify ME/CFS. After reading this review, you will be better equipped to identify and treat your ME/CFS patients utilising the resources offered. Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) is a complicated, long-term medical condition characterised by symptom clusters that include pathological fatigue and malaise that worsen with activity, cognitive dysfunction, immune dysfunction, restless sleep, pain, autonomic dysfunction, neuroendocrine symptoms, and immune symptoms. Frequently very incapacitating and expensive, ME/CFS is frequent.

Humans have been wearing shoes for almost 30,000 years. Despite being worn initially to protect the foot, modern footwear is made to serve a variety of functions, and the success of each is assessed according to three factors: form, function, and fit. Form refers to the aesthetic appeal of footwear, but function refers to how well it can carry out its intended job, such as protecting the feet of those who engage in risky activities. Last but not least, fit has to do with how shoes can accept the shape of the foot. Fitting shoes is recognised as being of utmost importance because, in most circumstances, fit determines function. This means that if shoes do not fit properly, they cannot serve their original purpose.

2. Testing



Current recommendations for PAD medication are supported by a number of clinical guidelines, and treatment objectives include lowering CV and thrombotic risk, managing and preventing ALI, and improving functional symptoms. It is noteworthy that the ACC supported the American Diabetes Association's most recent clinical recommendation in early 2021, which recommended medicines for lowering atherothrombotic risk in people with diabetes and high CV risk.

Patients with symptomatic PAD are advised to take antiplatelet medications to lower their risk of stroke, MI, and vascular mortality.

Patients with PAD and/or stable coronary artery disease should be given the option of a combination medication that includes aspirin and low dosage rivaroxaban for the prevention of CV events and Stroke.
Due to its classification as a subtype of atherosclerotic cardiovascular disease (ASCVD) and its advantages for CV outcomes, statin treatment is recommended for all patients with PAD.
32,33

Antihypertensive medication is advised for individuals with PAD and hypertension to lower their risk of stroke, MI, heart failure, and CV death.

To reduce CV problems after revascularization post-ALI, antiplatelet medications and statins are advised. 31 Using rivaroxaban with aspirin may also be an option for lowering death and amputation rates during revascularization.

Cilostazol increases walking distance and reduces leg pain sensations in claudication patients, however it is frequently accompanied by negative side effects such headache, dizziness, palpitations, and diarrhoea. Importantly, pentoxifylline is not advised as a claudication treatment due to ineffectiveness.

In this example, patient TF is receiving high-intensity statin therapy and antiplatelet therapy when necessary (aspirin 81 mg daily). Adding rivaroxaban 2.5 mg twice daily to the patient's prescription or switching to a stronger antiplatelet medication like clopidogrel or vorapaxar could lower the risk of MACE and MALE.

Chronic fatigue syndrome

A 54-year-old woman named CL was referred for an inquiry because she had been experiencing extreme weariness for the last two years. She was a full-time kindergarten teacher before to being ill. She had a great job. She had two university-aged sons and a happy marriage. She enjoyed hosting family and friends on the weekends and attended advanced Pilates sessions three to four times a week before to being unwell. When she was at a Christmas party two years ago, her illness began. The illness struck everyone at the gathering. All of them recovered, but she never did. She was so sick after the holidays that she was unable to return to teaching. Since then, she has been unable to work. She experienced an equal amount of good and bad days. On a good day, she had a 5 out of 10 energy level. On a terrible day, she had a 3 out of 10 energy level, therefore she was in bed. On the Functional Capacity Scale, her premorbid energy ranged from 9 to 10/10. (See Appendix 1). On a good day, she pushed herself to complete her tasks. For instance, she would go to the bank, but after waiting in line for a while, she would feel really worn out and dizzy. She once felt so humiliated because she had to sit on the ground until she was well enough to go home. She frequently suffered from swollen glands and painful throats, which got worse when she exerted herself. No matter what time she went to bed, she had restless sleep, woke up frequently during the night, and was fatigued every morning. On good days, she could work on her emails for a half-hour on the computer before she had to stop due to lack of attention. Her phrase was "brain fog." Most days, she was only able to

read a few pages since she was unable to recall the plot. She used to read voraciously. She experienced widespread muscle discomfort, new headaches she had never experienced before, and headaches that were worse when a storm was approaching.

