

AN INVESTIGATION OF ON-DUTY INJURIES IN INDUSTRY AND THEIR RELATION TO THE WORKING SITUATION †

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In present-day industry, with its complex machinery, and in certain areas, hard physical work, injuries and strains are commonplace among workers. This leads to a loss of man-hours, production loss, compensation requests and in the long run an "unhealthy" working climate. To prevent these injuries and strains would be beneficial for all concerned.

The function of a physiotherapist in industry encompasses four areas: preventative, curative, rehabilitative and educative care. Curing on the spot could mean further reduction of loss of man-hours. Over one-half of all industrial injuries are directly related to posture and body-mechanics and the incidence is still increasing particularly with regard to back injuries (statistical records of the National Occupational Safety Association).

This project was aimed at investigating the incidence and types of short-term, musculo-skeletal injuries which were sustained between May 1981 and May 1982 in a specific South African industry. It was further hoped to determine whether physiotherapists could fulfill a useful role in the ergonomic aspect in this field and if so, further research in this area would be indicated.

A study was conducted at a factory responsible for packaging and labelling in the Cape Peninsula. This industry is divided into sections, different types of work being done in

each section. The staff consisted of 883 workers of all race groups. The information on work injuries was obtained from the personnel files in the surgery. Persons who had suffered from short-term musculo-skeletal injuries were interviewed to determine the mechanism of injury. At the same time the workers were observed for faults in postural habits and kinetic handling. In the table the following are recorded:

- the departments with the total number of people working there.
- the number of injured cases of the selected group in each department.
- the number of injuries in each department.

These statistics demonstrate relatively serious short-term musculo-skeletal injuries (i.e. serious enough to seek medical help) suffered in the course of the year. Of the 883 workers in the factory 19.25% were affected.

According to the ratio between the number of injuries and number of people in each department, the four departments with the highest accident rate were then selected for closer investigation. These departments were:

- Lithography
- Binding
- Sorting
- Breaking out.

Table 1

Department	No. of people in dept	No. of individuals in selected groups	% I	No. of injuries in dept	% II
Lithography	143	50	35	93	33.3
Sorting	99	18	18.2	27	9.7
Box	43	8	18.6	13	4.7
Carton	71	4	5.6	6	0.2
Stores	21	4	19	8	2.9
Photo-litho	33	4	12.1	6	2.2
Delivery and transport	31	7	22.6	8	2.9
Glueing	55	14	25.5	21	7.5
Administration	131	4	3.1	7	2.5
Engineers	49	2	4.1	2	0.7
Breaking out	45	13	28.9	17	6.1
Sheeters	16	3	18.8	3	1.1
Binding	98	34	34.7	59	21.1
Despatch	20	4	20	7	2.5
Surgery	2	1	50	1	0.4
Others	26	0	0	0	0

% calculated as follows:

I $\frac{\text{No. of individuals in selected group}}{\text{No. of people in department}} \times 100$

II $\frac{\text{No. of injuries in department} \times 100}{\text{Total no. of injuries}}$

† Abstract of project completed as course requirement.

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Table 2

Diagnoses	Frequency	Mean day loss	Total day loss
Lumbar back pain	239	2,4	581
Shoulder injury	17	1,5	25
Hand injury	8	0	0
Neck pain	5	3,8	19
Thoracic pain	5	2	10
Knee injury	2	2,5	5
Muscle injury	2	0	0
Ankle injury	1	0	0

The types of musculo-skeletal injuries which occurred in the timespan of one year are listed in Table 2. They ranged from low back pain to ankle injuries.

The highest % of the total number of injuries was low back pain (LBP), 85,7%. The data in Table 2 also show that this injury had a significant total loss of 581 working days compared to shoulder injuries with a total day loss of 25 working days.

Table 3.

Mechanism	No. of injury	% of total no. of back injuries
Back and hip bending with knees straight	147	61,8
Turn while coming upright	25	10,5
Leaning forward	21	8,8
Lifting, hammering and bending	14	5,9
Standing	5	2,1
Pulling	4	1,7
Falling backwards	4	1,7
Bending forwards	4	1,7
Contact	1	0,4
Pushing	1	0,4
Sitting and turning	1	0,4
Unknown	5	2,1
Total	238	

The mechanisms of injury, resulting in LBP were evaluated (Table 3).

It is obvious that most injuries were the result of poor kinetic handling.

This is by no means a complete record of all the back problems in the factory. Several workers accepted their back pain as a minor problem and normal occurrence, and did not think it necessary to seek medical help and advice.

Of the short term musculo-skeletal injuries LBP was the most significant, according to the number of injuries (293) and total loss of working days (581). This could be attributed to poor kinetic habits, which included wrong methods of bending, and lifting, sitting and standing for long uninterrupted periods of time. The combination of heavy physical work and an increase in work load during seasonal peaks showed a high increase in accident rate which adversely affected the work load to be done. This means that the remaining workers had more work to cover. This again could cause increased stress to the limits of workers' capacity, leading to more injuries. This vicious cycle results in decreased productivity during peak seasons.

Application of ergonomics is justified by the high incidence of back injuries. The physiotherapist's knowledge could enable her to give advice to engineers and workers. It would be advisable to make management and workers more aware of the actual magnitude of the problem and stimulate further efforts to ensure the safety and health of workers.

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