



EFFECT OF CLOTHING AND HEAVY BOOTS ON THE MUSCULOSKELETAL DISORDERS ENCOUNTERED BY PERSONS WORKING IN QUANTITY KITCHENS

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Abstract:

The persons who toil restless in erect posture and erect the body with physiological stress like chefs, teachers, conductors, etc. are the sufferers of various musculoskeletal impairments. Compared to others, Chefs, those who work with full stress to meet the demand of the customers at the table within the stipulated time are more prone to this problem. Persons working in quantity kitchens have to combat the excessive heat and long shifts. The dress for the chefs is heavier than other forms of uniforms. Wearing heavy boots designed for anti-skidding properties is another crucial reason for musculoskeletal impairments. The food style, timings and nature of work, etc added up to deadly paining issues. The food service jobs demand hours of standing may cause blood to pool in the legs and pressure in the veins. Prolonged standing for hours together with full stress, results in heavy pain in the lower limbs weak veins cause varicose veins. A lot of lifestyle modifications including wearing compression socks, reducing body weight, and altering the designs of the personal protective equipment for every person separately with breathability and comfortability may relieve them from joint pains and other musculoskeletal disorders. Perfect planning on the outfit of chefs could be one of the positive steps for this problem. This study will reveal the current status of the persons working in food service jobs suffering from various forms of musculoskeletal problems. To develop suitable personal protective outfits and lifestyle modifications to combat and relieve the pain reduce the demands for medical care, and extend the productive life of individuals.

Index wordss: physiological, musculoskeletal, impairments, breathability

INTRODUCTION:

The life of chef is quite different than any other profession. In the realm of cooking and culinary arts, the sights of food are not the only thing that matter; chefs' clothing also has a big impact. A chef's attire goes far beyond the standard white jacket and toque; it includes tradition, a dash of personal flair, and practicality. Every element of the chef's costume, from the iconic checkered slacks to the unmistakable double-breasted coats, has a function and adds to the overall ambiance of the kitchen. A chef's dress code is an interesting feature of the culinary industry that distinguishes them from other professions, whether it be for safety, professionalism, or just to show off their passion for cooking. The current study is to bring the problems of chefs into limelight, who suffer from various musculoskeletal problems due to heavy boots and uniforms for a long time.

A chef Uniform or kitchen uniform consists of the following parts;

- **A Chef Coat or Chef's Jacket:** The chef coat contains the double-breasted jacket, normally white, which shows professionalism, cleanliness etc.
- **A Chef Pant or Trouser:** Pants in chequers, in contrast to the white coat, will help to hide stains and give comfortability for long hours.
- **A Chef Cap/Toque:** The tall- pleated chef's hat, shows the expertise of the chefs. The more, the number of the pleat, the more experienced the chef is.
- **A Scarf:** it shows the cadre of the chef in an organization. It also helps to safeguard a person from sweat and keep the dress clean.
- **An Apron:** it has both functional and aesthetic purposes. It helps to keep the coat clean from spills and stains and is a convenient place to keep the kitchen tools close at hand.
- **Shoes:** An important part of a chef's dress, is a shoe. This helps to safeguard a person from sharp objects, hot surfaces, spills etc.
- **Kitchen Dusters:** It helps to carry hot vessels and to keep the place hygienic.

The above is the standard dress for chefs. Every part of a chef's dress is as important as others.

The standard dress code for chefs



Plate 1

Weight of boots:

According to testing experience, the weight of the standard work boot is around 1.45 kg. the average weight starts from 0.8 kg for lightweight boots and heavy duty is around 3.4 kg. According to Bureau of Indian Standards, IS 15298 (Part 2)2011, ISO 20345:2004, Personal Protective Equipment PART 2 Safety Footwear (First revision), the terms and conditions, 'the safety footwear, incorporating protective features to protect the wearer from injuries which could arise through accidents, fitted with toe-caps, designed to give protection against impact when tested at an energy level of at least 200 J and against compression when tested a compression level of at least 15 kNewton¹

2.METHODOLOGY:

2.1 Selection of area and size: Fifty chefs from various hospitality industry and Institutions of Dindigul and Kodaikanal.