Her doctor felt she was sad, so she had tried a variety of antidepressants, but she did not tolerate them. She didn't have a history of depression and didn't believe she was depressed; she simply didn't have the same amount of energy as she used to. On a good day, she pushed herself to accomplish more, but two days later, she "crashed" in bed due to crippling physical and/or mental exhaustion from overexertion. She lamented the fact that she could no longer do both her beloved profession and the exercise she had previously enjoyed. She was upset and frustrated because, despite seeing ten doctors, she had received no diagnosis.

3. Foot wear for adult:

Five studies looked at healthy people, three of which recruited young female subjects. Only one study that included young female participants measured shoe length. In a sample of 51 students with an average age of 21 years, this study of young Japanese women discovered that 75% of them were sporting shoes that were longer than their feet. The largest discrepancy, though, was only 14 mm, which is within the acceptable range. Specifically sized shoes with a 10–20 mm space between the foot and the shoe as recommended. Conversely, 22% of people wore shoes that were too short for their feet, indicating a possible problem with wearing footwear that is too short.

Only shoe width—more specifically, forefoot width—was taken into account in the two other investigations that included young female participants. In the initial study, it was discovered that 88% of the 356 American women (average age 42; range 20–60 years) were wearing shoes that were smaller than their feet, with an average difference of 1.2 cm. 37% of the women were sporting high heels, 49% were sporting flats, and 14% were sporting sneakers. Following this, 255 American women (average age 41; range 20–60 years) were included in a later study by the same authors using the same methodology. They discovered that 86% of participants were wearing footwear that was too narrow, with an average disparity of 0.88 cm.

In this investigation, no information regarding shoe kind was given. Both investigations noted a higher mismatch between footwear and foot width in those with foot abnormalities such hallux valgus, but they did not say whether this difference was statistically significant.

In two additional investigations, male and female participants were drawn from convenience samples of people who frequently visited foot and ankle clinics. These investigations used participants with similar ages (mean ages 44 and 49 years, respectively) and discovered that 35 to 56% of people were wearing incorrectly lengthened footwear. Only one study, that of Akhtaret al., looked at breadth and discovered that 64% of participants were wearing shoes that were too small for their feet.

4. Headings

- A physical examination for evidence of arterial insufficiency and a history focused on claudication symptoms and relevant risk factors are required for the diagnosis of PAD. The diagnosis is then confirmed with testing, typically a resting ankle-brachial index.
- Holistic care should address comorbidities like hyperlipidemia, hypertension, and diabetes in

addition to exercising and quitting smoking.

- Surgical procedures, anticoagulants, and antiplatelet medications are among the treatment options for lowering atherothrombotic risk in PAD.
- Patients with PAD who are at low risk of bleeding should be treated with rivaroxaban plus aspirin to prevent cardiovascular and major limb adverse effects.
- PAD, an underdiagnosed atherosclerotic disease with possible thromboembolic implications, typically affects the arteries in the lower limbs.
- Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) is an extremely complicated, long-term clinical illness that lacks a blood test or investigation for diagnosis. There has not been much funding for study. The Canadian Consensus Criteria, Fukuda, Holme, International Criteria, Oxford, etc. are among the 20 clinical and consensus research definitions of ME/CFS in the literature that fail to distinguish between the two conditions.In 2015, the US Institute of Medicine established a committee that drafted new ME/CFS criteria and gave the condition the new designation Systemic Exertion Intolerance Disease (SEID). Inconclusive ME/CFS criteria have made it challenging to conduct conclusive studies on ME/CFS individuals.
- It would result in a new knowledge of pathophysiology, new diagnostic procedures, and novel therapeutic approaches. Several people have been dubious about the validity of ME/CFS due to the lack of diagnostic blood tests and investigative tools, as well as the range of case criteria with varying selection and exclusion criteria. As a result, patients with ME/CFS have been disparaged and informed that their condition is "all in their head" and not a true physical illness. This was acknowledged by the IOM, who defined it as "a disease characterised by profound fatigue, cognitive dysfunction, sleep abnormalities, autonomic manifestations, pain, and other symptoms that are made worse by exertion of any kind" in the report Beyond Myalgic Encephalomyelitis/Chronic Fatigue Syndrome: Redefining an Illness. ME/CFS patients' capacity to carry out their daily tasks can be severely.

