

Prevalence of Wrist Pain in Bakers

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Abstract: *This study delves into the prevalence and underlying factors of wrist pain among bakers, a group engaging in physically demanding activities including dough kneading, rolling, and handling heavy equipment. Utilizing a questionnaire - based cross - sectional study design, the research sampled 60 bakers from Mumbai, assessing wrist pain through self - reported measures. The findings underscore a significant prevalence of wrist pain, particularly among female bakers, attributed to biological and social factors such as bone density differences and additional wrist strain from household chores. The study highlights the necessity of ergonomic considerations, regular physical exercises, and specific interventions to mitigate wrist pain among bakers, emphasizing the gap in research on occupational health within this profession. It presents a pioneering exploration into the occupational hazards faced by bakers, advocating for improved workplace ergonomics and health awareness in the baking industry.*

Keywords: bakers, wrist pain, occupational health, ergonomics, gender differences

1. Introduction

The occupation of a baker is one that is filled with creativeness and originality. The baker has many other duties besides simply producing baked goods and these other responsibilities help to make the overall occupation exciting and fulfilling. Since there has been much analysis done on the desk job workers but there many other professions like bakers, carpenters, cobblers, potters etc on which the analysis has not been done so I choose to undertake my study on bakers.

Baking is a typical repetitive task involving the upper limbs, especially the wrists. [1] Dough processing by using hands is one of the primary daily tasks of bakery workers. Many consumers still believe that hand - kneaded bread is particularly delicious. Dough processing typically involves 3 operations: kneading, rolling, and rounding. Since dough processing involves many procedures and the division of labor in each store is different, not all bakery workers are engaged in these 3 dough operations, which may explain the reason for different wrist prevalence among bakery workers. [1]

Dough processing typically involves 3 operations: kneading, rolling, and rounding. Bakery workers are regularly exposed to strenuous manual activities including heavy lifting, forceful exertions, and awkward postures including dough handling, standing for prolonged periods next to a hot oven, continuous bending to insert heavy trays in the oven, lifting and moving of heavy items and bags sometimes up and down a staircase, and working in cramped and heated spaces. Bakery workers also work for long hours. [2] In one of the study the 81 Taiwanese bakers were used to explore their discomfort or symptoms of work - related musculoskeletal disorders and identify the risk factors using the Nordic Musculoskeletal Questionnaire (NMQ). Wrist postures were also examined during that time with the highest prevalence of 66.3% and 51.8% in the hands/wrists (right and left). [1] Wrist pain is a common presenting symptom, affecting especially bakers.

Sign and Symptoms

- Repetitive hand motions.
- Awkward hand positions.
- Strong gripping.
- Mechanical stress on the palm.
- Vibration.
- Pain in the fingers, hand or arm
- Tingling or numbness
- Weakness/weaker grip

Duration of working, improper technique, improve workstation setup combination of all these factors are risk factors for wrist pain in bakery workers. A baker is a person who bakes and sell cakes, breads, biscuits, chocolate, and flour based snacks by using an oven. The place where a baker work is called bakery. Wrist pain is highly prevalent in groups who partake in physically demanding activities from day to day such as manual labourers and sportspeople. [3] Bakers mostly perform their tasks through repetitive movements of the upper arms with different forces in the poor workstations design. [4]

2. Need of the study

Wrist Pain can have causes that aren't due to underlying diseases. Eg. Includes a sprain or strain nervous disease or trauma. Symptoms of this are pain tingling, dull aching, soreness, weakness.

Bakers experience due to faulty exposer. In this research we are focusing on wrist only. There are several poses & technique that can put strain and stress on the wrist ending to pain or injury. If there can be any pain so it should be prevented. By correcting the ergonomics, stretching & strengthening of muscle and wrist should be done, should take break in between to avoid wrist pain.

3. Aims and Objectives

Aim:

Study and identify work related Wrist pain in Bakers

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Objective:

- 1) To identify the Wrist pain in Male bakers using self - made questionnaire
- 2) To identify the Wrist pain in Female bakers using self - made questionnaire

4. Methodology

Study design: Questionnaire based cross sectional study.

Sample size: 60 bakers

Study setting: Mumbai

Duration of study: 6 months

Inclusion criteria

- Bakers
- Both Male and Female
- Working for at least a year
- Age group 20 – 40 years
- Willing to participate in the survey

Exclusion criteria

- Not willing to participate
- People below 20 or above 40
- Co - morbidities

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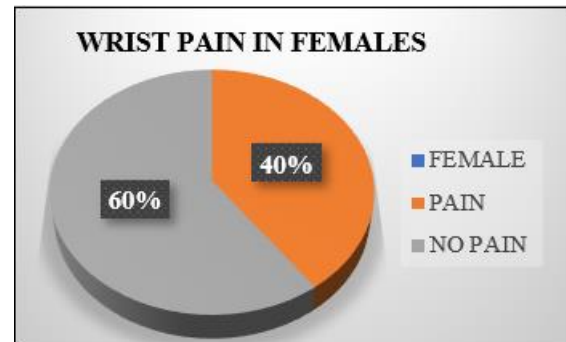
5. Procedures