2.2.Statement of the problem: The impact of heavy boots and uniform on the musculoskeletal disorders of the chefs.

2.3. Sampling technique: Simple Random Sampling

2.4. Data Collection and Tool:

A standard questionnaire was prepared and inquired with the chefs both in person and through Google Forms. Based on a random sampling technique, the data was collected. The questionnaire includes personal

information, years of experience as chefs in the organization, and the impact of heavy boots and uniforms on the productive lifestyle of chefs.



*Photo courtesy: K.P.Raja,KIS,KKL

Plate 2

3.RESULTS AND DISCUSSION:

Based on the responds collected, the results are discussed below.

3.1 Age of the respondents:

The age of the chefs was around the range of 20-60 and the age-wise distribution is given below:

Table 1

Age of the Respondents

Sl.No	Range of age group	Number of chefs (N=50)	Percentage
1	20-30	5	10
2	30-40	10	20
3	40-50	23	46
4	50-60	12	24

Table- I

The maximum age group comprises between 40-50 range, which shows that around 46 percentage of the respondents belong to adult age group,

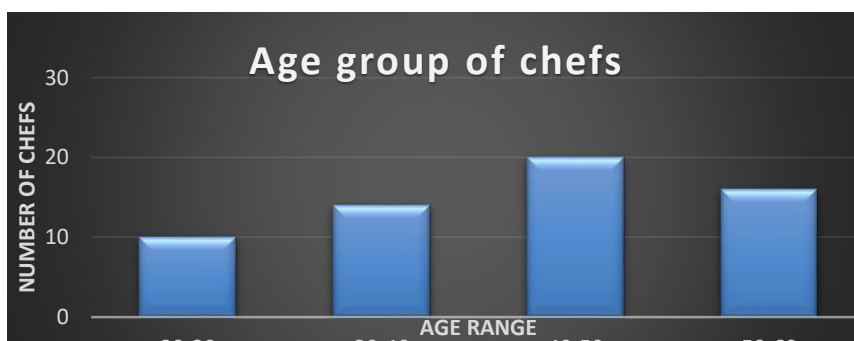


Figure 1

3.2.Hours of working:

The major factor for considering the musculoskeletal factors' impact on the heavy dress and boots is the hours of working. Most of the chefs work for more than eight hours of working based on the needs of the industry.

Table -2

3.2.Hours of working by chefs in the hospitality industry

Sl.No	Working time (in hours)	Number of chefs(N=50)	Percentage
1	8	20	40
2	9	08	16
3	10	12	24
4	12	08	16



Figure 2

Around 40 percent of them work for 8 hours per day, 16 percent work for 9 hours per day, 24 percent of them of working 10 hours per day and another 8 percent of them work for 12 hours per day, which shows long working hours. Wearing uniform and heavy boots are really a toughest task for them if they have to withstand for long hours, result in muscle pain, joint pain and musculoskeletal disorders.

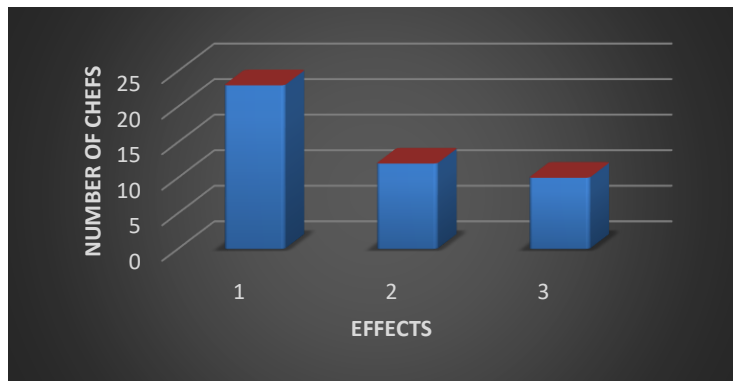
3.3.Effect of wearing uniform:

The chef's uniform is one of the unique, which helps them from excess heat which is produced in the kitchen. The white colour, is not only meant for cleanliness, but makes the heat reflect back and not affect the workers. But, continuous wearing of the uniform for a long time, makes them feel uncomfortable and less breathable. Out of the fifty samples taken, the following responses were registered.