- Fitting footwear is recognized as being of utmost importance since, in most circumstances, fit determines function. This means that if shoes don't fit properly, they won't serve their original purpose. Furthermore, it has been proposed that poorly fitting footwear has a significant role in the emergence of skin diseases like corns and calluses as well as structural foot abnormalities including hallux valgus and lesser toe deformity.

- For two fundamental reasons, proper shoe sizing is an inherently difficult task. First off, it is currently impossible for the footwear industry to create and produce shoes that can accommodate the three-dimensional morphology of every population's foot. This is because while there is little variation in the shape of lasts used to make footwear, foot morphology varies greatly between individuals. Second, choosing footwear is not solely determined by quantitative measurements of shoe shape and size.

5. FiguresandTables

Patients' unique risk factors and preferences should be taken into account when treating PAD patients in a holistic manner. In general, lifestyle changes and organised exercise are beneficial.

Prescription Medications Investigated for Atherothrombotic Event Prevention in PAD

Drug	KeyTrials	Outcomes	Safety
Clopidogrel	CAPRIE CHARIS-MA	• Significantreductionof-stroke,MI,orvasculardeathcomparedtoaspirin. • ReducedratesofMIandhospitaliza-tionforischemiceventswhenadded-toaspirin.	Observed lower rates of-gastrointestinalhemorrha-gethanaspirin, but increase in minorbleeding.
Ticagrelor	EUCLId	• Notsuperiortoclopidogrelforre-ducingcardiovascularevents in-PAD.	Similarratesofmajor-bleedingcomparedtoclo-pidogrel.
Vorapaxar	TRA2 P-TIMI	• Reduction of stroke, MI, or CV death whenaddedtostandardofcarefo-ratherosclerosis. • ReductioninALIandperi-pheralrevascularizatio-ninPAD.	Increased risk of mod-erate orseverebleedingan-dintracranialhemorrhage compared tostandardof-care.
Rivarox-aban	COMPASS VOYAGER-PAD	• Reduction in stroke, MI, or cardi-ovasculardeathandreducedadverse-limbeventswhenaddedtoaspirin. • Following revascularization, re-ducedamputa-tion,stroke,MI,orCVdeathwhenad dedtoaspirin.	Increased rates of ma-jorbleedingcompared-toaspirin.

Further testing for ME/CFS investigation should be taken into account based on symptoms

- Cardiovascular: electrocardiogram (EKG/ECG), tilt table test for autonomic function, and chest x-ray
- Endocrine/Metabolic: follicle-stimulating hormone, estradiol, parathyroid hormone, brief ACTH challenge test, and cortisol stimulation test
- Gastric emptying study, gliadin and endomysia antibodies, gastroscopy, gastroscopy, and colonoscopy
- Infectious Diseases: as necessary, test for HIV, hepatitis, Lyme disease, Q fever, and the microbiology of the genitalia, faces, throat, urine, and sputum.
- Antinuclear antibodies, total and subclass immunoglobulins, functional antibodies, and lymphocyte subsets are examples of immunology/autoimmunity.
- Pulmonary: overnight polysomnogram and maybe repeated sleep latency testing - Neurological: MRI if multiple sclerosis is suspected

