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Ergonomics for Improving Productivity in Clothing Industry

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ABSTRACT

Ergonomic play an important role in all units of industries which provide proper working condition for workers, healthy environment, proper use of tools and helps in improving productivity in industries thus it will be beneficial in increase in world's economy. But in industries till now environment is unhealthy and unsafe for workers which creates health problems to workers. Today workers spend most of their time in repetitive activities in awkward postures. Workers are not aware of this because it feels comfortable. If workers do not sit properly, take regular breaks and also use correctly positioned furniture and equipment, workers become vulnerable to pain and discomfort. Injuries and muscle pain affecting the wrists, shoulders, neck and back are common problems for workers in the clothing industry. Ergonomic helps in improving the working condition of industries through which there can be healthy and safe environment for workers and also reduce in injuries related to muscle pains.

KEYWORDS : Ergonomic, Apparel Industry, Productivity, Factors

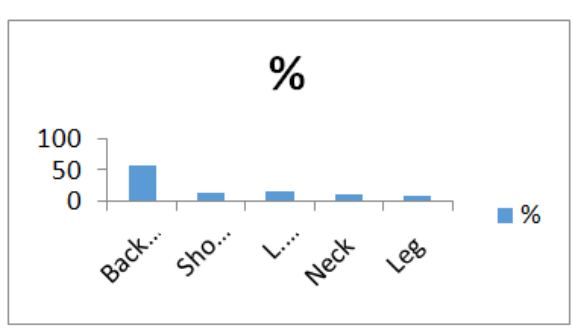
Introduction

India is more populated country in world, so clothing industries can get workers easily at lower cost. In India clothing industries are increasing day by day. It is reported to be the second highest contributor to India's export basket, after 'gems and jewellery.' There are around 70,000 garment manufacturing units in the country providing employment to more than 3 million persons (Parimalam, 2006). Clothing industries work is repetitive and monotonous requiring strong visual demands, improper postural requirements, involving long hours sitting or standing in one position. The work of garment workers is physically demanding (Mukund, 2014).The work environment in a majority of these units is unsafe and unhealthy. These include poorly designed workstations, unsuitable furniture, lack of ventilation, inappropriate lighting, excessive noise, insufficient protection from dangerous chemicals, insufficient safety measures in fire emergencies and lack of personal protective equipment. People working in such poor or substandard environment are prone to occupational diseases. Empirical evidences suggest that the workers in the clothing units suffer from work-related musculoskeletal disorders lower back pain, neck pain, shoulder pain and pain in knees. Features in garment industry that could be improved to prevent injuries include; communication, involvement of employees in decision making, education and training of employees and management on prevention strategies, and the ergonomic conditions at the plant. The clothing industry is generally seen as a safe place to work, and when compared to other industries, there are relatively few serious accidents in clothing plants. The hazards we face are different. The major health risks in this industry do not arise from immediate, potentially fatal hazards. Instead, the risks that clothing workers face come from more subtle hazards whose effect accumulates over time. Factors such as repetition, force, posture and vibration are associated with higher rates of injury. But you can't look at the workstation alone to understand these injuries. The factors that relate to reduced injury rates include empowerment of the workforce, safety protocols, and greater seniority of the workforce, good housekeeping and active role of top management (Saravanan, 2011). Ergonomics plays a key role in areas where conflicts between man and machine arises. It deals with fitting the man to the job by weaving the different components into a single system such that each components work in synchronized manner with the others (Mukund, 2014).

Hence it is very important to ensure that mismatch between man and machine is minimized in the best interests of the workers and management.