Table 3

3.3.Effect of wearing Uniform for a longer period

Effect	Feeling fatigued	Less breathable	uncomfortable
Number of chefs	23/50	12/50	10/50



1- Feeling fatigued 2- less breathable 3- uncomfortable

Figure 3

Twenty out of fifty samples stated that, wearing the uniform for a longer period makes them fatigued, twelve out of fifty responded that they feel less breathable, and ten of them felt uncomfortable and most of them felt it was heavy, even though it is safe to work in quantity kitchens.

3.4. The weight of boots:

The boots of the chefs are designed in a way that, it has to withstand the weight of the individuals, to be safe for the foot of the chefs when they pour hot liquids by mistake, and to be anti-slippery. Many factors influence the weight of boots. On an average, the weight of boots is around 2-3 pounds weight, if fixed with steel toe, it may be around 4-4.5 pounds (1-1.8 kg). The heavy- weight is justified to protect the workers of quantity kitchens from hot liquids and long lasting. But the workers could not bear the weight of boots when they wear it for 8-10 hours together.

Table 4

3.4 Individuals feel the boots are heavy

Sl.No	Heavy boots (N=50)			
	Yes	Percentage	No	Percentage
1	45	90	05	10

Around 90 percent of the chefs felt, the shoes are heavy. But they are compromised that, the heaviness is needed for the safety of the individuals. The heavy boots are one of the reasons for ankle pain, calf muscle pain and fatigue during heavy and continuous working hours.

3.5 Persons suffering from joint pains, varicose veins, spinal issues

Most of the chefs who work in quantity kitchen suffer from one or other musculoskeletal disorders due to the heavy workload and the impact of the heavy boots and uniform.

Table 5

Persons suffering from various Musculo-skeletal problems

Sl.No.	Yes	Percent
Joint pains	32	64
Varicose veins	30	60
Spinal issues	21	42
Both joint pains and varicose	32	64