Compare ticagrelor and clopidogrel. Patients with PAD who had undergone lower limb revascularization or had an ABI of less than 0.80 were randomly assigned to receive either ticagrelor or clopidogrel in the EUCLID trial. 12 10.8% of individuals taking ticagrelor experienced the primary efficacy objective (CV mortality, MI, or ischemic stroke), compared to 10.6% of patients receiving clopidogrel. Between the two groups, there were no differences in

ALI or severe bleeding. The authors came to the conclusion that ticagrelor was not more effective than clopidogrel at preventing CV events in PAD. It should be noted that ticagrelor does not currently have an usage indication for PAD.

In a randomized experiment termed TRA 2P-TIMI, individuals with a history of atherosclerosis, including PAD, were compared between vorapaxar and a placebo.45 The main endpoint was a composite of mortality from CV, MI, or stroke. Stroke, MI, or CV mortality occurred in 9.3% of vorapaxar patients and 10.5% of placebo patients after 3 years (P.001) respectively. Intracranial hemorrhage and moderate to severe bleeding were statistically substantially more probable in the vorapaxar group. Due to the increased risk of cerebral hemorrhage, the data and safety board recommended stopping the research in patients with a history of stroke after two years.

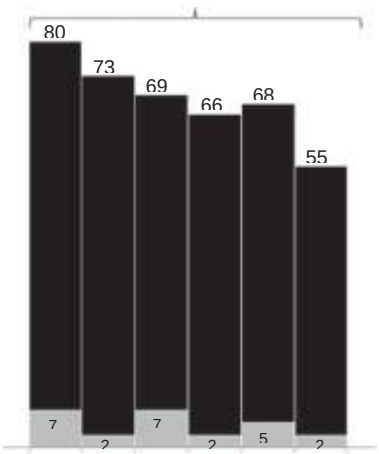
The subgroup of individuals with PAD was assessed in a later analysis of the TRA 2P-TIMI study. 46 In this investigation, vorapaxar had a substantial negative impact on peripheral revascularization and ALI but no effect on stroke, MI, or CV death. Moreover, vorapaxar was found to increase the risk of bleeding. Patients with PAD who had previously undergone revascularization received rivaroxaban 2.5mg twice daily in addition to aspirin or aspirin alone in the VOYAGER PAD study. 47 To lessen confounding of results from concurrent P2Y12 treatment, individuals were stratified according to clopidogrel use during randomization. As comparison to the aspirin-only group, patients on rivaroxaban experienced a lower rate of amputation due to vascular causes, ischemic stroke, MI, or CV death (17.3%; P =.009). According to the TIMI and International Society on Thrombosis and Haemostasias (ISTH) definitions, major bleeding was more frequent in the rivaroxaban group, but only the ISTH bleeding was statistically significant. Both groups experienced intracranial bleeding at a similar rate.

In the majority of ME/CFS patients, cognitive impairment is present.

A variety of neuropsychological tests measuring reported symptoms include slower information processing, memory impairment, attention difficulties, and poor psychomotor performance (see Figure 3). The severity of this cognitive disorder may be such that it hinders or prevents one from working.