A research problem was selected: Prevalence of wrist pain in bakers. A review of literature was conducted on the basis of the research problem. After the review of literature, Aims and objectives were designed. A questionnaire was formulated to assess the prevalence of wrist pain in bakers. The designed questionnaire underwent validation by the experts of the field. A sample size of 60 was decided. . Permission from the cake shop owners was taken to allow the data collection. Participants were selected on the basis of inclusion and exclusion criteria. A consent form was taken from the participants before conducting the study. The Questionnaire in form of Google form was circulated to the participants who fit the inclusion criteria. The data collected was analysed and

results were obtained. Discussion was drafted and the study was concluded.

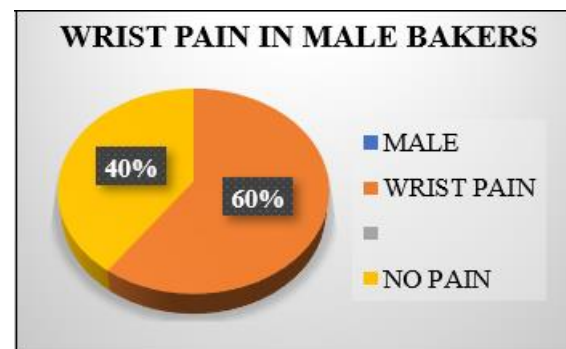
6. Data analysis

In this study Google forms were used to collect the data from the Bakers. Microsoft Excel was used to analyze the collected data. Percentages were calculated based on the collected data, graphs obtained and interpretation was inferred.



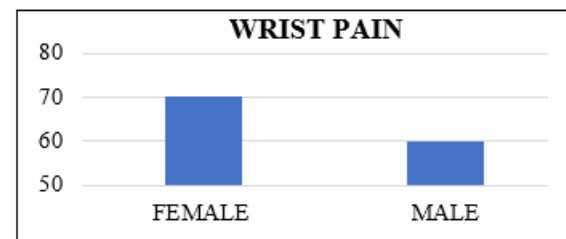
Graph 1: Wrist pain in females

Interference: The above graph represent the MEAN, among female bakers who have wrist pain.



Graph 2: Wrist pain in males

Interference: The above graph represent the MEAN, among male bakers who have wrist pain.



Graph 3: Comparison of wrist pain in males and females

Interference: The above graph represented the distribution of mean amongst male and female bakers with wrist pain. Mean of female bakers with wrist pain is 70% out of 100%. Mean of male bakers with wrist pain is 60% out of 100%

7. Discussion

This study is based on a survey conducted on 60 bakers, out of which 30 were male and 30 were female. The fundamental finding of this meticulous study is that wrist pain is highly prevalent in bakers as they partake in physically demanding

activities from day to day such as flexing or extending their wrists while kneading dough and rolling. A closer look at the data reveals that female bakers are more susceptible to wrist pain than their male counterparts. There are several factors behind this discrepancy. These factors are majorly biological and social.

One of the most vital reasons why wrist pain is more common in women bakers is that men have larger, and stronger bone and joint surfaces. This means women's wrist bones might have lower density, making them even more prone to wrist pain. Age is also a contributor in this case. It is found that women start to lose bone density prior to and at a quicker rate than men. Hence, wrist issues in female bakers, too, tend to be higher than in male bakers. Another important factor is hormonal changes such as menopause. A study has revealed that women are at a greater risk of developing osteoporosis than men because menopause can adversely affect bone density. It may cause the bones to lose minerals, compelling them to get brittle and making them vulnerable to pain and fracture. Lastly, since ancient times, women have been contributing more toward household chores such as cleaning utensils, sweeping, mopping, etc. where there is a considerable use of the wrist. This, too, plays a part in making female bakers more prone to wrist pain as they make extensive use of their wrists at the bakery as well as at home. Overall, this study draws the inference that female bakers are at a higher risk of developing wrist pain and related issues than not just male bakers but also the general population. Currently, there seems to be a lack of such studies in bakers. Such targeted studies may help in underlining the list of exact causes of wrist pain in female bakers and bakers, in general.

8. Conclusion

Thus the study concludes that wrist pain in Female bakers is more significant compared to male bakers.

9. Clinical implications

Bakers should involve themselves in regular warm up exercises before working. They should involve themselves in regular cool down exercise after their working hours. They should pay close attention to strengthening and flexibility exercises.

10. Recommendations

Stretching nerves of upper limb:

As the nerve most commonly to get involved would be median nerve. Stretching for median nerve should be carried out. Ulnar nerve stretching can also be carried out.