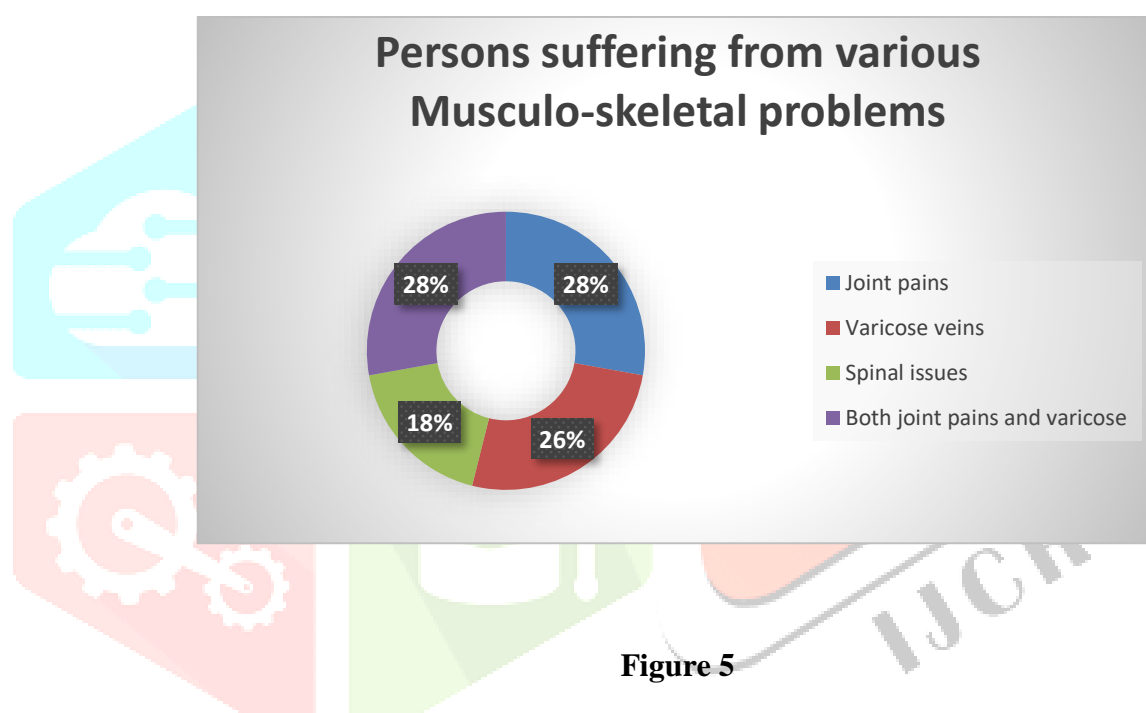


Figure 5

As the weight of the shoes are heavy, and the working hours are more and the work is laborious, the chefs work in quantity kitchen suffer from various Musculo-skeletal disorders like joint pains, knee joint pains, varicose veins and spinal problems. Sixty- four percent of them have severe joint pains, sixty have varicose veins. One of the deadliest issues, which is unnoticed and unattended is varicose veins. Forty- two percent of them have spinal issues and sixty- four percent of them have both joint pains and varicose vein problems.

3.6. Any recent surgery undergone regarding musculoskeletal problems:

Table-6

Sl.No	Yes	Percentage	No	Percentage
1.	11	22	39	78

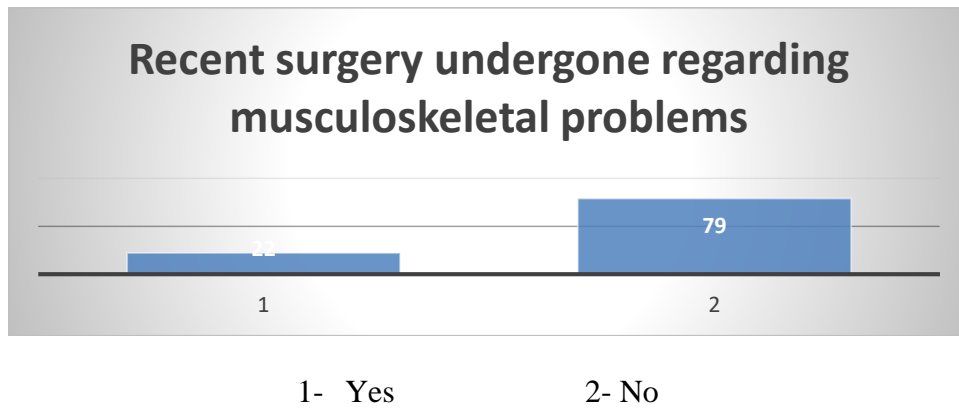


Figure 6

Very few workers have undergone surgery related to musculoskeletal disorders. Prolonged standing for hours together lead to heavy pain in joints, knee pain, spinal pains and some of the workers undergone surgery.