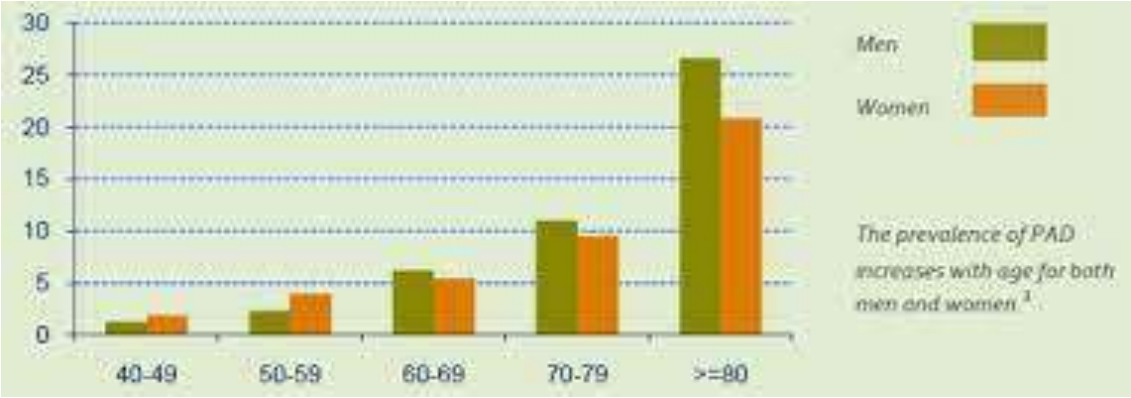
A study using electroencephalograms (EEG) was conducted on 50 CFS patients and 50 controls with similar ages. Increased delta and decreased beta2 frequency bands in the EEG data and precise low-resolution electromagnetic tomography (Elo RETA) results indicated that CFS patients had widespread cortical hypoactivation. These results provided an objective measurement of the CNS dysregulation in CFS patients.

Memoryand concentration problems



Problems remembering
Difficulty expressing thoughts
Difficulty paying attention
Slowness of thought
Difficulty understanding

The percentage of CFS patients and controls who reported frequency and severity scores of neurocognitive manifestations of at least moderate severity that occur at least half of the time for symptoms specified by the Fukuda et.



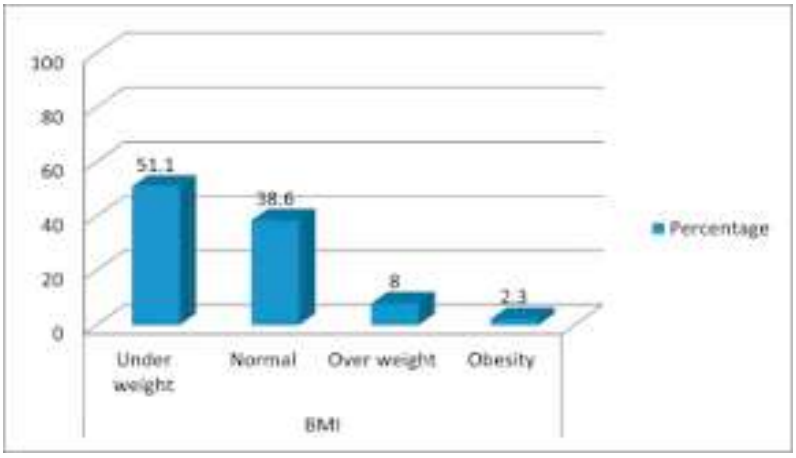
One of the most typical symptoms of ME/CFS is unrefreshing sleep, or feeling just as exhausted upon awakening as before going to bed. Patients with ME/CFS exhibit lower sleep efficiency, decreased total sleep time, and decreased time in deep restorative - delta wave sleep, according to overnight sleep examinations (polysomnographic investigations). Sleep can also be interrupted as a result of mul-tiple arousals with alpha (awake EEG rhythm) wave intrusions during sleep on the nightly sleep study (101–104). (101–104).

It has been demonstrated that stage changes and dynamic stage transitions can distinguish between ME/CFS patients and healthy controls. The development of new, more accurate methods that look at the microstructure of sleep is promising for identifying variations in sleep between patients and healthy people. There is preliminary evidence that abnormalities in sleep stage transitions and sleep instability may be seen (105). (105).

A recent polysomnographic study of CFS patients indicated that they predominantly differ in sleep fragmentation and slow wave sleep (SWS) periods. They found lower pro- portions of very slow oscillations during SWS in Primary Insomnia and CFS. They found normal or increased SWS durations but lower proportions of ultra-slow power. These findings imply a possible quantitative compensation of impaired homeostatic control in CFS (106). (106).