Ergonomic Problems and Solutions in the Clothing Industry: Problems in different departments of clothing industry are use of inappropriate tools, furniture are also not in good condition, inappropriate size of fabric spreading machine which requires excessive reach of operators can create back & knees pain. Chairs, Table, Lighting, Space, Floor surface, Table angle, Leg room, Floor surface and Hand tools are not in good condition. Chairs: Chairs which have not appropriate height of workers, without back support so operators face a substantially higher risk of muscle pain and injury. Tables: Tables are often made of overturned or full boxes. These are in poor locations, unstable or garments fall off them so operators have to reach to the floor to pick them up. Table angle: Table angle Almost all sewing tables are flat. Flat sewing tables do not maximize visibility and compromise the posture of the upper extremity and neck. Leg room: Leg room Sewing machine operators have limited legroom because of drawers and/or trash chutes attached to the underside of the table. Floor surface: Floor surface some assembly tasks are performed from a standing position. When working in a standing position the floor surface is very important to the comfort of the worker and may influence the risk of injury. Lighting: Workstations are too dim. Light sources are not arranged properly and shadows create uneven light across the work surface. Shiny surfaces that reflect light or task lights that shine directly into the operator's eyes create glare. Hand tools like Scissors, Knives, Hammers are also not well in condition. Large, heavy scissors are used for trimming threads and are held by the blade to provide accuracy. Scissor handles are narrow and create contact stresses. Scissors are dull and require excessive force to operate. Knives without handles are used to remove stitching. Inappropriate items are used for hammering seams on garments such as ball peen hammers and wrenches (Gunning, 2001). These are the common problems in clothing industries which needs more improvement thus working condition will be improve and production will also be increased.

Body Pain in clothing industry

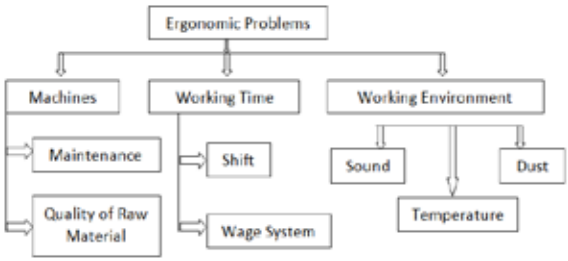


Source: (Int. Journal of Engineering Research and Applications)

Illness and injuries in clothing industries: 70% of sewing machine operators using foot controls report back pain, 35% report lower back pain. 25% have suffered cumulative trauma disorder (CTD). 81% reported CTDs to the wrist, 14% to elbow, 5% to the shoulder. 49% of workers face neck pains. Absenteeism increases as working conditions worsens. Loss of worker force due to injuries or high turnover is asso-

ciated with working conditions. (Narayanan, 2013)

The factors which contribute to ergonomic problem in industries:



Suggestions for improving ergonomic factors: The following steps can be taken to improve these factors.

Working Environment: The working environment deals with the factors such as dust, sound and temperature. From the survey, factors contribute 71% (dust), 81% (temperature) and 61% (sound). It should be properly maintained by providing disposable type safety masks. Provide an environment which is less noisy by using new soundless machines and provide correct safety measures from the noise.

Working Time: The long hour shift will cause back pain and other health issues, so the reduction of the shift from 12 hour to 10 hours will be more effective.

Machines: The working condition of machines also has a great effect on the performance of the worker. High quality raw materials should be used for the production process. The preventive maintenance should be done properly.

Yarn Breakage and Industrial Safety: Yarn Breakage cannot be avoided but it can be controlled to a certain limit, by using reliable machines and providing sufficient temperature controlling devices.

Proper tools: Tools should be appropriate for the specific tasks being performed. The tools should allow to keep the hands and wrists straight – the position they would be in if they were hanging relaxed at side. The workers should bend the tool – not the wrist.

Keep repetitive motions to a minimum: Work stations should allow enough space for the tasks, have appropriate working height, and provide proper seating.

Avoid awkward postures: Bending and twisting of wrists, back and neck should also be avoided.

Use safe lifting procedures: Avoid lifting objects that are too heavy. Use more than one person or a mechanical device to reduce the load.

Get proper rest: The workers need to rest their body and mind in order to prevent injuries. Give muscles a rest during coffee breaks, lunches and weekends.

Other things to consider: Proper ventilation can help to reduce ambient temperatures and ensure worker comfort.

The impact of ergonomics on workplace design

The goal of Ergonomics is to provide maximum productivity with minimal cost; in this context cost is expressed as the physiological or health cost to the worker. Proactive Ergonomics emphasises the prevention of work related musculoskeletal disorders through recognising, anticipating and reducing risk factors in the planning stages of new systems of work or workplaces. In effect, to design operations that ensure proper selection and use of tools, job methods, workstation layouts and materials that impose no undue stress and strain on the worker (Health and Safety Authority www.hsa.ie).

Conclusion

Ergonomic is very important aspects for all workstations like industries, school, colleges etc. Ergonomic play an important role in increase in productivity, help in reduce the risk factors. Also helps in decrease in injuries related to musculoskeletal disorders. With proper ergonomic condition in workplace workers can work with comfortable and there will not be any type of stress like mentally, physically etc.

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