3.7. Feeling pain due to heavy boots:

Table-7

Pain suffered by the workers

Feeling pain after 6 hours	Feeling pain after 5 hours	During day	During night
23	27	12	38

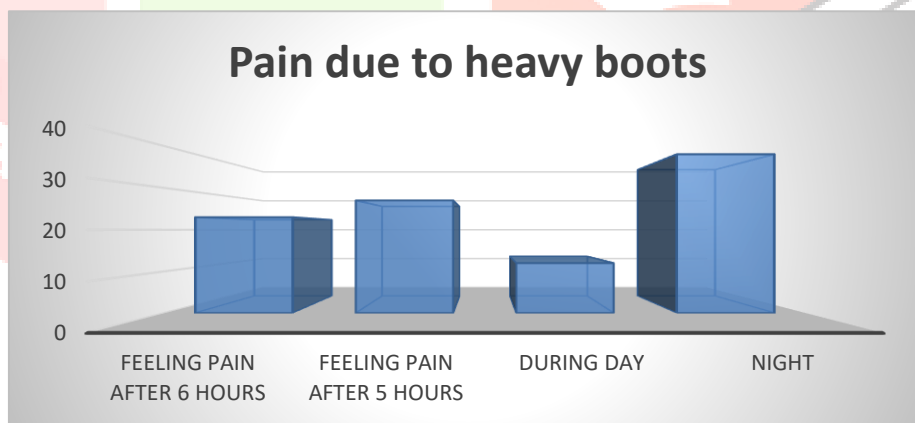


Figure 7

The pain due to wearing heavy boots lead to severe pain in the legs. Twenty three workers feel pain after 6 hours of wearing heavy boots and the rest feel pain after five hours of wearing the same. Compared to the workers who feel the severity of the pain during night time is more than the persons feel the pain during day time. This is because of the weight held by the feet and pressure exerted due to the work stress. The pain during night time may be due to the excess work pressure.

3.8 Pain interference in daily activities:

Table 8

Pain interference in daily activities

Pain interfering daily activities	Yes	Percentage	No	Percentage
		33	66	17

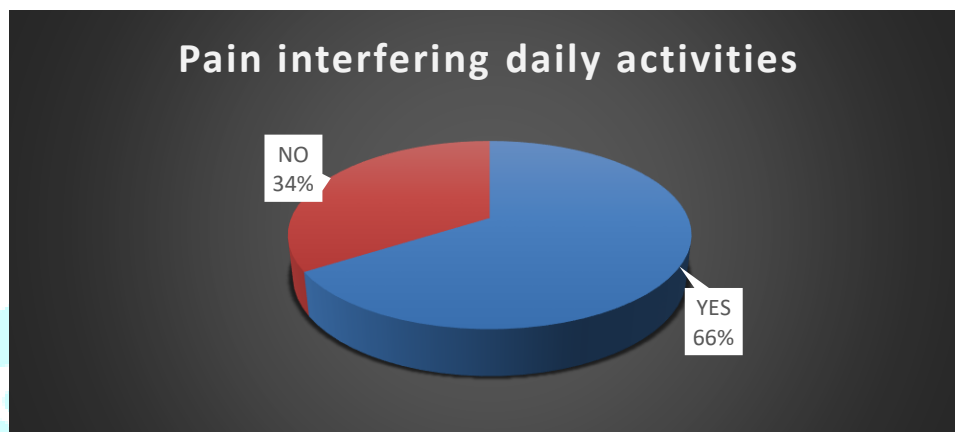


Figure 7

The above table and Fig indicate that the daily activities of the workers are getting affected by the severity of the pain.

4.CONCLUSION:

Based on the findings from the study, it was clearly stated that the weight of the heavy boots and uniform worn by the chefs in quantity kitchens suffer a lot of health-related issues. As they have to work restless for hours together with the heavy boots lead to joint pains, spinal cord issues and musculoskeletal disorders. So, steps have to be taken to reduce or remodel the weight of the boots and relief the pain of the workers of quantity kitchens, to standardize the weight of the boots according to Indian standards and to improve their life style.

References:

1. <https://law.resource.org/pub/in/bis/S02/is.15298.2.2011.pdf> - Indian standard PERSONAL PROTECTIVE EQUIPMENT Revision 2, safety footwear first revision IS 15298 (Part 2):2011, ISO 20345:2004.