The diagnosis of a primary sleep disorder does not rule out a diagnosis of ME/CFS as both can be present in the same patient. As many as 20% of people with ME/ CFS have a main sleep disturbance. However, even when optimally treated, they continue to have symptoms of ME/ CFS. In these cases, both diagnoses should be made.

Prevalence of incorrectly fitted footwear:



The majority of studies either commented on overall footwear fit by reporting only one variable, typically length, or explicitly reported fitting variables like length or width. However, based on more than one variable, five studies reported the proportion of participants who were wearing improperly fitted shoes. According to length and breadth measurements from four studies, between 63 and 72% of participants were wearing improperly fitted shoes, and according to three measurements from one study, 68% of individuals were (length, width and depth). In a study to measure how well shoes fit, researchers compared the entire area of the foot and the total area of the shoe on 47% of the participants.

The percentage of participants wearing shoes that were too long for their feet ranged between 14 and 73% (median 38%) and too short between 0.6 and 98% (median 10%) among studies that provided specific fitting information. Between 30 and 88% (median 58%) of individuals had shoes that were too small in terms of width, while 1%, according to one study, had shoes that were too wide. One study assessed depth, finding that 31% of individuals wore footwear that was too shallow.

Associationbetweenfootwearfitting,footpainandfootdisorders

In eight studies, the relationship between improperly fitted footwear and foot pain or foot disorders was examined. All but one of the studies found a significant connection between improperly fitted footwear and some type of foot pain or foot disorder.

There were five studies that reported an association between incorrectly fitted footwear and foot pain or impaired quality of life. These investigations found a high connection between tight footwear and foot discomfort, with between 84and 91% of subjects expressing widespread foot pain while shod. Findings were, however, influenced by the traits of recruited participants.

For example, the study on rock climbers, who wear tightly fitting footwear to maximize contact with the climbing wall, found that 91% of participants reported foot pain. Furthermore, 64% of participants reported generalized foot pain while wearing shoes, providing further evidence that loose footwear and foot pain are related. Regarding quality-of-life indicators, a study in Spain that included 65 older adults found that those who wore poorly fitting shoes had significantly worse overall foot health as measured by the Foot Health Status Questionnaire. Regarding particular areas of the lower extremity, one study found a significant correlation between women's ankle pain and improperly fitted shoes.

The relationship between improperly fitted footwear and foot disorders was examined in three studies. Among these, there was evidence that older adults were more likely to have corns and had less severe toe deformity when their shoes were improperly fitted. Importantly, there was also evidence of a strong association between current foot ulceration and incorrectly fitted shoes in older people with diabetes with participants with current foot creation up to 5 times more likely to be wearing incorrectly fitted shoes compared to individuals with- out foot ulceration.

6. Appendix

This article shows the influencing factor of PAD, CFS, FFS in detailed. Regarding that the treatment done, medication steps, control measures to be done are explained

7. Conflict of Interest

This research was supported by SRM Valliammai Engineering College and Ikon engineers and my sincere thanks for my staffs supporting me to do this project in successive way.

The main scope to choose this topic is for the workers working in a organization sometimes have to walk for some distance for multiple times, this results in various side effects. Also place where he/she have to stand do face the syndrome and symptoms of the syndrome. Ongoing with the topic we can get awareness regarding PAD, CFS, FFS

8. Acknowledgement

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9. Authors' Biography

S. Thirugnanam is a Professor and Head in the Department of Mechanical Engineering at SRM Valliammai Engineering College (a member of SRM Group) Chengalpattu, India. He graduated with a Bachelor of Engineering in Mechanical from Madurai Kamaraj University in India in 1990 and a Master of Engineering in Production from Bharathiar University in India in 1993. The same university awarded him a Ph.D. in 2003 for his research on the innovation management of quality circles, ISO 9001:2000, and TFMEA. He has 25 years of teaching experience in addition to five years of company experience. He has published over 44 papers in international, national journals and conferences. In the Indian Patent Office, he published two patents. His areas of interest include total quality management and materials engineering.

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