Alleviating stress in discomfort:

Stress mainly occurs due to heavy work demands.

It can be reduced by the following ways:

Before baking:

- Wrist curl
- Tilt back
- Hammer
- Wrist stretch
- Resistance press
- Fist rotations



During baking

Adequate rest pauses should be taken. This provides physical as well as mental relaxation. Try to arrange things so that you have any easy access to the people and resources.

After baking

Adequate sleep is necessary.

Relaxation technique should be adopted.

Meditation

This occupies your mind, diverting from the problems that are causing your stress. It gives your body time to relax and recuperate, and to clear away stress hormones that may have built up.



Deep breathing exercise: Deep breathing is a very simple but very effective method of relaxation.

Progressive muscular relaxation (PMR): The idea behind PMR is that you tense up a group of muscle so that they are tightly contracted as possible. Hold them in a state of extreme tension for few seconds then relax the muscle to the previous state. Finally consciously relax the muscle even further so that you are as relaxed as possible.

References

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Annexure

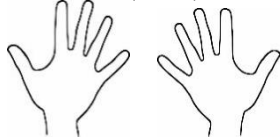
I Consent to voluntarily participate in the research entitled – “Prevalence of wrist pain in bakers”. The answers to the study questions are solely mine and are not affected by any external factors.

- Yes
- No
- Name -
- Age -
- Gender -
- Occupation -

- 1) For how long have you been baking?
 - 6 months – 1 year
 - 1 year – 5 years
 - 8 years – 9 years
 - 10years – 12 years
- 2) How long do you work in a day?
 - 2 – 4 hours
 - 4 – 6 hours
 - 6 – 8 hours
 - More than 8 hours
- 3) Do you take any break while working?
 - Yes
 - No
- 4) How many breaks do you take during your working hour?
 - Only 1
 - 2 times
 - 3 times
 - More than 3 times
- 5) If yes then how long does it last?
 - 15 – 20 mins
 - 30 – 45 mins
 - 1 – 2 hours
 - More than 2 hours
- 6) Do you have any assistant/Helper?
 - Yes
 - No
- 7) Is the space adequate to perform your task efficiently?
 - Yes
 - No
- 8) Is the platform height comfortable to work in?
 - Yes
 - No
- 9) Is there enough ventilation?
 - Yes
 - No
- 10) Do you knead or dough?
 - Knead
 - Dough
- 11) How do you knead
 - Mechanical instrument
 - Manual
 - Both
- 12) What type of baking technique do you prefer?
 - Mechanical equipment
 - Manual
 - Both
- 13) How many times do you Knead or Dough (in a day)?
 - 1 – 2 times
 - 2 – 4 times
 - 4 – 6 times
 - More than 6 times
- 14) For how many hours do you knead or dough?
 - 1 - 2 hours
 - 2 - 4 hours
 - 4 – 6 hours
 - More than 6 hours
- 15) How long does it take to knead or dough one batch of flour?
 - 15 – 20 mins
 - 20 – 40 mins
 - 30mins – 1 hour

- 16) Do you experience any pain in your wrist while kneading or doughing? 1
2
3
4
- Yes
 - No

- 17) If yes, locate the side 5
6
7
8
9
- Ventral (Front)



- Dorsal (Back) a b
- Both

- 18) If yes, locate the site



- Base of index finger (thumb)
- Base of thumb (mep joint)
- Other.

- 19) Since how long are you experiencing pain in your wrist?

6months – 12months

- 1 – 2 year
- 4 – 6 year
- 7 – 8 year

- 20) What type of pain do you experience while kneading or doughing?

- Tingling
- Dull pain
- Stretching
- Other

- 21) When do you feel most pain?

- In morning
- In night
- After work
- During work

- 22) Do you experience sleep disturbance due to sleep?

- Yes
- No

- 23) Do you feel any pain while doing a repetitive wrist movement?

- Yes
- No

- 24) How long does it take for the pain to go away?

- 20 mins
- 40 mins
- mins to 1 hour

- 25) How often do you have pain on a scale of 0 – 10, 0 being no pain to 10 being the worst pain



0

- 26) What are the factors that increase your pain? Please specify _____

- 27) What are the factors that decrease your pain? Please specify _____

- 28) What methods/measures do you take to reduce your pain?

- Rest
- Ice
- Hot packs
- Changing position
- Compression/Bandaging
- Any other _____

- 29) Have you ever consulted any doctor?

- Yes
- No

- 30) If yes, then who?

Please specify: _____

- 31) Have you ever taken any painkillers?

- Yes
- No

- 32) Did you make any architectural modification changes to ease your symptoms?

- Yes
- No

- 33) Has this pain affected your baking skills?

- Yes
- No

- 34) Do you know physiotherapy helps to relieve your pain?

- Yes
- No