



STUDY OF DISCOMFORT IN BODY PARTS IN FITTING POSITIONS IN WAGON MANUFACTURING BY WORKERS SURVEY METHOD

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ABSTRACT

Objective of the study is to detect discomfort in the workers body parts because body pain is the main cause of efficiency reduction .Here study is done through a survey conducted in CIMMCO WAGONS LTD. Bharatpur on fitters in production shop. Through survey it is observed that which body part is mainly affected during working and how it is being affected. Later it is concluded that what we can do to give comfort to above said body part so that function performed do not get affected .Also due attention is given to other factors like body movement, body positions, psychology of working with the sole motive to enhance work efficiency and hence production output.

Work study /work measurement techniques are also adopted to improve work efficiency like micro motion analysis, motion-time-measurement (m-t-m) studies, therbligs principle, string diagrams, workplace arrangement, tools setup layout. Along with all these ,we are taking up worker's survey method to find out cause of physical discomfort and thus by removing that cause can certainly improve productivity.

KEYWORDS: Posture; discomfort; fitting ;wagon; waist; elbow

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INTRODUCTION

STUDY CONDUCTED

Step1 Observation

Observation of work environment and working of fitter in CIMMCO wagon workshop..

Step2 Workers replies to question sheet and photos of workers showing different postures of operations are recorded.

Step3 Preparation of tables, charts, graphs.

Tables are prepared by using data information.

Step4. Detecting cause of problem and eliminating. Major cause detected and rectified.

CIMMCO –OPERATIONS

In wagon manufacturing workshop the basic work that are carried out are as follows:-

Planning Deptt-requirement of steel & bought out items

Drawing Deptt-jigs, fixtures and guage layout plan

Purchase Deptt-referrals & past clients

Productiondeptt.welding, shearing, bending, drilling, millingturning fitting, straightening, wheel mounting, shot blasting .

Quality Deptt.- visual inspection, guage testing, radiographic inspection, rdso approval

Materials and Method

Tables

1. Elbow pain: Table 1 and Figure 1 show the of elbow pain. 5.55% people have problem in elbow .

Table 1 Data of elbow pain

Elbow Pain	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	1	5.55	5.55	5.55
No	17	94.45	94.45	100.0
Total	18	100.0	100.0	



Figure 1 Chart of Elbow pain

2. Palm pain: Table 2 and Figure 2 show the data of wrist/fingers pain. 33.3 % people have palm pain

Table 2 Data of palm pain

Palm Pain	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	8	33.3	33.3	33.3
No	12	66.7	66.7	100.0
Total	18	100.0	100.0	

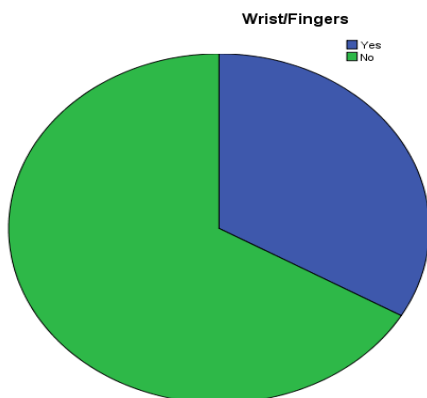


Figure 2 Chart of Palm pain

3. Waist pain: Table 3 and Figure 3 show the data of waist pain. Maximum workers, 77.78 % people have discomfort in waist due to pressing of spinal nerve.

Table 3 Data of waist pain

Waist Pain	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	14	77.78	77.78	77.78
No	4	22.22	22.22	100.0
Total	18	100.0	100.0	

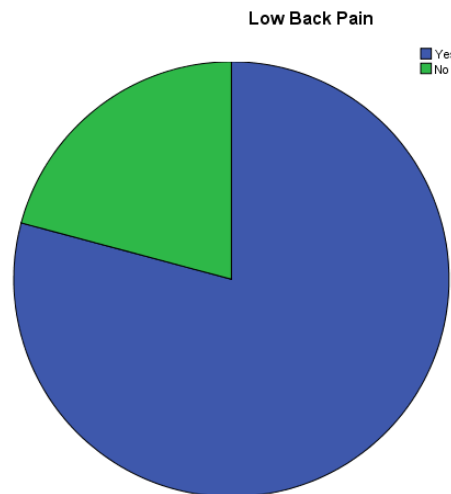


Figure 3 Chart of Waist pain

4. Hand pain: Table 4 and Figure 4 show the data of hand pain. 11.11 % people have pain in hand.

Table 4 Data of hand pain

Hand Pain	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	2	11.11	11.11	11.11
No	16	88.89	88.89	100.0
Total	18	100.0	100.0	

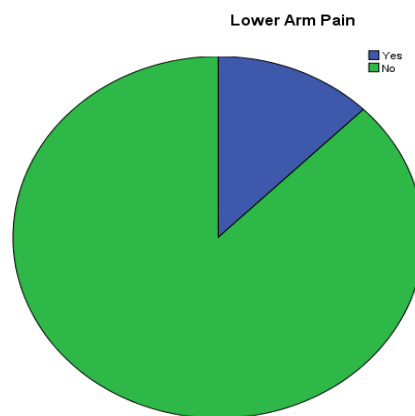


Figure 4 Chart of Hand pain

Comparison of percentage of discomfort in different body parts

Figure 5 shows the comparison of percentage of discomfort to different body parts. Waist pain is highest among all body parts. This problem is due to curving or leaning over work in long hour working.

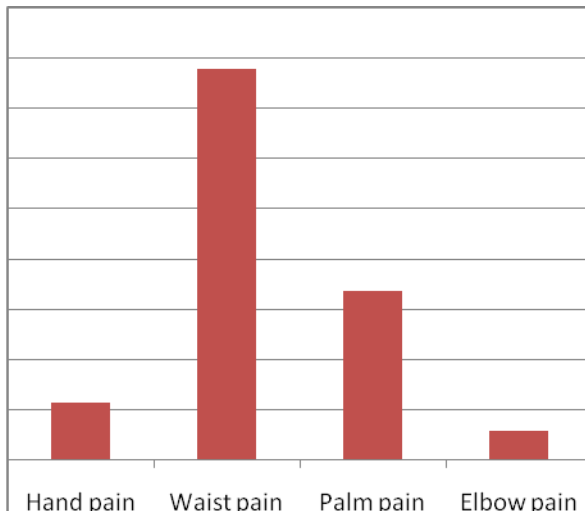


Figure 5

RESULT/DISCUSSION

We conclude from above analysis that waist pain is major contributing factor for workers discomfort and reducing work efficiency. We have to reduce this waist pain by change in seating pose, raising of working table height so that the leaning over or curving of fitter over work can be avoided etc.

CONCLUSION

Waist discomfort can directly be linked to the pressing of vertebral column and extension of spinal cord. Long hour leaning over a job with excess concentration causes this problem. Constant long hour posture may hinder all the free movements like bending, twisting and longitudinal motion of back bone. Also these discs of vertebral column rub against each other during working which may lead to pain and discomfort.

Survey Questions

1. Name and age of fitter
2. Daily working hours.
3. Problems associated with physical work environment like vibration, noise, temperature and air quality discomfort, risk of accidents, allergies etc..

4. Discomfort in body parts like hand, waist, palm, elbow etc.

5. Other problems if any.

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REFERENCES

- [1.] www.cimmco.in
- [2.] www.titagarh.biz
- [3.] www.ergonomics.org
- [4.] www.indianrailways.com
- [5.] Production Tech. R.K.Jain ; production ergonomics 2008.
- [6.] Industrial Engg. by O.P.Khanna ; human factors and ergonomics 2010